SCHEME & SYLLABUS

for

B.P.T

(w.e.f. Session 2016-17)

Program Code: BPT-101

Name – Department of

Physiotherapy

DEPARTMENT OF PHYSIOTHERAPY

RIMT UNIVERSITY, MANDIGOBINDGARH, PUNJAB

TABLE OF CONTENTS

3.	**Section 3**: About the Program	
4.	**Section 4**: Program Educational Objectives (PEOs) , Program Outcomes (POs) and Program Specific Outcomes(PSOs)	
5.	**Section 5**: Curriculum / Scheme with Examination Scheme	
6.	**Section 6**: Detailed Syllabus with Course Outcomes	

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.

Eligibility criteria for BPT:

10+2 (Medical)

Bachelor of Physiotherapy includes 4 years and 6 months (including 6 months of internship)

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	177
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

PROGRAM

Induction Program (Mandatory)	
Duration	4 years and 6 months
Eligibility	10+2 (Medical)

SEMESTER WISE SUMMARY OF THE PROGRAMME: BPT

S. No.	Semester	No. of Contact Hours	Marks	Credits
1.	I	28	100	22.5
2.	II	27	100	22.5
3.	III	26	100	24
4.	IV	23	100	21
5.	V	20	100	17
6.	VI	32	100	22
7.	VII	34	100	23
8.	VIII	36	100	25
	Total	226	800	177

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

	Semester Wise Scheme							
	Batch: 2016 Name of Degree- Bachelor of Physiotherapy		Total Credits:177					
		First Semester Scheme						
Course Code	Course Type	Course Name	L	T	P	S	C	
HANL 301	Discipline Specific course	HUMAN ANATOMY	3	0	0		3.0	
HANP 301	Discipline Specific course	HUMAN ANATOMY	0	0	2		1.0	
HPHL 301	Discipline Specific course	HUMAN PHYSIOLOGY	3	0	0		3.0	
HPHP 301	Discipline Specific course	HUMAN PHYSIOLOGY	0	0	2		1.0	
ETHL 301	Discipline Specific course	EXERCISE THERAPY	3	0	0		3.0	
ETHP 301	Discipline Specific course	EXERCISE THERAPY	0	0	2		1.0	
BIOL 301	Discipline Specific course	BIOCHEMISTRY	3	0	0		3.0	
ELEL 301	Discipline Specific course	ELECTROTHERAPY	3	0	0		3.0	
ELEP 301	Discipline Specific course	ELECTROTHERAPY	0	0	2		1.0	
CSIL 301	Skill Enhancement Course	COMMUNICATION SKILLS-I	2	0	0		2.0	
CSIP 301	Skill Enhancement Course	COMMUNICATION SKILLS-I	0	0	3		1.5	
		Total	17	0	11		22.5	
		Second Semester Scheme						
Course Code	Course Type	Course Name	L	T	P	S	C	
HANL 302	Discipline Specific course	HUMAN ANATOMY	4	0	0		4.0	
HPHL 302	Discipline Specific course	HUMAN PHYSIOLOGY	4	0	0		4.0	
ETHL 302	Discipline Specific course	EXERCISE THERAPY	4	0	0		4.0	
ELEL 302	Discipline Specific course	ELECTROTHERAPY	4	0	0		4.0	
EVSL 302	Ability Enhancement Course	ENVIRONMENTAL STUDIES	2.5	0	0		2.5	
HANP 302	Discipline Specific course	HUMAN ANATOMY	0	0	2		1.0	
HPHP 302	Discipline Specific course	HUMAN PHYSIOLOGY	0	0	2		1.0	
ETHP 302	Discipline Specific course	EXERCISE THERAPY	0	0	2		1.0	
ELEP 302	Discipline Specific course	ELECTROTHERAPY	0	0	2		1.0	
		Total	18.5	0	8		22.5	
		Third Semester Scheme						
Course Code	Course Type	Course Name	L	T	P	S	C	
BPT2301	Discipline Specific course	EXERCISE THERAPY -III	4	0	0		4.0	
BPT2302	Discipline Specific course	EXERCISE THERAPY-III LAB	0	0	2		1.0	
BPT2303	Discipline Specific course	ELECTROTHERAPY-III	4	0	0		4.0	
BPT2304	Discipline Specific course	ELECTROTHERAPY-III LAB	0	0	2		1.0	
BPT2305	Discipline Specific course	BIOMECHANICS-I	4	0	0		4.0	
BPT2306	Discipline Specific course	PATHOLOGY & MICROBIOLOGY-I	3	0	0		3.0	
BPT2307	Ability Enhancement Course	PHARMACOLOGY-I	4	0	0		4.0	
BPT2308	Skill Enhancement Course	COMPUTER APPLICATION	3	0	0		3.0	
		Total	22	0	4		24.0	
		Fourth Semester Scheme						

Course Code	**Course Type**	**Course Name**	**L**	**T**	**P**	**S**	**C**
BPT2401	Discipline Specific course	**EXERCISE THERAPY-IV**	**4**	**0**	**0**		**4.0**
BPT2402	Discipline Specific course	**EXERCISE THERAPY-IV LAB**	**0**	**0**	**2**		**1.0**
BPT2403	Discipline Specific course	**ELECTROTHERAPY-IV**	**4**	**0**	**0**		**4.0**
BPT2404	Discipline Specific course	**ELECTROTHERAPY-IV LAB**	**0**	**0**	**2**		**1.0**
BPT2405	Discipline Specific course	**BIOMECHANICS-II**	**4**	**0**	**0**		**4.0**
BPT2406	Discipline Specific course	**PATHOLOGY & MICROBIOLOGY-II**	**3**	**0**	**0**		**3.0**
BPT2407	Ability Enhancement Course	**PHARMACOLOGY-II**	**4**	**0**	**0**		**4.0**
		Total	**19**	**0**	**4**		**21**
		Fifth Semester Scheme					
Course Code	**Course Type**	**Course Name**	**L**	**T**	**P**	**S**	**C**
BPT3501	Discipline Specific course	**PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS**	**4**	**0**	**0**		**4.0**
BPT3502	Discipline Specific course	**PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS LAB**	**0**	**0**	**3**		**1.5**
BPT3503	Discipline Specific course	**COMMUNITY MEDICINE AND REHABILITATION**	**4**	**0**	**0**		**4.0**
BPT3504	Discipline Specific course	**COMMUNITY MEDICINE AND REHABILITATION LAB**	**0**	**0**	**3**		**1.5**
BPT3505	Discipline Specific course	**ORTHPEDICS -I**	**3**	**0**	**0**		**3.0**
BPT3506	Discipline Specific course	**NEUROLOGY-I**	**3**	**0**	**0**		**3.0**
		Total	**14**	**0**	**6**		**17**
		Sixth Semester Scheme					
Course Code	**Course Type**	**Course Name**	**L**	**T**	**P**	**S**	**C**
BPT3601	Discipline Specific course	**ORTHOPEDICS-II**	**3**	**0**	**0**		**3.0**
BPT3602	Discipline Specific course	**NEUROLOGY-II**	**3**	**0**	**0**		**3.0**
BPT3603	Discipline Specific course	**ORTHOPEDIC PHYSIOTHERAPY-I**	**3**	**0**	**0**		**3.0**
BPT3604	Discipline Specific course	**ORTHOPEDIC PHYSIOTHERAPY-I LAB**	**0**	**0**	**2**		**1.0**
BPT3605	Discipline Specific course	**NEUROLOGY PHYSIOTHERAPY-I**	**3**	**0**	**0**		**3.0**
BPT3606	Discipline Specific course	**NEUROLOGY PHYSIOTHERAPY-I LAB**	**0**	**0**	**2**		**1.0**
BPT3607	Discipline Specific course	**CLINICALS-II**	**0**	**0**	**16**		**8.0**
		Total	**15**	**0**	**20**		**22**
		Seventh Semester Scheme					
Course Code	**Course Type**	**Course Name**	**L**	**T**	**P**	**S**	**C**
BPT4701	Discipline Specific course	**ORTHOPEDIC PHYSIOTHERAPY-II**	**3**	**0**	**0**		**3.0**
BPT4702	Discipline Specific course	**ORTHOPEDIC PHYSIOTHERAPY-II LAB**	**0**	**0**	**2**		**1.0**
BPT4703	Discipline Specific course	**NEUROLOGY PHYSIOTHERAPY-II**	**3**	**0**	**0**		**3.0**
BPT4704	Discipline Specific course	**NEUROLOGY PHYSIOTHERAPY-II LAB**	**0**	**0**	**2**		**1.0**
BPT4705	Discipline Specific course	**CARDIOPULMONARY PHYSIOTHERAPY**	**3**	**0**	**0**		**3.0**
BPT4706	Discipline Specific course	**CARDIOPULMONARY PHYSIOTHERAPY LAB**	**0**	**0**	**2**		**1.0**
BPT4707	Discipline Specific course	**RESEARCH METHODOLOGY AND BIOSTATISTICS**	**3**	**0**	**0**		**3.0**

BPT4708	Discipline Specific course	**CLINICALS-II**	**0**	**0**	**16**		**8.0**
		Total	**12**	**0**	**22**		**23**
		Eight Semester Scheme					
Course Code	**Course Type**	**Course Name**	**L**	**T**	**P**	**S**	**C**
BPT4801	Discipline Specific course	**SPORTS PHYSIOTHERAPY**	**3**	**0**	**0**		**3.0**
BPT4802	Discipline Specific course	**SPORTS PHYSIOTHERAPY LAB**	**0**	**0**	**2**		**1.0**
BPT4803	Discipline Specific course	**PAEDIATRICS AND GERIATRICS PHYSIOTHERAPY**	**3**	**0**	**0**		**3.0**
BPT4804	Discipline Specific course	**PAEDIATRICS AND GERIATRICS PHYSIOTHERAPY LAB**	**0**	**0**	**2**		**1.0**
BPT4805	Discipline Specific course	**OBSTETRICS AND GYNAECOLOGY**	**3**	**0**	**0**		**3.0**
BPT4806	Discipline Specific course	**OBSTETRICS AND GYNAECOLOGYLAB**	**0**	**0**	**2**		**1.0**
BPT4807	Discipline Specific course	**MANAGEMENT AND ETHICAL ISSUES IN PHYSIOTHERAPY**	**2**	**0**	**0**		**2.0**
BPT4808	Ability Enhancement Course	**GENERAL & CLINICAL PSYCHOLOGY**	**2**	**0**	**0**		**2.0**
BPT4809	Discipline Specific course	**RESEARCH PROJECT**	**0**	**0**	**2**		**1.0**
BPT4810	Discipline Specific course	**CLINICALS-III**	**0**	**0**	**16**		**8.0**
		Total	**13**	**0**	**22**		**25**
		Ninth Semester Scheme					
Course Code	**Course Type**	**Course Name**	**L**	**T**	**P**	**S**	**C**
BPT500	**T/I/FT**	**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 submission of Internship completion certificate from the hospital.**

SYLLABUS

SEMESTER-I

SUBJECT TITLE: HUMAN ANATOMY
SUBJECT CODE: HANL 301
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

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

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

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Introduction to anatomy** : anatomical positions of body, axis, planes, common anatomical landmarks, connective tissue classification, composition and functions of bones, joints classification and types according to morphology and development **Joints :** definition and classification, structure of fibrous and cartilaginous joints, blood supply and nerve supply of joints **Histology**: general histology, connective Tissue, cartilage and Bone, muscular tissue, circulatory system – different sizes of arteries and veins, lymphoid tissue, skin and its appendages, study of the basic tissues of the body, cell and epithelium, Nerve Tissue	18 hrs
UNIT-II	**Embryology** : ovum, development of skin, development of bones, axial and appendicular skeleton and muscles., neural tube, development of brain and brain stem structures, spermatozoa, fertilization, formation of the germ layers and their derivations., development of fascia, development of blood vessels and lymphatic., brain vessels and spinal cord.	18 hrs
UNIT-III	**Arm and shoulder complex** : osteology and myology of clavicle, axilla and applied anatomy, humerus and scapula, shoulder joint	

	complex anatomy, nerves, arteries veins and lymph supply of arm and shoulder complex, brachial plexus and its applied anatomy, radiological anatomy of shoulder. **Forearm, elbow and hand complex** : osteology and myology of radius and ulna, elbow joint anatomy, radioulnar joint anatomy, osteology and myology of carpals, metacarpals and phalanges of hand, wrist joint, joints of the hand, nerves, arteries veins and lymph supply of forearm and hand, extensor retinaculum and spaces of hand arches of hand, skin of the palm and dorsum of hand, radiological anatomy of elbow and hand, dermatomes and myotomes of upper limb.	18 hrs
UNIT-IV	**Thorax** : thoracic wall: position and shape, osteology and myology of ribs, costal cartilages and sternum, thoracic vertebrae, joints of the thorax and intervertebral discs, movements of vertebral column, origin insertion nerve supply and action of diaphragm, openings in the diaphragm, origin insertion nerve supply and action of intercostal and accessory muscles of respiration,, nerve supply and action of intercostal and accessory muscles of respiration, respiratory movements and clinical anatomy. **Heart and lung** : pectoral region and breast, cardiovascular system, mediastinum, shape and parts of the heart, blood supply and nerve supply of the heart, conducting system of the heart, divisions and contents of pericardium, pleura and lungs, lobes and bronchopulmonary	18 hrs

Course outcomes

CO1	**HANL 301.1**	Understanding the human anatomical structures.
CO2	**HANL 301.2**	Describing the functional and topographical anatomy of various organs and their respective systems.
CO3	**HANL 301.3**	Analyzing general human anatomy.
CO4	**HANL 301.4**	Identifying and differentiating applied anatomy of soft tissues, hard tissues, joints, organs and their respective systems.

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.

SUBJECT TITLE: HUMAN ANATOMY

SUBJECT CODE: HANP 301
SEMESTER: I
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30
End Term Exam: 70
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

Introduction to anatomy

Sr. No	Contents	Contact Hours
EXP 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

CO1	**HANP 301.1**	Describing all anatomical structures from a regional perspective.
CO2	**HANP 301.2**	Identifying muscles, bones, bony prominences joints, along with surface Landmarks.
CO3	**HANP 301.3**	Demonstrating movements of joints.
CO4	**HANP 301.4**	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

SUBJECT TITLE: HUMAN PHYSIOLOGY
SUBJECT CODE: HPHL 301
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

Objectives 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	18 hrs

	and its variations, and regulation of ABP, arterial pulse	
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

CO1	**HPHL 301.1**	Understanding the general physiology of the body.
CO2	**HPHL 301.2**	Explaining normal functioning and interaction of all the organ systems.
CO3	**HPHL 301.3**	Identifying applied physiology of various body systems..
CO4	**HPHL 301.4**	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)

SUBJECT TITLE: HUMAN PHYSIOLOGY
SUBJECT CODE: HPHP 301
SEMESTER: I
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30
End Term Exam: 70

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
EXP 1	Destimation of haemoglobin Demonstration of RBC count	**6hrs**
II	Demonstration of WBC count Demonstration of ESR and PCV	**6hrs**
III	Demonstration of bleeding time and clotting time	**6hrs**
IV	Demonstration of blood groups	**6hrs**
V	Demonstration of blood pressure and pulse	**6hrs**
VI	Demonstration of auscultation of heart sounds	**6hrs**
VII	Demonstration of auscultation of lung sounds.	**6hrs**
VIII	Demonstration of technique of percussion.	**6hrs**
IX	Demonstration of pulmonary function test and spirometry.	**6hrs**
X	Demonstration of procedure of artificial respiration..	**6hrs**

Course outcomes

CO1	**HPHP 301.1**	Understanding the general physiology of the body.
CO2	**HPHP 301.2**	Explaining normal functioning and interaction of all the organ systems.
CO3	**HPHP 301.3**	Identifying applied physiology of various body systems..
CO4	**HPHP 301.4**	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

SUBJECT TITLE: EXERCISE THERAPY
SUBJECT CODE: ETHL 301
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

Objectives of course: Through this course students 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	**12hrs**
UNIT-II	**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 **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.	**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	**14hrs**
UNIT-IV	**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 **Therapeutic massage** : history and classification of massage technique, principles, indications and contraindications, technique of massage manipulations, physiological and therapeutic uses of specific manipulations	**14hrs**

Course outcomes

CO1	**ETHL 301.1**	Understanding the basic principles, concepts and terminologies of Fundamental exercise therapy and yogic practice..
CO2	**ETHL 301.2**	Explaining biomechanics of fundamental exercise therapy and yogic practice.
CO3	**ETHL 301.3**	Describing the concepts of therapeutic gymnasium, hydrotherapy and goniometry.
CO4	**ETHL 301.4**	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.

SUBJECT TITLE: EXERCISE THERAPY
SUBJECT CODE: ETHP 301
SEMESTER: I
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30
End Term Exam: 70

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

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

List of Practicals / Experiments

Sr. No	Contents	Contact Hours
EXP 1	Demonstration of position of joints in various fundamental positions of body.	6hrs
II	Demonstration of various joint positions in derived positions from lying to sitting.	
III	Demonstration of various joint positions in derived positions from sitting to hanging.	6hrs
IV	Demonstration of active movements in upper extremities.	6hrs
V	Demonstration of active movements in lower extremities.	6hrs
VI	Demonstration of passive movements in upper extremities.	6hrs
VII	Demonstration of passive movements in lower extremities.	6hrs
VIII	Demonstration of Goniometery in upper extremity.	6hrs
IX	Demonstration of Goniometery in lower extremity joints.	6hrs
X	Demonstration of Goniometery in Head and spine.	6hrs

Course outcomes

CO1	**ETHP 301.1**	Understanding and applying the basic concepts for the assessment ofsensations, reflexes, blood pressure, pulse rate, chest expansion and Respiratory rate.
CO2	**ETHP 301.2**	Utilizing the basic principles and concepts of Exercise therapy, joint movements, free exercises, relaxation techniques, yoga, starting and Derived positions.
CO3	**ETHP 301.3**	Developing the basic concepts of using suspension therapy, goniometry, The various equipment used in a clinical therapeutic gymnasium setting.
CO4	**ETHP 301.4**	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

SUBJECT TITLE: BIOCHEMISTRY

SUBJECT CODE: BIOL 301

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

Objectives 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

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	**14 hrs**

	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	
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

CO1	**BIOL 301.1**	Understanding the basic concepts and principles of Biochemistry.
CO2	**BIOL 301.2**	Understanding macronutrients, micronutrients and role of enzymes and hormones.
CO3	**BIOL 301.3**	Identifying applied physiology of various body systems.
CO4	**BIOL 301.4**	Applying the knowledge of biochemical processes for clinical diagnosis.

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

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

SUBJECT TITLE: ELECTRO THERAPY
SUBJECT CODE: ELEL 301
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

Objectives of course: Through this course students 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 and 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, , Sinusoidal currents, Didynamic currents	**14hrs**
UNIT-III	**TENS:** Uses of TENS, Types of TENS, Techniques of treatment with TENS. **Electrodiagnostic test and electrical reaction** : Assessment by analyzing the results of stimulating nerve and muscle through SD Curve.,	**14hrs**
UNIT-IV	Electrodiagnosis, Pain modulation and evoked potentials, **Introduction to**: NCV and EMG, Biofeedback, chronaxie, Rheobase & pulse ratio	**12hrs**

Course outcomes

CO1	**ELEL 301.1**	Understanding the fundamental concepts and applications of physics and Basic electrical components.
CO2	**ELEL 301.2**	Explaining the use of electrodiagnosis.
CO3	**ELEL 301.3**	Describing principles,techniques,effects,indications,contraindications and dosage parameter for low frequency currents, medium frequency Currents, heat and cold modalities.
CO4	**ELEL 301.4**	Analyzing the use of current modalities, superficial heattherapy and Cryotherapy in appropriate diseased conditions

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)

SUBJECT TITLE: ELECTRO THERAPY
SUBJECT CODE: ELEP 301
SEMESTER: I
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30
End Term Exam: 70

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

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

EXP.	TOPICS	HOURS
I	**Demonstration of low frequency currents and technique of application of TENS.**	9hrs
II	**Demonstration and technique of application of muscle stimulator.**	9hrs
III	**Demonstration of medium frequency currents and technique of application of IFT.**	9hrs
IV	**Demonstration and technique of application of EMG and NCV.**	9hrs

Course outcomes

CO1	**ELEP 301.1**	Identifying various modalities.
CO2	**ELEP 301.2**	Applying heat and cold therapy ,low frequency and medium frequency Currents and TENS.
CO3	**ELEP 301.3**	Practicing with faradic and galvanic currents to elicit muscle stimulation.

CO4	**ELEP 301.4**	Analyzing the electro diagnostic procedures

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

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

SUBJECT TITLE: COMMUNICATION SKILL-I
SUBJECT CODE: CSIL 301

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

SEMESTER: I
CONTACT HOURS/WEEK: 2

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

Objectives of course:

Language is the most commonly used medium of self-expression in all spheres of human life – personal, social and professional. A student must have a fair knowledge of English language and skills to communicate effectively to handle the future jobs. The objective of this subject is to enable the graduate students to acquire proficiency, both in spoken (oral) and written language. At the end of the subject, the student will be able to develop comprehension skills, improve vocabulary, use proper grammar, acquire writing skills, correspond with others and enhance skills in spoken English.

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Language Skills: Grammar and Usage-** Parts of Speech, Tenses**,** One word substitution, Antonyms, Idioms, Change the voice.	8
UNIT-II	**Business Communication Skills**: Meaning & Definition, Objectives, Business etiquette. **Communication Skills:** Basic concepts & principles of good communication, types & process of communication, barriers & How to overcome such barriers; special characteristics of health communication,	8
UNIT-III	**Speaking Skills –** Effective conversation, discussions, short presentations, tips for effective pronunciation.	6
UNIT-IV	**Writing Skills:** Different methods of writing skills like - Letter Writing (Personal & official), E-mails, reports, case study, collecting the patient, paragraph writing.	8

Course outcomes

CO1	CSIL 301.1	Utilizing effective verbal and non-verbal communication techniques in Formal and informal settings
CO2	CSIL 301.2	Understanding and analyzing self and devising a strategy for self-growth and development.

CO3	**CSIL 301.3**	Adapting a positive mindset conducive for growth through optimism and Constructive thinking.
CO4	**CSIL 301.4**	Utilizing time in the most effective manner and avoiding procrastination

Suggested Books:

1. English for Effective Communication by Sanjay Kumar and Pushp Lata , OXFORD University Press
2. Soft Skills by Gajendra S. Chauhan and Sangeeta Sharma , Wiley Publications
3. A Course in Phonetics And Spoken English by J. Sethi and P.V. Dhamija
4. English Pronouncing Dictionary by Daniel Jones , Cambridge
5. English Grammar, Composition and Usage by NK Aggarwal and FT Wood; Published by Macmillan Publishers India Ltd; New Delhi
6. The Students' Companion, Wilfred D. Best
7. Business Communication by M.K. Sehgal and Vandana Khetarpal

SUBJECT TITLE: COMMUNICATION SKILL-I
SUBJECT CODE: CSIP 301
SEMESTER: I
CONTACT HOURS/WEEK: 3

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

Internal Assessment: 30
End Term Exam: 70

Duration of Exam; 3 Hrs

Objectives:

To help learners develop their soft skills and develop their personality together with their technical skills. Developing professional, social and academic skills to harness hidden strengths, capabilities and knowledge equip them to excel in real work environment and corporate life.

Understand various issues in personal and profession communication and learn to overcome them

Expected Learning Outcomes:

1) To know about various aspects of soft skills and learn ways to develop personality

2) Understand the importance and type of communication in personal and professional environment.

3) To provide insight into much needed technical and non-technical qualities in career planning.

4) Learn about Leadership, team building, decision making and stress management

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**Personality Development**: knowing yourself, Positive Thinking, Importance of Communication Skills, effective body language, Importance of Self-confidence and Self-motivation. **Etiquette & Manner:** Introduction, Modern etiquette, Benefit of etiquette, Importance of manner at various occasions, Table manners.	15
UNIT-II	**Emotional Intelligence:** Meaning and definition, Need for Emotional Intelligence, Intelligence Quotient versus Emotional Intelligence Quotient.	5
UNIT-III	**Vocabulary and Grammar:** Antonyms-Synonyms, Idiom & Phrases, Spotting the error or jumbled sentences. Parts of Speech, Tenses, Sentence formation, Translation and Re-translation.	5
UNIT-IV	**Writing Skills** : Notice writing, Letter and application writing , Paragraph writing and Precise writing.	5

Course outcomes

CO1	**CSIP 301.1**	Identifying various approaches of Communucation.
CO2	**CSIP 301.2**	Demonstrating and analyzing self and devising a strategy for self-growth and development.
CO3	**CSIP 301.3**	Applying the concepts of goal setting skills in various emergency and casualty situations.
CO4	**CSIP 301.4**	Creating awareness for self-realization

Text book:

1. Soft Skills: an Integrated Approach to Maximise Personality, GajendraS. Chauhan, Sangeeta Sharma, Wiley India

2. Soft Skills - Enhancing Employability, M. S. Rao, I. K. International

Additional References:

1. Personality Development and Soft Skills, Barun K. Mitra, Oxford Press

2. Business Communication, Shalini Kalia, Shailja Agrawal, Wiley India

3. English Grammar, Composition and Usage by NK Aggarwal and FT Wood; Published by Macmillan Publishers India Ltd; New Delhi

SYLLABUS

SEMESTER-II

SUBJECT TITLE: HUMAN ANATOMY
SUBJECT CODE: HANL 302
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

Objectives 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
- Determine the anatomical relationship between different parts of human body
- Describe the basic anatomy of human brain

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

CO1	**HANL 302.1**	Through this course students should be able to extend the knowledge of basic anatomy of lower limb and its clinical aspect
CO2	**HANL 302.2**	Analyze the anatomy and applied aspects of joints of lower limb and soft tissues
CO3	**HANL 302.3**	Outline the anatomy and clinical aspect of visceral organs of abdomen.
CO4	**HANL 302.4**	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.

SUBJECT TITLE: HUMAN PHYSIOLOGY

SUBJECT CODE: HPHL 302
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

Objectives 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 **Skin and temperature regulation :** structure and functions of skin, regulation of body temperature	**18hrs**
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	**18hrs**

	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	
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

CO1	**HPHL 302.1**	Analyze the relationships within and between anatomical and physiological systems of the human body.
CO2	**HPHL 302.2**	Extend basic knowledge of physiology in the field of physiotherapy.
CO3	**HPHL 302.3**	Discuss the various physiological functions of body systems
CO4	**HPHL 302.4**	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)

SUBJECT TITLE: EXERCISE THERAPY

SUBJECT CODE: ETHL 302

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

Objectives 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,	**14hrs**
UNIT-IV	**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**

Course outcomes

CO1	**ETHL 302.1**	Understanding the concepts, principles and techniques of exercise Therapy in-depth.
CO2	**ETHL 302.2**	Explaining the basic concepts, indications, contraindications and precautions of various types and modes of exercises, home program and ergonomics.

CO3	**ETHL 302.3**	Summarizing limb-muscle girth measurement, balance, coordination, posture, muscle re- education and walking aids.
CO4	**ETHL 302.4**	Applying the concepts of muscle testing, various exercises, walking aids Measurements and goniometry

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

SUBJECT TITLE: ELECTRO THERAPY

SUBJECT CODE: ELEL 302
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

Objectives 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	**12hrs**
UNIT-II	**Electromagnetic radiations (EMR)** : properties, physiological effects, electromagnetic spectrum, laws governing effects of electromagnetic radiations	**14hrs**
UNIT-III	**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	**14hrs**
UNIT-IV	**Microwave diathermy (MWD) :** frequency and wavelength, production, physiological effecs, therapeutic effects, indications and contraindications, dangers, technique of application and dosage	**14hrs**

Course outcomes

CO1	**ELEL 302.1**	Recalling and describing the concepts, working principles, physiological and therapeutic effects,methods of application, indications,and

		contraindications of electrotherapeutic and pharmaco-therapeutic modalities.
CO2	**ELEL 302.2**	Understanding the concepts of electro-diagnostic procedures
CO3	**ELEL 302.3**	Applying the concepts of basic electrical components,low and medium frequency currents, superficial heating modalities and nerve muscle physiology.
CO4	**ELEL 302.4**	Utilizing the theoretical knowledge in wound care and generating treatment plans with specific dosage and analyzing the modality of choice.

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)

SUBJECT TITLE: ENVIRONMENTAL STUDIES
SUBJECT CODE: EVSL 302
SEMESTER: II
CONTACT HOURS/WEEK: 3

Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
3	0	0	2.5

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

Objectives 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 movements : Chipko, silent valley, bishnois of Rajasthan, Environmental ethics: Role of Indian and other religions and cultures in environmental conservation	**9hrs**

Course outcomes

CO1	**EVSL 302.1**	Understanding the concepts of ecology.
CO2	**EVSL 302.2**	Explaining natural resources, environmental pollution, policies and Practices.
CO3	**EVSL 302.3**	Identifying the cause and effect relationship of environment and human community
CO4	**EVSL 302.4**	Creating awareness for saving environment.

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

SUBJECT TITLE: HUMAN ANATOMY

SUBJECT CODE: HANP 302
SEMESTER: II
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30
End Term Exam: 70

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

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

List of Practicals / Experiments:

Sr. No	Contents	Contact Hours
Exp-I	Demonstration of osteology and myology of tibia, demonstration of osteology and myology of fibula	**8hrs**
II	Demonstration of osteology and myology of tibia. Demonstration of osteology and myology of fibula	**8hrs**
III	Demonstration of osteology of tarsals and metatarsals, Demonstration of myology of tarsals and metatarsals.	**8hrs**
IV	Demonstration of anatomy of hip joint, demonstration of anatomy of knee joint. Demonstration of anatomy of tibiofibular joint. Demonstration of anatomy of ankle joint. Demonstration of anatomy of joints of foot.	**8hrs**
V	Demonstration of osteology of lumbar vertebrae, Demonstration of osteology of sacrum and coccyxdemonstration of greater/lesser pelvis and pelvic floor muscles Demonstration of joints of pelvis: lumbosacral joint, sacrococcygeal joint, illiosacral joint ,pubic symphysis	**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 norma verticalis and frontalis demonstration of norma lateralis and basalis	**8hrs**
VIII	Demonstration of anatomy of anterior ,middle and posterior cranial fossa Demonstration of osteology and myology of mandible	**8hrs**
IX	Demonstration of structures of eye ball and EO muscle actions Dmonstration of structures of tongue and external and internal muscle action	**8hrs**
X	Demonstration of osteology of typical cervical vertebrae and atypical cervical vertebrae. Demonstration of gross anatomy of cerebral and cerebellar hemispheres Demonstration of structures seen in saggital section of cerebral hemisphere	**8hrs**

Course outcomes

CO1	**HANP 302.1**	Describe the joints of human body and their functions.
CO2	**HANP 302.2**	Demonstrate the osteology and myology of lower limb bones
CO3	**HANP 302.3**	Distinguish between anatomical structure of typical and atypical vertebrae
CO4	**HANP 302.4**	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

SUBJECT CODE: HPHP 302
SEMESTER: II
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30
End Term Exam: 70

Duration of Exam; 3 Hr

Course Objectives: Through this course students should be able to

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

List of Practicals / Experiments:

Sr. No	Contents	Contact Hours
EXP 1	Demonstration of examination of Superficial and deep sensations.	6hrs
II	Demonstration of examination of combined cortical sensations.	6hrs
III	Demonstration of examination of higher cortical sensations.	6hrs
IV	Demonstration of examination of motor system.	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

CO1	**HPHP 302.1**	Analyze the relationships within and between anatomical and physiological systems of the human body.
CO2	**HPHP 302.2**	Extend basic knowledge of physiology in the field of physiotherapy.
CO3	**HPHP 302.3**	Discuss the various physiological functions of body systems
CO4	**HPHP 302.4**	Assess the normal functioning of various systems of the body

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

SUBJECT TITLE: EXERCISE THERAPY

SUBJECT CODE: ETHP 302

SEMESTER: II
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30

End Term Exam: 70

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

List of Practicals/ Experimens

Demonstration of therapeutic interventions

	Contents	Contact hours
EXP-I	**Demonstration of Manual therapy for upper limb.**	**4 hrs**
EXP-II	**Demonstration of Manual therapy for Lower limb.**	**4 hrs**
EXP-III	**Evaluation of Balance.**	**4 hrs**
EXP-III	**Evaluation of Neuromuscular co-ordination.**	**8 hrs**
EXP-IV	**Demonstration of Manual therapy for spine.**	**4 hrs**

Course outcomes

CO1	**ETHP 302.1**	Understanding the concepts, principles and techniques of exercise Therapy in-depth.
CO2	**ETHP 302.2**	Explaining the basic concepts, indications, contraindications and precautions of various types and modes of exercises, home program and ergonomics.
CO3	**ETHP 302.3**	Summarizing limb-muscle girth measurement, balance, coordination, posture, muscle re- education and walking aids.
CO4	**ETHP 302.4**	Applying the concepts of muscle testing, various exercises, walking aids Measurements and goniometry

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: ELECTRO THERAPY
SUBJECT CODE: ELEP 302
SEMESTER: II
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30

End Term Exam: 70

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

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

Sr. No	Contents	Contact Hours
EXP 1	Demonstration of technique of therapeutic ultrasound.	**6hrs**
II	Demonstration of methods of application of US and its parameters.	**6hrs**
III	Demonstration of technique of shortwave diathermy.	**6hrs**
IV	Demonstration of methods of application of SWD and its parameters.	**6hrs**
V	Demonstration of technique of Infrared radiation therapy.	**6hrs**
VI	Demonstration of methods of application of IRR bulb and its parameters.	**6hrs**
VII	Demonstration of technique of ultraviolet radiation therapy.	**6hrs**
VIII	Demonstration of methods of application of UVR and its parameters.	**6hrs**

Course outcomes

CO1	**ELEP 302.1**	Demonstrating the basics of exercisetherapy along with goniometry,Manual Muscle Testing,movements and Proprioceptive Neuromuscular Facilitation.
CO2	**ELEP 302.2**	Practicing various types and modes of exercises, functional re-education, Stretching and joint mobilization.
CO3	**ELEP 302.3**	Applying the knowledge of limb and girth measurement, gait assessment And posture evaluation.
CO4	**ELEP 302.4**	Application of aerobic and anaerobic training protocol

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

CLAYTON'S ELECTROTHERAPY by E BELLIS CLAYTON; NIGEL PALASTANGA; ANGELA

FORSTER, PHILADELPHIA : LEA & FEBIGER

SYLLABUS

SEMESTER-III

SUBJECT TITLE: EXERCISETHERAPY-III
SUBJECT CODE: BPT2301
SEMESTER: III
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

Objectives of course: Through this course students 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 exercises and various techniques of exercise therapy.

• Examine the knowledge of the student therapeutic skill in physiotherapy.

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	**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, techniques of MMT for trunk, measurement of joint range: ROM-definition, goniometer parts and types, principles and uses, factor affecting range of motion, limitations of goniometry, normal rom for all peripheral joints and spine, techniques of use goniometer, measurement of rom for all peripheral joints and spine	**14hrs**
UNIT-II	**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.	**14hrs**
UNIT-III	**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,	**14hrs**
UNIT-IV	**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	**12hrs**

Course outcomes

CO1	**BPT2301.1**	Understanding the basic principles, concepts and terminologies of Fundamental exercise therapy and yogic practice..
CO2	**BPT2301.2**	Explaining biomechanics of fundamental exercise therapy and yogic practice.
CO3	**BPT2301.3**	Describing the concepts of therapeutic gymnasium,hydrotherapyand goniometry.
CO4	**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.

SUBJECT TITLE: EXERCISETHERAPY III LAB
SUBJECT CODE: BPT2302
SEMESTER: III
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30
End Term Exam: 70

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

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

List of Practicals / Experiments

Sr. No	Contents	Contact Hours
EXP 1	Demonstration of techniques of manual muscle testing in upper extremities.	6hrs
II	Demonstration of techniques of manual muscle testing in lower extremities.	
III	Demonstration of techniques of manual muscle testing in trunk muscles.	6hrs
IV	Demonstration of methods of strengthening in lower extremities.	6hrs
V	Demonstration of methods of strengthening in trunk muscles.	6hrs
VI	Demonstration of stretching techniques for upper extremities.	6hrs
VII	Demonstration of stretching techniques in lower extremities.	6hrs
VIII	Demonstration of stretching techniques for trunk.	6hrs
IX	Demonstration of techniques of suspension therapy in upper extremities.	6hrs
X	Demonstration of techniques of suspension therapy in lower extremities.	6hrs

Course outcomes

CO1	BPT2302.1	Understanding and applying the basic concepts for the assessment of sensations, reflexes, blood pressure, pulse rate, chest expansion and Respiratory rate.
CO2	BPT2302.2	Utilizing the basic principles and concepts of Exercisetherapy, joint movements, freeexercises, relaxation techniques, yoga, starting and Derived positions.

CO3	**BPT2302.3**	Developing the basic concepts of using suspension therapy, goniometry, The various equipment used in a clinical therapeutic gymnasium setting.
CO4	**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

SUBJECT TITLE: ELECTROTHERAPY-III
SUBJECT CODE: BPT2303
SEMESTER: III
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

Objectives of course: Through this course students 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	**Medium frequency currents** : interferential Currents, application and precaution, effects of interferential Currents,damage due to therapeutic nerve and muscle stimulating currents	14hrs
UNIT-II	**Heat Therapy**: 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,	14hrs
UNIT-III	**Cryotherapy** :Therapeutic uses of cold, Types of application of heat therapy, Methods of applying cold therapy, Contrast bath and dangers of cold therapy	14hrs
UNIT-IV	**Fluidotherapy and compression therapy** : construction, method of application, therapeutic uses, indications and contraindications, advantages and disadvantages, Intermittent compression therapy	12hrs

Course outcomes

CO1	**BPT2303.1**	Understanding the fundamental concepts and applications of physics and Basic electrical components.
CO2	**BPT2303.2**	Explaining the use of electrodiagnosis.
CO3	**BPT2303.3**	Describing principles, techniques,effects,indications,contraindications and dosage parameter for low frequency currents,medium frequency Currents,heat and cold modalities.
CO4	**BPT2303.4**	Analyzing the use of current modalities, superficial heat therapy and Cryotherapy in appropriate diseased conditions

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)

SUBJECT TITLE: ELECTROTHERAPY III LAB
SUBJECT CODE: BPT2304
SEMESTER: III
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30
End Term Exam: 70

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

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

EXP.	TOPICS	HOURS
I	**Demonstration and technique of application of hydro collateral packs.**	9hrs
II	**Demonstration and technique of application of whirlpool bath, Fluidotherapy.**	9hrs
III	**Demonstration and technique of application of paraffin wax bath unit.**	9hrs
IV	**Demonstration and technique of application of Cryotherapy.**	9hrs

Course outcomes

CO1	**BPT2304.1**	Identifying various modalities.
CO2	**BPT2304.2**	Applying heat and coldtherapy, low frequency and medium frequency Currents and TENS.
CO3	**BPT2304.3**	Practicing with faradic and galvanic currents to elicit muscle stimulation.
CO4	**BPT2304.4**	Analyzing the electro diagnostic procedures

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: BIOMECHANICS I
SUBJECT CODE: BPT2305
SEMESTER: III
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

Objectives 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

CO1	**BPT2305.1**	Understanding the concepts and principles of biomechanics
CO2	**BPT2305.2**	Analyzing the application of concepts and principles of biomechanics in Musculoskeletal function and dysfunction.
CO3	**BPT2305.3**	Applying concepts of anatomy and mechanics to the joint motion, gait And posture
CO4	**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

SUBJECT TITLE: PATHOLOGY & MICROBIOLOGY I
SUBJECT CODE: BPT2306
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

Objectives of course: Through this course students 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
- 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	**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 **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	**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 **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 **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	**14hrs**
UNIT-IV	**Pathology of bones, joints, muscles :** myasthenia gravis, osteoporosis, osteoarthritis, rheumatoid arthritis **Neuropathology :** tubercular meningitis, pyogenic meningitis, viral meningitis, encephalitis, cerebrovascular diseases	

	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	**12hrs**

Course outcomes

CO1	**BPT2306.1**	Understanding the basic concepts of abnormal physiological and Pathological disease processes of various body systems.
CO2	**BPT2306.2**	Describing the concepts of infection prevention,sterilization and disinfectants and mechanisms of disturbances,manifestations of tissue Response to injury and homeostasis.
CO3	**BPT2306.3**	Explaining various microbes,their classification,routes of infection,basic immunological responses,common diagnostic tests and interpretation of Tests.
CO4	**BPT2306.4**	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

3. ANANTHANARAYAN AND PANIKER'S TEXTBOOK OF MICROBIOLOGY by REBA KANUNGO, UNIVERSITIES PRESS PVT. LTD

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

SUBJECT TITLE: PHARMACOLOGY I
SUBJECT CODE: BPT2307
SEMESTER: III
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

Objectives 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	**12hrs**
UNIT-II	**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	**14hrs**
UNIT-III	**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	**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	**14hrs**

Course outcomes

CO1	**BPT2307.1**	Describing the basic pharmacology of commonly used drugs.
CO2	**BPT2307.2**	Understanding the physiological effects and side effects of drugs.
CO3	**BPT2307.3**	Analyzing the importance of drugs in the overall treatment including physiotherapy.
CO4	**BPT2307.4**	Analyzing the importance of drugs in the overall treatment including physiotherapy. Understanding the physiological effects and side effects of 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.

SUBJECT TITLE: COMPUTER APPLICATIONS
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

Objectives of course:

The students will be able to appreciate the role of computer technology. The course has focus on computer organization, computer operating system and software, and MS windows, Word processing, Excel data worksheet and PowerPoint presentation. Topics to be covered under the subject are as follows:

Contents of Syllabus:

1. Introduction to computer: Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages.
2. Input output devices: Input devices(keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision-input devices), output devices(monitors, pointers, plotters, screen image projector, voice response systems).
3. Processor and memory: The Central Processing Unit (CPU), main memory.
4. Storage Devices: Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices.
5. Introduction of windows: History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, closing, moving, resizing, minimizing and maximizing, etc.).
6. Introduction toMSWord:introduction,componentsofawordwindow,creating,openingand inserting files, editing a document file, page setting and formatting the text, saving the document, pell checking, printing the document file, creating and editing of table, mail merge.
7. IntroductiontoExcel: Introduction,aboutworksheet, entering information,savingworkbooks and formatting, printing the worksheet, creating graphs.
8. Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs.
9. IntroductionofOperatingSystem:introduction,operatingsystemconcepts,typesofoperating system.
10. Computer networks: introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.
11. Internet and its Applications: definition, brief history, basic services (E-Mail, File Transfer Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the internet. Application of Computers in clinical settings.

Course outcomes

CO1	**BPT2308.1**	Understanding the necessity of computer in our daily life.
CO2	**BPT2308.2**	Explaining basic components of computer and operating systems.
CO3	**BPT2308.3**	Devices, network types and topologies.
CO4	**BPT2308.4**	Demonstrating the concepts for Microsoft office, problem solving

Recommended Books:

1. A First Course in Computer by Sanjay Saxena; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi Mastering Windows 97, BPB Publication, New Delhi
2. Computer Fundamentals by PK Sinha; BPB Publication, New Delhi
3. Fundamentals of Information Technology by Leon and Leon; Vikas Publishing House Pvt. Ltd., Jungpura, New Delhi
4. On Your Marks - Net…Set…Go… Surviving in an e-world by Anushka Wirasinha, Prentice Hall of India Pvt. Ltd., New Delhi
5. Learning MS Office XP by Ramesh Bangia, Khanna Book Publishing Co. (P) Ltd., New Delhi.
6. Fundamentals of Information Technology by Vipin Arora, Eagle Parkashan, Jalandhar

SYLLABUS

SEMESTER-IV

SUBJECT TITLE: EXERCISETHERAPY-IV

SUBJECT CODE: BPT2401

SEMESTER: IV
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

Objectives 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	**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.	**12hrs**
UNIT-II	**Frenkel Exercises**: Introduction to frenkels exercises, techniques of application of frenkels exercises, Frenkels exercise of leg in lying, sitting and standing position.	**12hrs**
UNIT-III	**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**
UNIT-IV	**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	**14hrs**

Course outcomes

CO1	**BPT2401.1**	Understanding the concepts, principles and techniques of exercise Therapy in-depth.
CO2	**BPT2401.2**	Explaining the basic concepts, indications, contraindications and precautions of various types and modes of exercises, home program and ergonomics.
CO3	**BPT2401.3**	Summarizing limb-muscle girth measurement, balance, coordination, posture, muscle re- education and walking aids.
CO4	**BPT2401.4**	Applying the concepts of muscle testing, various exercises, walking aids Measurements and goniometry

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

SUBJECT TITLE: EXERCISETHERAPY IV LAB

SUBJECT CODE: BPT2402

SEMESTER: IV
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30
End Term Exam: 70

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

List of Practicals/ Experimens

Demonstration of therapeutic interventions

	Contents	Contact hours
EXP-I	**Demonstrate of Exercise during pregnancy**	**4 hrs**
EXP-II	**Demonstration of labor, and related conditions Exercise.**	**4 hrs**
EXP-III	**Evaluation of Posture of Upper Limb.**	**4 hrs**
EXP-IV	**Evaluation of Posture of Lower Limb.**	**8 hrs**
EXP-V	**Demonstration of Hydrotherapy techniques.**	**4 hrs**

Course outcomes

CO1	**BPT2402.1**	Demonstrating the basics of exercise therapy along with goniometry, Manual Muscle Testing, movements and Proprioceptive Neuromuscular Facilitation.
CO2	**BPT2402.2**	Practicing various types and modes of exercises,functional re-education, Stretching and joint mobilization.
CO3	**BPT2402.3**	Applying the knowledge of limb and girth measurement,gait assessment and posture evaluation.
CO4	**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: ELECTROTHERAPY-IV

SUBJECT CODE: BPT2403

SEMESTER: IV
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

Objectives 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	**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	**12hrs**
UNIT-II	**Ultraviolet radiations (UVR) :** production, physiological and therapeutic effects, indications and contraindications, dangers, test dosage calculation, technique of application **Spinal traction :** types of traction, effects of spinal traction, indications and contraindications, precautions, dosge calculation, technique of its application	**14hrs**
UNIT-III	**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.	**14hrs**
UNIT-IV	**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

CO1	**BPT2403.1**	Recalling and describing the concepts, working principles, physiological and therapeutic effects,methods of application,indications,and contraindications of electrotherapeutic and pharmaco-therapeutic modalities.
CO2	**BPT2403.2**	Understanding the concepts of electro-diagnostic procedures
CO3	**BPT2403.3**	Applying the concepts of basic electrical components,low and medium frequency currents,superficial heating modalities and nerve muscle physiology.
CO4	**BPT2403.4**	Utilizing the theoretical knowledge in woundcare and generating treatment plans with specific dosage and analyzing the modality of choice.

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)

SUBJECT TITLE: ELECTROTHERAPY IV LAB
SUBJECT CODE: BPT2404
SEMESTER: IV
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30
End Term Exam: 70

Duration of Exam; 3 Hrs

Course Objectives: Through this course students should be able to

• Apply knowledge of usage of various types of high frequency currents and its application.

• Demonstrate the knowledge regarding application of modalities in various conditions.

• Implement the knowledge about indications and contraindications of various modalities

• Explore about the recent advancement in electrotherapy

Sr. No	Contents	Contact Hours
EXP 1	Demonstration of technique of LASER therapy.	**6hrs**
II	Demonstration of methods of application of Laser and its parameters.	**6hrs**
III	Demonstration of technique of Microwave diathermy.	**6hrs**
IV	Demonstration of methods of application of MWD and its parameters.	**6hrs**
V	Demonstration of technique of CERVICAL TRACTION.	**6hrs**
VI	Demonstration of technique of LUMBAR TRACTION.	**6hrs**
VII	Demonstration of technique of HYDROTHERAPY.	**6hrs**
VIII	Demonstration of technique of LONGWAVE therapy.	**6hrs**

Course outcomes

CO1	**BPT2404.1**	Applying the principles of apparatus testing with preparation of Treatment tray.
CO2	**BPT2404.2**	Utilizing the wind-up procedure after electrotherapy treatment
CO3	**BPT2404.3**	Developing the techniques for patient evaluation and application of Various electro-modalities.
CO4	**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: BIOMECHANICS II
SUBJECT CODE: BPT2405
SEMESTER: IV
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

Objectives 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

CO1	**BPT2405.1**	To enhance the critical analysis of applying and integrating the analysis of forces on diagnosing various disorders
CO2	**BPT2405.2**	Understanding the concepts and principles of biomechanics
CO3	**BPT2405.3**	Analyzing the application of concepts and principles of biomechanics in musculoskeletal function and dysfunction.
CO4	**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

SUBJECT TITLE: PATHOLOGY & MICROBIOLOGY II
SUBJECT CODE: BPT2406
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

Objectives of course: Through this course students 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
- 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	**Immunopathology :** types of immune system, hypersensitivity and its types **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.	**14hrs**
UNIT-II	**Infectious disease :** bacterial disease, viral disease, fungal disease, parasitic disease, mycobacterial disease **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.	**14hrs**

UNIT-III	**Pathology of cardiovascular system :** heart failure, congenital heart disease, rheumatic fever, bacterial endocarditis **Pathology of respiratory infection :** pneumonia, bronchiectasis, chronic bronchitis, asthma **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	**The female Genital Tract :** endometriosis, pelvic inflammatory disease **Pathology of skin :** scleroderma, leprosy, psoriasis **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	**12hrs**

Course outcomes

CO1	**BPT2406.1**	Understanding the basic concepts of abnormal physiological and Pathological disease processes of various body systems.
CO2	**BPT2406.2**	Describing the concepts of infection prevention, sterilization and disinfectants and mechanisms of disturbances, manifestations of tissue Response to injury and homeostasis.
CO3	**BPT2406.3**	Explaining various microbes their classification, routes of infection,basic immunological responses,common diagnostic tests and interpretation of Tests.
CO4	**BPT2406.4**	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

3. ANANTHANARAYAN AND PANIKER'S TEXTBOOK OF MICROBIOLOGY by REBA KANUNGO, UNIVERSITIES PRESS PVT. LTD

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

SUBJECT TITLE: PHARMACOLOGY II
SUBJECT CODE: BPT2407
SEMESTER: IV
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

Objectives 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	**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	**12hrs**
UNIT-II	**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	**Digestion and metabolism :** gastrointestinal pharmacology: peptic ulcers disease, constipation, diarrhoea, drug used in treatment of diabetes mellitus: insulin, oral hypoglycaemic	**14hrs**

UNIT-IV	**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

CO1	**BPT2407.1**	Understanding the advanced principles of general pharmacology
CO2	**BPT2407.2**	Understand the effects, side effects, potential drug interactions
CO3	**BPT2407.3**	Analyzing the importance of drugs in the overall treatment including Physiotherapy.
CO4	**BPT2407.4**	Influence of drugs on ideal physiotherapy management

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.

SYLLABUS

SEMESTER-V

SUBJECT TITLE: ORTHOPEDICS-I
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

Objectives of the course: Through this course students should be able to

- Understand the concepts of orthopedic diagnosis and tools to analyze disorders
- Understand the basic rules of management of orthopedic disorders
- Analyze the different soft tissue injuries and injuries to peripheral nerves
- Evaluate the injuries of various musculoskeletal disorders and fractures and effectively manage them
- Enumerate the principles and procedures of amputation and various orthopedic surgeries

Sr. No	Contents	Contact Hours
UNIT-I	Diagnosis in orthopedics : history, examination, neurological examination, physical variations and deformities, examining infants and children, diagnostic imaging, blood tests, synovial fluid analysis, bone biopsy. Fractures : definition, classification of fractures, fracture healing, complications of fractures, management.Subluxation and dislocation	**12hrs**
UNIT-II	Injuries of the shoulder, upper arm and elbow : fracture of clavicle, AC joint injuries, shoulder dislocation, fracture proximal humerus, fracture shaft of humerus, supracondylar fracture of humerus, elbow dislocation, subluxation of radial head, side swipe injury of the elbow. Injuries of forearm and wrist : fractures of radius and ulna, Monteggia fracture, Galeazzi fracture, Colle's fracture, Barton's fracture, scaphoid fracture, chauffeur fracture.	**14hrs**
UNIT-III	Injuries of spine and pelvic complex : pathophysiology of spine injuries, mechanism of injury, principles of diagnosis and initial management, cervical spine injuries, thoracolumbar injuries, fracture of rib cage, neural injuries, fracture of pelvis. Injuries of hip and femur : dislocation of hip, fractures of femoral	**14hrs**

	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	
UNIT-IV	Soft tissue injuries : sprain, strain, contusion, tendinitis, tenosynovitis, tendinosis, bursitis, ligament injuries of knee, meniscal injuries of knee, lateral ankle sprain, wrist sprain, quadriceps and hamstring strain, quadriceps, gluteal, calf, deltoid contusions, achilles tendon rupture, rotator cuff muscle tear, PASTA lesion, biceps tendon injury. Peripheral nerve injuries : pathology, classification of nerve injuries, clinical features, assessment, principles of management, brachial plexus injuries, axillary nerve injury. Amputation: definition, level(upper and lower limb), indications, contraindications.	**14hrs**

Course Outcomes		
CO1	BPT3505.1	Understand the concepts of orthopedic diagnosis and tools to analyze disorders
CO2	BPT3505.2	Understand the basic rules of management of orthopedic disorders
CO3	BPT3505.3	Analyze the different soft tissue injuries and injuries to peripheral nerves
CO4	BPT3505.4	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

SUBJECT TITLE: NEUROLOGY-I
SUBJECT CODE: BPT3506
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

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

Course Outcomes		
CO1	BPT3506.1	Relate the neuro-anatomical structures and its functions relevant to the clinical manifestation of neurological disorders
CO2	BPT3506.2	Apply basic neurological examination procedures relevant to the

		neurological disorders
CO3	BPT3506.3	Describe the conservative medical and surgical management to the specific neurological disorders
CO4	BPT3506.4	Summarizing the knowledge of various neurological disease conditions; Their identification and management.

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: PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS

SUBJECT CODE: BPT3501

SEMESTER: V

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

- Learn the physiotherapy management in general medical and surgical conditions
- Analyze the role of Physiotherapy in Cancer care and Pain management
- Understand physiotherapy management in various systemic disorder

Sr. No	Contents	Contact Hours
UNIT-I	Physiotherapy management in inflammation, healing and repair : Acute inflammation, chronic inflammation and edema, acute sports injuries, accelerating healing process, introduction to modalities used in promoting healing, examination, evaluation and physiotherapy intervention of wounds	**14hrs**
UNIT-II	Physiotherapy management of systemic and metabolic disorder : Diabetes mellitus, hypertension, osteoporosis, obesity, metabolic syndrome, rickets, osteomalacia, scurvy, systemic lupus erythromatous, fibromyalgia, hyper and hypo thyroidism.	**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.	**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 .	**14hrs**

Course Outcomes		
CO1	BPT3501.1	Learn the physiotherapy management in general medical and surgical conditions
CO2	BPT3501.2	Analyze the role of Physiotherapy in Cancer care and Pain management
CO3	BPT3501.3	Understand physiotherapy management in various systemic disorder
CO4	BPT3501.4	Applying the knowledge of various disease/surgical conditions during assessment of patients

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.

SUBJECT TITLE: PHYSIOTHERAPY IN MEDICAL AND SURGICAL CONDITIONS LAB
SUBJECT CODE: BPT3502
SEMESTER: V
CONTACT HOURS/WEEK:3

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

Internal Assessment: 30

End Term Exam: 70

Duration of Exam; 3 Hrs

Objectives of the course: Through this course students should be able to

Explore, assess and plan physiotherapy management of general medical and surgical conditions

Understand the role of exercise therapy in systemic and metabolic disorders

Analyze the physiotherapeutic approach to cancer patients and pain management

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

Course Outcomes		
CO1	BPT3502.1	Describing the influence of social and environmental factors on health of individual and society
CO2	BPT3502.2	Analyzing the methods of preventing and managing common conditions
CO3	BPT3502.3	Designing the methods to rehabilitate patients with various disorders
CO4	BPT3502.4	Interpreting the principles of upper limb and lower limb prosthesis, orthotics and splints

Recommended books: 1. TIDY'S PHYSIOTHERAPY by STAURT PORTER, CHURCHILL LIVINGSTONE

2. CASH'S TEXTBOOK OF GENERAL MEDICAL AND SURGICAL CONDITIONS FOR PHYSIOTHERAPISTS by JOAN E. CASH, P.A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

3. PHYSICAL REHABILITATION by SUSAN B O SULLIVAN, THOMAS J SCHMITZ, F.A. DAVIS COMPAN

SUBJECT TITLE: COMMUNITY MEDICINE AND REHABILITATION
SUBJECT CODE: BPT3503
SEMESTER: V
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

- 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,.	**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, 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	**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. 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.	**9hrs**

Course Outcomes		
CO1	BPT3503.1	Describing the influence of social and environmental factors on health of individual and society.
CO2	BPT3503.2	Analyzing the methods of preventing and managing common conditions
CO3	BPT3503.3	Designing the methods to rehabilitate patients with various disorders
CO4	BPT3503.4	Interpreting the principles of upper limb and lower limb prosthesis, orthotics and splints

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

SUBJECT TITLE: COMMUNITY MEDICINE AND REHABILITATION LAB
SUBJECT CODE: BPT3504
SEMESTER: V
CONTACT HOURS/WEEK: 3

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

Internal Assessment: 30

End Term Exam: 70

Duration of Exam; 3 Hrs

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

- interpret the aims and objectives of rehabilitation
- Design the rehabilitation protocol of patients suffering from various diseases.
- Understand the use of prosthesis and orthosis.

S.No.	LIST OF PRACTICALS / EXPERIMENTS	Hours
EXP1.	Activity of daily living equipments : To study about the basic equipments of ADL's for rehabilitation of diferently abled	4 Hours
EXP2.	Assistive and Adaptive devices : To study about the assistive and adaptive devices used for rehabilitation of diferently abled.	4 Hours
EXP3.	Basic transfer activity : To study about the basic transfer activities from bed and chair to floor	4 Hours
EXP4.	Dressing activity : To study the basic techniques and modifications in dressing activity for differently abled people	4 Hours
EXP5.	Wheel Chair transfer : To study the to and fro wheelchair transfer techniques. Wheel chair Manoeuver 1 : To study the forward , backward and sideways propelling of the wheelchair. Wheel chair Manoeuver 2 : To study the wheelie and hurdle clearance using wheelchair	4 Hours
EXP6.	Hand rehabilitation : To study the techniques of hand rehabilitation and their clinical application.	4 Hours
EXP7.	Psychiatry assessment : To study the assessment of psychiatric disorders.	4 Hours
EXP8.	Hand rehabilitation : To study the techniques of hand rehabilitation and their clinical application.	4 Hours
EXP9.	Spinal Orthosis : To study the application and function of spinal orthosis.	4 Hours
EXP10.	Upper limb orthosis/ prosthesis : To study the application and function of upper limb orthosis and prosthesis.	4 Hours

Course Outcomes		
CO1	BPT3504.1	Through this course students should be able to interpret the aims and objectives of rehabilitation
CO2	BPT3504.2	Comprehend application and function of upper limb and lower limb orthosis and

		prosthesis
CO3	BPT3504.3	Design the rehabilitation protocol of patients suffering from various diseases
CO4	BPT3504.4	Validate the use of ADL activity and assistive devices

RECOMMENDED BOOKS: 1. PREVENTIVE AND COMMUNITY MEDICINE by BRIAN MACMAHOR, DUNCAN.

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

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

SYLLABUS

SEMESTER VI

SUBJECT TITLE: ORTHOPEDICS-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
- Understand about various tumors and genetic disorders
- Understand various rheumatological ailments and metabolic disorders

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	Infections : Osteomyelitis(Acute, Chronic), Broodi's Abscess, TB of Spine, Hip, Knee, Shoulder, Elbow, Leprosy Inflammation and degenerative conditions : still's disease, Charcot's joint, Haemophylitic arthritis.	**14hrs**
UNIT-II	Regional conditions of Shoulder, Elbow, Hand and wrist : adhesive capsulitis, Rotator cuff tendinitis, supraspinatus tendinitis, infraspinatus tendinitis, bicipital tendinitis, subacromial bursitis, tennis elbow, golfer's elbow, olecranon bursitis, triceps tendinitis, de quervian tenosynovitis, ganglion. Regional conditions in Spine. : PIVD, spinal stenosis, cervical and lumbar spondylosis, spondylolisthesis, lumbago/lumbosacral strain, sacralisation, lumbarisation, coccydinea, hemivertebra, scoliosis	**14hrs**

UNIT-III	Regional conditions of Pelvic, Hip, Knee and Ankle : IT band syndrome, piriformis syndrome, trochantric bursitis, osteochondritis dissecans, patellofemoral pain syndrome, plantar fascitis/calcaneal spur, tarsal tunnel syndrome, achillis tendinitis, metatarsalgia, morton's neuroma.	**14hrs**
UNIT-IV	Deformities : CTEV, CDH, torticolis, flat foot, vertical talus, lordosis, kyphosis, upper cross syndrome, lower cross syndrome, arthrogryposis multiplex congenita, 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, 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	**14hrs**

Course Outcomes		
CO1	BPT3601.1	Identifying the infective, inflammatory and degenerative diseases.
CO2	BPT3601.2	Discussing various conditions of spine
CO3	BPT3601.3	Defining various regional conditions of upper limb
CO4	BPT3601.4	Reviewing various conditions of lower limb

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

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

3. ESSENTIALS OF ORTHOPAEDICS FOR PHYSIOTHERAPISTS by JOHN EBNEZAR, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

4. ESSENTIAL ORTHOPAEDICS by J MAHESHWARI, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

SUBJECT TITLE: NEUROLOGY-II

SUBJECT CODE: BPT3602
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& basal ganglia: definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation & differential diagnosis of: Cerebellar infarction, Cerebellar hemorrhage, Tumors of the cerebellum, cerebellar degeneration, Arnold malformation, Dandy Walker Malformation, Fried Reich's ataxia, Hereditary Cerebellar Ataxia.	**12hrs**
UNIT-II	Peripheral neuropathies :definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation, differential diagnosis, management of polyneuropathies, hereditary motor sensory neuropathy, autonomic neuropathy, amyloid neuropathy	**12hrs**
UNIT-III	Peripheral nerve injuries in the upper extremity & Lower extremities :definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation & differential diagnosis of brachial plexus injury, axillary nerve injury, musculocutaneous nerve injury. 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	**12hrs**
UNIT-IV	Disorders of the muscles and neuromuscular junction: definition, etiology, pathophysiology, classification, clinical signs and symptoms, investigation, differential diagnosis of muscular dystrophies, polymyositis, dermatomyositis, myasthenia gravis, lambert Eaton syndrome.	**12hrs**

Course Outcomes		
CO1	BPT3602.1	Explain the clinical background, assessment and medical management of various neurological disorders
CO2	BPT3602.2	Demonstrate the assessment skills relevant to the various neurological disorders
CO3	BPT3602.3	Analyze the differential diagnosis and medical management of various neurological disorders
CO4	BPT3602.4	Analyze the differential diagnosis and medical management of various neurological disorders

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 8 questions carrying 2 marks each from all over the syllabus of concerned paper. Section B will have 7 questions of 4 marks each (Student has to attempt any 6 questions) and section C consists of 2 questions of 10 marks each from the respective sections of the syllabus (Out of these 2 questions 1 question will have internal choice)

SUBJECT TITLE: ORTHOPEDIC PHYSIOTHERAPY-I
SUBJECT CODE: BPT3603
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 various orthopedic 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 of clavicle, fracture of scapula, neck of humerus fracture, shaft of humerus fracture, dislocation and subluxation of acromioclavicular joint, dislocation of shoulder, supracondylar fracture of humerus, dislocation of elbow joint, radial head fracture, olecranon fracture, fracture both bones of forearm, Monteggia fracture, Galeazzi fracture, Smith fracture, Barton's fracture, Colles fracture, scaphoid fracture, Bennet's fracture, Rolando's fracture, carpometacarpal dislocations.	**14hrs**
UNIT-III	Physiotherapy assessment and management of lower limb injuries : neck of femur fracture, subtrochanteric fracture, trochanteric fracture, dislocation of hip joint, shaft of femur fracture, supracondylar fracture of femur, proximal tibial and fibula fracture, Pilon fracture, ankle fracture, calcaneum fracture, talus fracture, Jone's fracture, march fracture, lisfranc injuries, ankle dislocation.	**14hrs**
UNIT-IV	Physiotherapy assessment and management of soft tissue injuries nerve injuries and congenital disorders : sprain, strain, bursitis, torticollis, tendon injuries, peripheral nerve injuries, sprengel deformity, congenital dislocation of hip, congenital talipes equinovarus Physiotherapy assessment and management of degenerative diseases metabolic bone diseases and bone tumours.	**14hrs**

Course Outcomes

CO1	BPT3603.1	Identifying various orthopedic ailments in upper and lower limbs
CO2	BPT3603.2	Describing the physiotherapy management for soft tissue injuries
CO3	BPT3603.3	Justifying the role of physiotherapist in emergency care
CO4	BPT3603.4	Analyzing various degenerative diseases of bones and their physiotherapy management

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

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

SUBJECT TITLE: NEUROLOGY 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 of course: Through this course students should be able to

•Identify the appropriate neurological examination procedures used in central nervous system disorders

• Apply the various assessment principles in the central nervous system disorders

• Formulate the physical therapy diagnosis for various neurological diseases

• Analyze the various physiotherapy treatment techniques used in central nervous system disorders

• Evaluate the effectiveness of various treatment technique used in central nervous system disorders

•Justify the application of various physiotherapy treatment techniques used in central nervous system disorders

Contents of Syllabus:

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

Course Outcomes		
CO1	BPT3605.1	Identifying the appropriate neurological examination procedures used in central nervous system disorders
CO2	BPT3605.2	Evaluating the effectiveness of various treatment technique used in central nervous system disorders
CO3	BPT3605.3	Applying various assessment principles in the central nervous system disorders
CO4	BPT3605.4	Analyzing the various physiotherapy treatment techniques used in central nervous

		system 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)

SUBJECT TITLE: ORTHOPEDIC PHYSIOTHERAPY-I LAB
SUBJECT CODE: BPT3604
SEMESTER: VI
CONTACT HOURS/WEEK: 2

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

Duration of Exam; 3 Hrs

Internal Assessment: 30

End Term Exam: 70

Objectives of the course: Through this course students should be able to

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

List of Practicals / Experiments:

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

Course Outcomes		
CO1	BPT3604.1	Demonstrating various immobilization techniques followed by orthopedic injuries
CO2	BPT3604.2	Differentiating the soft tissue injuries by using appropriate special tests
CO3	BPT3604.3	Interpreting the results obtained from orthopedic physiotherapy examination
CO4	BPT3604.4	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)

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

SUBJECT TITLE: NEURO PHYSIOTHERAPY-I LAB
SUBJECT CODE: BPT3606
SEMESTER: VI
CONTACT HOURS/WEEK: 2

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

Internal Assessment: 30

End Term Exam: 70

Duration of Exam; 3 Hrs

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

Identify the appropriate neurological examination procedures used in central nervous system disorders

Associate the skills of neurological examination in physiotherapy practice

Define the use of technology in neurological assessment and diagnosis in neurological disorders

Sr. No	Contents	Contact Hours
Exp-I	Demonstrate various preparatory exercises before loco motor training.	**6**
II	Demonstration of various loco motor training exercises. Demonstrate strategies to improve postural control and functional mobility.	**6**
III	Demonstrate strategies to improve sensory and motor functions. Strategies to improve aerobic functions.	**6**
IV	Demonstration and examination of various primary and secondary impairments and their physiotherapy management.	**6**
V	Physiotherapy management strategies in stroke and TBI patients.	**6**
VI	Physiotherapy management strategies in SCI patients	**6**
VII	Physiotherapy management strategies in parkinsonism.	**6**
VIII	Physiotherapy management strategies in motor neuron diseases like ALS.	**6**

Course Outcomes		
CO1	BPT3606.1	Associating the skills of neurological examination in physiotherapy practice
CO2	BPT3606.2	Defining the use of technology in neurological assessment and diagnosis
CO3	BPT3606.3	Analyzing the methods of differential diagnosis in disorders of nervous system
CO4	BPT3606.4	Evaluating neurological assessment in planning physiotherapy treatment for neurological disorders

Recommended Books: 1. CASH'S TEXTBOOK OF NEUROLOGY FOR PHYSIOTHERAPIST (ENGLISH) 4TH EDITION by P. A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

2. DEJONG'S THE NEUROLOGICAL EXAMINATION by WILLIAM W. CAMBELL, WOLTERS KLUWER

3. PHYSICAL MANAGEMENT FOR NEUROLOGICAL CONDITIONS by MARIA STOKES, ELSEVIER

4. PERIPHERAL NERVE AND MUSCLE DISEASE by JEFFREY A. COHEN, JUSTIN MOWCHUN AND JON GRUDEM, OXFORD UNIVERSITY PRESS

5. NEUROLOGICAL EXAMINATION MADE EASY by GERAINT FULLER, CHURCHILL LIVINGSTONE

6. PATHOPHYSIOLOGY OF MOTOR SYSTEM by CHRISTOPHER M. FREDERICKS, F.A. DAVIS COMPANY

SYLLABUS

SEMESTER VII

SUBJECT TITLE: ORTHOPAEDIC PHYSIOTHERAPY-II
SUBJECT CODE: BPT4701
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

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

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	Physiotherapy assessment and management of regional conditions of Shoulder, elbow, wrist and hand complex : adhesive capsulitis, Rotator cuff tendinitis, supraspinatus tendinitis, infraspinatus tendinitis, bicipital tendinitis, subacromial bursitis, tennis elbow, golfer's elbow, olecranon bursitis, triceps tendinitis, de quervian tenosynovitis.	**14hrs**

UNIT-II	Physiotherapy assessment and management of regional conditions of Pelvic, Hip, Knee and Ankle complex : IT band syndrome, piriformis syndrome, trochantric bursitis, osteochondritis dissecans, patellofemoral pain syndrome, plantar fascitis/calcaneal spur.	**12hrs**
UNIT-III	Physiotherapy assessment and management of injuries around spine and pelvis: fractures of cervical spine , relevant anatomy, thoracolumbar injuries, classification of pelvic fractures and management. Physiotherapy assessment and management of regional conditions in Spine. : PIVD, spinal stenosis, cervical and lumbar spondylosis, spondylolisthesis.	**16hrs**
UNIT-IV	Physiotherapy assessment and management of various Deformities : torticolis, flat foot, vertical talus, lordosis, kyphosis, upper cross syndrome, lower cross syndrome, arthrogryposis multiplex congenita, osteogenesis imperfecta, cervical rib.	**12hrs**

Course Outcomes		
CO1	BPT4701.1	Distinguish the level of knowledge and skills to choose specific physiotherapeutic techniques
CO2	BPT4701.2	Plan various rehabilitation approach to orthopedic conditions and critical care.
CO3	BPT4701.3	Execute the management of injuries and regional conditions with recent orthopedic techniques
CO4	BPT4701.4	Integrate the current research into the planning of orthopedic rehabilitation

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

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

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

SUBJECT TITLE: NEURO PHYSIOTHERAPY-II
SUBJECT CODE: BPT4703
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
I	Physiotherapy management in peripheral nerve injuries of upper and lower limbs.	14hrs
II	Physiotherapy management of brachial plexus injury, lumbosacral plexus injury.	12hrs

III	Examination and physiotherapy management of diabetic neuropathy.	**12hrs**
IV	Examination and physiotherapy management of polyneuropathies, spina bifida and encephalomyelitis.	**14hrs**

Course Outcomes		
CO1	BPT4703.1	Know the peripheral nerve injuries and physiotherapy management for the injury.
CO2	BPT4703.2	Identify deficits of neural recruitment underlying various movement and sensory disorders.
CO3	BPT4703.3	Understand the neuromuscular junction disorders and design physiotherapy management
CO4	BPT4703.4	Distinguish between infectious diseases and associate their physiotherapy management with clinical features.

Recommended Books: 1. CASH'S TEXTBOOK OF NEUROLOGY FOR PHYSIOTHERAPIST (ENGLISH) 4TH EDITION by P. A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD.

2. DEJONG'S THE NEUROLOGICAL EXAMINATION by WILLIAM W. CAMBELL, WOLTERS KLUWER

3. PHYSICAL MANAGEMENT FOR NEUROLOGICAL CONDITIONS by MARIA STOKES, ELSEVIER

4. PERIPHERAL NERVE AND MUSCLE DISEASE by JEFFREY A. COHEN, JUSTIN MOWCHUN AND JON GRUDEM, OXFORD UNIVERSITY PRESS

5. NEUROLOGICAL EXAMINATION MADE EASY by GERAINT FULLER, CHURCHILL LIVINGSTONE

6. PATHOPHYSIOLOGY OF MOTOR SYSTEM by CHRISTOPHER M. FREDERICKS, F.A. DAVIS COMPANY

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	**14hrs**

	breathing : positioning, breathing re-education and breathing control techniques, respiratory muscle weakness and training	
UNIT-III	Cardiopulmonary physical therapy for pulmonary conditions : obstructive pulmonary conditions, restrictive pulmonary conditions, post surgical conditions, pulmonary rehabilitation in chronic pulmonary patients	**14hrs**
UNIT-IV	Cardiopulmonary physical therapy for cardiovascular conditions : non surgical cardiac conditions, post surgical cardiac conditions, peripheral vascular diseases management.	**14hrs**

Course Outcomes		
CO1	BPT4705.1	Evaluate the cardiopulmonary patients with various scales and grading of assessment
CO2	BPT4705.2	Demonstrate the steps involved in secretion mobilization using various hands on techniques
CO3	BPT4705.3	Describe the various modes of mechanical ventilators and list out different types of cardiopulmonary equipment used in intensive care unit
CO4	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

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	3

Internal Assessment: 40

End Term Exam: 60

Duration of Exam; 3 Hrs

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

• Describe the importance of research in physiotherapy and rehabilitation sciences

• Review the moral principle of ethics in research

• Construct research problem and research question

• Analyze various types of experimental and non-experimental research designs

• Apply biostatistics in physiotherapy research

•Relate the various correlation analyses and tests of significance

Contents of Syllabus:

Sr. No	Contents	Contact Hours
UNIT-I	Introduction to research methodology : definition, reasons for developing rehabilitation research, barriers to research, research process, types of research, research methods versus methodology Defining the research problem : necessity of defining research problem, technique involved in defining research problem, 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, descriHSive non	**14hrs**

	experimental designs, exploratory non experimental designs, analytical non experimental designs	
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	**12hrs**
UNIT-IV	Comparison of group means : t-test, ANOVA, multiple comparison tests Non parametric tests of significance : Mann-Whitney U test, Wilcoxon signed- ranks test, Kruskal-Wallis one-way analysis of variance by ranks, Chi square statistic, Correlation and regression analysis : scatter plots, Pearson product-moment, coefficient of correlation, Spearman rank correlation coefficient	**14hrs**

Course Outcomes		
CO1	BPT4707.1	Understanding the principles and concepts of Research methodology.
CO2	BPT4707.2	Describingtheappropriatestatisticalmethodsrequiredforaparticularresearchdesign
CO3	BPT4707.3	Choosing the appropriate research design and developing appropriate Research hypothesis for a research project.
CO4	BPT4707.4	Outlining the methods of Parametric and Nonparametric Tests,

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

SUBJECT TITLE: ORTHOPEDIC PHYSIOTHERAPY-II LAB

SUBJECT CODE: BPT4702

SEMESTER: VII

CONTACT HOURS/WEEK: 2

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

Internal Marks: 30

External Marks: 70

Duration of Exam; 3 Hr

Objectives of course:

Through this course students should be able to

• Evaluate patients and physiotherapy management of regional deformities of upper limb and lower limb

• Evaluate patients and physiotherapy management of fractures and regional deformities of spine

• Evaluate the patient pre and postoperative procedures for various conditions

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

List of Practical's/ Experiments

S.No.	CONTENTS	Hours
EXP 1	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
EXP 2	Demonstrate and explain physiotherapy assessment and management of regional conditions of elbow complex : tennis elbow, golfer's elbow, olecranon bursitis, triceps tendinitis.	4hrs
EXP 3	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
EXP 4	Demonstrate and explain physiotherapy assessment and management of injuries and fractures around cervical spine.	4hrs
EXP 5	Demonstrate and explain physiotherapy assessment and management of injuries and fractures around thoracolumbar spine and rib cage.	4hrs
EXP 6	Demonstrate and explain physiotherapy assessment and management of regional conditions of spine : PIVD, spinal stenosis, cervical and lumbar spondylosis, spondylolisthesis, lumbago/lumbosacral strain, sacralisation, lumbarisation, coccydinea, hemivertebra, scoliosis.	4hrs
EXP 7	Demonstrate and explain physiotherapy assessment and management of regional conditions of pelvic and hip : IT Band Syndrome, Piriformis	

	Syndrome, trochantric bursitis, osteochondritis dissecans.	4hrs

Course Outcomes		
CO1	BPT4702.1	Distinguish the level of knowledge and skills to choose specific physiotherapeutic techniques
CO2	BPT4702.2	Plan various rehabilitation approach to orthopedic conditions and critical care.
CO3	BPT4702.3	Execute the management of injuries and regional conditions with recent orthopedic techniques
CO4	BPT4702.4	Integrate the current research into the planning of orthopedic rehabilitation

RECOMMENDED BOOKS:

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

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

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

SUBJECT TITLE: NEUROLOGY PHYSIOTHERAPY-II LAB
SUBJECT CODE: BPT4704
SEMESTER: VII
CONTACT HOURS/WEEK: 2

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

Internal Marks: 30

External Marks: 70

Duration of Exam; 3 Hrs

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

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

Practicals list:

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

Course Outcomes		
CO1	BPT4704.1	Know the peripheral nerve injuries and physiotherapy management for the injury.
CO2	BPT4704.2	Identify deficits of neural recruitment underlying various movement and sensory disorders.
CO3	BPT4704.3	Understand the neuromuscular junction disorders and design physiotherapy management
CO4	BPT4704.4	Distinguish between infectious diseases and associate their physiotherapy management with clinical features.

Recommended Books:1. NEUROLOGICAL REHABILITATION: OHSIMIZING MOTOR PERFORMANCE by CARR & SHEPHERD, BUTTERWORTH-HEINEMANN (ELSEVIER)

2. CASH'S TEXTBOOK OF NEUROLOGY FOR PHYSIOTHERAPISTS by PATRICIA A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISH

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

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

Internal: 30

External: 70

Duration of Exam; 3 Hrs

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

- Interpret the patient's severity of the problems with various outcome measures
- Establish the oHSimal therapeutic position for the treatment of cardiopulmonary patients
- Apply basic cardiopulmonary physiotherapy techniques to prevent the chest complications in ICU patients.
- Manage the post surgical pain from the surgical site with appropriate physiotherapy modalities and precaution techniques.
- Demonstrate various cardiopulmonary breathing techniques to improve ventilation of the patient.

• Construct the rehabilitation programme for chronic cardiopulmonary 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**

Course Outcomes		
CO1	BPT4706.1	Apply basic cardiopulmonary physiotherapy techniques to prevent the chest complications in ICU patients.
CO2	BPT4706.2	Manage the post-surgical pain from the surgical site with appropriate physiotherapy modalities and precaution techniques
CO3	BPT4706.3	Demonstrate various cardiopulmonary breathing techniques to improve ventilation of the patient
CO4	BPT4706.4	Construct the rehabilitation programme for chronic cardiopulmonary patients

Recommended books: 1. CASH TEXTBOOK OF CHEST HEART AND VASCULAR DISORDERS FOR PHYSIOTHERAPISTS by PATRACIA A. DOWNIE, JAYPEE BROTHERS MEDICAL PUBLISHERS PVT. LTD

2. PRINCIPLES AND PRACTICES OF CARDIOPULMONARY PHYSICAL THERAPY by FROWN FELTER, MOSBY

SYLLABUS

SEMESTER VIII

SUBJECT TITLE: SPORTS PHYSIOTHERAPY
SUBJECT CODE: BPT4801
SEMESTER: VIII
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

•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, 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.	**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	**9hrs**

Course Outcomes		
CO1	BPT4801.1	Demonstrate the level of knowledge and skills to choose appropriate physiotherapy techniques in sports rehabilitation
CO2	BPT4801.2	Discuss the principles of nutrition and exercise on body composition and athletic performance
CO3	BPT4801.3	Administer the rehabilitation protocols for treatment of an athlete
CO4	BPT4801.4	Integrate the current research into the planning of sports rehabilitation

Recommended Books: 1. CLINICAL SPORTS MEDICINE by BRUKNER & KHAN, McGraw Hill Professional

2. EXERCISE PHYSIOLOGY: NUTRITION, ENERGY AND HUMAN PERFORMANCE by WILLIAM D. MCARDLE, FRANK L. KATCH, VICTOR L. KATCH, PHILADELPHIA, LIPPIN COTT WILLIAMS & WILKINS

3. ATHLETIC INJURIES AND REHABILITATION by DAVID J MAGEE, W B SAUNDERS (ELSEVIER)

SUBJECT TITLE: SPORTS PHYSIOTHERAPY LAB

SUBJECT CODE: BPT4802

SEMESTER: VIII

CONTACT HOURS/WEEK: 2

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

Duration of Exam; 3 Hrs

Internal Marks: 30

External Marks: 70

Objectives 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
- 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:

List of Practicals / Experiments:

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

EXP 8	Demonstration of Assessment and Rehabilitation of sports injuries of Spine.	**4 HRS**

Course Outcomes		
CO1	BPT4802.1	Describe sports assessment and rehabilitation
CO2	BPT4802.2	Formulate rehabilitation protocol based on evidence based practice
CO3	BPT4802.3	Applying biomechanical principles in treating sports injuries
CO4	BPT4802.4	Discover sporting skills through different sports training

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

SUBJECT TITLE: PAEDIATRICS AND GERIATRICS PHYSIOTHERAPY

SUBJECT CODE: BPT4803
SEMESTER: VIII
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

- Analyze the growth and development of a child
- Describe the physiological response of ageing on body
- Interpret the signs and symHSoms 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 seHSal defect, ventricular seHSal defect, tetralogy of fallot, acute paediatric respiratory distress syndrome, bronchiectasis, bronchial asthma, pneumonia	**9hrs**
UNIT-II	Paediatric Rehabilitation : positioning and handling, general physical therapy goals, interventions to foster head and neck control, interventions to foster trunk control, adhesive equipments for positioning and mobility, physical therapy for children with cardiopulmonary disorder.Principles and application of treatment approaches of neurodevelopmental therapy (NDT), 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,. 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**

Course Outcomes		
CO1	BPT4803.1	Analyzing the growth and development of a child and physiological response of ageing on body
CO2	BPT4803.2	Interpreting the signs and symptoms of paediatric and geriatric disorders
CO3	BPT4803.3	Developing the efficient exercise protocol for paediatrics and geriatrics group of population
CO4	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

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

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

Duration of Exam; 3 Hrs

Internal Marks: 30

External Marks: 70

Objective of the course: 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

List of Practicals / Experiments:

Sr. No	Contents	Contact Hours
EXP 1	Demonstrate and explain assessment and testing of an infant and child.	**4 hrs**
EXP 2	Demonstrate and explain neonatal screening in ICU.	**4 hrs**
EXP 3	Demonstrate and explain positioning and handling skills for an infant.	**4 hrs**
EXP 4	Demonstrate and explain interventions to foster head, neck and trunk control.	**4 hrs**
EXP 5	Demonstrate and explain physical therapy techniques for cardiopulmonary disorders in child and neonate.	**4 hrs**
EXP 6	Demonstrate and explain treatment approaches of neurodevelopmental therapy and sensory integration therapy on a child.	**4 hrs**
EXP 7	Demonstrate and explain comprehensive geriatric assessment.	**4 hrs**
EXP 8	Design the exercises prescription for arthritis, osteoporosis and diabetes patients.	**4 hrs**
EXP 9	Demonstrate and explain physical therapy techniques in different settings for various geriatric conditions	**4 hrs**
EXP 10	Demonstrate and explain gait training techniques using various mobility aids used in elderly.	**4 hrs**

Course Outcomes

CO1	BPT4804.1	Interpret the findings of assessment to reach at the diagnosis for various paediatric and geriatric conditions
CO2	BPT4804.2	Apply various advanced approaches used for paediatric rehabilitation
CO3	BPT4804.3	Construct the physical therapy programme for common paediatric and geriatric disorders
CO4	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

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

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

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

SUBJECT TITLE: OBSTETRICS AND GYNAECOLOGY
SUBJECT CODE: BPT4805
SEMESTER: VIII
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

• 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.	**9hrs**
UNIT-II	Complications of pregnancy: ectopic pregnancy, and eclampsia, antepartum haemorrhage, placenta praevia, intrauterine growth retardation, multiple pregnancies, polyhydraaminos, oligohydroaminos, fibroids, placental abruHSion, 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 HS 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**

Course Outcomes		
CO1	BPT4805.1	Describe the anatomical and physiological importance in studying Female Reproductive System
CO2	BPT4805.2	Applying various physiotherapy assessment techniques used in gynaecological conditions
CO3	BPT4805.3	Interpreting various complications of pregnancy and labour
CO4	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.

SUBJECT TITLE: OBSTETRICS AND GYNAECOLOGY LAB
SUBJECT CODE: BPT4806
SEMESTER: VIII
CONTACT HOURS/WEEK: 2

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

Internal: 30
External: 70

Duration of Exam; 3 Hrs

Objective of Course: 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 gynecological conditions
- Frame the physiotherapy management for the gynecological conditions
- Analyze the treatment protocols used in antenatal and postnatal care
- Design the exercise precision for antenatal and postnatal care

List of Practicals / Experiments:

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

Course Outcomes		
CO1	BPT4806.1	Explain the anatomy and physiology of female reproductive system by using models
CO2	BPT4806.2	Demonstrate and apply various assessment and treatment techniques in gynaecological conditions
CO3	BPT4806.3	Framing physiotherapy management for gynaecological conditions
CO4	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. LTD

SUBJECT TITLE: MANAGEMENT AND ETHICAL ISSUES IN PHYSIOTHERAPY

SUBJECT CODE: BPT4808

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	**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 Definition of physiotherapy, Code of ethics, Code of professional conduct, Rules of professional conduct and scope of practice, Relationship with patient and medical professionals, Documentation, confidentiality and responsibility, Major ethical issues in physiotherapy practice	**9hrs**
UNIT-III	Legal terminology, Medico legal cases, Consumer protection act, Laws related to disabilities, , Law protection from malpractice claim	**9hrs**
UNIT-IV	Regulatory bodies governing physiotherapy practice: Role of International Health agencies :WHO, WCHS& AHSA, 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),	**9hrs**

Course Outcomes		
CO1	BPT4807.1	Analyzing current information on health care, social philosophy and public policy in physiotherapy practice
CO2	BPT4807.2	Identifying the entrepreneurship ideas in physiotherapy practice
CO3	BPT4807.3	Distinguish between principle of management and administration in physiotherapy practice
CO4	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

SUBJECT TITLE: GENERAL AND CLINICAL PSYCHOLOGY
SUBJECT CODE: BPT4808
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

- 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.
- Analyze the process of intelligence and thinking in human behavior
- Appraise various methods of personality assessment and learning psychology
- Apply various methods to manage abnormal behavior and attitude in clinical psychology

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. 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).,	**14hrs**
UNIT-II	Motivation : Motivation cycle (need, drive, incentive, reward)., Classification of motives., Abraham Maslow's theory of need hierarchy Frustration: sources of frustration., Conflict: types of conflict., Management of frustration and conflict Three levels of analysis of emotion (physiological level, subjective state, and overt behavior), Theories of emotion, Stress and management of stress.	**14hrs**
UNIT-III	Theories of intelligence, Assessment of intelligence 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	**14hrs**
UNIT-IV	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,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		
CO1	BPT4808.1	Understanding the principles, theories and concepts of Human Psychology
CO2	BPT4808.2	Demonstrating the concepts of sociology, socialization and social groups In terms of healthcare and rehabilitation.
CO3	BPT4808.3	Summarizing the concepts of abnormalities and diseases of human Psychology
CO4	BPT4808.4	Outlining the role of family, community, culture, caste system and social Change for healthcare and rehabilitation

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