

STUDY & EVALUATION SCHEME OF BACHELOR OF PHYSIOTHERAPY

(BPT - I YEAR/ I SEMESTER)

[Applicable w.e.f. Academic Session 2020-21 till revised]



INTEGRAL UNIVERSITY, LUCKNOW
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Approved by

Syllabus approved by Board of Study, Faculty Board, Academic Council,
Executive Council of the Integral University, Lucknow



**DEPARTMENT OF PHYSIOTHERAPY
INTEGRAL UNIVERSITY, LUCKNOW**

STUDY & EVALUATION SCHEME

PROGRAM: BACHELOR OF PHYSIOTHERAPY (BPT)

I - Year

I-Semester

S. No	Course Category	Code No.	Name of the Course	Periods			Credits C	Evaluation Scheme				
				L	T	P		Sessional (CA)			ESE	Subject Total
							CT	TA	Total			
I - Semester												
1.	DC	PT101	Human Anatomy-I	3	1	0	4	40	20	60	40*	100
2.	DC	PT102	Human Physiology-I	3	1	0	4	40	20	60	40	100
3.	DC	PT103	Biochemistry	3	1	0	4	40	20	60	40	100
4.	DC	PT104	Basic of Electrotherapy	3	1	0	4	40	20	60	40	100
5.	DC	CS107	Computer Application in Physiotherapy	2	1	2	3	40	20	60	40	100
6.	DC	LN101	Basic Professional communication	2	1	0	3	40	20	60	40	100
7.	DC	PT105	Human Anatomy -I Lab	0	0	2	1	40	20	60	40	100
8.	DC	PT106	Human Physiology -I Lab	0	0	2	1	40	20	60	40	100
9.	DC	PT107	Biochemistry-Lab	0	0	2	1	50	50	100	--	100
10.	DC	PT108	Basic of Electrotherapy-Lab	0	0	2	1	40	20	60	40	100
Total				16	06	08	26	410	230	640	360	1000

L: Lecture	T: Tutorials	P: Practical	C: Credit	CT: Class Test	TA: Teacher Assessment
Sessional (CA): Class Test + Teacher Assessment			Subject Total: Sessional (CA) + End Semester Examination (ESE)		
DC – Departmental Core DE – Departmental Elective					

Approved by the Academic Council on:



AIMS AND OBJECTIVES OF BPT DEGREE COURSE

On completion of the course of study having successfully passed the examination, the candidate would be able to achieve a satisfactory level of efficiency:-

1. To Detect and evaluate the anatomical, patho-physiological impairments, resulting in dysfunction of various age groups & occupation; as well as epidemiological sectors in the population & arrive at appropriate diagnosis.
2. To understand the rationale & basic investigative approach to the medical system and surgical intervention regimens & accordingly plan & implement specific Physio-Therapy measures effectively.
3. To be able to select strategies for cure and care; adopt restorative & rehabilitative measures for maximum possible independence of a client at home, work place & in the community.
4. To maintain healthy relationship & Co-partnership with various professionals in the health delivery system in the primary interest of a client.
5. To ensure quality assurance & motivate the client & her/his family for a desirable client compliance.
6. To develop communication skills for the purpose of transfer of suitable technique to be used creatively at various stages of treatment, compatible with psychological status of the beneficiary.
7. To promote health in general in Geriatrics, Women's health, Industrial medicine as well as at competitive level, such as sports, keeping in mind National Health Policies.
8. To practice professional autonomy & ethical principles with referral as well as first contact clients in conformity with ethical code for physiotherapists.

SYLLABI
OF
BACHELOR OF PHYSIOTHERAPY
(BPT - I YEAR/ I SEMESTER)

GOAL:

The broad goal of the teaching of undergraduate students in Anatomy aims at providing comprehensive knowledge of the gross anatomy, microscopic structures, development of human body and principles of genetics to provide a basis for understanding the clinical correlation of organs or structure involved and the skills to practice as a qualified Physiotherapist.

OBJECTIVES:**A – Knowledge: At the end of the course, the student should be able to:**

1. Comprehend the normal disposition, inter-relationships, gross, functional and applied anatomy of the musculoskeletal system, locomotion, posture, gait and various organs in the body.
2. Comprehend the basic structure and connections between the various parts of the central nervous system so as to analyze the integrative and regulative functions of the organs and systems. He/she should be able to locate the site of gross lesions according to the deficits encountered.
3. Identify the microscopic structures of various tissues and organs in the human body and correlate the structure with the functions.
4. To understand the basic principles of embryology including genetic inheritance and stages involved in development of the organs and systems from the time of conceptions till birth.
5. To study the basic principles of radiology and for comprehending deeper structures in the human body.

B. Skills: At the end of the course the students shall be able to:

1. Identify and locate all the structures of the body and mark the topography of the living anatomy.
2. Identify the organs and tissues under the microscope.
3. Understand principles of karyotyping and identify the gross congenital anomalies.
4. Understand the principles of imaging techniques and interpretation of anatomical structures on plane radiographs of the body.

C. Integration

From the integrated teaching of other basic sciences, students shall be able to comprehend the functions of the organs and systems in the body and thus interpret the anatomical basis of disease processes.

SUBJECT NAME:	HUMAN ANATOMY-I
SUBJECT CODE:	PT 101
(w.e.f. July 2017)	

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
3	1	0	3	1	0	15	25	60
4			4			40		60

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the identification of all gross anatomical structures. Particular emphasis will be placed on description of musculoskeletal anatomy which includes bones, joints, muscles, cardiovascular system and nervous system, as these are related to the application of physiotherapy in patients.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	General Anatomy	06 Hours
UNIT-II	Osteology & Arthrology	05 Hours
UNIT-III	Systemic Anatomy	05 Hours
UNIT-IV	Superior Extremity	12 Hours
UNIT-V	Inferior Extremity	12 Hours
Total (Minimal)		40 Hours

UNIT-I

S. No.	GENERAL ANATOMY:	06 Hours
1.	Introduction and subdivisions of Anatomy.	
2.	Anatomical nomenclature: Terms of Planes, Positions, Body parts and movements.	
3.	Basic tissues of the body: Definition, location and their function	
4.	Structure and appendages of skin	
5.	Superficial & deep fascia: Definition and functions, modifications of deep fascia	

UNIT-II

S. No.	OSTEOLOGY & ARTHROLOGY:	05 Hours
1.	Introduction , axial & appendicular skeleton, classification of bone based on shape and structure, structure of growing and adult long bone, ossification of bone, Types of cartilage, their characteristics features with example.	
2.	Introduction to Arthrology: Definition and classifications of joints with example. Details of synovial joint - characteristics features, type with example, close pack and loose pack position.	

UNIT-III

S. No.	SYSTEMIC ANATOMY:	05 Hours
1.	Myology: Classification of muscles and its characteristics features, Gross features of skeletal muscle, classification of muscle according to shape and fascicular architecture, action of muscles.	
2.	Neurology: Subdivision of nervous system, structural organization of nervous system including	

	types of neurons, ganglion, introduction to spinal nerves, cranial nerves and autonomic nervous system.
3.	Cardiovascular System: Components of CVS, types of anastomoses, types of circulation, components of lymphatic systems and its functions.

UNIT-IV

S. No.	SUPERIOR EXTREMITY:	12 Hours
1.	Surface landmarks and Introduction to superior extremity.	
2.	Muscles and fascia:	
a.	Pectoral region: Pectoral muscles, origin, insertion, action and nerve supply, brief account of claviopectoral fascia.	
b.	Scapular region and Back: Muscles of Scapular region and back their origin, insertion action and nerve supply. Details of Deltoid, Trapezius and latissimus dorsi	
c.	Muscles of Arm: Origin, insertion, action and nerve supply.	
d.	Forearm and Hand: Origin, insertion, action and nerve supply of muscles of forearm and hand.	
3.	Axilla: Boundaries and contents, details of Brachial plexus	
4.	Cubital fossa: Boundaries and contents.	
5.	Joints of superior extremity: Details of shoulder joint, brief account of elbow joint & wrist joint and radioulnar joint.	
6.	Nerve and vessels: Important relations, branches and distribution of axillary, musculocutaneous radial, ulnar & median nerve and nerve injuries. Axillary artery and Brachial artery – branches & distribution.	

UNIT-IV

S. No.	INFERIOR EXTREMITY:	12 Hours
1.	Introduction and surface landmarks of lower extremity.	
2.	Muscles and fascia:	
a.	Thigh: Brief account of fascia lata & compartments of thigh.	
b.	Enumerate muscles of anterior, posterior and medial compartment of thigh, their origin, insertion, nerve supply and action, details of Quadriceps femoris.	
c.	Gluteal region: Muscles of gluteal region, their origin, insertion, nerve supply and action, Compartment of leg, name of the muscles of leg, their action and nerve supply,	
3.	Boundaries and contents of femoral triangle, adductor canal and popliteal fossa.	
4.	Joints: Details of Hip and Knee joint, subtalar, tibiofibular joints.	
5.	Nerves and vessels: Important relations, branches and distribution of femoral, obturator, sciatic and common peroneal nerve, Branches and distribution of femoral artery, brief account of great saphenous vein.	
6.	Arches of foot and its significance.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Human Anatomy by B.D. Chaurasia, Vol. 1, 2nd edition; CBS publications.
2.	Textbook of Anatomy by Inderbir Singh; 4th edition; Jaypee Publications.
3.	Handbook of Osteology by Poddar; 11th edition; Scientific Book Company.
4.	Limbs of Dr. Kadasana-All 3 volumes.

REFERENCE BOOKS:

1.	Principles of anatomy and physiology by Tortora; 8th edition; Harper & Row Publications.
2.	Clinical Anatomy for Medical Students by Richard Snell, 7th edition, Lippin Cott, Williams & Wilkins.
3.	Clinical Anatomy for Medical Students by Richard Snell, 7th edition, Lippin Cott, Williams & Wilkins.
4.	Anatomy & Physiology by Ross & Wilson's, 8th edition, Churchill Livingston.
5.	Grant's atlas of anatomy, Anne MR; 10th edition
6.	Gray's Anatomy.
7.	Primary castes Anatomy by Basmajian (Williams and Willkins Co. Batlimore).
8.	Anatomy and Physiology by Smout and McDowall (Edwad Arnold).

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	General Anatomy: To understand the level of organization of the human body & its application in practice of physiotherapy.
2.	Osteology & Arthrology : To understand the muscles, bones and joints of the various regions & its application in practice of physiotherapy.
3.	Systemic Anatomy: To understand the level of organization of the human different system of the body & its application in practice of physiotherapy.
4.	Superior Extremity: To understand the topographical and functional anatomy of the upper limb & its application in practice of physiotherapy.
5.	Inferior Extremity: To understand the topographical and functional anatomy of the limbs and thorax.

SUBJECT NAME:	HUMAN PHYSIOLOGY-I
SUBJECT CODE:	PT 102

(w.e.f. July 2015)

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
3	1	0	3	1	0	15	25	60
4			4			40		60

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the basics of normal human physiology with special emphasis on the functioning of the cardiovascular, respiratory and other systems.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	General Physiology:	08 Hours
UNIT-II	Nerve Physiology & Muscles Physiology:	08 Hours
UNIT-III	Bloods:	08 Hours
UNIT-IV	Respiration:	08 Hours
UNIT-V	Cardiovascular System & Exercise Physiology:	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S. No.	GENERAL PHYSIOLOGY:	08 Hours
1.	Structure and Function of cell, Ionic composition of body fluid, ECF & ICF, Transport across cell membrane, Homeostasis, Resting Membrane Potential (RMP).	

UNIT-II

S. No.	NERVE PHYSIOLOGY & MUSCLES PHYSIOLOGY:	08 Hours
1.	NERVE PHYSIOLOGY: Structure of neuron, Properties of nerve fibre, Types of nerve fibre, Degeneration and regeneration of peripheral neuron, action potential origin, phases, properties, ionic basis and graded potential.	
2.	MUSCLES PHYSIOLOGY: Structure properties and classification of muscle, excitation contraction coupling, molecular basis of contraction, isometric and isotonic contraction, length tension relationship, motor unit, white and red muscle, energy kinetics of muscular contraction. Difference between smooth, skeletal and cardiac muscle, neuromuscular function and applied physiology.	

UNIT-III

S. No.	BLOODS:	08 Hours
1.	Composition and function of blood, erythropoiesis, Haemoglobin, anaemia, function of platelets, haemostasis, Blood group, transfusion, basis of immunity.	

UNIT-IV

S. No.	RESPIRATION:	08 Hours
1.	Introduction and general organization, Mechanics of respiration, Respiration measures, anatomical & physiological dead space, alveolar ventilation, ventilation perfusion ratio, transport of gases, regulation of respiration, pulmonary function test, physiological changes in altitude & acclimatization, hypoxia.	

UNIT-IV

S. No.	CARDIOVASCULAR SYSTEM & EXERCISE PHYSIOLOGY:	08 Hours
1.	Functional Anatomy of Heart, Cardiac Cycle, Heart rate regulation, Blood Pressure definition, Regulation factor affecting blood Pressure, Cardiac output, Peripheral resistance, venous	

return, Normal ECG, circulatory shock. Cardiovascular & respiratory adjustment during exercise, effect of exercise training (fatigue).

BOOKS RECOMMENDED:

TEXTBOOKS:

1. Concise Medical Physiology by Chaudhuri, 4th Edition; New Central Book Agency.
2. Human Physiology, Sembulingam; 4th ed, Jaypee Brothers.
3. A Textbook of Practical Physiology, Ghai C L, Jaypee Brothers.
4. Practical physiology by Vijaya Joshi; Vora Medical Publication.
5. Human Physiology, Chatterjee. Vol: 1&2; 10th Edition; Medical & Allied Agency.

REFERENCE BOOKS:

1. Textbook of Medical Physiology by Guyton & Hall, 11th Edition; Elsevier Publication
2. Principles of Anatomy & Physiology, Tortora, 8th Edition; Harper & Row Publication.
3. Samson Wright's Applied Physiology 13th ed, Keele CA, Neil E & Joels N, Oxford Medical Pub.
4. Textbook of Physiology : Ganong

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:

1. **General Physiology:** Understand the basis of normal human physiology with special emphasis on the functioning of the cardiovascular, musculo-skeletal and nervous systems & its application in practice of physiotherapy.
2. **Nerve Physiology & Muscles Physiology:** To know about detail anatomical knowledge of nervous system and outline of muscular anatomy system & its application in practice of physiotherapy.
3. **Bloods:** Detail knowledge of different type and function of blood cells. Brief outline of cardiovascular and respiratory system & its application in practice of physiotherapy.
4. **Respiration:** To learn and understand the skills of assessment of Breath sound, Blood pressure, Respiratory rate, Heart rate and Pulmonary Function Tests, & its application in practice of physiotherapy.
5. **Cardiovascular System & Exercise Physiology:** How the activities of organs are integrated for maximum efficiency in Physical Activity and exercise & its application in practice of physiotherapy.

SUBJECT NAME:					BIOCHEMISTRY			
SUBJECT CODE:					PT 103			
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
3	1	0	3	1	0	15	25	60
4			4			40		60

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the essentials of biochemistry in nutrition and biochemical reactions.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	Minimum Number of Hours
UNIT-I	Cell & Chemistry of Biomolecules:	08 Hours
UNIT-II	Carbohydrate:	08 Hours
UNIT-III	Nucleic Acid:	08 Hours
UNIT-IV	Vitamins (Fat & Water Soluble) & Enzymes & Hormones:	08 Hours
UNIT-V	Nutrition & Special Topics:	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S. No.	CELL & CHEMISTRY OF BIMOLECULES:	10 Hours
1.	Introduction, Molecular & functional organization of a cell & its sub cellular components-Cell membrane, Cytosol, Endoplasmic reticulum, Golgi apparatus, Lysosomes, Peroxisomes, Mitochondria & Nucleus. Definition, Classification, properties & functions of amino acids, Definition, classification, properties & biological importance of proteins. Definition, Classification & functions of lipids. Triglycerids, fatty acids, saturated, unsaturated fats, phospholipids & cholesterol, eicosanoids Beta-oxidation & ketone bodies metabolism. Structure of proteins, Amino acid & protein metabolism.	

UNIT-II

S. No.	CARBOHYDRATE:	08 Hours
1.	Definition, Classification & Metabolism Glycolysis. Citric Acid cycle, Gluconeogenesis, glycogenesis, Glycogenolysis, Pentose Phosphate Pathway. Blood Sugar level & its homeostasis, glucose tolerance & glycosuria.	

UNIT-III

S. No.	NUCLEIC ACID:	06 Hours
1.	Structure of DNA & RNA, DNA Replication, & Transcription, Advances in Genetic Engineering.	

UNIT-IV

S. No.	VITAMINS (FAT & WATER SOLUBLE) & ENZYMES & HORMONES:	16 Hours
1.	VITAMINS (FAT & WATER SOLUBLE) Definition, classification, functions dietary sources, daily requirement & Deficiency disorders.	(06 Hours)
2.	ENZYMES & HORMONES: Definition, Classification of enzymes, properties, mechanism of action, Clinical importance & regulation of activity. Introduction Definition & Classification of hormones. Mechanism of hormone action, Effects of hormones on various metabolism & hormonal disorders.	(10 Hours)

UNIT-V

S. No.	NUTRITION & SPECIAL TOPICS:	10 Hours
1.	Introduction of Nutrition, Nutrients of their role in human, Nutritional requirements, Balance diet, Nutritional disorder, SDA (special dynamic action). Respiratory quotient (RQ) & Basal	

Metabolism rate (BMR). Water electrolyte balance & acid base balance.

BOOKS RECOMMENDED:

TEXTBOOKS:

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|----|---|
| 1. | Fundamentals of Biochemistry-by Dr. Deb Jyoti Das, |
| 2. | Essentials of Bio-chemistry by U. Satyanarayan, 1st Edition, Books and Allied Publications. |
| 3. | Textbook of Biochemistry –Chatterje and Shinde |

REFERENCE BOOKS:

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| 1. | Text book of Medical Bio-Chemistry – Dr. M.N.Chettergee, 5th Edition, Jaypee Publication. |
| 2. | Fundamental of Bio-Chemistry – Dr.Dr.A.C.Deb, 5th Edition, Central Publication. |
| 3. | Bio-Chemistry introduction – Mekee, 2nd Edition, McGraw-Hill Publication. |

STUDENT LEARNING OUTCOMES/OBJECTIVES:
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At the end of the semester the student will be able to:

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|----|---|
| 1. | Acquire the knowledge of functions of various systems of human body |
| 2. | Understand the role of hormones, enzymes and other different types of cells of human body. |
| 3. | To acquire knowledge about chemical composition of nutrients and various metabolic reactions in the body. |

SUBJECT NAME:	BASIC OF ELECTROTHERAPY
SUBJECT CODE:	PT 104

(w.e.f. July 2015)

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
3	1	0	3	1	0	15	25	60
4			4			40		60

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the high frequency currents utilized in various modalities. They will also learn the principles, production, application, parameters, effects, testing, dangers and precautions of various modalities for various conditions.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	Physical Principles:	08 Hours
UNIT-II	Effects of Current Electricity:	08 Hours
UNIT-III	Electrical Supply:	08 Hours
UNIT-IV	Electrical Supply:	08 Hours
UNIT-V	Circuit Diagrams and Basic Knowledge of Equipments:	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S.No.	PHYSICAL PRINCIPLES:	08 Hours
1.	Structure and properties of matter – solids, liquids and gases, adhesion, surface tension, viscosity, density and elasticity.	
2.	Structure of atom, molecules, elements and compounds	
3.	Electron therapy static and current electricity.	
4.	Conductors, Insulators, Potential difference, Resistance and intensity.	
5.	Ohm's Law – Its application to AC & DC currents.	
6.	Rectifying Devices Thermionic Valves, Semiconductors, Transistors, Amplifiers, Transducer and Oscillator circuits.	
7.	Capacitance condensers and in DC and AC circuits.	
8.	Display devices and indicators – analogue and digital.	

UNIT-II

S.No.	EFFECTS OF CURRENT ELECTRICITY:	08 Hours
1.	Chemical effects- ions and electrolytes, ionization, Production of an EMF by chemical actions.	
2.	Magnetic effects, Molecular theory of magnetism, Magnetic fields Electromagnetic Induction.	
3.	Mili Ammeter and voltmeter transformers and choke coil	
4.	Electromagnetic spectrum.	

UNIT-III

S.No.	ELECTRICAL SUPPLY:	08 Hours
1.	Brief outline of main supply of electric current.	
2.	Dangers- short circuit, electric shocks.	
3.	Precaution – safety devices, earthing fuses etc.	
4.	First aid and initial management of electric shock.	

UNIT-IV

S.No.	VARIOUS AGENTS:	08 Hours
1.	Electro physical Agents.	
2.	Thermal agents, Superficial and deep heat.	
3.	Cryotherapy, Physical Principles of cold,	
4.	Electro-magnetic Radiation Physical Principles and their Relevance to Physiotherapy.	
5.	Electric Currents: Physical Principles and their Relevance to Physiotherapy Practice.	

UNIT-V

S.No.	CIRCUIT DIAGRAMS AND BASIC KNOWLEDGE OF EQUIPMENTS:	08 Hours
1.	Shortwave Diathermy (SWD)	
2.	Ultrasound (US)	
3.	Microwave Diathermy (MWD)	
4.	"Light Amplification by Stimulated Emission of Radiation" (LASER)	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Clayton's Electrotherapy (theory and practice) – Clayton's AIBS publications.
2.	Electrotherapy Explained by John Low and Reed, 3rd edition, B & H Publications.
3.	Practical in Electrotherapy by Joseph Kahn, Churchill livingstone.

REFERENCE BOOKS:

1.	Electrotherapy: Evidence Based Practice by Kitchen Sheild, 11th ed.
2.	Physical Agents in Rehabilitation: From Research to Practice by Cameron.

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	Describe the fundamentals of general physics and relate its application in physiotherapy.
2.	Demonstrate the mechanics related to human body function.
3.	Describe all the physical agents and their use in electrotherapy modalities.
4.	Understand basic concepts of electricity and electronics and its application in physiotherapy.

SUBJECT NAME:	COMPUTER APPLICATION IN PHYSIOTHERAPY
SUBJECT CODE:	CS 107

(w.e.f. July 2015)

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	Introduction to Computer:	06 Hours
UNIT-II	Generations of the Computers:	06 Hours
UNIT-III	Software Concept:	06 Hours
UNIT-IV	Software Concept:	06 Hours
UNIT-V	IT Technology:	06 Hours
Total (Minimal)		30 Hours

UNIT-I

S.No.	INTRODUCTION TO COMPUTER:	06 Hours
1.	Definition, Architecture of Computers, Processor, HDD, FDD, RAM, ROM, firmware & Human Ware, Motherboard, Tapes Printers- it types Monitor, Networks types and topology. Application of Computers. Maintenance and handling other machines and storage device like CD, Floppy etc.	

UNIT-II

S.No.	GENERATIONS OF THE COMPUTERS:	06 Hours
1.	Features of computers, Data, information, and knowledge-Data processing, latest trends and configuration of Computers.	

UNIT-III

S.No.	SOFTWARE CONCEPT:	06 Hours
1.	Definition of S/W types and classification operating system definition, types, installation, viruses' antivirus uses and its use. MS Office – Excel, Word, power point access.	

UNIT-IV

S.No.	BASIC KNOWLEDGE OF UTILITY OF MULTIMEDIA:	06 Hours
1.		

UNIT-V

S.No.	IT TECHNOLOGY:	06 Hours
1.	Defines uses, Internet, Search Engine, Websites, Email creation & Chat introduction to HTML, JAVA, and ASP.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Fundamentals of Computer science - M. Afshar Alam
2.	Fundamental of Information Technology by 'D. S. Yadav- New age International

REFERENCE BOOKS:

1.	Working with personal computer software: R.P.Soni, Harshal Arolkar, Sonal Jain, Books India Publications, First Edition, New Delhi, 2008.
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| 2. | MS Office by Pierce, Prentice Hall of India, New Delhi, 2007 9. MS Office: Plain & Simple, Jerry Joyce, and Marianne Moon, Prentice Hall of India, New Delhi, 2007. |
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STUDENT LEARNING OUTCOMES/OBJECTIVES:
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At the end of the semester the student will be able to:

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| 1. | To have a good understanding of the basic concepts of computer and basic software useful in physiotherapy. |
| 2. | To gain knowledge of the appropriate operating procedure of computer. |
| 3. | To use the internet for study and research purposes. |

SUBJECT NAME:	BASIC PROFESSIONAL COMMUNICATION
SUBJECT CODE:	LN 101

(w.e.f. July 2015)

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	Professional Communication	06 Hours
UNIT-II	Language through Literature	06 Hours
UNIT-III	Basic Vocabulary	06 Hours
UNIT-IV	Basic Grammar	06 Hours
UNIT-V	Basic Composition	06 Hours
Total (Minimal)		30 Hours

UNIT-I

S.No.	PROFESSIONAL COMMUNICATION	06 Hours
1.	Professional Communication: Its meaning & importance, Essentials of Effective Communication, Barriers to Effective Communication.	

UNIT-II

S.No.	LANGUAGE THROUGH LITERATURE	06 Hours
1.	Essays: "The Effect of the Scientific Temper on Man" by Bertrand Russell "The Aims of Science and Humanities" by Moody E. Prior	
2.	Short Stories: "The Meeting Pool" by Ruskin Bond "The Portrait of a Lady" by Khushwant Singh	

UNIT-III

S.No.	BASIC VOCABULARY	07 Hours
1.	Euphemism, One-word Substitution, Synonyms, Antonyms, Homophones, Idioms and Phrases, Common mistakes, Confusable words and expressions.	

UNIT-IV

S.No.	BASIC GRAMMAR	07 Hours
1.	Articles, Prepositions, Tenses, Concord (Subject-Verb agreement, Verbs: its Kind & Uses, Degrees of Comparison.	

UNIT-V

S.No.	BASIC COMPOSITION	06 Hours
1.	Report writing: What is a report? Kinds and objectives of reports, writing reports. Business Letter writing: Introduction to business letters, types of business letters, Layout of business letters, Letter of Enquiry / Complaint	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Lata , Pushp & Kumar, Sanjay .Communication Skills , Oxford University Press-2012
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2.	Quintanilla ,Kelly M. & Wahl ,Shawn T.Business and Professional Communication, Sage Publications India Pvt. Ltd-2011
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REFERENCE BOOKS:

1.	Juneja, Om P & Mujumdar, Aarati .Business Communication :Techniques and Methods, Orient Black Swan-2010.
2.	Arora, V. N. & Chandra, Lakshmi . Improve Your Writing: From Comprehensive to Effective Writing, Oxford University Press-2010 (For the prescribed essays- “The Effect of the Scientific Temper on Man” by Bertrand Russell &“The Aims of Science and Humanities” by Moody E. Prior).
3.	Mukherjee, Meenakshi .Let’s Go Home and Other Stories, Orient Black Swan-2009 (For the prescribed short stories-“The Meeting Pool” by Ruskin Bond, “The Portrait of a Lady” by Khushwant Singh).
4.	Quirk , Randolph & Greenbaum ,Sidney .A University Grammar of English,Pearson-2013.
5.	Bolton, David & Goodey, Noel .English Grammar in Steps, Orient Black Swan.
6.	Sethi, J. Standard English And Indian Usage: Vocabulary and Grammar, PHI Learning Pvt. Ltd . -2011
7.	Bhaskaran, M. P. & Horsburgh, D .Strengthen Your English, Oxford University -1973
8.	Greenbaum, Sidney . The Oxford English Grammar ,Oxford University Press, New York-1996.
9.	Bovee, Courtland L. & Thill, John V.Business Communication Essentials ,Pearson.
10.	Board of Editors. Written and Spoken Communication in English, University Press-2007.
11.	Gairns, R. & Radman, S. Working with Words: A Guide to Teaching and Learning Vocabulary Building. Cambridge: Cambridge University Press-1986
12.	Lewis, M. H. Words Power Made Easy, Goyal Publishers and Distributors Pvt. Ltd-1979
13.	McCarthy, M. Vocabulary, Oxford University Press-1990.

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	To sharpen basic Communication Skills (LSRW) by revealing the key communication techniques.
2.	To expose themselves to the modern modes of communication.

SUBJECT NAME:	HUMAN ANATOMY-I LAB
SUBJECT CODE:	PT 105
(w.e.f. July 2017)	

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	4	0	0	4	30	30	40
4			2			60		40

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the identification of all gross anatomical structures. Particular emphasis will be placed on description of musculoskeletal anatomy which includes bones, joints, muscles, cardiovascular system and nervous system, as these are related to the application of physiotherapy in patients.

OUTLINE OF THE COURSE:

S.No.	TITLE OF THE UNIT	Hours
1.	Demonstration of Anatomical position and movements.	
2.	Demonstration of articulated skeleton. Identification and orientation of bones and joints in an articulated skeleton. Classification of bones according to shape.	
3.	Demonstration of bones of superior extremity - Clavicle, Scapula, Humerus, Radius, Ulna and Skeleton of hand	
4.	Identification of muscles nerves and blood vessels on prosections of Superior extremity: Pectoral region, Scapular region and Back, Axilla, Arm, Forearm and Hand	
5.	Surface landmarks of superior extremity.	
6.	X rays and models of superior extremity.	
7.	Demonstration of bones of inferior extremity. Hip bone, Femur, Patella, Tibia, Fibula and Skeleton of foot.	
8.	Identification of muscles nerves and blood vessels on prosections of Inferior extremity: Gluteal and hip region, Thigh, Leg and foot.	
9.	Surface landmarks of inferior extremity.	
10.	X rays and models of inferior extremity.	
Total (Minimal)		60

BOOKS RECOMMENDED:

TEXTBOOKS:

1. Human Anatomy by B.D. Chaurasia, Vol. 1, 2nd edition; CBS publications.
2. Textbook of Anatomy by Inderbir Singh; 4th edition; Jaypee Publications.
3. Handbook of Osteology by Poddar; 11th edition; Scientific Book Company.
4. Limbs of Dr. Kadasana-All 3 volumes.

REFERENCE BOOKS:

1. Principles of anatomy and physiology by Tortora; 8th edition; Harper & Row Publications.
2. Clinical Anatomy for Medical Students by Richard Snell, 7th edition, Lippin Cott, Williams & Wilkins.
3. Clinical Anatomy for Medical Students by Richard Snell, 7th edition, Lippin Cott, Williams & Wilkins.
4. Anatomy & Physiology by Ross & Wilson's, 8th edition, Churchill Livingston.
5. Grant's atlas of anatomy, Anne MR; 10th edition

STUDENT LEARNING OUTCOMES/OBJECTIVES:	
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At the end of the semester the student will be able to:	
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- | | |
|----|---|
| 1. | To understand the level of organization of the human body. |
| 2. | To understand the topographical and functional anatomy of the limbs and thorax. |
| 3. | To understand the muscles, bones and joints of the various regions. |
| 4. | To understand its application in practice of physiotherapy. |

SUBJECT NAME:						HUMAN PHYSIOLOGY-I LAB		
SUBJECT CODE:						PT 106		
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	2	0	0	2	30	30	40
2			1			60		40
OBJECTIVES OF THE COURSE:								
In this subject, the student will learn about the basics of normal human physiology with special emphasis on the functioning of the cardiovascular, respiratory and other systems.								
OUTLINE OF THE COURSE:								

S.No.	TITLE OF THE UNIT	Hours
1.	Introduction of Microscope.	
2.	Preparations of Peripheral Blood smear.	
3.	Identification of Blood cell.	
4.	D.L.C Differential Leucocytes count.	
5.	T.L.C Total Leukocytes Count.	
6.	R.B.C. Count.	
7.	Estimation of Haemoglobin.	
8.	Estimation of bleeding time & clotting time.	
Total (Minimal)		30

BOOKS RECOMMENDED:	
TEXTBOOKS:	
1.	Concise Medical Physiology by Chaudhuri, 4th Edition; New Central Book Agency.
2.	Human Physiology, Sembulingam; 4th ed, Jaypee Brothers.
3.	A Textbook of Practical Physiology, Ghai C L, Jaypee Brothers.
4.	Practical physiology by Vijaya Joshi; Vora Medical Publication.
5.	Human Physiology, Chatterjee. Vol: 1&2; 10th Edition; Medical & Allied Agency.
REFERENCE BOOKS:	
1.	Textbook of Medical Physiology by Guyton & Hall, 11th Edition; Elsevier Publication
2.	Principles of Anatomy & Physiology, Tortora, 8th Edition; Harper & Row Publication.
3.	Samson Wright's Applied Physiology 13th ed, Keele CA, Neil E & Joels N, Oxford Medical Pub.
4.	Textbook of Physiology : Ganong

STUDENT LEARNING OUTCOMES/OBJECTIVES:	
At the end of the semester the student will be able to:	
1.	Acquire the knowledge of functions of various systems of human body
2.	Understand the role of hormones, enzymes and other different types of cells of human body.
3.	To demonstrate the skills of assessment of Breath sound, Blood pressure, Respiratory rate, Heart rate and Pulmonary Function Tests.

SUBJECT NAME:					BIOCHEMISTRY-LAB			
SUBJECT CODE:					PT 107			
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	2	0	0	2	50	50	00
2			1			100		00

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the essentials of biochemistry in nutrition and biochemical reactions.

OUTLINE OF THE COURSE:

S.No.	TITLE OF THE UNIT	Hours
1.	Quantitative estimation of proteins.	
	a. Lowry Method	
	b. Bradford test	
2.	Quantitative Estimation of	
	a. Glucose concentration	
	b. Urea concentration	
	c. Cholesterol Concentration	
3.	Chromatography	
	a. TLC (Thin layer chromatography) & Paper chromatography	
Total (Minimal)		

BOOKS RECOMMENDED:

TEXTBOOKS:

1. Fundamentals of Biochemistry-by Dr. Deb Jyoti Das,
2. Essentials of Bio-chemistry by U. Satyanarayan, 1st Edition, Books and Allied Publications.
3. Textbook of Biochemistry –Chatterje and Shinde

REFERENCE BOOKS:

1. Text book of Medical Bio-Chemistry – Dr. M.N.Chettergee, 5th Edition, Jaypee Publication.
2. Fundamental of Bio-Chemistry – Dr.Dr.A.C.Deb, 5th Edition, Central Publication.
3. Bio-Chemistry introduction – Mekee, 2nd Edition, McGraw-Hill Publication.

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:

1. Acquire the knowledge of functions of various systems of human body
2. Understand the role of hormones, enzymes and other different types of cells of human body.
3. To acquire knowledge about chemical composition of nutrients and various metabolic reactions in the body.

SUBJECT NAME:			BASIC OF ELECTROTHERAPY-LAB					
SUBJECT CODE:			PT 108					
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	2	0	0	2	30	30	40
2			1			60		40
OBJECTIVES OF THE COURSE:								
This course involves a demonstration of some basic physical principles as they relate to the application of electrotherapeutic modalities.								
OUTLINE OF THE COURSE:								

S.No.	TITLE OF THE UNIT	Hours
1.	Demonstration of followings:	
	a. Diode and Triode valves,	
	b. Transistors,	
	c. Ammeter,	
	d. Voltmeter,	
	e. Galvanometer,	
	f. Rheostat,	
	g. Resistance Box,	
	h. Transformer, etc.	
2.	Demonstration of Electrotherapy units like	
	a. Stimulator,	
	b. Short Wave Diathermy,	
	c. Micro Wave Diathermy,	
	d. LASER and	
	e. Ultrasound, etc.	
3.	Clinical observation of equipment placement.	
Total (Minimal)		30

BOOKS RECOMMENDED:

TEXTBOOKS:

1. Clayton's Electrotherapy (theory and practice) – Clayton's AIBS publications.
2. Electrotherapy Explained by John Low and Reed, 3rd edition, B & H Publications.
3. Practical in Electrotherapy by Joseph Kahn, Churchill livingstone.

REFERENCE BOOKS:

1. Electrotherapy: Evidence Based Practice by Kitchen Sheild, 11th ed.
2. Physical Agents in Rehabilitation: From Research to Practice by Cameron.

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:

1. Describe the fundamentals of general physics and relate its application in physiotherapy.
2. The student should be able to explain the physical rationale for the use of physical agent modalities
3. Describe all the physical agents and their use in electrotherapy modalities.
4. Understand basic concepts of electricity and electronics and its application in physiotherapy.

**SCHEME OF EXAMINATION
&
MODELS OF QUESTION PAPER
OF
BACHELOR OF PHYSIOTHERAPY
(BPT)**

SCHEME OF EXAMINATION

THEORY:

INTERNAL ASSESSMENT (IA)

40 Marks

CLASS TEST (CT)

TEACHER ASSESSMENT (TA)

MSE-1	MSE- 2	Makeup	ST-1	ST-2	Q-1	Q-2	A-1	A-2	A-3	A-4	Attendance
25	25	25	5	5	5	5	5	5	5	5	5

END SEMESTER EXAMINATION (ESE)

60 Marks

INTERNAL ASSESSMENT (IA)

Class Test (CT)

MM: 25 Marks

PM: 13 (50%)

Time: 1:30 Hours

Q.No.	Models										Marks
1.	Multiples Choice Questions (any three)										1.5X5=7.5
One Question from each Unit											
	a.	i)	ii)	iii)	iv)						1.5
	b.	i)	ii)	iii)	iv)						1.5
	c.	i)	ii)	iii)	iv)						1.5
	d.	i)	ii)	iii)	iv)						1.5
	e.	i)	ii)	iii)	iv)						1.5
2.	Short Questions (any three)										2.5X3=7.5
	a.										2.5
	b.										2.5
	c.										2.5
	d.										2.5
	e.										2.5
3.	Long Questions (any two)										5X2=10
	a.										5
	b.										5
	c.										5
End Semester Examination (ESE)											
MM: 60 Marks				PM: 21 (35%)				Time: 3:00 Hours			
Q.No.	Models										Marks
1.	Multiple Choice Questions										1X12=12
Two Question from each Unit											
	a.	i)	ii)	iii)	iv)						1
	b.	i)	ii)	iii)	iv)						1
	c.	i)	ii)	iii)	iv)						1
	d.	i)	ii)	iii)	iv)						1
	e.	i)	ii)	iii)	iv)						1
	f.	i)	ii)	iii)	iv)						1
	g.	i)	ii)	iii)	iv)						1
	h.	i)	ii)	iii)	iv)						1
	i.	i)	ii)	iii)	iv)						1

	j.	i)	ii)	iii)	iv)	1
	k.	i)	ii)	iii)	iv)	1
	l.	i)	ii)	iii)	iv)	1
2.	Short Questions (any Four)					3X4=12
	a.					3
	b.					3
	c.					3
	d.					3
	e.					3
	f.					3
3.	Short Questions (any Two)					3X4=12
	a.					3
	b.					3
	c.					3
	d.					3
	e.					3
	f.					3
4.	Long Questions (any Two)					6X2=12
	a..					6
	b.					6
	c.					6
4.	Long Questions (any Two)					6X2=12
	a.					6
	b.					6
	c.					6

STUDY & EVALUATION SCHEME OF BACHELOR OF PHYSIOTHERAPY

(BPT - I YEAR/ II SEMESTER)

[Applicable w.e.f. Academic Session 2020-21 till revised]



INTEGRAL UNIVERSITY, LUCKNOW
DASALI, P.O. BAS-HA KURSI ROAD,
LUCKNOW - 226026

Website: www.iul.ac.in

Approved by

Syllabus approved by Board of Study, Faculty Board, Academic Council,
Executive Council of the Integral University, Lucknow



**DEPARTMENT OF PHYSIOTHERAPY
INTEGRAL UNIVERSITY, LUCKNOW**

STUDY & EVALUATION SCHEME

PROGRAM: BACHELOR OF PHYSIOTHERAPY (BPT)

I - Year

S. No	Course Category	Code No.	Name of the Course	Periods			Credits C	Evaluation Scheme				
				L	T	P		Sessional (CA)			ESE	Subject Total
							CT	TA	Total			
II - Semester												
1.	DC	PT109	Human Anatomy-II	3	1	0	4	40	20	60	40	100
2.	DC	PT110	Human Physiology-II	3	1	0	4	40	20	60	40	100
3.	DC	PT111	Basic of Exercise therapy	3	1	0	4	40	20	60	40	100
4.	DC	PT112	Sociology	2	1	0	3	40	20	60	40	100
5.	DC	ES101	Environmental studies	2	1	0	3	40	20	60	40	100
6.	DC	LN202	Advance Professional communication	2	1	0	3	40	20	60	40	100
7.	DC	PT113	Human Anatomy-II Lab	0	0	2	1	40	20	60	40	100
8.	DC	PT114	Human Physiology-II Lab	0	0	2	1	40	20	60	40	100
9.	DC	PT115	Basic of Exercisetherapy-Lab	0	0	2	1	40	20	60	40	100
Total				15	06	06	24	360	180	540	360	900

L: Lecture	T: Tutorials	P: Practical	C: Credit	CT: Class Test	TA: Teacher Assessment
Sessional (CA): Class Test + Teacher Assessment			Subject Total: Sessional (CA) + End Semester Examination (ESE)		
DC – Departmental Core					
DE – Departmental Elective					

Approved by the Academic Council on:



AIMS AND OBJECTIVES OF BPT DEGREE COURSE

On completion of the course of study having successfully passed the examination, the candidate would be able to achieve a satisfactory level of efficiency:-

1. To Detect and evaluate the anatomical, patho-physiological impairments, resulting in dysfunction of various age groups & occupation; as well as epidemiological sectors in the population & arrive at appropriate diagnosis.
2. To understand the rationale & basic investigative approach to the medical system and surgical intervention regimens & accordingly plan & implement specific Physio-Therapy measures effectively.
3. To be able to select strategies for cure and care; adopt restorative & rehabilitative measures for maximum possible independence of a client at home, work place & in the community.
4. To maintain healthy relationship & Co-partnership with various professionals in the health delivery system in the primary interest of a client.
5. To ensure quality assurance & motivate the client & her/his family for a desirable client compliance.
6. To develop communication skills for the purpose of transfer of suitable technique to be used creatively at various stages of treatment, compatible with psychological status of the beneficiary.
7. To promote health in general in Geriatrics, Women's health, Industrial medicine as well as at competitive level, such as sports, keeping in mind National Health Policies.
8. To practice professional autonomy & ethical principles with referral as well as first contact clients in conformity with ethical code for physiotherapists.

SYLLABI
OF
BACHELOR OF PHYSIOTHERAPY
(BPT - I YEAR/ II SEMESTER)

GOAL:

The broad goal of the teaching of undergraduate students in Anatomy aims at providing comprehensive knowledge of the gross anatomy, microscopic structures, development of human body and principles of genetics to provide a basis for understanding the clinical correlation of organs or structure involved and the skills to practice as a qualified Physiotherapist.

OBJECTIVES:**A – Knowledge: At the end of the course, the student should be able to:**

1. Comprehend the normal disposition, inter-relationships, gross, functional and applied anatomy of the musculoskeletal system, locomotion, posture, gait and various organs in the body.
2. Comprehend the basic structure and connections between the various parts of the central nervous system so as to analyze the integrative and regulative functions of the organs and systems. He/she should be able to locate the site of gross lesions according to the deficits encountered.
3. Identify the microscopic structures of various tissues and organs in the human body and correlate the structure with the functions.
4. To understand the basic principles of embryology including genetic inheritance and stages involved in development of the organs and systems from the time of conceptions till birth.
5. To study the basic principles of radiology and for comprehending deeper structures in the human body.

B. Skills: At the end of the course the students shall be able to:

1. Identify and locate all the structures of the body and mark the topography of the living anatomy.
2. Identify the organs and tissues under the microscope.
3. Understand principles of karyotyping and identify the gross congenital anomalies.
4. Understand the principles of imaging techniques and interpretation of anatomical structures on plane radiographs of the body.

C. Integration

From the integrated teaching of other basic sciences, students shall be able to comprehend the functions of the organs and systems in the body and thus interpret the anatomical basis of disease processes.

SUBJECT NAME:	HUMAN ANATOMY-II
SUBJECT CODE:	PT 109
(w.e.f. July 2017)	

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
3	1	0	3	1	0	15	25	60
4			4			40		

OBJECTIVES OF THE COURSE:

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	THORAX	08 Hours
UNIT-II	ABDOMEN & PELVIS	08 Hours
UNIT-III	HEAD AND NECK	09 Hours
UNIT-IV	BRAIN	08 Hours
UNIT-V	NEUROANATOMY	07 Hours
Total (Minimal)		40 Hours

UNIT-I

S.No.	THORAX:	08 Hours
1.	Thoracic wall	
	a. Thoracic inlet: Boundaries and structure passing through it.	
	b. Typical intercostals space: Structures present, action and nerve supply of intercostals muscles, details of intercostals nerve.	
	c. Diaphragm: Attachments, action and nerve supply of diaphragm. Details of Respiratory movements.	
2.	Pleura & Lung	
	a. Layers of pleura and its nerve supply.	
	b. Surface, borders, fissures and lobes and structure in the hilum of lung.	
3.	Pericardium & heart	
	a. Layers of pericardium	
	b. Introduction to heart, external features and blood supply.	
4.	Important blood vessels of Thorax	
	a. Location and branches of ascending arch of aorta and descending aorta.	
	b. Location and tributaries of Brachiocephalic veins and superior vena cava.	
	c. Azygos system of veins.	

UNIT-II

S.No.	ABDOMEN & PELVIS:	08 Hours
1.	Introduction to abdomen, its regions and quadrants.	
2.	Abdominal wall:	
	a. Enumerate of the layers of anterior abdominal wall.	

	b.	Muscles of anterior and posterior abdominal wall their origin insertion, action and nerve supply.
	c.	Rectus sheath.
3.	Components of gastrointestinal tract, their location and orientation in abdominal cavity. Brief account of liver and stomach.	
4.	Urinary system: Components of urinary system, their location and orientation in abdomino-pelvic cavity. Brief account of kidneys.	
5.	Reproductive system: Components of male & female reproductive system and their location.	

UNIT-III

S.No.	HEAD AND NECK	09 Hours
1.	Muscles and fascia	
	(a) Scalp and muscles of facial expression	
	• Layers of scalp, nerve and blood supply.	
	• Enumerate muscles of facial expression, their nerve supply and action, sensory nerve supply of face.	
	(b) Muscles of mastication, their origin, insertion action and nerve supply	
	(c) Neck: Layers of deep cervical fascia, extent and attachment of investing layer, Sternocleidomastoid, diaphragic and strap muscles of neck.	
2.	Triangles of neck: Subdivision of anterior and posterior triangle and their contents. Common carotid & external carotid artery & Internal Jugular vein.	
3.	Joints: Details of temporomandibular joint, atlantoaxial and atlanto-occipital joint.	

UNIT-IV

S.No.	BRAIN	08 Hours
1.	Introduction and regional organization of brain including its coverings.	
2.	Cerebral hemisphere: Lobes, poles, surface and borders of cerebral hemisphere. Important sulci and gyri on superolateral and medial surface. Sensory, motor, visual and auditory areas. White matter of cerebrum, types of fibers, parts and location of corpus callosum, details of internal capsule.	
3.	Cerebellum: External features, function of cerebellum.	
4.	Mid Brain, pons and medulla: External features and cranial nerves attached to them.	
5.	Spinal cord: External features and internal features.	
6.	CSF – Formation, absorption and circulation in the ventricular system.	

UNIT-IV

S.No.	NEUROANATOMY	07 Hours
1.	Important ascending and descending tracts.	
2.	Cranial nerves: Enumerate the cranial nerves, their site of attachment and innervations, details of facial and trigeminal nerve.	
3.	Brief account of visual and auditory path way.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Inderbir Singh'S Textbook of Anatomy 7 th edition Vol.1, 2, 3
2.	Clinically oriented Anatomy 7 th Edition by Keith L. Moore
3.	Clinical Neuroanatomy 7 th Edition- Richard S. Snell

4.	Surface and Radiological Anatomy 3 rd edition by A. Halim
5.	B.D. Chaurasia Human Anatomy : Regional and Applied Dissection & Clinical 7 th Edition Vol. 1., 2, 3
6.	General Anatomy by Vishram Singh 2 nd Edition
7.	Clinical Anatomy by Regions - Richard S. Snell
8.	Human Osteology- A Clinical Orientation - Nafis Ahmad Faruqi 3 rd Edition
9.	Grant's Atlas of Anatomy - Anne M. R. Agur , Arthur F. Dalley
10.	Gray's Anatomy: The Anatomical Basis of Clinical Practice - Susan Standring 41 st edition
11.	McMinn and Abrahams' Clinical Atlas of Human Anatomy - Peter H. Abrahams

REFERENCE BOOKS:

1.	Principles of anatomy and physiology by Tortora; 8th edition; Harper & Row Publications.
2.	Clinical Anatomy for Medical Students by Richard Snell, 7th edition, Lippin Cott, Williams & Wilkins.
3.	Clinical Anatomy for Medical Students by Richard Snell, 7th edition, Lippin Cott, Williams & Wilkins.
4.	Anatomy & Physiology by Ross & Wilson's, 8th edition, Churchill Livingston.
5.	Grant's atlas of anatomy, Anne MR; 10th edition
6.	Gray's Anatomy.
7.	Primary castes Anatomy by Basmajian (Williams and Willkins Co. Batlimore).
8.	Anatomy and Physiology by Smout and McDowall (Edwad Arnold).

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	General Anatomy: To understand the level of organization of the human body & its application in practice of physiotherapy.
2.	Osteology & Arthrology : To understand the muscles, bones and joints of the various regions & its application in practice of physiotherapy.
3.	Systemic Anatomy: To understand the level of organization of the human different system of the body & its application in practice of physiotherapy.
4.	Superior Extremity: To understand the topographical and functional anatomy of the upper limb & its application in practice of physiotherapy.
5.	Inferior Extremity: To understand the topographical and functional anatomy of the limbs and thorax.

SUBJECT NAME:	HUMAN PHYSIOLOGY-II
SUBJECT CODE:	PT 110

(w.e.f. July 2015)

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
3	1	0	3	1	0	15	25	60
4			4			40		60

OBJECTIVES OF THE COURSE:

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	Excretory Function	08 Hours
UNIT-II	Gastro Intestinal Tract (Git)	08 Hours
UNIT-III	Nervous System & Special Senses	08 Hours
UNIT-IV	Endocrine System	08 Hours
UNIT-V	Reproductive System	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S. No.	EXCRETORY FUNCTION:	08 Hours
1.	Kidney structure and function, Urine formation, Glomerular filtration rate, Renal blood flow, Tubular absorption, Regulation of Na, K, Ca, and H ₂ O. Acidification of urine, Acid base balance, micturition reflex neuron control, neurogenic bladder, diuretics	

UNIT-II

S. No.	GASTRO INTESTINAL TRACT (GIT):	08 Hours
1.	Motility nervous control, blood circulation composition, secretory function of saliva gastric juices, HCL secretion, pancreas gall bladder and small intestine, digestion and absorption of food, defecation and swallowing reflex	

UNIT-III

S. No.	NERVOUS SYSTEM & SPECIAL SENSES:	08 Hours
1.	Receptor physiology, synaptic structure, reflexes, physiology of touch, pain, temperature and proprioception, labyrinth, function of sensory and motor cortex, ascending and descending tracts, motor function of spinal cord and reflexes, spinal cord transection and spinal shock, hypothalamus, thalamus, basal ganglia, cerebellum, limbic system, RAI system, learning memory and condition reflex, posture, equilibrium and sleep, cerebral blood flow, CSF and brain metabolism. Eye, Ear, Olfaction, Taste.	

UNIT-IV

S. No.	ENDOCRINE SYSTEM:	08 Hours
1.	Hormone secretion, transport and clearances from blood, pituitary thyroid, adrenal cortical, parathyroid, pancreas, Temperature Regulation: role of hypothalamus and various other mechanisms in temperature regulation.	

UNIT-IV

S. No.	REPRODUCTIVE SYSTEM:	08 Hours
1.	Female menstrual cycle and related hormone function of estrogens, progesterone and testosterone, puberty and menopause, Male spermatogenesis and function of testosterone, Sucking reflex- pregnancy and lactation.	

BOOKS RECOMMENDED:**TEXTBOOKS:**

- | | |
|----|---|
| 1. | Textbook of Physiology: Guyton |
| 2. | Textbook of Physiology : Ganong |
| 3. | Human Physiology: 1. Chaudhary 2. Bijlani |
| 4. | Essentials of Medical Physiology: K.Semubulingam. |

REFERENCE BOOKS:

- | | |
|----|--|
| 1. | |
| 2. | |
| 3. | |
| 4. | |

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:

- | | |
|----|--|
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |

SUBJECT NAME:					BASIC OF EXERCISE THERAPY			
SUBJECT CODE:					PT 111			
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
3	1	0	3	1	0	15	25	60
4			4			40		60
OBJECTIVES OF THE COURSE:								

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	Minimum Number of Hours
UNIT-I		08 Hours
UNIT-II		08 Hours
UNIT-III		08 Hours
UNIT-IV		08 Hours
UNIT-V		08 Hours
Total (Minimal)		40 Hours

UNIT-I

S. No.		08 Hours
	Mechanical Basis of Movement: Force and force Systems, Motion and its Laws, Levers, Angle of Pull, Pulleys and its types, Pendulum, Friction, Work Energy and Power Friction, Stress and Strain.	
	Skeletal Basis of Movement: Planes and Axes, Joints and their Classification, Classification of Movement, Degrees of Freedom, Bones and their Classification.	

UNIT-II

S. No.		08 Hours
	Musculoskeletal Basis of Movement: Structure of Muscle and its Classification, Muscle Tension, Muscle Fibre Group Action of Muscles, Torque & angle of pull.	
	Gravity: Effects, Centre of gravity, Line of Gravity and their Alterations, Role in Human Body and Movement.	
	Equilibrium: Effects, Supporting Base, role in Human Movement.	

UNIT-III

S. No.		08 Hours
	Simple Machines: Levers and their Functions and classification, Pulleys and their Functions and classification, Inclined Planes and their Functions, classification & their clinical relevance.	
	Elasticity: Stress, Strain, Hooke's Law Springs and their properties & their clinical relevance.	

UNIT-IV

S. No.		08 Hours
	Hydrostatics and Hydrodynamics: Principles & its Application	
	Traction: Definition, types, indication, contraindication, & uses of traction.	

UNIT-V

S. No.		08 Hours
	Fundamental and Derived Positions: Fundamental position of human body, effects, muscles uses and their importance. Derived position of human body, effects, muscles uses and their importance's.	

BOOKS RECOMMENDED:

TEXTBOOKS:

- | | |
|----|--|
| 1. | Practical Exercise Therapy- Hollis and Cook |
| 2. | Principles of Exercise Therapy- Deena Gardiner |
| 3. | Joint structure and function–Norkin |
| 4. | Exercise Therapy–Carolyn Kisner |

REFERENCE BOOKS:

- | | |
|----|--|
| 1. | |
| 2. | |
| 3. | |

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:

- | | |
|----|--|
| 1. | |
| 2. | |
| 3. | |

SUBJECT NAME:	SOCIOLOGY
SUBJECT CODE:	PT 112

(w.e.f. July 2015)

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the high frequency currents utilized in various modalities. They will also learn the principles, production, application, parameters, effects, testing, dangers and precautions of various modalities for various conditions.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I		08 Hours
UNIT-II		08 Hours
UNIT-III		08 Hours
UNIT-IV		08 Hours
UNIT-V		08 Hours
Total (Minimal)		40 Hours

UNIT-I

S.No.		08 Hours
	INTRODUCTION: Definitions of sociology, Sociology as a science of society, uses of the study of sociology, application of knowledge of sociology in physiotherapy.	
	SOCIOLOGY AND HEALTH: Social Factors affecting health status, social consciousness and perception of illness, social consciousness and meaning of illness, decisions making in taking treatment Institutions of health, their role in the improvement of the health of the people.	

UNIT-II

S.No.		08 Hours
	SOCIALIZATION: Meaning of socialization, influence of social factor on personality, socialization in hospitals, and socialization in the rehabilitation of patients.	
	SOCIAL GROUPS: Concepts of Social groups influence of formal and informal groups on health and sickness, the role of the primary groups and secondary groups in the hospitals and rehabilitation settings.	

UNIT-III

S.No.		08 Hours
	FAMILY & COMMUNITY: Influence of family on human personality, discussion of chares in the functions of a family on the individuals' health family and nutrition the effects of sickness on family and psychosomatic disease. Concept of community, role of rural and urban communities in public health, role of community, in determining beliefs, practices and home remedies in treatment.	
	CULTURE: Components of culture, impact of culture, on human behavior, cultural meaning of sickness, response of sickness, and choice of treatment, (role of culture as social consciousness in moulding the perception of reality), culture induced symptoms and disease, sub-culture of medical workers.	

UNIT-IV

S.No.	08 Hours
	Social Change: Factor of Social change, human adaptation and social change, social change and stress, social change and deviance, social change and health programs the role of social planning in the improvement of health and in rehabilitation.
	Organization: Goals and functions, organization as systems, organizational impact – individual, family community, social structure, power and control in organizations, feminist perspectives on organizations.

UNIT-V

S.No.	08 Hours
	Social Problems of the Disabled: Consequences of the following social problems in relation to sickness and disability remedies, to prevent these problems.
a.	Population explosion
b.	Poverty and unemployment
c.	Beggary
d.	Juvenile delinquency
e.	Prostitution
f.	Alcoholism
g.	Problems of women in employment
h.	Social of the health profession
i.	Various perspectives, power and autonomy in professions, women and professions.

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Sociology – Sachdeva
2.	Sociology for Physiotherapist / Dibyendunarayan Bid
3.	Textbook of Sociology for Physiotherapy- K.P. Neerya

REFERENCE BOOKS:

1.	
2.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	
2.	
3.	
4.	

SUBJECT NAME:					ENVIRONMENTAL STUDIES			
SUBJECT CODE:					ES 101			
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I		
UNIT-II		
UNIT-III		
UNIT-IV		
UNIT-V		
Total (Minimal)		

UNIT-I

S.No.	NATURAL RESOURCES: RENEWABLE AND NON-RENEWABLE RESOURCES:	
	Natural resources and associated problems.	
a.	Water Resources: Use and over utilization of surface and ground water, floods, drought, conflicts over water, dams- benefits and problems.	
b.	Mineral Resources: Use and exploitation, environmental effects of extracting and using minerals resources, case studies.	
c.	Food Resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer -pesticide problems, Water logging, Salinity, case studies.	
d.	Energy Resources: Growing energy needs, renewable and nonrenewable energy sources, use of alternate energy sources, case studies.	
e.	Land Resources: Land as a resource, Land degradation, Man induced landslides, Soil erosion and desertification.	
	<ul style="list-style-type: none"> • Role of an individual in conservation of natural resources • Equitable use of resources for sustainable life styles. 	

UNIT-II

S.No.	ECOSYSTEMS:	
a.	Concept of an Ecosystem.	
b.	Structure and Function of an Ecosystem.	
c.	Producer Consumer and decomposers.	
d.	Energy flow in the Ecosystem.	
e.	Ecological Succession.	

UNIT-III

S.No.	BIODIVERSITY AND ITS CONSERVATION:	
a.	Introduction - Definition: Genetic, Species and Ecosystem diversity.	

b.	Bio-Geographical classification of India.
c.	Value of Bio-diversity: Consumptive use, productive use, Social, ethical, aesthetic and option values
d.	Biodiversity at Global, National & Local levels.
e.	Hotspots of Biodiversity
f.	Threats to Biodiversity: Habitat Loss, Poaching of Wildlife, Man-Wildlife Conflicts

UNIT-IV

S.No.	ENVIRONMENTAL POLLUTION:
a.	Definition, Causes, effects and control measures of-Air Pollution, Water Pollution, Soil Pollution, Marine Pollution, Noise Pollution, Thermal Pollution, Nuclear Hazards
b.	Solid Waste Management: Causes, effects and control measures of urban and Industrial Wastes.
c.	Role of an Individual in prevention of pollution.
d.	Pollution case studies
e.	Disaster Management: floods, earthquake, cyclones and landslides.

UNIT-V

S.No.	SOCIAL ISSUES AND THE ENVIRONMENT:
a.	Resettlement and Rehabilitation of people; its problems and concerns, case studies.
b.	Environmental ethics: issues and possible solutions
c.	Green house effect and global Warming, effects of acid Rain and their remedial measures and ozone Layer depletion.
	HUMAN POPULATION AND THE ENVIRONMENT:
a.	Population growth variation among nations, Population Explosion, Family welfare programme
b.	Environment and Human Health
c.	Human Rights
d.	HIV/AIDS, Women and Child welfare
e.	Role of Information Technology in Environment and Human Health, Case studies

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Agarwal, K.C. 2001 Environmental; Biology, Nidi Pub. Ltd. Bikaner.
2.	Bharaucha Erach, The Biodiversity of India, Mappin Pub. Pvt. Ltd., Ahmedabad- 380, India.
3.	Brunner R.C. 1989. Hazardous waste incineration, Mc Graw Hill.
4.	Clark R.S. Marine Pollution, Clanderon Press Oxford (TB).
5.	Cunningham W.P.2001.Cooper, T.H. Gorhani, E&Hepworth, Environmental encyclopedia, Jaico Publication House, Mumbai.
6.	De . A.K. Environmental chemistry Willey Eastern Limited.

REFERENCE BOOKS:

1.	
2.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	
2.	
3.	

SUBJECT NAME:	ADVANCE PROFESSIONAL COMMUNICATION
SUBJECT CODE:	LN 202

(w.e.f. July 2015)

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	READING & LISTENING COMPREHENSION	07 Hours
UNIT-II	WRITING SKILLS	07 Hours
UNIT-III	GROUP DISCUSSION AND INTERVIEW SKILLS	07 Hours
UNIT-IV	PRESENTATION SKILLS	07 Hours
UNIT-V	PROJECT WORK	04 Hours
Total (Minimal)		32 Hours

UNIT-I

S.No.	READING & LISTENING COMPREHENSION	07 Hours
	Ways to improve the Speed & Efficiency of Reading ,Importance of Skim Reading, Listening Skills & Features of Effective Listening, Benefits of Effective Listening	

UNIT-II

S.No.	WRITING SKILLS	07 Hours
	C V & Resume writing, Job Application letter/Covering letter, Precise: Principles of Condensation	
	Paragraph writing, Development of Paragraph	

UNIT-III

S.No.	GROUP DISCUSSION AND INTERVIEW SKILLS	07 Hours
	Group Discussion: Meaning &Significance, How to prepare & practice for GD, Common Pitfalls in a GD	
	Interview: Definition, Skills & Techniques, Preparation, Negative Interview Factors & Interview Tips	

UNIT-IV

S.No.	PRESENTATION SKILLS	07 Hours
	Presentation Strategies: Purpose, Audience and Locale, Organizing Contents, Audio-Visual Aids, Nuances of Delivery, Body Language, Voice Dynamics.	

UNIT-V

S.No.	PROJECT WORK	04 Hours
	At the commencement of the semester, the student would be assigned a topic by the Teacher/Instructor. They will research it & submit a duly documented report of about 20- 25 pages by the end of the semester.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Raman, Meenakshi & Sharma, Sangeeta. <i>Technical Communication: Principles and Practice</i> Oxford University Press-2013
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2.	Konar, Nira. <i>Communication Skills For Professionals</i> , PHI Learning Pvt. Ltd – 2011
3.	Board of Editors. <i>Written and Spoken Communication in English</i> , University Press-2007
4.	Lata , Pushp & Kumar, Sanjay . <i>Communicate or Collapse :A Handbook of Effective Public Speaking , Group Discussions and Interviews</i> , PHI Learning Pvt. Ltd -2011
5.	Duck, Steve & McMahan, David T. <i>The Basics of Communication : A Relational Perspective</i> , Sage Publication-2012
6.	Laws, Anne- <i>Presentations</i> , Orient Black Swan-2011
7.	O'Connor, J. D. <i>Better English Pronunciation</i> , Universal Books Stall-1991
8.	Anderson, Marilyn, Nayar, Pramod K. & Sen, Madhuchhanda . <i>Critical Thinking, Academic Writing and Presentation Skills</i> , Pearson-2009

REFERENCE BOOKS:

1.	
2.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	
2.	

SUBJECT NAME:	HUMAN ANATOMY-II LAB
SUBJECT CODE:	PT 113
(w.e.f. July 2017)	

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	2	0	0	2	30	30	40
4			1			60		40

OBJECTIVES OF THE COURSE:

OUTLINE OF THE COURSE:

S.No.	TITLE OF THE UNIT	Hours
1.	Demonstration of bones of Thorax, abdomen & pelvis and Head & Neck region.	
2.	Identification, side determination and external features of viscera of Thorax, abdomen and pelvis.	
3.	Identification of structure on prosected parts of Head and neck region.	
4.	Demonstration of parts and external features of brain and spinal cord.	
5.	Surface landmarks of Thorax, abdomen & pelvis and Head and Neck region.	
6.	Demonstration of models of organs and viscera of genitourinary system.	
Total (Minimal)		

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Anatomy and physiology by Smout and McDowall (Edward Arnold).
2.	Primary castes anatomy by Basmajian (Williams and Willkins Co. Baltimore).
3.	An Introduction of fundamental Anatomy by David Sinclair.
4.	Human Anatomy by B D Chaurasia's - All 3 volumes.
5.	Limbs of Dr. Kadasana - All 3 volumes.
6.	Anatomy of Grant
7.	Human Embryology by Hamilton Body and Mossaman.
8.	Neuro-Anatomy – Inderbir Singh.

REFERENCE BOOKS:

1.	
2.	
3.	
4.	
5.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	
2.	
3.	
4.	

SUBJECT NAME:						HUMAN PHYSIOLOGY-II LAB		
SUBJECT CODE:						PT 114		
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	2	0	0	2	30	30	40
2			1			60		40
OBJECTIVES OF THE COURSE:								
OUTLINE OF THE COURSE:								

S.No.	TITLE OF THE UNIT	Hours
1.	Recording of Pulse ,CVS Examination	
2.	Blood Pressure Measurement	
3.	Effect of posture on SBP and DBP	
4.	Effect of exercise on SBP and DBP	
5.	ECG	
6.	Cranial Nerve Examination	
7.	Sensory Examination	
8.	Motor Examination	
9.	Vitalography	
Total (Minimal)		30

BOOKS RECOMMENDED:	
TEXTBOOKS:	
1.	Textbook of Physiology: Guyton
2.	Textbook of Physiology : Ganong
3.	Human Physiology: A.K. Jain
4.	Essentials of Medical Physiology: K.Semubulingam,
5.	
REFERENCE BOOKS:	
1.	
2.	
3.	
4.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:	
At the end of the semester the student will be able to:	
1.	
2.	
3.	

SUBJECT NAME:			BASIC OF EXERCISE THERAPY LAB					
SUBJECT CODE:			PT 115					
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	2	0	0	2	30	30	40
2			1			60		40
OBJECTIVES OF THE COURSE:								
OUTLINE OF THE COURSE:								

S.No.	TITLE OF THE UNIT	Hours
1.	Mechanical Principles applied in Physiotherapy like force, Torque, Centre of Gravity, etc.	
2.	Demonstration of different types of leavers in the human body.	
3.	Demonstration of different types of pulleys and strings used in Physiotherapy.	
4.	Demonstration of Archimedes' Principle of floatation and Bernoulli's Theorem in Hydrotherapy.	
5.	Demonstration of axial and pendular suspension.	
Total (Minimal)		30

BOOKS RECOMMENDED:	
TEXTBOOKS:	
1.	Practical Exercise Therapy- Hollis and Cook
2.	Principles of Exercise Therapy- Deena Gardiner
3.	Joint structure and function–Norkin
4.	Exercise Therapy–Carolyn Kisner
REFERENCE BOOKS:	
1.	
2.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:	
At the end of the semester the student will be able to:	
1.	
2.	
3.	
4.	

**SCHEME OF EXAMINATION
&
MODELS OF QUESTION PAPER
OF
BACHELOR OF PHYSIOTHERAPY
(BPT)**

SCHEME OF EXAMINATION

THEORY:

INTERNAL ASSESSMENT (IA)

40 Marks

CLASS TEST (CT)

TEACHER ASSESSMENT (TA)

MSE-1	MSE- 2	Makeup	ST-1	ST-2	Q-1	Q-2	A-1	A-2	A-3	A-4	Attendance
25	25	25	5	5	5	5	5	5	5	5	5

END SEMESTER EXAMINATION (ESE)

60 Marks

INTERNAL ASSESSMENT (IA)

Class Test (CT)

MM: 25 Marks

PM: 13 (50%)

Time: 1:30 Hours

Q.No.	Models										Marks
1.	Multiples Choice Questions (any three)										1.5X5=7.5
One Question from each Unit											
	a.	i)	ii)	iii)	iv)						1.5
	b.	i)	ii)	iii)	iv)						1.5
	c.	i)	ii)	iii)	iv)						1.5
	d.	i)	ii)	iii)	iv)						1.5
	e.	i)	ii)	iii)	iv)						1.5
2.	Short Questions (any three)										2.5X3=7.5
	a.										2.5
	b.										2.5
	c.										2.5
	d.										2.5
	e.										2.5
3.	Long Questions (any two)										5X2=10
	a.										5
	b.										5
	c.										5
End Semester Examination (ESE)											
MM: 60 Marks				PM: 21 (35%)				Time: 3:00 Hours			
Q.No.	Models										Marks
1.	Multiple Choice Questions										1X12=12
Two Question from each Unit											
	a.	i)	ii)	iii)	iv)						1
	b.	i)	ii)	iii)	iv)						1
	c.	i)	ii)	iii)	iv)						1
	d.	i)	ii)	iii)	iv)						1
	e.	i)	ii)	iii)	iv)						1
	f.	i)	ii)	iii)	iv)						1
	g.	i)	ii)	iii)	iv)						1
	h.	i)	ii)	iii)	iv)						1
	i.	i)	ii)	iii)	iv)						1

	j.	i)	ii)	iii)	iv)	1
	k.	i)	ii)	iii)	iv)	1
	l.	i)	ii)	iii)	iv)	1
2.	Short Questions (any Four)					3X4=12
	a.					3
	b.					3
	c.					3
	d.					3
	e.					3
	f.					3
3.	Short Questions (any Two)					3X4=12
	a.					3
	b.					3
	c.					3
	d.					3
	e.					3
	f.					3
4.	Long Questions (any Two)					6X2=12
	a..					6
	b.					6
	c.					6
4.	Long Questions (any Two)					6X2=12
	a.					6
	b.					6
	c.					6

STUDY & EVALUATION SCHEME OF BACHELOR OF PHYSIOTHERAPY

(BPT - II YEAR/ III SEMESTER)

[Applicable w.e.f. Academic Session 2020-21 till revised]



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Approved by

Syllabus approved by Board of Study, Faculty Board, Academic Council,
Executive Council of the Integral University, Lucknow



STUDY & EVALUATION SCHEME BACHELOR OF PHYSIOTHERAPY (BPT)

(w.e.f. July 2020)

II-Year

III-Semester

S. No.	Code No.	Name of the Subject	Periods			Total Credits	Evaluation Scheme				Subject Total
			L	T	P		Sessional			Exam	
							CT	TA	Total	ESE	
1.	PT 201	Pathology	2	1	0	3	40	20	60	40	100
2.	PT 202	Microbiology	2	1	0	3	40	20	60	40	100
3.	PT 203	Exercise therapy	3	1	0	4	40	20	60	40	100
4.	PT 204	Electrotherapy	3	1	0	4	40	20	60	40	100
5.	PT 205	Surface Anatomy & Palpation Skills	2	1	0	3	40	20	60	40	100
6.	PT 206	Psychology & Experimental Psychology	2	1	0	3	40	20	60	40	100
7.	PT 207	Exercise therapy-Lab	0	0	4	2	40	20	60	40	100
8.	PT 208	Electrotherapy-Lab	0	0	4	2	40	20	60	40	100
9.	PT 209	Surface Anatomy & Palpation Skills-Lab	0	0	2	1	40	20	60	40	100
		Total	14	06	10	25	360	180	540	360	900

L: Lecture	T: Tutorials	P: Practical	C: Credit	CT: Class Test
TA: Teacher Assessment		ESE: End Semester Examination		
Sessional Total: Class Test + Teacher Assessment		Subject Total: Sessional Total + End Semester Examination (ESE)		



AIMS AND OBJECTIVES OF BPT DEGREE COURSE

On completion of the course of study having successfully passed the examination, the candidate would be able to achieve a satisfactory level of efficiency:-

1. To Detect and evaluate the anatomical, patho-physiological impairments, resulting in dysfunction of various age groups & occupation; as well as epidemiological sectors in the population & arrive at appropriate diagnosis.
2. To understand the rationale & basic investigative approach to the medical system and surgical intervention regimens & accordingly plan & implement specific Physio-Therapy measures effectively.
3. To be able to select strategies for cure and care; adopt restorative & rehabilitative measures for maximum possible independence of a client at home, work place & in the community.
4. To maintain healthy relationship & Co-partnership with various professionals in the health delivery system in the primary interest of a client.
5. To ensure quality assurance & motivate the client & her/his family for a desirable client compliance.
6. To develop communication skills for the purpose of transfer of suitable technique to be used creatively at various stages of treatment, compatible with psychological status of the beneficiary.
7. To promote health in general in Geriatrics, Women's health, Industrial medicine as well as at competitive level, such as sports, keeping in mind National Health Policies.
8. To practice professional autonomy & ethical principles with referral as well as first contact clients in conformity with ethical code for physiotherapists.

SYLLABI
OF
BACHELOR OF PHYSIOTHERAPY
(BPT - II YEAR/ III SEMESTER)

GOAL:

The broad goal of the teaching of undergraduate students in Anatomy aims at providing comprehensive knowledge of the gross anatomy, microscopic structures, development of human body and principles of genetics to provide a basis for understanding the clinical correlation of organs or structure involved and the skills to practice as a qualified Physiotherapist.

OBJECTIVES:**A – Knowledge: At the end of the course, the student should be able to:**

1. Comprehend the normal disposition, inter-relationships, gross, functional and applied anatomy of the musculoskeletal system, locomotion, posture, gait and various organs in the body.
2. Comprehend the basic structure and connections between the various parts of the central nervous system so as to analyze the integrative and regulative functions of the organs and systems. He/she should be able to locate the site of gross lesions according to the deficits encountered.
3. Identify the microscopic structures of various tissues and organs in the human body and correlate the structure with the functions.
4. To understand the basic principles of embryology including genetic inheritance and stages involved in development of the organs and systems from the time of conceptions till birth.
5. To study the basic principles of radiology and for comprehending deeper structures in the human body.

B. Skills: At the end of the course the students shall be able to:

1. Identify and locate all the structures of the body and mark the topography of the living anatomy.
2. Identify the organs and tissues under the microscope.
3. Understand principles of karyotyping and identify the gross congenital anomalies.
4. Understand the principles of imaging techniques and interpretation of anatomical structures on plane radiographs of the body.

C. Integration

From the integrated teaching of other basic sciences, students shall be able to comprehend the functions of the organs and systems in the body and thus interpret the anatomical basis of disease processes.

SUBJECT NAME:	PATHOLOGY
SUBJECT CODE:	PT 201
(w.e.f. July 2017)	

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the identification of all gross anatomical structures. Particular emphasis will be placed on description of musculoskeletal anatomy which includes bones, joints, muscles, cardiovascular system and nervous system, as these are related to the application of physiotherapy in patients.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	CELL INJURY, INFLAMMATION & NEOPLASMS	08 Hours
UNIT-II	VASCULAR & CARDIORESPIRATORY SYSTEM	08 Hours
UNIT-III	BONES, JOINTS & MUSCULAR SYSTEM	08 Hours
UNIT-IV	HEPATO-BILIARY, ENDOCRINE & INTEGUMENTARY SYSTEM	08 Hours
UNIT-V	CENTRAL NERVOUS SYSTEM	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S. No.	CELL INJURY, INFLAMMATION & NEOPLASMS:	08 Hours
1.	Cells: Brief out line of cell injury, hypertrophy, atrophy, degeneration, necrosis and gangrene.	
2.	Inflammation: Definition, vascular and cellular phenomena, difference between transudate and exudates, granuloma.	
3.	Neoplasm: Definition, characteristic features, benign and malignant tumor, spread of tumor, cancer pain syndrome.	

UNIT-II

S. No.	VASCULAR & CARDIORESPIRATORY SYSTEM:	08 Hours
1.	Circulatory Disturbance: Odema, Hemorrhage, Embolism, Thrombosis, Infraction, Shock, Volkmann's ischemic contracture.	
2.	Blood Disorder: Concepts of Anemia, Bleeding disorder- Hemophilia.	
3.	Cardio Vascular System (CVS): Etiopathogenesis and Gross pathology of Atherosclerosis, coronary heart disease, Rheumatic heart disease.	
4.	Respiratory System: Chronic Bronchitis, Asthma, Bronchiectasis, Emphysema.	

UNIT-III

S. No.	BONES, JOINTS & MUSCULAR SYSTEM:	08 Hours
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1.	Bones: Etiopathogenesis and gross pathology of following conditions: Rickets/Osteomalacia, Osteoporosis, Osteomyelitis, Hyperparathyroidism.
2.	Joint: Osteoarthritis, Rheumatoid Arthritis, Gout, Spondyloarthopathy (including Ankylosing Spondylitis), Osteonecrosis, Paget's disease.
3.	Muscles: Myositis ossificans, Myofascial Pain syndrome, Septic arthritis.

UNIT-IV

S. No.	HEPATO-BILIARY, ENDOCRINE & INTEGUMENTARY SYSTEM:	08 Hours
1.	Hepato-Biliary System: Jaundice Types, etiopathogenesis and diagnosis.	
2.	Endocrine: Diabetes Mellitus, Non Neoplastic lesion of thyroid-Thyrotoxicosis, Myxedema.	
3.	Skin: Brief outline of Scleroderma, Psoriasis, Pressure Ulcer, and Burn.	

UNIT-V

S. No.	CENTRAL NERVOUS SYSTEM:	08 Hours
1.	CNS: Etiopathogenesis and gross pathology of following conditions- Meningitis, Encephalitis, Parkinson's, Amyotrophic lateral sclerosis, Ataxias, Multiple sclerosis, Neuropathies (Carcoat Marie Tooth disease, Compression and Entrapments, diabetics G.B. Syndrome), malformation, CVA, Extradural and Intra Dural Hematoma.	
2.	Muscle Neuropathies: Poliomyelitis, Myopathies, Myasthenia gravis, Muscular dystrophy.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Basic Patho – Kumar and Clark
2.	Text book of Pathology - by Harsh Mohan
3.	Textbook of Pathology By Boyd
4.	Pathologic basis of deseases by Cotran, Kumar, Robbins
5.	General Pathology – by Bhende

REFERENCE BOOKS:

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STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
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SUBJECT NAME:						MICROBIOLOGY		
SUBJECT CODE:						PT 202		
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

At the end of the course, the candidate will have sound knowledge of the agent responsible for causing human infections, pertaining to Immunology, Virology, Bacteriology, & miscellaneous condition. Microbiology involves the study of common organisms causing diseases including nosocomial infections and precautionary measures to protect one from acquiring infections. The knowledge and understanding of Microbiology of diseases is essential to institute appropriate treatment or suggest preventive measures to the patient.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	GENERAL MICROBIOLOGY	08 Hours
UNIT-II	IMMUNOLOGY	08 Hours
UNIT-III	BACTERIOLOGY	08 Hours
UNIT-IV	VIROLOGY	08 Hours
UNIT-V	MISLANEOUS	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S. No.	GENERAL MICROBIOLOGY:	08 Hours
1.	Introduction and history of Medical Microbiology.	
2.	Morphology, Nutritional Requirements, Metabolism, Growth, Classification and identification of Bacteria.	
3.	Sterilizations and Disinfection.	

UNIT-II

S. No.	IMMUNOLOGY:	08 Hours
1.	Infection, Immunity, Antigens, antibody, antigen-Antibody, Reaction, Complement System.	
2.	Structure and Function of Immune system, Immune Response.	
3.	Immunodeficiency Diseases, Hypersensitivity, Autoimmunity.	

UNIT-III

S. No.	BACTERIOLOGY:	08 Hours
1.	Staphylococcus, Streptococcus, Pneumococcus, Neisseria	
2.	Cornybacterium, Clostridium, Bacillus	
3.	Enterobacteriaceae, Pseudomonas, Vibrio.	
4.	Mycobacteria, Treponema.	

UNIT-IV

S. No.	VIROLOGY:	08 Hours
1.	General Characteristics and Classification of Virus	
2.	Virus-Host Interaction	
3.	DNA and RNA Virus	
4.	Measles, Mumps, Rubella, Polio, Influenza, Rabies, Dengue, Hepatitis, HIV	

UNIT-IV

S. No.	MISLANEOUS:	08 Hours
1.	Medical Mycology	
2.	Parasitology	
3.	Normal Microbial Flora of The Human Body	
4.	Hospital Acquired Infection	
5.	Universal Precautions	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Textbook of Parasitology- K. D. Chatterjee (12 th Ed.)
2.	Text Book of Microbiology - Paniker (9 th Ed.)
3.	Essentials of Medical Microbiology- Sastry Apurba Shankar (1 st Ed.)
4.	Textbook of Microbiology - P.Chakraborty
5.	Textbook of Microbiology – Anantnarayan

REFERENCE BOOKS:

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STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
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SUBJECT NAME:					EXERCISE THERAPY			
SUBJECT CODE:					PT 203			
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
3	1	0	3	1	0	15	25	60
4			4			40		60

OBJECTIVES OF THE COURSE:

To define the various terms used in Exercisetherapy. To demonstrate various starting & derived positions. To demonstrate movements in terms of various Anatomical planes. To describe & also acquire the skill of use of various tools of the Goniometry and measure range of motion. Acquire the skill of application of various manual muscle testing procedures & describe the Physiological effects, therapeutic use, merits / demerits of the same and also know about various tools used in strengthening exercise. Acquire a skill of assessment of Gait, Posture and uses of Ambulatory devices and their measurement on Models. Recall the basic principles of Physics related to mechanics of movement / motion & will be able to understand the application of such principles to the simple equipment designs & their efficacy in therapeutic gymnasium, & suspension therapy used in therapeutics.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	Minimum Number of Hours
UNIT-I	INTRODUCTION TO EXERCISE THERAPY	08 Hours
UNIT-II	RANGE OF MOTION & GONIOMETRY	08 Hours
UNIT-III	MANUAL MUSCLE TESTING (MMT) & STRENGTHENING EXERCISE	08 Hours
UNIT-IV	THERAPEUTIC GYMNASIUM AND SUSPENSION THERAPY	08 Hours
UNIT-V	POSTURE, GAIT AND AMBULATORY TRAINING	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S. No.	INTRODUCTION TO EXERCISE THERAPY:	08 Hours
1.	Fundamental Starting Position & Derived Position: Brief description of fundamental starting position & derived position including joint positions, muscle work, stability, effects & uses in physiotherapy.	
2.	Movements: Definition of Movements, Brief description & Classification of movements. Techniques of application, indication, contraindication, effects & uses of the following- 1. Active movements 2. Active assisted movement 3. Passive movement 4. Resisted movement	

UNIT-II

S. No.	RANGE OF MOTION & GONIOMETRY:	08 Hours
1.	Range of Motion: Definition of Range of Motion, normal range of motion, normal & abnormal End feels of the Joints.	
2.	Goniometry: Definition of Goniometry and its types. Principles, technique and application of goniometry. Testing position, procedure and measurement of ROM of the joints of upper limbs, lower limbs and trunk.	

UNIT-III

S. No.	MANUAL MUSCLE TESTING (MMT) & STRENGTHENING EXERCISE:	08 Hours
1.	Manual Muscle Testing (MMT): Definition, Principle, Grading and applications techniques.	

	Indication, Contraindication, Precaution, Testing position, procedure and grading of muscles of the upper limb, lower limb trunk, face and neck.
2.	Strengthening Exercise: Definition of Strengthening Exercise. Principles, different mode of Strengthening Exercise, Indication, Contraindication, Precaution, techniques of application of Strengthening Exercises.

UNIT-IV

S. No.	THERAPEUTIC GYMNASIUM AND SUSPENSION THERAPY:	08 Hours
1.	Therapeutic Gymnasium: Set-up of gymnasium & its importance, various equipment in the gymnasium. Operational skills, effects, & uses of each equipment.	
2.	Suspension Therapy: Definition, types, principles, technique of application, indication, contraindication, precaution, effects & uses of suspension therapy.	

UNIT-V

S. No.	POSTURE, GAIT AND AMBULATORY TRAINING:	08 Hours
1.	Posture: Posture overview: Mechanism of the normal posture. Abnormal posture: assessment, types, aetiogenesis management including therapeutic exercises.	
2.	Gait: Definition of Gait, Gait cycle. Time-distance Parameters of Gait, determinants of gait, Gait deviations.	
3.	Ambulatory Training: Walking aids and its types, indications, contraindication, effects & uses in various training techniques.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Kisner and Colby. F.A. Davis, Therapeutic Exercises Foundations and Techniques
2.	Gardiner, Principle of Exercise Therapy, C.B.S. Delhi.
3.	Norkins & White F.A. Davis, Measurement of Joint Motion: A Guide to Goniometry.
4.	Wood - W.B. Saunders, Beard's Massage.
5.	Kendal, Muscle testing and functions, Williams & Wilkins.
6.	Bates and Hanson , Aquatic Exercise Therapy
7.	Margarett Hollis, Massage for therapist: Margarett Hollis
8.	Hollis, Lab Exercise Therapy, Blackwell Scientific Publications.

REFERENCE BOOKS:

1.	
2.	
3.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
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2.	
3.	

SUBJECT NAME:	ELECTROTHERAPY
SUBJECT CODE:	PT 204

(w.e.f. July 2015)

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
3	1	0	3	1	0	15	25	60
4			4			40		

OBJECTIVES OF THE COURSE:

Describe the Production & Physiological effects, Therapeutic uses, merits, demerits indication & contraindications of various low, medium & high frequency modes of currents. Describe the Physiological effects & therapeutic uses of various therapeutic ions & topical pharmacotherapeutic agents to be used for the application of Iontophoresis & sonophonophoresis. Acquire the skill of Application of the Electro therapy modes on models, for the purpose of Assessment & Treatment. Acquire an ability to select the appropriate mode as per the tissue specific & area specific application.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	BASIC OF CURRENTS & LOW FREQUENCY CURRENTS	08 Hours
UNIT-II	MEDIUM FREQUENCY CURRENTS	08 Hours
UNIT-III	HIGH FREQUENCY CURRENTS-I	08 Hours
UNIT-IV	HIGH FREQUENCY CURRENTS-II	08 Hours
UNIT-V	ELECTRO PHYSICAL AGENTS -I	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S.No.	BASIC OF CURRENTS & LOW FREQUENCY CURRENTS:	08 Hours
1.	Basic of Currents: Introduction to History of currents, Production, Physiological effects on Nerve and Muscle tissue and therapeutic effects to AC, DC and Modified Currents.	
2.	Transcutaneous Electric Nerve Stimulation (TENS): History of Transcutaneous Electric Nerve Stimulation (TENS). Types of low frequency, pulse widths, frequencies & intensities used as TENS applications. Principle of clinical application effects & uses indications, contraindications, precautions, and operational skills of equipment & patient preparation. Theories of pain relief by TENS.	
3.	Muscle Stimulators (MS): Muscle Stimulators (MS) Types of frequency, pulse widths, frequencies & intensities used as MS applications. Principle of clinical application effects & uses indications, contraindications, precautions, and operational skills of equipment & patient preparation.	
4.	Iontophoresis: Definition, Physiological & Therapeutics effects, Principle of application, Methods of Application, indications, contraindications, precautions.	

UNIT-II

S.No.	MEDIUM FREQUENCY CURRENTS:	08 Hours
1.	Interferential Therapy (IFT): History of Interferential therapy (IFT), Types of medium frequency, pulse widths, frequencies & intensities used as IFT applications. Principle of clinical application, effects, uses, indications, contraindications, precautions, and operational skills of equipment & patient preparation. Theories of pain relief by IFT.	

2.	Russian Currents (RC): Russian Currents (RC), Types of frequency, pulse widths, frequencies & intensities used as RC applications. Principle of clinical application effects, uses, indications, contraindications, precautions, and operational skills of equipment & patient preparation.
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UNIT-III

S.No.	HIGH FREQUENCY CURRENTS-I:	08 Hours
1.	Ultrasound Therapy Unit (UST): Ultrasound therapy Unit (UST), Production, Physiological & Therapeutics effects, Principle of application of Ultrasound therapy, Methods of Application of UST, phonophoresis, effects, indications, contraindications, precautions, and patient preparation.	
2.	Long Wave Diathermy (LWD): Long Wave Diathermy (LWD), Production, Physiological & Therapeutics effects, Principle of application of Long Wave Diathermy, Methods of Application of LWD, effects, indications, contraindications, precautions, and patient preparation.	
3.	Extracorporeal Shock Wave Therapy (ECSWT): Brief overview	

UNIT-IV

S.No.	HIGH FREQUENCY CURRENTS-II:	08 Hours
1.	Shortwave Diathermy (SWD): Shortwave Diathermy (SWD), Production, Physiological & Therapeutics effects, Principle of application of Shortwave Diathermy, Methods of Application of SWD, types of electrodes, effects, indications, contraindications, precautions, dangers and patient preparation.	
2.	Micro Wave Diathermy (MWD): Micro Wave Diathermy (MWD), Production, Physiological & Therapeutics effects, Principle of application of Microwave Diathermy, Methods of Application of MWD, effects, indications, contraindications, precautions, dangers and patient preparation.	

UNIT-V

S.No.	ELECTRO PHYSICAL AGENTS -I:	08 Hours
1.	Cryotherapy: Cryotherapy (CT), Principle of Cryotherapy, Physiological effects, Methods of Application of Cryotherapy. Principle of clinical application, effects, uses, indications, contraindications, precautions, and patient preparation. Theories of pain relief by Cryotherapy.	
2.	Paraffin Wax Bath: Paraffin wax bath, Principle of application of Paraffin wax bath, Physiological effects, Methods of Application of PWB, effects, uses, indications, contraindications, precautions, and patient preparation.	
3.	Hydro-collator Bath: Hydro-collator Bath, Principle of application of Hydrocollator Bath, Physiological effects, Methods of Application of Hydro-collator Bath, effects, uses, indications, contraindications, precautions, and patient preparation.	
4.	Electrical Heating Pads: Electrical heating pads, Principle of application of Electrical heating pads, Physiological effects, Methods of Application of Electrical heating pads, effects, uses, indications, contraindications, precautions, and patient preparation.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Clayton's Electrotherapy
2.	Electrotherapy Explained- Sheila & Kitchen.

3.	Clinical Electrotherapy- Nelson and Currier
4.	Electrotherapy Explained- Low and Reed
5.	Electrotherapy in Rehabilitation-Meryl Roth Gersh
6.	Therapeutic modalities in rehabilitation-William E. Prentice
REFERENCE BOOKS:	
1.	
2.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:	
At the end of the semester the student will be able to:	
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SUBJECT NAME:			SURFACE ANATOMY & PALPATION SKILLS					
SUBJECT CODE:			PT 205					
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

About the reviews the surface anatomy and provide an organized approaches for locating osseous and soft tissue landmark relating to major extremity joints, (foot/ ankle, knee, hip, shoulder girdle, elbow and wrist/hand) and all regions of the spine (cervical, thoracic, lumber, pelvic). Be able to palpate the landmarks, and prominent area of the body for examination. Essential observation and palpation skill to prepare the students for more advanced instruction concerning physical examination and manual therapeutics. Be able to palpate the landmarks, and prominent area and its importance during examination.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	INTRODUCTION OF SURFACE ANATOMY & PALPATION SKILLS	04 Hours
UNIT-II	LANDMARK LOCATION AND PALPATION SKILL OF SPINE	04 Hours
UNIT-III	LANDMARK LOCATION AND PALPATION SKILL OF U/E	04 Hours
UNIT-IV	LANDMARK LOCATION AND PALPATION SKILL OF L/E	04 Hours
UNIT-V	BASIC POSTURAL OBSERVATIONAL SKILL	04 Hours
Total (Minimal)		20 Hours

UNIT-I

S.No.	INTRODUCTION OF SURFACE ANATOMY & PALPATION SKILLS:	04 Hours
1.	Terminology related to surface anatomy, and palpation skill.	
2.	Principle of surface marking and palpation	
3.	Types of palpation and its uses in assessment.	
4.	Ethical and legal issues regarding palpation techniques.	

UNIT-II

S.No.	LANDMARK LOCATION AND PALPATION SKILL OF SPINE:	04 Hours
1.	Landmark location and palpation skill of Lumbopelvic region.	
2.	Landmark location and palpation skill of Thoracic Spine.	
3.	Landmark location and palpation skill of Cervical and Occipital region.	

UNIT-III

S.No.	LANDMARK LOCATION AND PALPATION SKILL OF U/E:	04 Hours
1.	Landmark location and palpation skill of Shoulder Girdle.	
2.	Landmark location and palpation skill of Elbow.	
3.	Landmark location and palpation skill of Wrist & Hand	

UNIT-IV

S.No.	LANDMARK LOCATION AND PALPATION SKILL OF L/E:	04 Hours
1.	Landmark location and palpation skill of Foot & Ankle.	

2.	Landmark location and palpation skill of Knee.
3.	Landmark location and palpation skill of Hip.

UNIT-V

S.No.	BASIC POSTURAL OBSERVATIONAL SKILL:	04 Hours
1.	Normal body alignment, symmetry and plumb line.	
2.	Observation of static and dynamic posture in various positions (sitting, standing & walking) and gait.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	A Manual Therapist Guide to Surface anatomy and Palpation Skills by David Byfield & Stuart Kinsinger.
2.	Orthopaedics Physical Assessment. By D Magee.
3.	An Introduction of fundamental Anatomy by David Sinclair.
4.	Human Anatomy by B.D. Chaurasiya- All 3 volumes.
5.	Surface anatomy By John S.P. Lumley
6.	Surface and Radiological Anatomy By A. Halim

REFERENCE BOOKS:

1.	
2.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
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SUBJECT NAME:	PSYCHOLOGY & EXPERIMENTAL PSYCHOLOGY
SUBJECT CODE:	PT 206

(w.e.f. July 2015)

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

Be able to define the term Psychology & its importance in the Health delivery system, & will gain knowledge of Psychological maturation during human development & growth; & alterations during aging process. Be able to understand the importance of psychological status of the person in health & disease; environmental & emotional influence on the mind & personality. Describe in brief the various treatment modalities commonly used.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I		06 Hours
UNIT-II		06 Hours
UNIT-III		06 Hours
UNIT-IV		06 Hours
UNIT-V		06 Hours
Total (Minimal)		30 Hours

UNIT-I

S.No.		06 Hours
1.	Definition, application and methods in psychology, Biology of Behavior, Sensory processes and perception, Principles of learning, Classical and Instrumental Conditioning, Cognitive learning, Memory, long and short – term memories, forgetting, amnesia.	

UNIT-II

S.No.		06 Hours
1.	Thinking and Language, Concepts, thinking process, problem- solving and decision making, creative thinking and language communication, Motivation, Biological and Social motives, frustration and conflict of motives, motives to know and be effective, Emotion and Stress, Expression and perception of emotions, physiology and application of emotion.	

UNIT-III

S.No.		06 Hours
1.	Social perceptions, influences, and relationships, Attitudes, Nature and measurement of attitudes, Factors in attitude change, Behavior and attitudes.	

UNIT-IV

S.No.		06 Hours
1.	Development- A Lifespan Perspective (infancy, childhood, adolescence, adult, old age), Personality, Defining and thinking about personality, Theories and issues and controversies and research.	

UNIT-V

S.No.		06 Hours
1.	Abnormal Psychology, Therapy for Psychological distress, Brief description of Psychological assessment and testing.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Morgan C.T., King R. A., Weijz J. R. Schopler J.
2.	Introduction to Psychology, 7 th edn. (Tata McGraw-Hill Publishing Co. Ltd.)
3.	Human Development, 5 th . (Tata McGraw Hill Publishing Co. Ltd)
4.	Munn N.L. Introduction to Psychology-(Premium Oxford, I.B.P. Publishing Co.)
5.	Parameshwaran E. G. & Ravichandra K. - Experimental Psychology: A Laboratory Manual (1 st edn.) (Seema Publications, Delhi) Munn Julia (ed.)

REFERENCE BOOKS:

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STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
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SUBJECT NAME:	EXERCISE THERAPY LAB
SUBJECT CODE:	PT 207
(w.e.f. July 2017)	

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	4	0	0	4	30	30	40
4			2			60		40

OBJECTIVES OF THE COURSE:

This course involves a detailed study of physiological effects, application techniques, effects, indications, and contra-indications, precautions for exercises used in Physiotherapy.

OUTLINE OF THE COURSE:

S.No.	TITLE OF THE UNIT	Hours
1.	Position of joints, muscle work, and stability of various fundamental and derived positions.	
2.	Different types of muscle contraction, muscle work, group action of muscles and coordinated movement.	
3.	Measurement of ROM of joints- upper limb, lower limb and trunk.	
4.	To practice the grading of muscle strength region wise upper limb and lower limb and trunk.	
5.	Various techniques of progressive strengthening exercises of muscles region wise.	
6.	Various types of suspension therapy and its applications on various part of body-region wise.	
7.	Structure and functions along with application of various equipment in a gymnasium.	
8.	Use of various ambulation aids in gait training.	
9.	Evaluate ADLs and practice various training techniques.	
10.	Normal and abnormal posture & practice various corrective techniques.	
Total (Minimal)		60

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Kisner and Colby. F.A. Davis, Therapeutic Exercises Foundations and Techniques
2.	Gardiner, Principle of Exercise Therapy, C.B.S. Delhi.
3.	Norkins & White F.A. Davis, Measurement of Joint Motion: A Guide to Goniometry.
4.	Wood - W.B. Saunders, Beard's Massage.
5.	Kendal, Muscle testing and functions, Williams & Wilkins.
6.	Margarett Hollis, Massage for therapist: Margarett Hollis
7.	Hollis, Lab Exercise Therapy, Blackwell Scientific Publications.

REFERENCE BOOKS:

1.	
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STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:

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SUBJECT NAME:						ELECTROTHERAPY LAB		
SUBJECT CODE:						PT 208		
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	4	0	0	4	30	30	40
4			2			60		40
OBJECTIVES OF THE COURSE:								
This course involves a detailed study of physiological effects, application techniques, effects, indications, and contra-indications, precautions for Electrotherapy Modalities used in Physiotherapy.								
OUTLINE OF THE COURSE:								

S.No.	TITLE OF THE UNIT - Student should be able to explain the rationale for the prescription of safe and effective electrotherapy modalities.	Hours
1.	Basic operation of electric supply to the equipment and safety device.	
2.	Sensory and motor stimulation of nerves and muscles by various types of low frequency currents on self.	
3.	Locate and stimulate different motor points region wise, including the upper and lower limb, trunk & face.	
4.	Therapeutic application different low frequency currents faradic foot bath, faradism under pressure, Iontophoresis.	
5.	TENS Stimulator, its operation and application - regionwise.	
6.	IFT-Its operation and application –region wise	
7.	Muscle stimulators, its operation and different method of application- region wise.	
8.	Hydrocollator bath unit, its operation and different method of application- region wise.	
9.	Paraffin wax bath unit, its operation and different method of application- regionwise.	
10.	Various forms of therapeutic cold application region wise including ice, cold packs, vapocoolant sprays, etc.	
11.	Long wave therapy unit, its operation and different method of application- regionwise.	
12.	Ultrasound unit, its operation and methods of application - regionwise.	
13.	Short wave diathermy unit, its operation and different methods of application - regionwise.	
14.	Microwave diathermy unit, its operation and different methods of application - regionwise.	
Total (Minimal)		60

BOOKS RECOMMENDED:	
TEXTBOOKS:	
1.	Clayton's Electrotherapy
2.	Electrotherapy Explained- Sheela & Kichen
3.	Clinical Electrotherapy- Nelson and Currier
4.	Electrotherapy Explained- Low and Reed
5.	Electrotherapy in Rehabilitation-Meryl Roth Gerth
6.	Therapeutic modalities in rehabilitation-William E. Prentice
REFERENCE BOOKS:	
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STUDENT LEARNING OUTCOMES/OBJECTIVES:
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At the end of the semester the student will be able to:

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| 2. | |
| 3. | |

SUBJECT NAME:			SURFACE ANATOMY & PALPATION SKILLS LAB					
SUBJECT CODE:			PT 209					
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	2	0	0	2	50	50	00
2			1			100		00

OBJECTIVES OF THE COURSE:

This course involves a detailed study of Surface anatomy of Human body, Palpation Skill, indications, and contra-indications, precautions for palpation during the assessment in Physiotherapy.

OUTLINE OF THE COURSE:

S.No.	TITLE OF THE UNIT - Student should be able to explain the rationale for the prescription of safe and effective knowledge of surface anatomy and Palpation Skill.	Hours
1.	Terminology related to surface anatomy, and palpation skill.	
2.	Principle of surface marking and palpation, Types of palpation and uses.	
3.	Normal body alignment and symmetry.	
4.	Observation of static and dynamic posture in various positions (sitting, standing & walking) and gait.	
5.	Landmark location and palpation skill of Lumbopelvic region.	
6.	Landmark location and palpation skill of Thoracic Spine.	
7.	Landmark location and palpation skill of Cervical and Occipital region.	
8.	Landmark location and palpation skill of Shoulder Girdle.	
9.	Landmark location and palpation skill of Elbow.	
10.	Landmark location and palpation skill of Wrist & Hand	
11.	Landmark location and palpation skill of Foot & Ankle.	
12.	Landmark location and palpation skill of Knee.	
13.	Landmark location and palpation skill of Hip.	
Total (Minimal)		

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	A Manual Therapist Guide to Surface anatomy and Palpation Skills by David Byfield & Stuart Kinsinger.
2.	Orthopaedics Physical Assessment. By D Magee.
3.	An Introduction of fundamental Anatomy by David Sinclair.
4.	Anatomy of Chaurasiya- All 3 volumes.
5.	Surface anatomy By John S.P. Lumley
6.	Surface and Radiological Anatomy By A. Halim

REFERENCE BOOKS:

1.	
2.	
3.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:	
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At the end of the semester the student will be able to:	
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1.	
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2.	
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3.	
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**SCHEME OF EXAMINATION
&
MODELS OF QUESTION PAPER
OF
BACHELOR OF PHYSIOTHERAPY
(BPT)**

SCHEME OF EXAMINATION

THEORY:

INTERNAL ASSESSMENT (IA)

40 Marks

CLASS TEST (CT)

TEACHER ASSESSMENT (TA)

MSE-1	MSE- 2	Makeup	ST-1	ST-2	Q-1	Q-2	A-1	A-2	A-3	A-4	Attendance
25	25	25	5	5	5	5	5	5	5	5	5

END SEMESTER EXAMINATION (ESE)

60 Marks

INTERNAL ASSESSMENT (IA)

Class Test (CT)

MM: 25 Marks

PM: 13 (50%)

Time: 1:30 Hours

Q.No.	Models										Marks
1.	Multiples Choice Questions (any three)										1.5X5=7.5
One Question from each Unit											
	a.	i)	ii)	iii)	iv)						1.5
	b.	i)	ii)	iii)	iv)						1.5
	c.	i)	ii)	iii)	iv)						1.5
	d.	i)	ii)	iii)	iv)						1.5
	e.	i)	ii)	iii)	iv)						1.5
2.	Short Questions (any three)										2.5X3=7.5
	a.										2.5
	b.										2.5
	c.										2.5
	d.										2.5
	e.										2.5
3.	Long Questions (any two)										5X2=10
	a.										5
	b.										5
	c.										5
End Semester Examination (ESE)											
MM: 60 Marks				PM: 21 (35%)				Time: 3:00 Hours			
Q.No.	Models										Marks
1.	Multiple Choice Questions										1X12=12
Two Question from each Unit											
	a.	i)	ii)	iii)	iv)						1
	b.	i)	ii)	iii)	iv)						1
	c.	i)	ii)	iii)	iv)						1
	d.	i)	ii)	iii)	iv)						1
	e.	i)	ii)	iii)	iv)						1
	f.	i)	ii)	iii)	iv)						1
	g.	i)	ii)	iii)	iv)						1
	h.	i)	ii)	iii)	iv)						1
	i.	i)	ii)	iii)	iv)						1

	j.	i)	ii)	iii)	iv)	1
	k.	i)	ii)	iii)	iv)	1
	l.	i)	ii)	iii)	iv)	1
2.	Short Questions (any Four)					3X4=12
	a.					3
	b.					3
	c.					3
	d.					3
	e.					3
	f.					3
3.	Short Questions (any Two)					3X4=12
	a.					3
	b.					3
	c.					3
	d.					3
	e.					3
	f.					3
4.	Long Questions (any Two)					6X2=12
	a..					6
	b.					6
	c.					6
4.	Long Questions (any Two)					6X2=12
	a.					6
	b.					6
	c.					6

STUDY & EVALUATION SCHEME OF BACHELOR OF PHYSIOTHERAPY

(BPT - II YEAR/ IV SEMESTER)

[Applicable w.e.f. Academic Session 2020-21 till revised]



INTEGRAL UNIVERSITY, LUCKNOW
DASAULI, P.O. BAS-HA KURSI ROAD,
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Approved by

Syllabus approved by Board of Study, Faculty Board, Academic Council,
Executive Council of the Integral University, Lucknow



STUDY & EVALUATION SCHEME BACHELOR OF PHYSIOTHERAPY (BPT)

(w.e.f. July 2020)

II-Year

IV-Semester

S. No.	Code No.	Name of the Subject	Periods			Total Credits	Evaluation Scheme				Subject Total
			L	T	P		Sessional			Exam	
							CT	TA	Total	ESE	
1.	PT 210	General Medicine	2	1	0	3	40	20	60	40	100
2.	PT 211	Pharmacology	2	1	0	3	40	20	60	40	100
3.	PT 212	Therapeutic Techniques	3	1	0	4	40	20	60	40	100
4.	PT 213	Electrotherapy & Electrodiagnosis	3	1	0	4	40	20	60	40	100
5.	PT 214	Basic of Biomechanics	3	1	0	4	40	20	60	40	100
6.	PT 215	Ethics in Physiotherapy	2	0	0	2	40	20	60	40	100
7.	PT 216	Therapeutic Techniques-Lab	0	0	4	2	40	20	60	40	100
8.	PT 217	Electrotherapy & Electrodiagnosis-Lab	0	0	4	2	40	20	60	40	100
9.	PT 218	Basic of Biomechanics-Lab	0	0	2	1	40	20	60	40	100
Total			15	05	10	25	360	180	540	360	900

L: Lecture	T: Tutorials	P: Practical	C: Credit	CT: Class Test
TA: Teacher Assessment			ESE: End Semester Examination	
Sessional Total: Class Test + Teacher Assessment			Subject Total: Sessional Total + End Semester Examination (ESE)	



AIMS AND OBJECTIVES OF BPT DEGREE COURSE

On completion of the course of study having successfully passed the examination, the candidate would be able to achieve a satisfactory level of efficiency:-

1. To Detect and evaluate the anatomical, patho-physiological impairments, resulting in dysfunction of various age groups & occupation; as well as epidemiological sectors in the population & arrive at appropriate diagnosis.
2. To understand the rationale & basic investigative approach to the medical system and surgical intervention regimens & accordingly plan & implement specific Physio-Therapy measures effectively.
3. To be able to select strategies for cure and care; adopt restorative & rehabilitative measures for maximum possible independence of a client at home, work place & in the community.
4. To maintain healthy relationship & Co-partnership with various professionals in the health delivery system in the primary interest of a client.
5. To ensure quality assurance & motivate the client & her/his family for a desirable client compliance.
6. To develop communication skills for the purpose of transfer of suitable technique to be used creatively at various stages of treatment, compatible with psychological status of the beneficiary.
7. To promote health in general in Geriatrics, Women's health, Industrial medicine as well as at competitive level, such as sports, keeping in mind National Health Policies.
8. To practice professional autonomy & ethical principles with referral as well as first contact clients in conformity with ethical code for physiotherapists.

SYLLABI
OF
BACHELOR OF PHYSIOTHERAPY
(BPT - II YEAR/ IV SEMESTER)

GOAL:

The broad goal of the teaching of undergraduate students in Anatomy aims at providing comprehensive knowledge of the gross anatomy, microscopic structures, development of human body and principles of genetics to provide a basis for understanding the clinical correlation of organs or structure involved and the skills to practice as a qualified Physiotherapist.

OBJECTIVES:**A – Knowledge: At the end of the course, the student should be able to:**

1. Comprehend the normal disposition, inter-relationships, gross, functional and applied anatomy of the musculoskeletal system, locomotion, posture, gait and various organs in the body.
2. Comprehend the basic structure and connections between the various parts of the central nervous system so as to analyze the integrative and regulative functions of the organs and systems. He/she should be able to locate the site of gross lesions according to the deficits encountered.
3. Identify the microscopic structures of various tissues and organs in the human body and correlate the structure with the functions.
4. To understand the basic principles of embryology including genetic inheritance and stages involved in development of the organs and systems from the time of conceptions till birth.
5. To study the basic principles of radiology and for comprehending deeper structures in the human body.

B. Skills: At the end of the course the students shall be able to:

1. Identify and locate all the structures of the body and mark the topography of the living anatomy.
2. Identify the organs and tissues under the microscope.
3. Understand principles of karyotyping and identify the gross congenital anomalies.
4. Understand the principles of imaging techniques and interpretation of anatomical structures on plane radiographs of the body.

C. Integration

From the integrated teaching of other basic sciences, students shall be able to comprehend the functions of the organs and systems in the body and thus interpret the anatomical basis of disease processes.

SUBJECT NAME:	PATHOLOGY
SUBJECT CODE:	PT 201
(w.e.f. July 2017)	

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

In this subject, the student will learn about the identification of all gross anatomical structures. Particular emphasis will be placed on description of musculoskeletal anatomy which includes bones, joints, muscles, cardiovascular system and nervous system, as these are related to the application of physiotherapy in patients.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	CELL INJURY, INFLAMMATION & NEOPLASMS	08 Hours
UNIT-II	VASCULAR & CARDIORESPIRATORY SYSTEM	08 Hours
UNIT-III	BONES, JOINTS & MUSCULAR SYSTEM	08 Hours
UNIT-IV	HEPATO-BILIARY, ENDOCRINE & INTEGUMENTARY SYSTEM	08 Hours
UNIT-V	CENTRAL NERVOUS SYSTEM	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S. No.	CELL INJURY, INFLAMMATION & NEOPLASMS:	08 Hours
1.	Cells: Brief out line of cell injury, hypertrophy, atrophy, degeneration, necrosis and gangrene.	
2.	Inflammation: Definition, vascular and cellular phenomena, difference between transudate and exudates, granuloma.	
3.	Neoplasm: Definition, characteristic features, benign and malignant tumor, spread of tumor, cancer pain syndrome.	

UNIT-II

S. No.	VASCULAR & CARDIORESPIRATORY SYSTEM:	08 Hours
1.	Circulatory Disturbance: Odema, Hemorrhage, Embolism, Thrombosis, Infraction, Shock, Volkmann's ischemic contracture.	
2.	Blood Disorder: Concepts of Anemia, Bleeding disorder- Hemophilia.	
3.	Cardio Vascular System (CVS): Etiopathogenesis and Gross pathology of Atherosclerosis, coronary heart disease, Rheumatic heart disease.	
4.	Respiratory System: Chronic Bronchitis, Asthma, Bronchiectasis, Emphysema.	

UNIT-III

S. No.	BONES, JOINTS & MUSCULAR SYSTEM:	08 Hours
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1.	Bones: Etiopathogenesis and gross pathology of following conditions: Rickets/Osteomalacia, Osteoporosis, Osteomyelitis, Hyperparathyroidism.
2.	Joint: Osteoarthritis, Rheumatoid Arthritis, Gout, Spondyloarthopathy (including Ankylosing Spondylitis), Osteonecrosis, Paget's disease.
3.	Muscles: Myositis ossificans, Myofascial Pain syndrome, Septic arthritis.

UNIT-IV

S. No.	HEPATO-BILIARY, ENDOCRINE & INTEGUMENTARY SYSTEM:	08 Hours
1.	Hepato-Biliary System: Jaundice Types, etiopathogenesis and diagnosis.	
2.	Endocrine: Diabetes Mellitus, Non Neoplastic lesion of thyroid-Thyrotoxicosis, Myxedema.	
3.	Skin: Brief outline of Scleroderma, Psoriasis, Pressure Ulcer, and Burn.	

UNIT-V

S. No.	CENTRAL NERVOUS SYSTEM:	08 Hours
1.	CNS: Etiopathogenesis and gross pathology of following conditions- Meningitis, Encephalitis, Parkinson's, Amyotrophic lateral sclerosis, Ataxias, Multiple sclerosis, Neuropathies (Carcoat Marie Tooth disease, Compression and Entrapments, diabetics G.B. Syndrome), malformation, CVA, Extradural and Intra Dural Hematoma.	
2.	Muscle Neuropathies: Poliomyelitis, Myopathies, Myasthenia gravis, Muscular dystrophy.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Basic Patho – Kumar and Clark
2.	Text book of Pathology - by Harsh Mohan
3.	Textbook of Pathology By Boyd
4.	Pathologic basis of deseases by Cotran, Kumar, Robbins
5.	General Pathology – by Bhende

REFERENCE BOOKS:

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	
2.	
3.	
4.	
5.	

SUBJECT NAME:						MICROBIOLOGY		
SUBJECT CODE:						PT 202		
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

At the end of the course, the candidate will have sound knowledge of the agent responsible for causing human infections, pertaining to Immunology, Virology, Bacteriology, & miscellaneous condition. Microbiology involves the study of common organisms causing diseases including nosocomial infections and precautionary measures to protect one from acquiring infections. The knowledge and understanding of Microbiology of diseases is essential to institute appropriate treatment or suggest preventive measures to the patient.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	GENERAL MICROBIOLOGY	08 Hours
UNIT-II	IMMUNOLOGY	08 Hours
UNIT-III	BACTERIOLOGY	08 Hours
UNIT-IV	VIROLOGY	08 Hours
UNIT-V	MISLANEOUS	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S. No.	GENERAL MICROBIOLOGY:	08 Hours
1.	Introduction and history of Medical Microbiology.	
2.	Morphology, Nutritional Requirements, Metabolism, Growth, Classification and identification of Bacteria.	
3.	Sterilizations and Disinfection.	

UNIT-II

S. No.	IMMUNOLOGY:	08 Hours
1.	Infection, Immunity, Antigens, antibody, antigen-Antibody, Reaction, Complement System.	
2.	Structure and Function of Immune system, Immune Response.	
3.	Immunodeficiency Diseases, Hypersensitivity, Autoimmunity.	

UNIT-III

S. No.	BACTERIOLOGY:	08 Hours
1.	Staphylococcus, Streptococcus, Pneumococcus, Neisseria	
2.	Cornybacterium, Clostridium, Bacillus	
3.	Enterobacteriaceae, Pseudomonas, Vibrio.	
4.	Mycobacteria, Treponema.	

UNIT-IV

S. No.	VIROLOGY:	08 Hours
1.	General Characteristics and Classification of Virus	
2.	Virus-Host Interaction	
3.	DNA and RNA Virus	
4.	Measles, Mumps, Rubella, Polio, Influenza, Rabies, Dengue, Hepatitis, HIV	

UNIT-IV

S. No.	MISLANEOUS:	08 Hours
1.	Medical Mycology	
2.	Parasitology	
3.	Normal Microbial Flora of The Human Body	
4.	Hospital Acquired Infection	
5.	Universal Precautions	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Textbook of Parasitology- K. D. Chatterjee (12 th Ed.)
2.	Text Book of Microbiology - Paniker (9 th Ed.)
3.	Essentials of Medical Microbiology- Sastry Apurba Shankar (1 st Ed.)
4.	Textbook of Microbiology - P.Chakraborty
5.	Textbook of Microbiology – Anantnarayan

REFERENCE BOOKS:

1.	
2.	
3.	
4.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	
2.	
3.	
4.	
5.	

SUBJECT NAME:					EXERCISE THERAPY			
SUBJECT CODE:					PT 203			
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
3	1	0	3	1	0	15	25	60
4			4			40		60

OBJECTIVES OF THE COURSE:

To define the various terms used in Exercisetherapy. To demonstrate various starting & derived positions. To demonstrate movements in terms of various Anatomical planes. To describe & also acquire the skill of use of various tools of the Goniometry and measure range of motion. Acquire the skill of application of various manual muscle testing procedures & describe the Physiological effects, therapeutic use, merits / demerits of the same and also know about various tools used in strengthening exercise. Acquire a skill of assessment of Gait, Posture and uses of Ambulatory devices and their measurement on Models. Recall the basic principles of Physics related to mechanics of movement / motion & will be able to understand the application of such principles to the simple equipment designs & their efficacy in therapeutic gymnasium, & suspension therapy used in therapeutics.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	Minimum Number of Hours
UNIT-I	INTRODUCTION TO EXERCISE THERAPY	08 Hours
UNIT-II	RANGE OF MOTION & GONIOMETRY	08 Hours
UNIT-III	MANUAL MUSCLE TESTING (MMT) & STRENGTHENING EXERCISE	08 Hours
UNIT-IV	THERAPEUTIC GYMNASIUM AND SUSPENSION THERAPY	08 Hours
UNIT-V	POSTURE, GAIT AND AMBULATORY TRAINING	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S. No.	INTRODUCTION TO EXERCISE THERAPY:	08 Hours
1.	Fundamental Starting Position & Derived Position: Brief description of fundamental starting position & derived position including joint positions, muscle work, stability, effects & uses in physiotherapy.	
2.	Movements: Definition of Movements, Brief description & Classification of movements. Techniques of application, indication, contraindication, effects & uses of the following- 1. Active movements 2. Active assisted movement 3. Passive movement 4. Resisted movement	

UNIT-II

S. No.	RANGE OF MOTION & GONIOMETRY:	08 Hours
1.	Range of Motion: Definition of Range of Motion, normal range of motion, normal & abnormal End feels of the Joints.	
2.	Goniometry: Definition of Goniometry and its types. Principles, technique and application of goniometry. Testing position, procedure and measurement of ROM of the joints of upper limbs, lower limbs and trunk.	

UNIT-III

S. No.	MANUAL MUSCLE TESTING (MMT) & STRENGTHENING EXERCISE:	08 Hours
1.	Manual Muscle Testing (MMT): Definition, Principle, Grading and applications techniques. Indication, Contraindication, Precaution, Testing position, procedure and grading of muscles	

	of the upper limb, lower limb trunk, face and neck.
2.	Strengthening Exercise: Definition of Strengthening Exercise. Principles, different mode of Strengthening Exercise, Indication, Contraindication, Precaution, techniques of application of Strengthening Exercises.

UNIT-IV

S. No.	THERAPEUTIC GYMNASIUM AND SUSPENSION THERAPY:	08 Hours
1.	Therapeutic Gymnasium: Set-up of gymnasium & its importance, various equipment in the gymnasium. Operational skills, effects, & uses of each equipment.	
2.	Suspension Therapy: Definition, types, principles, technique of application, indication, contraindication, precaution, effects & uses of suspension therapy.	

UNIT-V

S. No.	POSTURE, GAIT AND AMBULATORY TRAINING:	08 Hours
1.	Posture: Posture overview: Mechanism of the normal posture. Abnormal posture: assessment, types, aetogenesis management including therapeutic exercises.	
2.	Gait: Definition of Gait, Gait cycle. Time-distance Parameters of Gait, determinants of gait, Gait deviations.	
3.	Ambulatory Training: Walking aids and its types, indications, contraindication, effects & uses in various training techniques.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Kisner and Colby. F.A. Davis, Therapeutic Exercises Foundations and Techniques
2.	Gardiner, Principle of Exercise Therapy, C.B.S. Delhi.
3.	Norkins & White F.A. Davis, Measurement of Joint Motion: A Guide to Goniometry.
4.	Wood - W.B. Saunders, Beard's Massage.
5.	Kendal, Muscle testing and functions, Williams & Wilkins.
6.	Bates and Hanson , Aquatic Exercise Therapy
7.	Margarett Hollis, Massage for therapist: Margarett Hollis
8.	Hollis, Lab Exercise Therapy, Blackwell Scientific Publications.

REFERENCE BOOKS:

1.	
2.	
3.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	
2.	
3.	

SUBJECT NAME:			ELECTROTHERAPY					
SUBJECT CODE:			PT 204					
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
3	1	0	3	1	0	15	25	60
4			4			40		60

OBJECTIVES OF THE COURSE:

Describe the Production & Physiological effects, Therapeutic uses, merits, demerits indication & contraindications of various low, medium & high frequency modes of currents. Describe the Physiological effects & therapeutic uses of various therapeutic ions & topical pharmacotherapeutic agents to be used for the application of Iontophoresis & sonophoresis. Acquire the skill of Application of the Electro therapy modes on models, for the purpose of Assessment & Treatment. Acquire an ability to select the appropriate mode as per the tissue specific & area specific application.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	BASIC OF CURRENTS & LOW FREQUENCY CURRENTS	08 Hours
UNIT-II	MEDIUM FREQUENCY CURRENTS	08 Hours
UNIT-III	HIGH FREQUENCY CURRENTS-I	08 Hours
UNIT-IV	HIGH FREQUENCY CURRENTS-II	08 Hours
UNIT-V	ELECTRO PHYSICAL AGENTS -I	08 Hours
Total (Minimal)		40 Hours

UNIT-I

S.No.	BASIC OF CURRENTS & LOW FREQUENCY CURRENTS:	08 Hours
1.	Basic of Currents: Introduction to History of currents, Production, Physiological effects on Nerve and Muscle tissue and therapeutic effects to AC, DC and Modified Currents.	
2.	Transcutaneous Electric Nerve Stimulation (TENS): History of Transcutaneous Electric Nerve Stimulation (TENS). Types of low frequency, pulse widths, frequencies & intensities used as TENS applications. Principle of clinical application effects & uses indications, contraindications, precautions, and operational skills of equipment & patient preparation. Theories of pain relief by TENS.	
3.	Muscle Stimulators (MS): Muscle Stimulators (MS) Types of frequency, pulse widths, frequencies & intensities used as MS applications. Principle of clinical application effects & uses indications, contraindications, precautions, and operational skills of equipment & patient preparation.	
4.	Iontophoresis: Definition, Physiological & Therapeutics effects, Principle of application, Methods of Application, indications, contraindications, precautions.	

UNIT-II

S.No.	MEDIUM FREQUENCY CURRENTS:	08 Hours
1.	Interferential Therapy (IFT): History of Interferential therapy (IFT), Types of medium frequency, pulse widths, frequencies & intensities used as IFT applications. Principle of clinical application, effects, uses, indications, contraindications, precautions, and operational skills of equipment & patient preparation. Theories of pain relief by IFT.	
2.	Russian Currents (RC): Russian Currents (RC), Types of frequency, pulse widths,	

frequencies & intensities used as RC applications. Principle of clinical application effects, uses, indications, contraindications, precautions, and operational skills of equipment & patient preparation.

UNIT-III

S.No.	HIGH FREQUENCY CURRENTS-I:	08 Hours
1.	Ultrasound Therapy Unit (UST): Ultrasound therapy Unit (UST), Production, Physiological & Therapeutics effects, Principle of application of Ultrasound therapy, Methods of Application of UST, phonophoresis, effects, indications, contraindications, precautions, and patient preparation.	
2.	Long Wave Diathermy (LWD): Long Wave Diathermy (LWD), Production, Physiological & Therapeutics effects, Principle of application of Long Wave Diathermy, Methods of Application of LWD, effects, indications, contraindications, precautions, and patient preparation.	
3.	Extracorporeal Shock Wave Therapy (ECSWT): Brief overview	

UNIT-IV

S.No.	HIGH FREQUENCY CURRENTS-II:	08 Hours
1.	Shortwave Diathermy (SWD): Shortwave Diathermy (SWD), Production, Physiological & Therapeutics effects, Principle of application of Shortwave Diathermy, Methods of Application of SWD, types of electrodes, effects, indications, contraindications, precautions, dangers and patient preparation.	
2.	Micro Wave Diathermy (MWD): Micro Wave Diathermy (MWD), Production, Physiological & Therapeutics effects, Principle of application of Microwave Diathermy, Methods of Application of MWD, effects, indications, contraindications, precautions, dangers and patient preparation.	

UNIT-V

S.No.	ELECTRO PHYSICAL AGENTS -I:	08 Hours
1.	Cryotherapy: Cryotherapy (CT), Principle of Cryotherapy, Physiological effects, Methods of Application of Cryotherapy. Principle of clinical application, effects, uses, indications, contraindications, precautions, and patient preparation. Theories of pain relief by Cryotherapy.	
2.	Paraffin Wax Bath: Paraffin wax bath, Principle of application of Paraffin wax bath, Physiological effects, Methods of Application of PWB, effects, uses, indications, contraindications, precautions, and patient preparation.	
3.	Hydro-collator Bath: Hydro-collator Bath, Principle of application of Hydrocollator Bath, Physiological effects, Methods of Application of Hydro-collator Bath, effects, uses, indications, contraindications, precautions, and patient preparation.	
4.	Electrical Heating Pads: Electrical heating pads, Principle of application of Electrical heating pads, Physiological effects, Methods of Application of Electrical heating pads, effects, uses, indications, contraindications, precautions, and patient preparation.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Clayton's Electrotherapy
2.	Electrotherapy Explained- Sheila & Kitchen.
3.	Clinical Electrotherapy- Nelson and Currier

4.	Electrotherapy Explained- Low and Reed
5.	Electrotherapy in Rehabilitation-Meryl Roth Gersh
6.	Therapeutic modalities in rehabilitation-William E. Prentice
REFERENCE BOOKS:	
1.	
2.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:	
At the end of the semester the student will be able to:	
1.	
2.	
3.	
4.	

SUBJECT NAME:			SURFACE ANATOMY & PALPATION SKILLS					
SUBJECT CODE:			PT 205					
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

About the reviews the surface anatomy and provide an organized approaches for locating osseous and soft tissue landmark relating to major extremity joints, (foot/ ankle, knee, hip, shoulder girdle, elbow and wrist/hand) and all regions of the spine (cervical, thoracic, lumber, pelvic). Be able to palpate the landmarks, and prominent area of the body for examination. Essential observation and palpation skill to prepare the students for more advanced instruction concerning physical examination and manual therapeutics. Be able to palpate the landmarks, and prominent area and its importance during examination.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I	INTRODUCTION OF SURFACE ANATOMY & PALPATION SKILLS	04 Hours
UNIT-II	LANDMARK LOCATION AND PALPATION SKILL OF SPINE	04 Hours
UNIT-III	LANDMARK LOCATION AND PALPATION SKILL OF U/E	04 Hours
UNIT-IV	LANDMARK LOCATION AND PALPATION SKILL OF L/E	04 Hours
UNIT-V	BASIC POSTURAL OBSERVATIONAL SKILL	04 Hours
Total (Minimal)		20 Hours

UNIT-I

S.No.	INTRODUCTION OF SURFACE ANATOMY & PALPATION SKILLS:	04 Hours
1.	Terminology related to surface anatomy, and palpation skill.	
2.	Principle of surface marking and palpation	
3.	Types of palpation and its uses in assessment.	
4.	Ethical and legal issues regarding palpation techniques.	

UNIT-II

S.No.	LANDMARK LOCATION AND PALPATION SKILL OF SPINE:	04 Hours
1.	Landmark location and palpation skill of Lumbopelvic region.	
2.	Landmark location and palpation skill of Thoracic Spine.	
3.	Landmark location and palpation skill of Cervical and Occipital region.	

UNIT-III

S.No.	LANDMARK LOCATION AND PALPATION SKILL OF U/E:	04 Hours
1.	Landmark location and palpation skill of Shoulder Girdle.	
2.	Landmark location and palpation skill of Elbow.	
3.	Landmark location and palpation skill of Wrist & Hand	

UNIT-IV

S.No.	LANDMARK LOCATION AND PALPATION SKILL OF L/E:	04 Hours
1.	Landmark location and palpation skill of Foot & Ankle.	

2.	Landmark location and palpation skill of Knee.
3.	Landmark location and palpation skill of Hip.

UNIT-V

S.No.	BASIC POSTURAL OBSERVATIONAL SKILL:	04 Hours
1.	Normal body alignment, symmetry and plumb line.	
2.	Observation of static and dynamic posture in various positions (sitting, standing & walking) and gait.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	A Manual Therapist Guide to Surface anatomy and Palpation Skills by David Byfield & Stuart Kinsinger.
2.	Orthopaedics Physical Assessment. By D Magee.
3.	An Introduction of fundamental Anatomy by David Sinclair.
4.	Human Anatomy by B.D. Chaurasiya- All 3 volumes.
5.	Surface anatomy By John S.P. Lumley
6.	Surface and Radiological Anatomy By A. Halim

REFERENCE BOOKS:

1.	
2.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	
2.	
3.	

SUBJECT NAME:	PSYCHOLOGY & EXPERIMENTAL PSYCHOLOGY
SUBJECT CODE:	PT 206

(w.e.f. July 2015)

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
2	1	0	2	1	0	15	25	60
3			3			40		60

OBJECTIVES OF THE COURSE:

Be able to define the term Psychology & its importance in the Health delivery system, & will gain knowledge of Psychological maturation during human development & growth; & alterations during aging process. Be able to understand the importance of psychological status of the person in health & disease; environmental & emotional influence on the mind & personality. Describe in brief the various treatment modalities commonly used.

OUTLINE OF THE COURSE:

UNITS	TITLE OF THE UNIT	MINIMUM NUMBER OF HOURS
UNIT-I		06 Hours
UNIT-II		06 Hours
UNIT-III		06 Hours
UNIT-IV		06 Hours
UNIT-V		06 Hours
Total (Minimal)		30 Hours

UNIT-I

S.No.		06 Hours
1.	Definition, application and methods in psychology, Biology of Behavior, Sensory processes and perception, Principles of learning, Classical and Instrumental Conditioning, Cognitive learning, Memory, long and short – term memories, forgetting, amnesia.	

UNIT-II

S.No.		06 Hours
1.	Thinking and Language, Concepts, thinking process, problem- solving and decision making, creative thinking and language communication, Motivation, Biological and Social motives, frustration and conflict of motives, motives to know and be effective, Emotion and Stress, Expression and perception of emotions, physiology and application of emotion.	

UNIT-III

S.No.		06 Hours
1.	Social perceptions, influences, and relationships, Attitudes, Nature and measurement of attitudes, Factors in attitude change, Behavior and attitudes.	

UNIT-IV

S.No.		06 Hours
1.	Development- A Lifespan Perspective (infancy, childhood, adolescence, adult, old age), Personality, Defining and thinking about personality, Theories and issues and controversies and research.	

UNIT-V

S.No.		06 Hours
1.	Abnormal Psychology, Therapy for Psychological distress, Brief description of Psychological assessment and testing.	

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Morgan C.T., King R. A., Weijz J. R. Schopler J.
2.	Introduction to Psychology, 7 th edn. (Tata McGraw-Hill Publishing Co. Ltd.)
3.	Human Development, 5 th . (Tata McGraw Hill Publishing Co. Ltd)
4.	Munn N.L. Introduction to Psychology-(Premium Oxford, I.B.P. Publishing Co.)
5.	Parameshwaran E. G. & Ravichandra K. - Experimental Psychology: A Laboratory Manual (1 st edn.) (Seema Publications, Delhi) Munn Julia (ed.)

REFERENCE BOOKS:

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STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:	
1.	
2.	

SUBJECT NAME:	EXERCISE THERAPY LAB
SUBJECT CODE:	PT 207
(w.e.f. July 2017)	

Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	4	0	0	4	30	30	40
4			2			60		40

OBJECTIVES OF THE COURSE:

This course involves a detailed study of physiological effects, application techniques, effects, indications, and contra-indications, precautions for exercises used in Physiotherapy.

OUTLINE OF THE COURSE:

S.No.	TITLE OF THE UNIT	Hours
1.	Position of joints, muscle work, and stability of various fundamental and derived positions.	
2.	Different types of muscle contraction, muscle work, group action of muscles and coordinated movement.	
3.	Measurement of ROM of joints- upper limb, lower limb and trunk.	
4.	To practice the grading of muscle strength region wise upper limb and lower limb and trunk.	
5.	Various techniques of progressive strengthening exercises of muscles region wise.	
6.	Various types of suspension therapy and its applications on various part of body-region wise.	
7.	Structure and functions along with application of various equipment in a gymnasium.	
8.	Use of various ambulation aids in gait training.	
9.	Evaluate ADLs and practice various training techniques.	
10.	Normal and abnormal posture & practice various corrective techniques.	
Total (Minimal)		60

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	Kisner and Colby. F.A. Davis, Therapeutic Exercises Foundations and Techniques
2.	Gardiner, Principle of Exercise Therapy, C.B.S. Delhi.
3.	Norkins & White F.A. Davis, Measurement of Joint Motion: A Guide to Goniometry.
4.	Wood - W.B. Saunders, Beard's Massage.
5.	Kendal, Muscle testing and functions, Williams & Wilkins.
6.	Margarett Hollis, Massage for therapist: Margarett Hollis
7.	Hollis, Lab Exercise Therapy, Blackwell Scientific Publications.

REFERENCE BOOKS:

1.	
2.	
3.	
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STUDENT LEARNING OUTCOMES/OBJECTIVES:

At the end of the semester the student will be able to:

1.	
2.	

SUBJECT NAME:						ELECTROTHERAPY LAB		
SUBJECT CODE:						PT 208		
(w.e.f. July 2015)								
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	4	0	0	4	30	30	40
4			2			60		40
OBJECTIVES OF THE COURSE:								
This course involves a detailed study of physiological effects, application techniques, effects, indications, and contra-indications, precautions for Electrotherapy Modalities used in Physiotherapy.								
OUTLINE OF THE COURSE:								

S.No.	TITLE OF THE UNIT - Student should be able to explain the rationale for the prescription of safe and effective electrotherapy modalities.	Hours
1.	Basic operation of electric supply to the equipment and safety device.	
2.	Sensory and motor stimulation of nerves and muscles by various types of low frequency currents on self.	
3.	Locate and stimulate different motor points region wise, including the upper and lower limb, trunk & face.	
4.	Therapeutic application different low frequency currents faradic foot bath, faradism under pressure, Iontophoresis.	
5.	TENS Stimulator, its operation and application - regionwise.	
6.	IFT-Its operation and application –region wise	
7.	Muscle stimulators, its operation and different method of application- region wise.	
8.	Hydrocollator bath unit, its operation and different method of application- region wise.	
9.	Paraffin wax bath unit, its operation and different method of application- regionwise.	
10.	Various forms of therapeutic cold application region wise including ice, cold packs, vapocoolant sprays, etc.	
11.	Long wave therapy unit, its operation and different method of application- regionwise.	
12.	Ultrasound unit, its operation and methods of application - regionwise.	
13.	Short wave diathermy unit, its operation and different methods of application - regionwise.	
14.	Microwave diathermy unit, its operation and different methods of application - regionwise.	
Total (Minimal)		60

BOOKS RECOMMENDED:	
TEXTBOOKS:	
1.	Clayton's Electrotherapy
2.	Electrotherapy Explained- Sheela & Kichen
3.	Clinical Electrotherapy- Nelson and Currier
4.	Electrotherapy Explained- Low and Reed
5.	Electrotherapy in Rehabilitation-Meryl Roth Gerth
6.	Therapeutic modalities in rehabilitation-William E. Prentice
REFERENCE BOOKS:	
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STUDENT LEARNING OUTCOMES/OBJECTIVES:
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At the end of the semester the student will be able to:

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SUBJECT NAME:			SURFACE ANATOMY & PALPATION SKILLS LAB					
SUBJECT CODE:			PT 209					
Hrs. / Wk.			Credits			Total Marks		
L	T	P	L	T	P	TA	CT	ESE
0	0	2	0	0	2	50	50	00
2			1			100		00

OBJECTIVES OF THE COURSE:

This course involves a detailed study of Surface anatomy of Human body, Palpation Skill, indications, and contra-indications, precautions for palpation during the assessment in Physiotherapy.

OUTLINE OF THE COURSE:

S.No.	TITLE OF THE UNIT - Student should be able to explain the rationale for the prescription of safe and effective knowledge of surface anatomy and Palpation Skill.	Hours
1.	Terminology related to surface anatomy, and palpation skill.	
2.	Principle of surface marking and palpation, Types of palpation and uses.	
3.	Normal body alignment and symmetry.	
4.	Observation of static and dynamic posture in various positions (sitting, standing & walking) and gait.	
5.	Landmark location and palpation skill of Lumbopelvic region.	
6.	Landmark location and palpation skill of Thoracic Spine.	
7.	Landmark location and palpation skill of Cervical and Occipital region.	
8.	Landmark location and palpation skill of Shoulder Girdle.	
9.	Landmark location and palpation skill of Elbow.	
10.	Landmark location and palpation skill of Wrist & Hand	
11.	Landmark location and palpation skill of Foot & Ankle.	
12.	Landmark location and palpation skill of Knee.	
13.	Landmark location and palpation skill of Hip.	
Total (Minimal)		

BOOKS RECOMMENDED:

TEXTBOOKS:

1.	A Manual Therapist Guide to Surface anatomy and Palpation Skills by David Byfield & Stuart Kinsinger.
2.	Orthopaedics Physical Assessment. By D Magee.
3.	An Introduction of fundamental Anatomy by David Sinclair.
4.	Anatomy of Chaurasiya- All 3 volumes.
5.	Surface anatomy By John S.P. Lumley
6.	Surface and Radiological Anatomy By A. Halim

REFERENCE BOOKS:

1.	
2.	
3.	

STUDENT LEARNING OUTCOMES/OBJECTIVES:	
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At the end of the semester the student will be able to:	
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**SCHEME OF EXAMINATION
&
MODELS OF QUESTION PAPER
OF
BACHELOR OF PHYSIOTHERAPY
(BPT)**

SCHEME OF EXAMINATION

THEORY:

INTERNAL ASSESSMENT (IA)

40 Marks

CLASS TEST (CT)

TEACHER ASSESSMENT (TA)

MSE-1	MSE- 2	Makeup	ST-1	ST-2	Q-1	Q-2	A-1	A-2	A-3	A-4	Attendance
25	25	25	5	5	5	5	5	5	5	5	5

END SEMESTER EXAMINATION (ESE)

60 Marks

INTERNAL ASSESSMENT (IA)

Class Test (CT)

MM: 25 Marks

PM: 13 (50%)

Time: 1:30 Hours

Q.No.	Models										Marks
1.	Multiples Choice Questions (any three)										1.5X5=7.5
One Question from each Unit											
	a.	i)	ii)	iii)	iv)						1.5
	b.	i)	ii)	iii)	iv)						1.5
	c.	i)	ii)	iii)	iv)						1.5
	d.	i)	ii)	iii)	iv)						1.5
	e.	i)	ii)	iii)	iv)						1.5
2.	Short Questions (any three)										2.5X3=7.5
	a.										2.5
	b.										2.5
	c.										2.5
	d.										2.5
	e.										2.5
3.	Long Questions (any two)										5X2=10
	a.										5
	b.										5
	c.										5
End Semester Examination (ESE)											
MM: 60 Marks				PM: 21 (35%)				Time: 3:00 Hours			
Q.No.	Models										Marks
1.	Multiple Choice Questions										1X12=12
Two Question from each Unit											
	a.	i)	ii)	iii)	iv)						1
	b.	i)	ii)	iii)	iv)						1
	c.	i)	ii)	iii)	iv)						1
	d.	i)	ii)	iii)	iv)						1
	e.	i)	ii)	iii)	iv)						1
	f.	i)	ii)	iii)	iv)						1
	g.	i)	ii)	iii)	iv)						1
	h.	i)	ii)	iii)	iv)						1
	i.	i)	ii)	iii)	iv)						1

	j.	i)	ii)	iii)	iv)	1
	k.	i)	ii)	iii)	iv)	1
	l.	i)	ii)	iii)	iv)	1
2.	Short Questions (any Four)					3X4=12
	a.					3
	b.					3
	c.					3
	d.					3
	e.					3
	f.					3
3.	Short Questions (any Two)					3X4=12
	a.					3
	b.					3
	c.					3
	d.					3
	e.					3
	f.					3
4.	Long Questions (any Two)					6X2=12
	a..					6
	b.					6
	c.					6
4.	Long Questions (any Two)					6X2=12
	a.					6
	b.					6
	c.					6