DEPARTMENT OF PHYSIOTHERAPY

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

PROPOSED SYLLABUS FOR

BACHELOR OF PHYSIOTHERAPY

FOUR & HALF YEARS DEGREE COURSE

BASED ON CREDIT BASED SYSTEM

REVISED SYLLABUS

TO BE IMPLMENTED FROM: 2018-2019

Note:-

- Weightage of minor and major tests etc shall be conducted as per University Rules and Regulations.
- All other rules and regulations for the students of Physiotherapy shall be applicable as per ordinance of the Department / University already in force and / or as amended from time to time.

BACHELOR OF PHYSIOTHERAPY

PROGRAMME STUDY (CREDIT BASED SEMESTER SYSTEM)

(Implemented from academic session 2018-19)

Bachelor of Physiotherapy: First Year

SEMESTER 1										
S. No.	**Course Code**	**Subject**	**Title**	**Teaching hrs/Week**		**Marks**				
				L-T-P	**Credits**	**Theory**		**Practical**		**Total Marks**
						Internal	**External**	**Internal**	**External**	
1	BPT 111 BPT 111P	Anatomy –I (Theory & Practical)	PC	5-0-4	7	30	70	30	70	200
2	BPT 112 BPT 112P	Physiology – I (Theory & Practical)	PC	5-0-4	7	30	70	30	70	200
3	BPT 113	Biochemistry (Theory)	PC	3-0-0	3	30	70	-----	-----	100
4	BPT 114 BPT 114P	Introduction to Electrotherapy (Theory & Practical)	PC	5-0-4	7	30	70	30	70	200
5	BPT 115	Sociology	PC	2-0-0	2	30	70	-----	-----	100
6	EVS-201-L	Environmental Sciences	PC	4-0-0	4	30	70	-----	-----	100
Total Credits					30	180	420	90	210	900

SEMESTER II										
S. No.	**Course Code**	**Subject**	**Title**	**Teaching hrs/Week**		**Marks**				
				L-T-P	**Credits**	**Theory**		**Practical**		**Total Marks**
						Internal	**External**	**Internal**	**External**	
1	BPT 121 BPT 121P	Anatomy –II (Theory & Practical)	PC	6-0-4	8	30	70	30	70	200
2	BPT 122 BPT 122P	Physiology – II (Theory & Practical)	PC	6-0-4	8	30	70	30	70	200
3	BPT 123	Pathology (Theory)	PC	3-0-0	3	30	70	-----	-----	100
4	BPT 124	Microbiology (Theory)	PC	3-0-0	3	30	70	-----	-----	100
5	BPT 125 BPT 125P	Introduction to Exercise Therapy (Theory & Practical)	PC	6-0-4	8	30	70	30	70	200
Total Credits					30	150	350	90	210	800

Bachelor of Physiotherapy: Second Year

SEMESTER III										
S. No.	**Course Code**	**Subject**	**Title**	**Teaching hrs/Week**		**Marks**				
				L-T-P	**Credits**	**Theory**		**Practical**		**Total Marks**
						Internal	**External**	**Internal**	**External**	
1	BPT 231 BPT 231P	Introduction to General Medicine (Theory & Practical)	PC	4-0-2	5	30	70	30	70	200
2	BPT 232 BPT 232P	Introduction to Orthopedics (Theory & Practical)	PC	4-0-2	5	30	70	30	70	200
3	BPT 233	Introduction to Pharmacology (Theory)	PC	4-0-0	4	30	70	-----	-----	100
4	BPT 234 BPT 234P	Basis of Exercise Therapy (Theory & Practical)	PC	6-0-4	8	30	70	30	70	200
5	BPT 235 BPT 235P	Basis of Electrotherapy (Theory & Practical)	PC	6-0-4	8	30	70	30	70	200
6.	BPT 236	Psychology (Theory)	PC	3-0-0	3	30	70	----	----	100
Total Credits					33	180	420	120	280	1000

SEMESTER IV										
S. No.	**Course Code**	**Subject**	**Title**	**Teaching hrs/Week**		**Marks**				
				L-T-P	**Credits**	**Theory**		**Practical**		**Total Marks**
						Internal	**External**	**Internal**	**External**	
1	BPT 241 BPT 241P	General Medicine (Theory & Practical)	PC	4-0-2	5	30	70	30	70	200
2	BPT 242 BPT 242P	Orthopedics (Theory & Practical)	PC	4-0-2	5	30	70	30	70	200
3	BPT 243	Advanced Pharmacology (Theory)	PC	4-0-0	4	30	70	-----	-----	100
4	BPT 244 BPT 244P	Advanced Exercise Therapy (Theory & Practical)	PC	6-0-4	8	30	70	30	70	200
5	BPT 245 BPT 245P	Advanced Electrotherapy (Theory & Practical)	PC	6-0-4	8	30	70	30	70	200
6.	BPT 246	Psychiatry (Theory)	PC	3-0-0	3	30	70	----	----	100
Total Credits					33	180	420	120	280	1000

Bachelor of Physiotherapy: Third Year

SEMESTER V										
S. No.	**Course Code**	**Subject**	**Title**	**Teaching hrs/Week**		**Marks**				
				L-T-P	**Credits**	**Theory**		**Practical**		**Total Marks**
						Internal	**External**	**Internal**	**External**	
1	BPT 351 BPT 351P	Neurology I (Theory & Practical)	PC	4-0-2	5	30	70	30	70	200
2	BPT 352	General Surgery including OBG (Theory)	PC	4-0-0	4	30	70	---	---	100
3	BPT 353	Biomechanics & Kinesiology I (Theory)	PC	4-0-0	4	30	70	-----	-----	100
4	BPT 354 BPT 354P	Physical Assessment & Manipulative Skills I (Theory & Practical)	PC	6-0-4	8	30	70	30	70	200
5	BPT 355 BPT 355P	Physiotherapy in Orthopedic Conditions I (Theory & Practical)	PC	6-0-4	8	30	70	30	70	200
6.	BPT 600	Clinical Training (Practical)	PC	0-0-4	2	---	----	100	----	100
Total Credits					31	150	350	190	210	900

SEMESTER VI										
S. No.	**Course Code**	**Subject**	**Title**	**Teaching hrs/Week**		**Marks**				
				L-T-P	**Credits**	**Theory**		**Practical**		**Total Marks**
						Internal	**External**	**Internal**	**External**	
1	BPT 361 BPT 361P	Neurology II (Theory & Practical)	PC	4-0-2	5	30	70	30	70	200
2	BPT 362	General Surgery including Eye & ENT (Theory)	PC	4-0-0	4	30	70	---	---	100
3	BPT 363	Biomechanics & Kinesiology II (Theory)	PC	4-0-0	4	30	70	-----	-----	100
4	BPT 364 BPT 364P	Physical Assessment & Manipulative Skills II (Theory & Practical)	PC	6-0-4	8	30	70	30	70	200
5	BPT 365 BPT 365P	Physiotherapy in Orthopedic Conditions II (Theory & Practical)	PC	6-0-4	8	30	70	30	70	200
6.	BPT 600	Clinical Training (Practical)	PC	0-0-4	2	---	----	100	----	100
Total Credits					31	150	350	190	210	900

Bachelor of Physiotherapy: Fourth Year

SEMESTER VII										
S. No.	**Course Code**	**Subject**	**Title**	**Teaching hrs/Week**		**Marks**				
				L-T-P	**Credits**	**Theory**		**Practical**		**Total Marks**
						Internal	**External**	**Internal**	**External**	
1	BPT 471 BPT 471P	Physiotherapy in Neurological Conditions-I (Theory & Practical)	PC	5-0-4	7	30	70	30	70	200
2	BPT 472 BPT 472P	Physiotherapy in Medical Conditions-I (Theory & Practical)	PC	5-0-4	7	30	70	30	70	200
3	BPT 473 BPT 473P	Physiotherapy in Surgical Conditions-I (Theory & Practical)	PC	5-0-4	7	30	70	30	70	200
4	BPT 474	Research Methodology	PC	3-0-0	3	30	70	----	----	100
5	BPT 475	Organization and Physiotherapy Ethics	PC	3-0-0	3	30	70	----	----	100
6.	BPT 476	Physiotherapy in Community Health	PC	3-0-0	3	30	70	----	----	100
7.	BPT 600	Clinical Training	PC	0-0-4	2	----	----	100	----	100
Total Credits					32	180	420	190	210	1000

SEMESTER VIII										
S. No	**Course Code**	**Subject**	**Title**	**Teaching hrs/Week**		**Marks**				
				L-T-P	**Credits**	**Theory**		**Practical**		**Total Marks**
						Internal	**External**	**Internal**	**External**	
1	BPT 481 BPT 481P	Physiotherapy in Neurological Conditions-II (Theory & Practical)	PC	5-0-4	7	30	70	30	70	200
2	BPT 482 BPT 482P	Physiotherapy in Medical Conditions-II (Theory & Practical)	PC	5-0-4	7	30	70	30	70	200
3	BPT 483 BPT 483P	Physiotherapy in Surgical Conditions-II (Theory & Practical)	PC	5-0-4	7	30	70	30	70	200
4	BPT 484	Biostatistics	PC	3-0-0	3	30	70	----	----	100
5	BPT 485	Rehabilitation Medicine including Orthotics & Prosthetics	PC	3-0-0	3	30	70	----	----	100
6.	BPT 600	Clinical Training	PC	0-0-4	2	----	----	100	----	100
7.	BPT 601	Project work	PC	0-0-4	2	----	----	-----	100	100
Total Credits					31	150	350	190	310	1000

SIX MONTHS COMPULSORY INTERNSHIP

S. No.	**Subject**	**Teaching hrs/Week**	
		Hours	**Credits**
1.	Rotatory Internship	Minimum 24 hrs/Week (Total hrs=500 hrs)	Qualifying

BACHELOR OF PHYSIOTHERAPY: FIRST YEAR

SEMESTER I

Course code	Subject	Type	Teaching Hours/ Week	
			L – T - P	Credits
BPT 111	Anatomy – I	PC	5 – 0 – 0	5

Course Assessment Methods ***(Internal:30; External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks). Assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about structure of human body parts and medical terminology

Unit-I

1. General anatomy and general histology
   a. Nomenclature
   b. Tissues of body
   c. Morphology of Skin, Muscle, Cartilage and Bone
   d. Joints: Classification and general aspect

Unit-II

1. General embryology and genetics.

Unit-III

1. Upper limb: Osteology, Myology, Arthrology, Nerves & vessels and lymphatic drainage.

Unit-IV

1. Lower limb: Osteology, Myology, Arthrology, Nerves & vessels and lymphatic drainage.

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 111 P	Anatomy Practical – I	PC	0 – 0 – 4	2

Course Assessment Methods *(Internal:30; External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks). Assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks.*

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about structure of human body parts and medical terminology

1. General Histology
2. General Embryology
3. Upper Limb
4. Lower Limb

BOOKS RECOMMENDED:

1. BD.Chaurasia,Human Anatomy,Volume 1,2,3.7th edition. CBS Publishers.
2. Snells. Clinical Anatomy.9 th edition – Lippincott
3. Extremities by QuiningWasb.
4. L. Williams & Warwick, Gray's Anatomy –37th edition. Churchill Livingstone
5. Inderbir Singh, Textbook of Anatomy with Colour Atlas, Volume 1,2,3.15thedition.CBSPublishers and Distributors
6. Mcminn'slasts Anatomy –12th edition. Regional and Applied, Churchill Livingstone.
7. Mcminn – A Colour Atlas of Human Anatomy, Mosby
8. Cunnigham Manual of Practical Anatomy Vol I, II, III.15th edition. Churchill Livingstone
9. A Textbook of Human Neuro Anatomy- 9th edition. Inderbir Singh, Jaypee Brothers

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 112	Physiology – I	PC	5 – 0 – 0	5

Course Assessment Methods ***(Internal: 30; External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks). Assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about function of human body parts and medical terminology.

Unit-I

1. Functional System of the Cell:
   a. Cell and its function, cell organelles and individual function, Intracellular fluid, extracellular fluid, oedema, transport across cell membrane.
   b. Homeostasis, internal environment and maintenance, control system of body.
   c. Control of genetic function, cell differentiation, cancer.
2. Membrane and nerve muscle physiology:
   a. Transport of substances through the cell membrane: diffusion, active transport.
   b. Membrane potentials and action potentials: Resting membrane potential ofnerves, propagation of action potential, transmission of signals in nerve trunks.
   c. Contraction of skeletal muscle: molecular mechanism of muscle contraction, energetics of muscle contraction, characteristics of muscle contraction, neuromuscular junction, Excitation contraction coupling.
   d. Contraction and excitation of smooth muscle.
   e. Hormonal Control of smooth muscle contraction.

Unit-II

1. Heart & Circulation.
   a. Cardiac Muscle, Action potential, Cardiac cycle, heart sounds, murmur.
   b. Valvular lesions, Rheumatic heart disease, cardiomyopathies & congenital disorders.

c. Cardiac output, coronary circulation, venous return & oxygen utilization.
d. Cardiac failure & shock, physiological basis of treatment.
e. Blood flow, microcirculation, lymphatic system, capillary circulation.
f. Angina pectoris myocardial infarction, physiological basis of treatment.
g. Blood pressure, regulation of heart pumping, hypertension, control & management.
h. Excitatory & conductive system of the heart, normal ECG & methods of recording.
i. Conduction defects & abnormal ECG.
j. Cardiac arrest & cardiac tamponade.

Unit-III

1. Renal Physiology
   a. Functional anatomy of kidney, renal blood supply, GFR and autoregulation.
   b. Micturition, micturition reflex, abnormalities of micturition, ureter, urinary bladder, Vesicoureteral reflux.
   c. Tubular processing of GRF.
   d. Buffer, Acid-base balance, Renalfunction test.
   e. ARF, Diuresis, diuretics.
   f. CRF, dialysis, artificial kidney.

Unit-IV

1. Blood, immunity.
   a. RBC, WBC development & function: anaemia, polycythemia, leucocytosis, leucopenia, leukaemia.
   b. Platelets: function, structure, abnormality, haemostasis.
   c. Coagulation: coagulants, anticoagulants, tests & disorders.
   d. Inflammation & immunity: immune cells, types of immunity, Immune disorders, autoimmunity, allergy, hypersensitivity vaccination, Immune reactions.
   e. Blood groups, blood transfusion.
   f. Erythroblastosis.

Course code	**Subject**	**Title**	**Teaching Hours/ Week**	
			L – T - P	**Credits**
BPT 112 P	**Physiology Practical – I**	**PC**	**0 – 0 – 4**	**2**

<u>Course Assessment Methods</u> (Internal:30; External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks). Assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about function of human body parts and medical terminology.

1. Microscope, Blood smear, Staining
2. Identification of blood cells and differential counts
3. R.B.C.
4. W.B.C.
5. Haemoglobin percentage and colour index.
6. E.S.R.
7. Bleeding time, Clotting time
8. Grouping ABO Rh
9. General Examination of anemia, icterus, lymph node, oedema
10. Examination of CVS: CPR, Pulse rate, heart rate and measurement of blood pressure, effects of change in posture and exercises, ECG(Normal)

BOOKS RECOMMENDED:

1. Text book of Medical Physiology - Arthur Guyton.11th edition. (Mosby)
2. Concise Medical Physiology- Chaudhari S.K. 6th edition, New Central Agency, Calcutta
3. Text Book of Practical Physiology – Ghai,8th edition. Jaypee.
4. Text Book of Physiology – Anand and Manchanda, Tata MacGraw Hill.
5. Principles of Anatomy and Physiology – Tortora Grabowski.14th edition. – Harper Collins.

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 113	Biochemistry	PC	3 – 0 – 0	3

Course Assessment Methods ***(Internal: 30;External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks). Assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept of cells, vitamins, biochemical, nucleic acid and medical terminology.

Unit-I

1. Basic biochemical aspects of mammalian cells-comparative differences in biochemical makeup of bacterial, plant and animal cells.
2. Structure and properties of Carbohydrates, Proteins and Lipids.
3. Nucleic acid - structure and metabolism.

Unit-II

1. Proteins -classification, basic knowledge of protein structure, biochemical properties of proteins, biochemical rate of proteins and amino acids.
2. Enzymes - definition, classification, general mechanism of enzyme action, isozymes and their role in functional disorders. Enzyme Inhibition.
3. Carbohydrate Metabolism - Glycolysis, Glucogenesis, Glycogen metabolism, Citric acid cycle. Role of carbohydrates in ATP production.

Unit-III

1. Lipid Metabolism - Biosynthesis, Beta oxidation, Ketosis.
2. Protein Metabolism - Urea Cycle and its biomedical significances.
3. Functions of Vitamins and Minerals and their deficiency disorders.
4. Dietary balance, Regulation of feeding, Obesity and starvation.

Unit-IV

1. Hormones -Biosynthesis of Thyroxin, Calcitonin, Parathyroid hormone, Supra renal cortical hormones, Growth Hormones, ACTH, MSH LPH, ADH, Oxytocin and Insulin
2. Common procedures used in biochemistry.

BOOKS RECOMMENDED:

1. Lehninger Principles of Biochemistry – 7th edition.W.H. Freeman
2. Outlines of Biochemistry – 5th edition.Eric E.Conn.
3. Textbook of biochemistry: 9th edition revised.Dr A V S S Rama Rao

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 114	Introduction to Electrotherapy	PC	5 – 0 – 0	5

Course Assessment Methods ***(Internal: 30;External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks). Assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, electricity, electrotherapy and medical terminology

Unit-I

1. Fundamentals of low frequency currents
   a. Production of electricity, mains supply
   b. A.C. currents and Faradic type current with their waveforms
   c. D.C. Currents: Types, interrupted direct currents with their wave forms fundamentals of electrical charges, static electricity, physics of direct currents, Ohm's law, conductors, capacitors, rheostat, potentiometers, ammeters, oscilloscopes, types of electrodes, skin resistance, electrode gels types and its significance,.

Unit-II

1. Fundamentals of high frequency currents
   a. Magnetism: E.M.F, conduction, Lenz's law
   b. Transformer
   c. Thermo ionic valves
   d. Semi-conductors-types-transistors
   e. Electronic circuits – oscillators, pulse generators, galvanometer, rectifier, capacitors etc.

Unit-III

1. Electromagnetic Spectrum – laws of transmission, reflection, refraction, absorption, attenuation

2. Electromagnetic currents and fields, risk factors on prolonged exposure to electromagnetic field
3. Production, physical principles, panel diagram, testing of apparatus – SWD, ultrasound, UVR.

Unit-IV

1. Production, physical principles, panel diagram, testing of apparatus – IFT, IRR. and LASER (no panel diagram)

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 114 P	**Introduction to Electrotherapy Practical**	**PC**	**0 – 0 – 4**	**2**

Course Assessment Methods ***(Internal:30; External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks). Assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks.***

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, electricity, electrotherapy and medical terminology

1. Diode and triode valves, transistors, ammeter, voltmeter, rectifier, galvanometer, rheostat, resistance box, transformer and other electronic and electrical devices.
2. Demonstration of circuits in electrotherapy units like Stimulator, I.F.T., I.R.R., SWD, LASER and Ultrasound
3. Oscilloscope

BOOKS RECOMMENDED:

1. Electrotherapy explained: principles and practice - Low & Reed, 4th edition. Butterworth Heinmann
2. Clayton's electrotherapy -12th Edition – Kitchen &Bazin – WB. Saunders
3. Therapeutic Heat and Cold-4th edition. Justus F. Lehmann – Williams & Wilkins.
4. Principles and Practice of Electrotherapy – 4th edition. Kahn – Churchill Livingstone
5. Electrotherapy : Clinics in Physical Therapy – Wolf – Churchill Livingstone
6. Clinical Electrotherapy – 3rd edition. Nelson & Currier
7. Electrotherapy in Rehabilitation– Meryl Roth Gerth – F A Davis
8. Thermal Agents in Rehabilitation –Susan L.Michlovitz–3rd edition.
9. Physical Principles Explained – Low & Reed – 4th edition.Butterworth Heinmann
10. Therapeutic Modalities in Sports Medicine-William E Prentice – Mosby
11. Rehabilitation Techniques-William E Prentice – Mosby

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 115	Sociology	PC	2 – 0 – 0	2

Course Assessment Methods *(Internal: 30;External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks). Assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks*

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about society, community, family, civilization and human nature.

Unit-I

1. Introduction - Definition of sociology, Sociology as a Science of society, uses of the study of Sociology. Application of knowledge of sociology in physiotherapy.
2. Sociology & health – Social psychological factors affecting the health status. Influence of social factors on personality, self concept, self esteem, self efficacy, social consciousness and perception socialization in the rehabilitation of patients.
3. Socialization – definition – influence of social factors on personality, socialization in the hospital &rehabilitation of the patients.

Unit-II

1. Family influence on human personality – individual health, Family & nutrition – effects of sickness on family – Psychosomatic diseases & Family.
2. Community – Role of rural & urban communities in public health, Role of community in determining beliefs, practices and home remedies in treatment.
3. Culture components impact on human,cultural meaning of sickness – response to sickness & choice of treatment [role of culture as social consciousness in molding the perception of reality] – Culture induced symptoms & diseases, sub culture of medical workers.

Unit-III

1. Social change and control- meaning of social change and social control. Role of social change/norms, folkways, customs, morals, religion law and other means of social control in the regulation of human behavior. Role of social planning in the improvement of health and in rehabilitation.
2. Social cognition & attribution: Social cognition – nature and approaches, Prejudice and Discrimination, Attribution – nature and theories.

Unit-IV

1. Social problems of the disabled: Consequences of the following social problems in relation to sickness disability: remedies to prevent these problems.
   a. Population explosion.
   b. Poverty & unemployment.
   c. Beggary,
   d. Juvenile delinquency
   e. Prostitution.
   f. Alcoholism
   g. Problems of women in employment.
2. Social security & social legislation in relation to the disabled.
3. Role of a social worker.

BOOKS RECOMMENDED:

1. An Introduction to Sociology - Sachdeva&Bhushan — Allahabad;KitabMahal Ltd.
2. Social problems in India – 3rd edition.Ram Ahuja.
3. Madan – India Social Problems, Vol-I- 7th edition. Allied publications
4. Macgee – Sociology –3rd edition.Drydon press.
5. Ahuja – Social Problems, 3rd edition.–Bookhire, Delhi.
6 . Parter E' Alder – Psychology and Sociology Applied to Medicine – 3rd edition.W.B. Saunders.

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
EVS-201-L	Environmental Studies (EVS)	PC	4 – 0 – 0	4

Course Assessment Methods ***(Internal: 30;External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks). Assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course enhances knowledge skills and attitude towards environment. And understand natural environment and its relationship with human activities.The students will be able to analyze human impacts on the environment.

Unit I

1. The multidisciplinary nature of environmental studies
   a. Definition, scope and importance
   b. Need for public awareness.
   c. Concept,structure and function of ecosystem: Producers,consumers and decomposers,
   d. Energy flow in the ecosystem,Ecological succession,Food chains, Food webs and ecological pyramids
2. Ecosystems
   a. Concept of an ecosystem
   b. Structure and function of an ecosystem
   c. Procedures, consumers and decomposers
   d. Energy flow in the ecosystem
   e. Ecological successive.
   f. Food chains food webs and ecological pyramids.
3. Introduction, types, characteristic features, structure and functions of the following ecosystem.
   a. Forest ecosystem
   b. Grassland ecosystem
   c. Desert ecosystem
   d. Aquatic ecosystems (ponds, streams, lakes, livers, oceans, estuaries)
4. Biodiversity and its conservations
   a. Introduction-Definition: genetic, species and ecosystem diversity.

b. Value of Biodiversity: consumptive use, productive use, social, ethical, aesthetic and option value.
c. Biodiversity at global, national and local levels.
d. India as a meta-diversity
e. Hot-spots of Biodiversity
f. Treats to biodiversity: habitual loss, pashing of wildlife, man-wildlife conflicts.
g. Endangered and endemic species of India.
h. Conservation of biodiversity: In-situ and ex- situ conservation of biodiversity

Unit II

1. Renewable and nor-renewable resources:
2. Nature resources and associated problems.
   a. Forest resources: Use and over-exploitation, deforestation, case studies Timer extraction, mining, dams and their effects on forests and tribal peoples.
   b. Water resources: Use and over utilization of surface and ground water, floods, drought, conflicts over water, dam benefit and problem.
   c. Mineral resources: Use and exploitation environmental effects of extracting and using mineral resources, case studies.
   d. Food resources: World food problem manage caused by agriculture and overgrazing, effects of modern agriculture fertilizes-pesticide problems, water logging, salinity, case studies.
   e. Energy resources: Growing energy need, renewable and non-renewable energy sources use of alternate energy sources' studies.
   f. Land resources: Land as a resource and degradation, man induced landslides, soil corrosion and desertification.
   g. Role of an individual in conservation of natural resources.
   h. Equitable use of resources for sustainable lifestyles.

Unit III

1. Environmental Pollution-Definition, causes: effects and control measures of :
   a. Air pollution.
   b. Water pollution
   c. Soil pollution
   d. Marine Pollution
   e. Noise Pollution
   f. Thermal pollution
   g. Nuclear hazards.
2. Solid waste management: Causes, effects and control measures of urban and industrial wastes.
3. Pole of an individual in prevention of pollution
4. Pollution case studies
5. Disaster management: floods, earthquake, cyclone and landslides. Climate change, global warming, acid rain, ozone layer depletion.
6. Different laws related to environment:
   a. Environment Protection Act
   b. Air (Prevention and control of Pollution) Act

c. Water (Prevention and control of Pollution) Act
d. Wildlife Protection Act.
e. Forest Conservation Act.

7. International agreements : Montreal and Kyoto protocol and natural reserves,Tribal populations and human health,

Unit IV

1. Concept of sustainability and sustainable development,
2. Water conservation, rain harvesting, and watershed management.
3. Resettlement and rehabilitation of people: its problems and concerns, case studies
4. Environment ethics: Role of Indian and other religion and cultures in environmental conservation, Environmental communication and public awareness, case studies (eg, CNG vehicles in Delhi), Human Population growth: Impact on environment ,human health and welfare ,Environment movements: Chipko movement, Silent valley movement, Bishnois of Rajasthan.

Field Work

1. Visit to a local area to document environmental assets-river, forest/ grassland/ Hill/ Mountain
2. Visit to a local polluted site – urban/rural/industrial/agricultural
3. Study of common plants, insects, birds.
4. Study of simple ecosystem – bond, river, hill slopes, etc.
   (Field work equal to 5 lectures hours)

BOOKS RECOMMENDED:

1. Erach Bharucha “Environmental studies for undergraduates courses”, University grants commission and Bhartividyapeeth institute of environmental education and research,Pune, University press pvt. Ltd. (India).
2. Fundamental concepts in environmental studies by Dr. DD. Mishra.S Chand publications.

Reference books:

1. Essentials of ecology and environmental sciences by Dr. SVS Rana. PHI Learning Pvt.ltd.,Delhi
2. Environmental chemistry by Anil Kumar De,Wiley eastern limited.
3. Environmental science by T.G Miller, Wadsworth publishing Co,13th edition
4. Ecology and environment by PD.Sharma, Rastogi publications.

BACHELOR OF PHYSIOTHERAPY: FIRST YEAR

SEMESTER II

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 121	Anatomy – II	PC	6 – 0 – 0	6

Course Assessment Methods ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks). Assignment, quiz etc. (6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about structure of human body parts and medical terminology

Unit-I

1. Head, neck and face with cranial nerves: Osteology, Myology, Arthrology, Nerves & Vessels and lymphatic drainage with embryology and histology.

Unit-II

1. Brain and Spinal cord.

Unit-III

1. Throax: Osteology, Myology, Arthrology, Nerves & vessels and lymphatic drainage with embryology and histology.

Unit-IV

1. Abdomen: Osteology, Myology, Arthrology, Nerves & vessels and lymphatic drainage with embryology and histology.

Course code	Subject	Title	Teaching Hours/ Week	
			L – T – P	Credits
BPT 121 P	**Anatomy Practical – II**	**PC**	**0 – 0 – 4**	**2**

Course Assessment Methods ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks). Assignment, quiz etc. (6 marks) and end semester examination is of maximum 70 marks.***

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about structure of human body parts and medical terminology

1. Head, Neck & Face
2. Brain &Spinal cord
3. Thorax
4. Abdomen

BOOKS RECOMMENDED:

1. BD.Chaurasia, Human Anatomy, Volume 1,2,3.7th edition. CBS Publishers andDistributors
2. Snells Clinical Anatomy. 9th edition – Lippincott
3. Extremities by QuiningWasb.
4. L. Williams & Warwick, Gray's Anatomy –37th edition. Churchill Livingstone
5. Inderbir Singh, Textbook of Anatomy with colour atlas, Volume 1,2,3.15th edition.CBS Publishers and Distributors
6. Mcminn'slasts Anatomy –12th edition.Regional and Applied, Churchill Livingstone
7. Mcminn – A Colour Atlas of Human Anatomy, Mosby
8. Cunnigham. Manual of Practical Anatomy Vol I, II, III.15th edition. Churchill Livingstone
9. A Textbook of Human Neuro Anatomy- 9th edition. Inderbir Singh, Jaypee Brothers

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 122	Physiology – II	PC	6 – 0 – 0	6

Course Assessment Methods ***(Internal: 30; External:70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks),assignment, quiz etc. (6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about function of human body parts and medical terminology.

Unit-I

1. Respiration
   a. Mechanism of pulmonary ventilation, pulmonary volumes and capacities, Alveolar ventilation, functions of the respiratory passageways.
   b. Pulmonary circulation, shunt, pulmonary oedema, pleural fluid.
   c. Physical principles of gas exchange transport of oxygen and carbon dioxide in the blood of body fluids.
   d. Regulation of respiration
   e. Respiratory dysfunctions.
2. Aviation, space and deep sea during physiology:
   Effects of low oxygen pressure on the body, mountain sickness, effects of accelerating forces, artificial climate, weightlessness in space, effects of high partial pressure of gases on the body, hyperbaric oxygen therapy.

Unit-II

1. Nervous System:
   a. Sensory receptors, neural circuits for processing information
   b. Somatic sensations: touch, position, pain thermal, headache

c. Special senses
d. Motor functions of the spinal cord, cord reflexes, spinal cord transaction, spinal shock
e. Cortical and brain stem control of motor function. The motor cortex, corticospinal tract, vestibular sensations and maintenance of equilibrium
f. Cerebellum, basal ganglia, motor control. Integration of the many parts of the total motor control
g. Intellectual functions of the brain, learning and memory
h. Behavioral and motivational mechanisms of the brains. The limbic system, hypothalamus
i. States of brain activity: sleep, brain, waves, epilepsy, psychoses
j. Autonomic nervous system
k. Cerebral blood flow, CSF and brain metabolism

Unit-III

1. Gastrointestinal system
   a. Motility, nervous control, blood circulation
   b. Propulsion and mixing of food
   c. Secretory functions
   d. Digestion and absorption
2. Endocrinology and reproduction
   a. Hormone secretion, transport and clearance from blood.
   b. Hormones: Pituitary, thyroid, adrenocortical, insulin, parathyroid, and reproduction
   c. Puberty, menarche, menopause.
   d. Pregnancy and lactation
   e. Fetal and Neonatal physiology: Special functional problems of neonates, prematurity

Unit-IV

1. Physiology of exercise & work
   a. Neuromuscular activity, human movement, physiological mechanism in movement, behavior, strength endurance and analysis of movement.
   b. Circulatory & respiratory response to exercise including effects on the heart, blood circulation, body fluid changes, pulmonary ventilation, gas exchange and transport, etc.
   c. Effect of exercise and work on other body functions.
   d. Metabolic and environmental aspects of exercise and work metabolism, energy requirement, efficiency of muscular work, nutritional aspects, heat and body temperature regulation and environmental factors.
   e. Effects of exercise training – endurance, fatigue and recovery
   f. Fitness and Health: age, sex, body, type, race, stress and medical aspects of exercise

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 122 P	Physiology Practical –II	PC	0 - 0 - 4	2

Course Assessment Methods ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks). Assignment, quiz etc. (6 marks) and end semester examination is of maximum 70 mark.***

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about function of human body parts and medical terminology.

1. Physical fitness:
   a. Breath holding
   b. Mercury column Test
   c. Cardiac efficiency test
2. Clinical examination: higher functions memory, orientations, reflexes (superficial and deep sensations)
3. Sensory and motor examinations
4. Test for function of cerebrum
5. Test for functions of cerebellum
6. Effect of load on muscle contraction and increasing strength of stimulation.
   a. Effect of successive stimuli.
   b. Phenomenon of fatigue.
   c. Determination of rate of transmission of nerve impulses.
7. BMR Determination.
8. Gait, Posture.
9. Cerebeller function; cranial nerves
10. Examination of respiratory system: Artificial respiration, CPR Respiratory efficiency tests:Spirometry, lung volumes, timed volume capacity Respiratory rate and auscultation.

BOOKS RECOMMENDED:

1. Text book of Medical Physiology -11th edition. Arthur Guyton (Mosby)
2. Concise Medical Physiology- 6thedition.Chaudhari, SK. New Central Agency.
3. Text Book of Practical Physiology –8th edition Ghai, Jaypee.
4. Text Book of Physiology – Anand and Manchanda, Tata MacGraw Hill.
5. Principles of Anatomy and Physiology -14th edition.Tortora Grabowski.

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 123	Pathology	PC	3 - 0 - 0	3

Course Assessment Methods ***(Internal: 30;External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks), assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about Pathology, pathological changes in various diseases of human body and medical terminology.

Unit-I

1. Introduction to pathology
    a. Definition
    b. Branches
    c. Pathology as a science
    d. Correlation between Pathology and Physiotherapy
2. Cell injury, death and adaptations
    a. Definitions and Causes
    b. Mechanisms
    c. Morphology of Cell Injury
    d. Apoptosis
    e. Cellular adaptations to growth and injury
3. Acute and chronic inflammation
    a. General features of inflammation
    b. Vascular changes and cellular events-acute inflammation
    c. Chemical mediators of inflammation
    d. Definitions, Causes and histological features-chronic inflammation

Unit-II

1. Tissue and cell repair
    a. Normal Cell growth
    b. Repair by connective tissue
    c. Wound healing
    d. Fracture healing
    e. Pathological aspects of repair
2. Disorders of immune system
    a. Cells of immune system
    b. Immune mechanisms of tissue injury
    c. Autoimmune disease; Mechanism, RA, SLE, Myasthenia gravis
    d. Immunodeficiency diseases: Differences between primary and secondary AIDS
3. Environmental disorders
    a. Injury by chemical agents
    b. Injury by physical agents
4. Cancer

Unit-III

1. Haemodynamic disorders
    Edema, Hyperemia and congestion, Haemorrhage, Haemostasis and Thrombosis, Embolism, Infarction Shock
2. Cardio vascular and peripheral vascular disorders
    a. Anemia, heart and blood vessels, common congenital Anomalies, Rheumatic and coronary heart diseases
    b. Venous diseases: Buerger's disease, Varicose veins, Phlebothrombosis and thrombophlebitis.
3. Respiratory system
    Pneumonia, Tuberculosis, Bronchitis, Asthma, Pneumothorax, Hemothorax.

Unit-IV

1. Urinary system
    Nephritis, Kidney stones.
2. Musculoskeletal system
    Osteoporosis, Osteomyelitis, Osteoarthritis, Rheumatoid Arthritis, Gout, Osteoma, Osteosarcoma, Chondroma, Chondrosarcoma,Osteochondrosarcoma, Muscular dystrophy.
3. Integumentary system
    Psoriasis, SLE, Acne Vulgaris
4. Nervous system
    Hydrocephalus Meningitis, Hematoma, Multiple Sclerosis, Alzheimer's disease, Parkinsonism, G.B. syndrome.

BOOKS RECOMMENDED:

1. Robbins Pathological Basis of Disease – 1st south asian edition.Cotran, Kumar and Robbins
2. Text Book of Pathology – 6th edition.Harsh Mohan – Jaypee Brothers.
3. Pathology: Implications for physical Therapists – 4th edition.Goodmann and Boissonnault – W.B. Saunders.

4. General Pathology – 6th edition.Walter and Israel – Churchill Livingstone.

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 124	Microbiology	PC	3 - 0 - 0	3

Course Assessment Methods ***(Internal: 30; External: 70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks), assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about function of microbes, infection, virology immunology and medical terminology.

Unit-I

1. Immunology:

a. Infection, portals of entrance & mechanical barriers, Antigens, Antigen-Antibody reaction, Complement system, Structure and function of immune system, Immune response, Immune efficiency diseases, Hypersensitivity, Autoimmunity.

2. Immunity
    a. Acquired immunity
        i. Natural active & passive
        ii. Artificial active and passive
    b. Methods of active artificial immunity and passive artificial immunity.

Unit-II

1. Bacteriology:
    a. Morphology, Nutritional Requirements, Metabolism, Growth, Classification and identification of bacteria
    b. Virulence, Toxins(Exo-toxins, endo-toxins)
    c. Important bacterial diseases such as TB, Leprosy, bacterial meningitis, pneumonia, bacterial encephalitis, mode of infection, spread and control.

Unit-III

1. Virology:
    1. Morphology of virus
    2. Classification of virus
    3. Virus host interaction
    4. Important viral diseases such as polio, measles, mumps, rubella, viral meningitis and encephalitis and vaccines.
2. Disease transmission and Ward Sanitation
    a. Portal and exit of disease organisms from the body.
    b. Transmission of disease.
    c. Cross-infection, disinfectants and their practical applications.

Unit-IV

1. Miscellaneous:
    a. Medical mycology: Fungal infections in brief, Tineacapitis and Tineapedis, Aspergillosis, Otomycosis,Oculomycosis, Mycotic poisoning.
    b. Entemoebahistolytica.
    c. Culture media.
    d. Diagnostic microbiology.
    e. Prions

BOOKS RECOMMENDED:

1. Essentials of Medical Microbiology –4th edition. Bhatia &Icchpujani - Jaypee Brothers.
2. Medical Microbiology – 1st edition. ApurbaSanskarSastry,SandhyaBhat K.Jaypee brothers.
3. Microbiology – 5th edition.Lauring M. Prescott
4. Microbiology – An introduction for the Health Sciences, Ackerman & Richards – W.B. Saunders Co.
5. Immunology: An introduction –9th edition. Ian R. Tizard
6. Textbook of Microbiology: 10th edition.Ananthanarayan and Paniker"s

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 125	Introduction to Exercise Therapy	PC	6 - 0 - 0	6

Course Assessment Methods ***(Internal: 30; External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks),assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, exercise, exercise therapy and medical terminology

Unit- I

1. Mechanical Principle of movement
   a. Force and force systems, torque and angle of pull, pulleys and its types work, energy and power, friction, stress and strain, hook's law, springs and their properties.
   b. Gravity: Effects of center of gravity, line of gravity and alteration, role in human body and movement.
   c. Equilibrium: Effects, supporting bases and factors affecting equilibrium.
2. Skeletal Basis of Movement
   Planes and axis, joints and their classification, Degree of freedom, surface anatomy of joints.
3. Musculosketal Basis of Movement
   Structure of muscles and its classification, muscle tension, muscle fiber, group action of muscles, Types of muscle contraction, Range of muscle work, Pattern and rhythm of movements, Muscular weakness and paralysis, Prevention of muscle wasting.

Unit- II

1. Classification of Movements

Describe the types, techniques of application, indication, contraindications, precautions, effects and uses of following

a. Active movements
b. Passive movement: Relaxed, forced and Manipulative.
c. Active assisted movement
d. Resisted movement

2. Neuromuscular in-coordination: Review of normal neuromuscular coordination. Etiogenesis of neuromuscular in coordination and general therapeutic techniques, effects, indications, contraindications and precautions, Frenkel's exercises

Unit- III

1. Simple Machines: Function and classification of levers and pulleys.
2. Relaxation : Describe Relaxation, Muscular fatigue, muscular spasm and tension (Mental and physical), factors contributing to fatigue and tension, technique of relaxation (Local and general), Effects, uses and clinical application, Indications and contraindications.
3. Breathing Exercise: Relaxed diaphragmatic breathing exercise, Segmental exercises
4. Physical activity: Importance of physical activity on health, Physical activity guidelines for healthy children, adults and elderly people

Unit- IV

1. Manual Muscle Testing (M.M.T)
   a. Principles and applications of techniques of Manual Muscle testing
   b. Testing positions, procedures and grading of muscles of upper limb, lower limb, trunk etc
2. Goniometry
   a. Goniometer and its types.
   b. Principles, Techniques and application of goniometry.
   c. Testing, position, procedure and measurement of ROM of joints of upper limbs, Lower limbs and trunk

Course code	**Subject**	**Title**	**Teaching Hours/ Week**	
			L – T - P	**Credits**
BPT 125 P	**Introduction to Exercise Therapy Practical**	**PC**	**0 - 0 - 4**	**2**

<u>Course Assessment Methods</u> (Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks). Assignment, quiz etc. (6 marks) and end semester examination is of maximum 70 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, exercise, exercise therapy and medical terminology

a. Mechanical principles applied in Physiotherapy like force, torque, centre of gravity etc.
b. Demonstration of different types of levers in human body.
c. Practice measurement of ROM of joints, upper limb, lower limb and trunk by goniometer
d. Study different types of Muscle contractions, muscle work, group action of muscles and coordinated movement
e. Demonstration of basic techniques of application (manual or mechanical) of active exercises, passive movements, active assisted exercises and resisted exercises for upper limb and lower limb
f. Practice of region wise muscle strength grading:- upper limb, lower limb and neck.
g. Demonstration of different types of pulleys and springs used in physiotherapy.

BOOKS RECOMMENDED:

1. Practical Exercise Therapy – Hollis – Blackwell Scientific Publications.
2. Therapeutic Exercises Foundations and Techniques – Kisner& Colby – F.A. Davis.
3. Principles of Exercise Therapy – Gardiner – C.B.S., Delhi.
4. Therapeutic Exercise – Sydney Litch
5. Muscle Stretching and Auto – Stretching Olaf Evjenth.
6. Werner Kuprian: Physical Therapy for Sports, W.B. Saunders.
7. Therapeutic Massage by A.G. Sinha, Jay Pee Publications, New Delhi.
8. Aquatic Exercise Therapy – Bates and Hanson – W.B. Saunders.
9. Hydrotherapy: Principles and Practices – Campion – Butterworth Heinmann.
10. Massage, Manipulation and Traction – Sydney Litch.
11. Biomechanics – Cynthia Norkin.
12. Therapeutic Exercise by Basmijjan and Wolf – Williams 7 Wilkins.
13. William E. Prentice, Rehabilitation Techniques – Mosby.

BACHELOR OF PHYSIOTHERAPY: SECOND YEAR

SEMESTER III

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 231	Introduction to General Medicine	PC	4 – 0 – 0	4

Course Assessment Methods ***(Internal: 30; External: 70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks), assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical and surgical management of various disorders.

Unit-I

1. Genetic, Immunological, Environmental, Climatic Factors in disease.
2. Bacterial Diseases: Tuberculosis, Pneumonia, Diphtheria, Tetanus, fever, Rheumatic fever, Bacillary dysentery.
3. Viral diseases: Herpes-simplex and zoster, varicella, Measles, Mumps, Hepatitis- B, AIDS and Influenza.

Unit-II

1. Metabolic & deficiency diseases: Diabetes, Hyperthyroidism, Hypothyroidism, Vitamin and Nutritional deficiency diseases.

2. Disease of alimentary tract: Disease of the teeth, Stomach, Duodenum, Small and Large intestine.
3. Disease of the Liver: Jaundice, Cirrhosis of the liver, Ascites, Hepatic failure, Liver transplantation.

Unit-III

1. Disturbances in water, electrolyte and acid-base balance: Physiology of water and electrolytes, major manifestations of electrolyte and Acid base disorder, hypernatremia, hyponatremia, hyperkalaemia, hypokalaemia Sodium and water excess, calcium phosphate and magnesium disorders, metabolic Acidosis and alkalosis, respiratory acidosis and alkalosis.

Unit-IV

1. Skin
    1. Signs and symptoms of skin disease.
    2. Skin damage from environmental hazards.
    3. Infections, infestations, insect bites and stings.
    4. Immunologically mediated skin disorders.
    5. Skin disorders in AIDS, immunodeficiency and venereal disease.
2. Brief description of eczematous dermatosis, psoriasis, lichenplanus, Acne, rosacea, and similar disease, malignant disease of skin, disorders of keratinization, skin problems in infancy, old age, pregnancy and the skin, metabolic disorders and reticulohistocytic proliferative disorders, disorders of hair and nails, systemic disease, disorders of pigmentation, principles of management of skin diseases.

Course code	**Subject**	**Title**	**Teaching Hours/ Week**	
			L – T - P	**Credits**
BPT 231 P	**Introduction to General Medicine Practical**	**PC**	**0– 0 – 2**	**1**

<u>Course Assessment Methods</u> (Internal: 30; External: 70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks), assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks

<u>Course Objectives & Course Outcomes</u>

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical and surgical management of various disorders.

1. History taking, Normal pulse, BP
2. Identification and description of the instrument used for investigation and practice
3. Clinical discussion on differential diagnosis and management.
4. Biochemical Analysis – SGOT, SGPT, Lipid profiles, Electrolyte Balance.

BOOKS RECOMMENDED:

1. Davidson's principles and Practices of Medicine – 22nd edition. Churchill Livingston.
2. Hutchinson's Clinical Methods – 18th edition.Swash – BaillereTindall.
3. A short Textbook of Medicine – 3rd edition.Krishna Rao – Jaypee Brothers.
4. A short Textbook of Psychiatry – 20th edition.AhujaNiraj – Jaypee Brothers
5. Textbook of the Practice of Medicine –19th edition. Harrisons.
6. Essential Paediatrics –7th edition. OP.Ghai.
7. Symptoms and sign in Clinical Medicine – 12th edition.Chamberlin.
8. Pediatric Clinical Methods –3rd edition. Mehraban Singh
9. Clinical Examination – 4th edition.Epstein
10. Textbook of Medicine – 25th edition.Golwalla
11. A Short Text Book of Skin –6th edition. Prof. JS. Pasricha.

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 232	Introduction to Orthopedics	PC	4– 0 – 0	4

Course Assessment Methods ***(Internal: 30;External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks),assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical and surgical management of various disorders.

Unit-I

1. Introduction to Orthopedics:
    a. Introduction to orthopedic terminology. Types of pathology commonly dealt with, clinical examination, common investigation X-rays and imaging techniques and outline of non-operative management.
2. Principles of operative treatment:
    a. List indications, contraindication and briefly outline principles of arthrodesis, Arthroplasty, Osteotomy, Bone grafting, Tendon – Transfers and Arthroscopy.

Unit-II

1. Sprains and muscle strains:
    a. List common sites of sprains and muscle strains and describe the clinical manifestations and treatment, viz, tennis elbow, golfer's elbow, Dequervain's disease, tenosynovitis, trigger finger, carpal tunnel syndrome and plantar fasciitis.
2. Sports injuries:
    a. Injuries related to common sports their classification and management.

Unit-III

1. Fractures and dislocations: General principles, outline the following:
    a. Types of Fractures including patterns; open and closed fractures and fracture dislocations.
    b. Difference between dislocations subluxation.
    c. General and local signs and symptoms of fractures and dislocation.
    d. Principles of management of fracture and dislocations.
    e. Prevention and treatment of complication including; Fracture DiseaseVolkmann's ischemic contracture, Sudeck's Atrophy, Carpal Tunnel Syndrome. Myositis ossificans and shoulder – hand syndrome
    f. Fracture healing
2. Upper limb fractures and dislocations:
    a. Enumerate major long bone fractures and joint injuries.
    b. Briefly describe their clinical features, principles of management and complications.
3. Lower Limb Fractures and Dislocations:
    a. Enumerate major long bone fractures and joint injuries.
    b. Briefly describe their clinical features, principles of management and complication. Outline prevention and treatment of complications.
    c. Principles of management & complications of Spinal Injuries.
    d. Recurrent dislocation: outline the mechanism, Clinical Features, Principles of Management & complications of recurrent dislocation of the shoulders and Patella.

Unit-IV

1. Diseases of Joints:
    Outline the Clinical Features, Pathogenesis, Investigations, Differential Diagnosis and Management of Osteoarthiritis, Rheumatoid arthritis, AnkylosingSpondlylitis, Reiter's Diseases, Gout, pseudo – Gout, Psoriatic Arthritis, Hysterical Joint, etc.
2. Bone and Joint Infections:
    Outline the etiology, clinical features, management and (complications of septic arthritis osteomyelitis, Tuberculosis (including spinal T.B.).
3. Bone and Joint Tumors:
    Classify and outline the clinical features, management and complications of the following (benign/malignant bone and joint tumors, osteomas, osteosarsomas, osteoclastomas, Ewing's sarcoma, multiplemyeloma).
4. Amputations;
    a. Classify amputations list indication for surgery.
    b. Outline pre-operative, operative and prosthetic management.

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 232 P	**Introduction to Orthopedics Practical**	**PC**	**0– 0 – 2**	**1**

Course Assessment Methods ***(Internal: 30; External: 70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks), assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical and surgical management of various disorders.

1. Demonstration of treatment techniques and modalities
2. Joint injuries and fracture management
3. Assessment of an orthopedic patient for the above mentioned conditions.
4. Knowledge of various orthopedic procedures.

BOOKS RECOMMENDED:

1. Essential Orthopedics and applied physiotherapy –2nd edition. Jayant Joshi and PrakashKotwal.
2. Clinical Orthopedic Examination – 6th edition.Maggie – Churchill Livingstone.
3. Concise System of Orthopedics and Fractures – 2nd edition.Apley – Butterworth Heinmann.
4. Outline of Fractures – 12th edition.Adam – Churchill Living Stone.
5. Outline of Orthopedics – 14th edition.Adam Churchill Living Stone.
6. Physical examination in Orthopedics – 9th edition. Apley – Butterworth Heinmann.
7. Watson – Zones, Fractures and Joint Injuries – 7th edition.Wilson – Churchill Livingstone.
8. Orthopedics & Traumatology – 7th edition.Natrajan.
9. Essential Orthopedics – 4th edition.J. Maheshwari.
10. Orthopedics by Samuel, L. Turek Vol. 1 and 2.7th edition.
11. David J. Magee-5th edition. Orthopedics Physical assessment.
12. Evaluation of Ortho and Athletic Injuries- 3rd edition.Starkey

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 233	Introduction to Pharmacology	PC	4– 0 – 0	4

Course Assessment Methods ***(Internal: 30; External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks),assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information of drugs, their outcomes and mechanism on human body.

Unit-I

1. General pharmacology
   a. Introduction to pharmacology
   b. Definitions and routes of drugs administration.

Unit-II

1. Pharmacokinetics:
   a. Transportation across membranes, Absorption, Distribution
   b. Biotransformation and drug excretion.
2. Pharmacodynamics:
   a. Principles and mechanisms of drug action, Combined effects of drugs, Factors modifying drug action.

Unit-III

1. Systemic pharmacology
2. Drugs acting on central nervous system
   a. General anesthetics
   b. Alcohol and disulfiram

c. Sedative and hypnotics
d. Anti psychotic
e. Anti-depressant
f. Anti-Anxiety
g. Anti-epileptic drugs
h. Anti-parkinsonism drugs
i. Narcotic Analgesics
j. Analgesics, antipyretics and anti-inflammatory drugs
k. CNS stimulants.

Unit-IV

1. Drugs acting on autonomic nervous system
   a. Cholinergic agents (Parasympathomimetics)
   b. Cholinergic blocking agents (Parasympatholytics)
   c. Adrenergic agents (Sympathomimetics)
   d. Adrenergic blocking agent (Sympatholytics)
   e. Ganglion blocking and stimulating agents
   f. Neuromuscular blocking agents
   g. Local anaesthetic agents

BOOKS RECOMMENDED:

1. Essential of Medical Pharmacology – 7th edition.KD. Tripathi - Jaypee Brothers
2. Pharmacology – 9th edition.Gaddum
3. Medical Pharmacology – 3rd edition.Drill
4. Pharmacology Principle of Medical practice – 4th edition.Krantx& Carr
5. Pharmacological Basis of Therapeutics – 6th edition.Goodman, LS. Gilman A.

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 234	Basis of Exercise Therapy	PC	6– 0 – 0	6

Course Assessment Methods ***(Internal: 30;External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks),assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, exercise, exercise therapy and medical terminology.

Unit-I

Therapeutic exercises: Principles, classification, techniques, and physiological and therapeutic effects

1. Resistance Exercise:
   a. Goals and indications, precautions and contraindication of resistance exercise.
   b. Describe and differentiate isotonic, isometric and isokinetic resistance exercises
   c. Manual and mechanical resistance exercises
   d. Principles of application and techniques
   e. Specific regimens of resistance exercise
   f. Variables and various types of equipment used in resistance exercises
2. Stretching
   a. Properties of contractile tissue
   b. Flexibility, selective stretch, overstretch, type of contracture
   c. Therapeutic methods to elongate soft tissue: Passive stretching, active inhibition, hold relax and self stretching
   d. Indicators, goals, procedures, precautions and contraindications
   e. Relaxation and inhibition in preparation for stretching

f. Techniques of stretching

Unit-II

1. Hydrotherapy:
   a. Hydro-statistics and hydrodynamics
   b. Physiological and therapeutic effects of hydrotherapy
   c. Types of Hydrotherapy Equipment, indications contraindications, operation skills, patient preparations.
   d. Whirlpool bath, Hydroelectric bath, Steam bath, Hot bath, contrast bath, Immersion bath, Aromatic bath, Sitz bath.
2. Traction:
   a. Principles of traction
   b. Physiological and therapeutic effects, classification and types
   c. Indications, contraindications and precautions
   d. Techniques of applications

Unit-III

1. Functional re-education:
   a. General therapeutic techniques to re-educate ADL function
   b. Lying to sitting
   c. Sitting activities and gait
   d. Limb activity
2. Proprioceptive Neuromuscular Facilitation:
   a. Basic procedures for facilitation
   b. PNF techniques – characterization, goals, indications, contraindications, description and modifications
   c. Patient Treatment: Evaluation, treatment goals, treatment regimes, assessment and treatment planning.
   d. Pattern of facilitation
   e. Application of PNF to scapula, pelvis, upper extremity and lower extremity

Unit-IV

Group therapy and therapeutic Gymnasium

1. Therapeutic Gymnasium**:** Set up of Gymnasium and its importance, various equipment in gymnasium, operational skills, effects and uses of each equipment, Parallel bars, Thera bands and Thera Balls.
2. Group Therapy: Types advantages and disadvantages

Course code	**Subject**	**Title**	**Teaching Hours/ Week**	
			L – T - P	**Credits**
BPT 234 P	**Basis of Exercise Therapy Practical**	**PC**	**0– 0 – 4**	**2**

<u>Course Assessment Methods</u> (Internal: 30; External: 70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks), assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks

<u>Course Objectives & Course Outcomes</u>

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, exercise, exercise therapy and medical terminology.

a. Structure and functions along with applications of various equipments in gymnasium.
b. Strength and endurance training in normal individuals.
c. Stretching for major muscles and muscle group.
d. Use of various ambulation aids in gait training.
e. Structure and functions of hydrotherapy equipment and their applications
f. Evaluate ADLs and practice various training techniques.
g. Mat exercises
h. Plan and practice exercise programs for normal persons of various age groups.

BOOKS RECOMMENDED:

1. Therapeutic Exercises – 4th edition.Basmajin – Williams 7 Wilkins
2. Practical Exercise Therapy – 4th edition.Hollis – Blackwell Scientific Publications
3. Therapeutic Exercises Foundations and Techniques–7th edition.Kisner& Colby FA.Davis
4. Therapeutic Massage – 2nd edition.A.G. Sinha – Jaypee Publications, New Delhi
5. Aquatic Exercise Therapy –1st edition. Bates and Hanson – W.B. Saunders
6. Hydrotherapy: principles and practices – Campion – 1st edition.Butterworth Heinmann
7. Principles of Exercise Therapy – 4th edition.Gardiner – C.B.S. Publishers, Delhi
8. Massage, Manipulation and Traction – Sydney Litch
9. Therapeutic Exercise – Sydney Litch
10. Biomechanics – 5th edition.Cynthia Norkin
11. Hydrotherapy – Duffield
12. Therapeutic Exercise – 5th edition.Basmajin and Wolf
13. Muscle Stretching and AutoStretching - Olaf Evjenth
14. William E. Prentice – Rehabilitation Techniques – Mosby
15. Werner Kuprian: Physical Therapy for Sports – WB. Saunders

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 235	Basis of Electro Therapy	PC	6– 0 – 0	6

Course Assessment Methods ***(Internal: 30;External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks), assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, electricity, electrotherapy and medical terminology.

Unit-I

1. Biophysics of superficial heat and cold.
2. Physiological effects, therapeutic effects, uses, merits, demerits, indications, contra-indications, patient preparation, principles and techniques of treatment and application including precautions and dangers for:
    1. Paraffin wax bath.
    2. Whirlpool therapy.
    3. Contrast bath.
    4. Hydrocollateral packs/cold packs
    5. Cryotherapy.
    6. Short wave diathermy pulsed SWD.
    7. Micro wave diathermy pulsed MWD.
    8. Infrared Therapy.

Unit-II

1. Low Frequency Currents:
    A.C., D.C. and modified currents.

2. Production of D.C.
    a. Physiological and therapeutic effects of constant currents.
    b. Iontophoresis
    c. Modified direct current – nervous pulses, duration and frequency, their effects on nerve and muscles.
    d. Production of interrupted, surged currents and their effects.

Unit-III

a. Transcutaneous Electrical Nerve Stimulator (TENS).
b. Pulse widths, frequencies and intensities used for various applications.
c. Principles of clinical application, effects and uses, indications, contra-indications, precautions and operational skills of equipment with patient preparation.
d. Theories of pain relief, pain gate theory.
e. High voltage pulsed galvanic stimulator.
f. Diadynamic currents DF, MF, LP, CP.
g. Micro currents electrical Stimulation – application and techniques.
h. Electro-acupuncture – Therapeutic effects and clinical application probe electrode and trigger point detection.

Unit-IV

Medium frequency currents:

1. Interferential therapy (IFT):Introduction, amplitude modulation, current distribution, AMF, frequency modulation, rotating vector, electrode placement, indication and contra-indications, treatment guidelines.
2. Russian currents.
3. Rebox type currents.

Course code	**Subject**	**Title**	**Teaching Hours/ Week**	
			L – T - P	**Credits**
BPT 235 P	**Basis of Electro Therapy Practical**	**PC**	**0– 0 – 4**	**2**

Course Assessment Methods ***(Internal: 30; External: 70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks), assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, electricity, electrotherapy and medical terminology.

1. To study the following modalities and their methods of application:

1. Short wave diathermy unit.
2. Pulsed diathermy unit.
3. Microwave diathermy unit.
4. Pulsed microwave diathermy unit.
5. Infrared
6. Paraffin wax bath unit.
7. Hydro collator Pack Unit.
2. Basic operation of electric supply to the equipment and safety devices.
3. Various forms of therapeutic cold application region wise including ice, cold, packs, sprays.
4. TENS – its operation and application region wise.

BOOKS RECOMMENDED:

1. Electrotherapy Explained: Principles and practice –4th edition. Low & Reed – Butterworth
2. Clayton's Electrotherapy –12th edition. Kitchen &Bazin – W.B. Saunders
3. Therapeutic Heat and Cold – 4th edition.Lehmann – Williams & Wilkins
4. Principles & Practice of Electrotherapy – 4th edition.Kahn – Churchill Livingstone
5. Electrotherapy: Clinics in Physical therapy – Wolf – Churchill Livingstone
6. Physical Principles Explained –4thedition. Low & Reed – Butterworth Heinmann
7. Clinical Electrotherapy – 3rd edition.Nelson & Currier
8. Electrotherapy in Rehabilitation – Meryl Roth Gerth. F.A. Davis
9. Michlovitz – 3rd edition.Thermal agents in Rehabilitation
10. Therapeutic Modalities in Sports Medicine – William E Prentice – Mosby
11. Rehabilitation Techniques – William E Prentice – Mosby

Course code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 236	Psychology	PC	3– 0 – 0	3

Course Assessment Methods ***(Internal: 30;External:70) Two minor test each of 20 marks,class performance measured through percentage of lecture attended (4 marks), assignment,quiz etc.(6 marks) and end semester examination is of maximum 70 marks***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Sections). It will contain seven short answer type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four sections of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Sections. All the questions including Q.No.1 carry 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about psychology, different fields of psychology.

Unit- I

General psychology:

1. Psychology – Definition, fields and sub-fields, nature of psychology
2. Developmental psychology's and its theories [in Brief] physio-psychological changesduring infancy, early and middle childhood, adolescent stage, puberty, adulthood and old age.
3. Schools of thought – Psycho-analytical theory, behaviorism, structuralism and functionalism
4. Learning : Role of learning in human life, conditioned learning, Learning by Insight

Unit- II

1. Emotions – its nature, sentiments and feelings, Emotional hygiene, Theory of emotion - Cannon bard theory of emotion, James lange theory.
2. Conflict and frustration – Common defensive mechanisms, identifications, common reactions to frustrations, Regression, Repression, Projection, Sublimation & rationalization.
3. Intelligence – Definition, intelligence tests their uses, How the test is standardized intelligence quotient (I.Q.) General intelligence and special intelligence.
4. Abnormal psychology (In brief): Introduction, difference between normal and abnormal psychology, causes, anxiety disorders – phobias, obsessive – compulsive.

Unit- III

Health psychology:

a. Psychological reactions of a patient during admission and treatment (in brief)
b. Stages of acceptance as proposed by Kubler-Ross
c. Stress – physiological and psychological relation to health and sickness, psychosomatic disorders and stress management
d. Communication – Types, verbal, non-verbal, developing effective communication, specific communication techniques
e. Counseling – definition, aims and principles in counseling

Unit- IV

1. Emotional and psychological needs of different patients
2. Geriatric and pediatric psychology in relation to their psychological needs (in brief)
3. Behaviour modifications: application of various conditioning and learning principles to modify patient behaviours
4. Personality – Definition, Type approach & Trait approach: Measurement of personality Interview, Questionnaire Rating, performance, Projective method, Factors contributing towards development of personalities.

BOOKS RECOMMENDED

1. Morgan C.T. & King R.A. – Introduction to Psychology – 7th edition -Tata McGraw – Hill Publication
2. Munn N.L. – Introduction to Psychology – 5th edition.Premium Oxford, I.B.P. PublishingCo.
3. Foundation of Psychology - Weld Publishing House, Mumbai.
4. Applied to Medicine - Porter & Alder – W.B. Sanders
5. Behavioral Sciences for Medical under graduates – 2nd edition.Manju Mehta – Jaypee Bros.
6. Elementary psychology – 7th edition.Mohsin – MotiLalBanarsiDass, Delhi.
7. Critical Health Psychology – Edited by Michael Murray.
8. Integrative Psychotherapy in Health Care. A Humanistic Approach Basic Texts in Counseling and Psychotherapy - Series Editor – Stephen Frosh
9. Health Behavior and Health Education – 3rd edition.Edited By – Karen Glanz, Barbara K. Rimer, Frances Marcues Lewis
10. Trends in Life style and Health -11th edition. Laura V. Kinger

BACHELOR OF PHYSIOTHERAPY: SECOND YEAR

SEMESTER IV

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 241	General Medicine	PC	4 - 0 - 0	4

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical and surgical management of various disorders.

Unit-I

1. Diseases of Kidney and Genito-urinary system: Acute glomerulo-nephritis syndrome, nephritic syndrome, recurrent haematuria, Renal failure, infections of the kidney and urinary tract, obstruction of the urinary Tract, urinary tract calculi

Unit –II

1. Diseases of the Blood: Disorder of the erythrocytes and leucocytes, Blood transfusion, haemostasis, Disorders of the arteries and veins
2. Oncology: Clinical presentation and principles of management.
3. Acute Poisoning; Assessment of severity, general principles, general features of management and Prevention

Unit –III

1. Disorder of heart rate, rhythm, and conduction.
2. Ischaemic (Coronary) heart disease and Myocardial infarction.
3. Vascular disease.
4. Diseases of the heart valves.
5. Congenital Heart Disease.
6. Diseases of the myocardium.
7. Diseases of the pericardium.

Unit -IV

1. Obstructive pulmonary disease.
2. Infections
3. Tumors of the Bronchus and lungs.
4. Interstitial pulmonary diseases.
5. Diseases of the naso-pharynx, larynx, trachea.
6. Diseases of the pleura, diaphragm, chest wall.

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 241 P	General Medicine (Practical)	PC	0- 0- 2	1

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical and surgical management of various disorders.

1. Skill to palpate all pulses, rhythm, volume and heart rate/pulse rate discrepancy
2. Skill to assess B.P. at various sites, and its physiological variation and to assess Ankle Brachial index
3. Skill of exercise testing:
    a. 6/12 min walk
    b. Symptom limited
4. Interpretation of
    a. Tread mill and ergo-cycle test findings
    b. ECG: IHD. & Blocks
    c. Chest X-Ray
    d. PFT: Obstructive/restrictive/reversibility

BOOKS RECOMMENDED:

a. Davidson's principles and Practices of Medicine – 22nd edition.Edward – Churchill Livingstone.
b. Hutchinson's Clinical Methods –18th edition. Swash – BailliereTindall.
c. A short Textbook of Medicine – 3rd edition.Krishna Rao – Jaypee Brothers.
d. A short Textbook of Psychiatry –20th edition. AhujaNiraj – Jaypee Brothers.
e. Textbook of the Practice of Medicine –19th edition. Harrisons
f. Essential Paediatrics – 7th edition.12th edition.OP Ghai
g. Symptoms and sign in Clinical Medicine – Chamberlin
h. Pediatric Clinical Methods – 3rd edition.Mehrban Singh
i. Clinical Examination – 4th edition.Epstein
j. Textbook of Medicine – 25th edition.Golwalla
k. A short Test Book of Skin – 6th edition.Prof. J.S. Pasricha

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T – P	Credits
BPT 242	Orthopedics	PC	4 - 0 - 0	4

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical and surgical management of various disorders.

Unit -I

1. Regional Orthopedics: Outline the Definition, Classification, Clinical Features, Pathogenesis, Investigations, Differential Diagnosis, Complications and Management of the following conditions:
    1. Shoulder: Tendinitis, Periarthritis, Rotator Cuff Injury, Deltoid Fibrosis, Adhesive Capsulitis, Frozen Shoulder etc.
    2. Elbow: Tennis Elbow: Golfer's Elbow, Recurrent Slipping of Ulnar Nerve, Pulled Elbow, etc.
    3. Wrist and Hand: Ganglion, DeQuervain's Disease, Trigger Thumb and finger, Carpal Tunnel Syndrome, Dupuytren's Contracture etc.

Unit – II

1. Regional Orthopedics: Outline the Definition, Classification, Clinical Features, Pathogenesis, Investigations, Differential Diagnosis, Complications and Management of the following conditions:
    a. Spine
        i. Cervical: Brachial Neuralgia, Brachial Plexus injury, Thoracic Inlet Syndromes, Torticollis, Cervical Spondylitis, PIVD etc.

ii. Thoracic and lumbar spine: Deformities of the spine, Spondylolisthesis, Lumbosacral Strain, Lumber Canal Stenosis, Spondylitis etc.

b. Hip: CoxaVara, Slipped Upper Femoral Epiphysis, AVN etc.
c. Knee: Osgood Schlatter'sdisease, Loose bodies, Anterior knee pain, Chondromalacia Patellae, etc.
d. Foot and Ankle Painful Heel, Plantar Fascitis, Posterior Heel Pain, Deformities, Fore Foot pain, Metatarsalgia, Tarsal Tunnel Syndrome

Unit – III

a. Describe the Pathology, Microbiology, Prevention, Management and complication of Polio. Outline the treatment of residual paralysis including use of orthosis, Principles of muscle transfers and corrective surgery
b. Congenital Deformities: Outline the clinical features and management of CTEV. CDH, Flat Foot, Vertical Talus, limb deficiency (radial club hand and femoral, tibial and fibula deficiencies meningomyelocele, Arthrogryposis multiplex congenita and Osteogenesisimperfecta

Unit – IV

1. Peripheral Nerve Injuries: Outline the clinical features and management, including re-constructive surgery of :
    a. Brachial plexus injuries including Erbs, Klumpke's and crutch palsy, Radial, median and ulnar nerve lesions.
    b. Sciatica and lateral popliteal lesions.
2. Hand injuries: outline of clinical management and complications of Skin and soft tissue injury, tendon injury, bone and joint injury.
3. Leprosy: Outline of clinical features, management and complications of neuritis, muscle paralysis, tropic ulceration, and hand and feet deformities.

Course Code	**Subject**	**Title**	**Teaching Hours/ Week**	
			L – T – P	**Credits**
BPT 242 P	**Orthopedics**	**PC**	**0- 0- 2**	**1**

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical and surgical management of various disorders.

1. Assessment of an orthopedic patient for the above mentioned conditions.
2. Knowledge of various orthopedic procedures
3. Demonstration of various treatment techniques and modalities

BOOKS RECOMMENDED:

1. Essential of Orthopaedics and applied physiotherapy – 2nd edition.Jayant Joshi &PrakashKotwal.
2. Clinical Orthopaedic Examination – 6th edition.Ronald McRae – Churchill Livingstone.
3. Concise System of Orthopaedics and Fractures – Apley – Butterworth Heinmann.
4. Outline of Fractures – 12th edition.Adam – Churchill Living Stone.
5. Outline of Orthopaedics – 14th edition.Adam – Churchill Living Stone.
6. Physical examination in Orthopaedics – 9th edition. Apley – Butterworth Heinmann.
7. Watson – Zones, Fractures and Joint Injuries – 7th edition.Wilson – Churchill Livinstone.
8. Orthopaedics& Traumatology – 7th edition.Natrajan
9. Essential Orthopaedics –4th edition. J. Maheshwari
10. Orthopaedics by Samuel, L. Turek Vol. 1 and 2.7th edition.
11. Orthopaedics Physical assessment-3rd edition. David J. Magee
12. Evaluation of Orthopaedic and Atheletic Injuries- 3rd edition.Starkey.

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 243	Advanced Pharmacology	PC	4- 0- 0	4

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the drugs, their outcomes and mechanism on human body.

Unit – I

1. Drugs acting of cardiovascular system
    a. Cardiac glycosides
    b. Anti-hypertensive drugs
    c. Anti- anginal drugs
    d. Anti arrhythmic drugs
    e. Anti hyperlipidemic drugs
2. Drugs acting on respiratory system
    a. Anti asthmatic drugs
    b. Antitussive and Expectorants

Unit – II

1. Drug acting on Kidney
    a. Diuretics
    b. Antidiuretics
2. Drugs acting on blood and blood function
    a. Anticoagulants

b. Fibrinolytic and Anti- platelet drug
c. Blood and plasma volume expanders

Unit – III

1. Gastrointestinal drug
    a. Drug for peptic ulcers.
    b. Emetics and Anti-emetics.
    c. Drug for constipation and Diarrhea.
2. Antimicrobial Drug
    a. General consideration
    b. Sulfonamides, clotrimazole, quinolones
    c. Beta lactam antibiotics
    d. Tetracyclines and chloramphenicol.
    e. Aminoglycoside and Narcotics.
    f. Anti tubercular drugs.
    g. Anti malarial drugs
    h. Anti fungal drugs
    i. Antiamoebic drugs
3. Drug acting on skin and mucous membrane

Unit -IV

1. Antiseptics and disinfectants.
2. Hormones and drug affecting endocrine functions.
3. Vitamins
4. Diagnostic agents

BOOKS RECOMMENDED:

1. Essential of Medical Pharmacology – 7th edition.KD. Tripathi - Jaypee Brothers
2. Pharmacology – 9th edition.Gaddum
3. Medical Pharmacology – 3rd edition.Drill
4. Pharmacology Principle of Medical practice – 4th edition.Krantx& Carr
5. Pharmacological Basis of Therapeutics – 6th edition.Goodman, L.S. Gilman A.

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 244	Advanced Exercise Therapy	PC	6- 0- 0	6

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, exercise therapy.

Unit I

1. Posture, Balance and Gait
    1. Posture – Overview of mechanisms of normal posture.
    2. Abnormal posture – Assessment, types, etiogenesis, management, including therapeutic exercise
    3. Static and Dynamic Balance – assessment of management including therapeutic exercises
    4. Gait – overview of normal gait and its components
    5. Gait directions – assessment, types, etiogenesis and management including therapeutic exercises
    6. Types of Walking aids : All types of crutches and uses, frames, walkers and sticks

Unit II

1. Peripheral Joint Mobilization :
    a. Etiogenesis of joint stiffness
    b. Definitions of joint mobilization
    c. Basic concepts of joint motion

d. Indications and goals for joint mobilization
e. Limitation of joint mobilization and contraindication
f. Procedures for applying joint mobilization
g. Basic techniques of joint mobilization to the extremity joints

Unit III

1.Yoga Therapy

a. Conceptual framework, various "asana", the body mind relationship, effects and precautions.
b. Indications to Acute-Yoga and Meridians, Principles of Yoga and basic ten yogic postures and their physiological effects
    i. Padhstasana/Padangusthanasna/Trikonasana/Utkatasana.
    ii. Padmasana/Siddhasana/Shirshasana
    iii. Bhujangasna
    iv. Ardha-salabhasana.
    v. Paschimottanasana
    vi. Savasana
    vii. Dhanurasana, Ardhhalasana, Yogmudrasana, Virasana, Vajrasana, SetuBandhasana, Gomukhasana, PawanMuktasana, Halasana, Sarvangasna, Nawkasana.
    viii. Pranayama Respiratory System and its care, Pranayama in standing position, Intercostals breathing: clavicular breathing, Diaphragmatic Breathing, vaccume breathing, Yoga Alternate breathing.

Unit IV

1.Manual Therapy

a. Vertebral Manipulation:Introduction to Mackenzie, Maitland and Mulligan methods.
b. Soft tissue manipulation Techniques: Classify, Define and Describe Effleurage, Stroking, Kneading, Petrissage, Deep Friction, Vibration etc.
Transverse Friction, Digital Ischemic pressure, Physiological effects of soft tissue manipulation, Preparation of patient: Effects, uses, Indications and contraindications of the above manipulations

2. Special Techniques:

Chill and stretch technique, induration's technique, spondylotherapy, piriformis muscle technique, tensor fascia latté technique.

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 244 P	**Advanced Exercise Therapy Practical**	**PC**	**0- 0- 4**	**2**

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, exercise therapy.

a. Normal and abnormal posture and practice various corrective techniques.
b. Equilibrium balance and various practice to improve balance
c. Use of various ambulation aids in gait training
d. Soft tissue manipulation technique region wise upper limb, lower limb, neck and face.
e. Various techniques of mobilization of joint region wise.
f. Effects of basic Yoga asanas

BOOKS RECOMMENDED:

1. Therapeutic Exercises – 4th edition.Basmajin – Williams 7 Wilkins
2. Practical Exercise Therapy – 4th edition.Hollis – Blackwell Scientific Publications
3. Therapeutic Exercises Foundations and Techniques – 7th edition.Kisner& Colby.
4. Therapeutic Massage – 2nd edition.A.G. Sinha – Jaypee Publications, New Delhi
5. Aquatic Exercise Therapy –1st edition. Bates and Hanson – W.B. Saunders
6. Hydrotherapy: Principles and practices – Campion – 1st edition.Butterworth Heinmann
7. Principles of Exercise Therapy – 4th edition.Gardiner – C.B.S. Publishers, Delhi
8. Massage, Manipulation and Traction – Sydney Litch
9. Therapeutic Exercise – Sydney Litch
10. Biomechanics – 5th edition.Cynthia Norkin
11. Hydrotherapy – Duffield
12. Therapeutic Exercise – 5th edition.Basmajin and Wolf
13. Muscle Stretching and AutoStretching - Olaf Evjenth
14. William E. Prentice – Rehabilitation Techniques – Mosby
15. Werner Kuprian: Physical Therapy for Sports – WB. Saunders

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 245	Advanced Electro Therapy	PC	6- 0- 0	6

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, electrotherapy and medical terminology.

Unit –I

1. Electrical reactions and electro-diagnostic tests:
    1. Electrical stimulation and electrical properties of nerve and muscle.
    2. Type of lesion and development of reaction of degeneration.
    3. SD curves and its interpretation.
    4. Chronaxie, rheobase and pulse ratio
2. Ultra violet rays (UVR) – Wavelength, frequency, types and source of UVR generation, technique of irradiation. Physiological and therapeutic effects, dosimetry of UVR.

Unit-II

1. Ultrasonic Therapy: Physical principles, physiological effects, indications, contraindications, parameters, modes, treatment procedures, phonophoresis, pharmacological agents for phonophoresis.
2. LASER Therapy: Physical characteristics, classification and types of laser, physical effects, modes, parameter settings, types of probes used, seeming laser, indications, contraindications and treatment procedures in orthopedics, sports medicine, ENT, dermatology and gynecological conditions.

Unit-III

1. Therapeutic Mechanical Pressure:Intermittent Pneumatic therapy – methods of applications, principles, physical effects, indications and contraindications.
2. Biofeedback: General principles, biofeedback instrumentation, indications, EMG Biofeedback, equipment set up and application, treatment objectives, biofeedback in rehabilitation use in neuromuscular reduction.

Unit-IV

- **a.** Computerization of modalities
- **b.** Combination of different modalities
- **c.** Progressing of parameters
- **d.** Selection and consideration of parameters
- **e.** Combination therapy – principles, uses and indications of ultrasonic and electrical stimulator, Laser and electrical stimulator, Ultrasonic and laser and electrical stimulator.

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 245 P	**Advanced Electro Therapy Practical**	**PC**	**0- 0- 4**	**2**

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic fundamentals of physics, electrotherapy and medical terminology.

a. Sensory and motor stimulation of nerves and muscles by various types of low frequency currents on self.
b. Locate and stimulate different motor points region wise, including upper limb, lower limb, trunk and face.
c. Therapeutic application of different low frequency currents, faradic foot bath, faradism under pressure, iontophoresis.
d. Reaction of degeneration of nerves, Plot strength duration curves, chronaxie and rheobase.

e. Different types of ultraviolet units, their operation, and assessment for test dose and application of UVR region wise.
f. Ultrasound unit, its operation and methods of application region wise.
g. Laser unit, its operation and methods of application region wise.
h. Intermittent pneumatic therapy unit – its operation and different methods of application region wise.

BOOKS RECOMMENDED:

1. Electrotherapy Explained: Principles and practice –4th edition. Low & Reed – Butterworth Heinmann
2. Clayton's Electrotherapy –12 edition. Kitchen &Bazin – W.B. Saunders
3. Therapeutic Heat and Cold – 4th edition.Lehmann – Williams & Wilkins
4. Principles & Practice of Electrotherapy – 4th edition.Kahn – Churchill Livingstone
5. Electrotherapy: Clinics in Physical therapy – Wolf – Churchill Livingstone
6.Physical Principles Explained –4th edition. Low & Reed – Butterworth Heinmann
7. Clinical Electrotherapy – 3rd edition.Nelson & Currier
8. Electrotherapy in Rehabilitation – Meryl Roth Gerth. F.A. Davis
9.Michlovitz – 3rd edition.Thermal agents in Rehabilitation
10.Therapeutic Modalities in Sports Medicine – William E Prentice – Mosby
11.Rehabilitation Techniques – William E Prentice - Mosby

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 246	Psychiatry	PC	3- 0- 0	3

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the preparation of student towards his/her professional autonomy and understanding the basic concept about psychology, different fields of psychology.

Unit-I

d) Brief description of epidemiology and etiological factors.
e) Classification of psychiatric disorders.
f) Clinical Interview (MSE).

Unit-II

1. Brief description of clinical syndromes (organic psychiatric disorders, substances, abuse, hysterical convulsion disorder, schizophrenia, affective disorders) Neurotic, stress related and soma to form disorder, eating disorders, sleeping disorders, mental disorders, personality disorders.
2. Mental Retardation.
3. Brief description of psychological and physical treatments used.

Unit-III

1. Surgery in psychiatric conditions.
2. Definition: Defense Mechanisms and Symptomatology.

3. Generalized Anxiety Disorders Panic Disorders Dementia.

Unit-IV

1. Psychiatric problems in general hospital community psychiatry, hospital aspects of Psychiatry.
2. Psychotherapy and Electro-convulsive therapy

BOOKS RECOMMENDED:

1. Concise Guide to Clinical Psychiatry [APP.]- 3rd edition.Kaplan and Saddock,Crabbard.
2. Treatments of psychiatric Disorders (2 Vols) 2nd edition. Edited: Crabbard.
3. Essentials of Clinical Psychiatry – 2nd edition.Hales.
4. Psychiatry at a Glance - 6th edition.Edited: Robertson.
5. Recent Advances in Psychiatric (vol.I), 1st edition. Edited: Ahuja.
6. Short textbook of psychiatry- 7th edition.NirajAhuja-Jaypee.

BACHELOR OF PHYSIOTHERAPY: SECOND YEAR

SEMESTER V

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 351	Neurology – I	PC	4-0-0	4

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the students with information on the anatomy & physiology of brain, assessment & management of neurological patients and briefly outlines the etiopathogenesis, clinical features and management of the following Neurological Disorders.

Unit-I

1. Neuro-anatomy: Review the brain and spinal cord including Blood supply of the brain and spinal cord anatomy of the visual pathway, Connections of the cerebellum and extra pyramidal relationship to the Spinal, nerves to the spinal cord segment systems, Long tracts of the spinal cord, the brachial and lumbar plexus and cranial nerves.
2. Neurophysiology: Review in brief the neurophysiological basis of tone and disorders of tone and posture, bladder control, muscle contraction, movement and Pain.

Unit-II

1. Assessment and evaluative procedures for neurological patient.
2. Review of the management of a neurological patient.

3. Congenital and childhood disorder, cerebral palsy, Hydrocephalus and Spina Bifida
4. Cerebrovascular accidents – General classification, thrombotic, embolic, hemorrhagic. And inflammatory strokes, gross localization and sequelae.

Unit-III

Trauma – localization, first aid and management of sequelae of head injury and spinal Cord injury.

1. Disease of the spinal cord – Craniovertebral junction anomalies, Syringomyelia, cervical and lumbar disc lesions, Tumors and Spinal arachnoiditis.

Unit-IV

1. Demyelinating diseases (Central and Peripheral): Guillain–Barre syndrome, Acute Disseminated encephalomyelitis, Transverse mellitus and Multiple sclerosis.
2. Degenerative disorders – Parkinson's diseases and dementia.

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T – P	Credits
BPT 351 P	Neurology-I (Practical)	PC	0-0-2	1

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Course Objectives & Course Outcomes

This course provides the students with information on the anatomy & physiology of brain, assessment & management of neurological patients and briefly outlines the etiopathogenesis, clinical features and management of the following Neurological Disorders.

1. Motor and sensory examination of neurological disorders
2. Knowledge of various investigative procedures (invasive and non-invasive) used in the diagnosis of various neurological disorders
3. Assessment of Hemiplegia, cerebral palsy and multiple sclerosis.

BOOKS RECOMMENDED

1. Brain's Diseases of the Nervous System – Nalton – ELBS.
2. Guide to Clinical Neurology – Mohn&Gaectier - Churchill Living Stone.
3. Principles of neurology – Visitors – McGraw – International Edition.
4. Davidson's Principles and Practices of Medicine – Edward – Churchill Living Stone (22^{nd} edition).

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 352	General Surgery including Gynecology & Obstetrics	PC	4- 0- 0	4

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the General scheme of case taking history, physical examination, investigations, progress, follow-up, termination and surgeries of the disorders.

Unit-I

1. Identification and description of the instruments used for investigation and practice.
2. Wound healing and wound management
3. Wound infections
4. Accident and emergency surgery, warfare injuries
5. Acute and long term resuscitation and support
6. Immunology and organ transplantation
7. Tumors, ulcers, cysts and sinuses
8. Burns
9. Arterial and venous disorders
10. Lymph nodes and Lymphatic disorders

Unit-II

1. Cardio-respiratory resuscitation.
2. Thymus-tumors and management
3. Chest injuries and diseases of the chest wall
4. Diseases of the pleura: Pleural Effusion, Pneumothorax and Pleuritis
5. Trachea
6. Diseases of lungs and bronchi
7. Postoperative pulmonary complications
8. Diaphragmatic disorders
9. Mediastinal tumors
10. Cardiac surgeries (extra-cardiac, closed intracardiac, open cardiac operations)
11. Diseases of Pericardium
12. Congenital Heart Diseases and Acquired Heart Diseases
13. Aortic Aneurysm
14. Cardiac Thoracic trauma
15. Skeletal cardiomyoplasty
16. Cardiac Transplantation
17. Heart Lung Transplantation
18. Mechanical circulatory support

Unit-III

1. History taking and Terminologies used
2. Classification of diseases
3. Birth Control
4. Reproduction
5. Placenta and placental Membranes
6. Foetus
7. Physiological changes during pregnancy
8. Endocrinology in relation to reproduction
9. Foetus-in-utero
10. Foetal skull and maternal pelvis

Unit-IV

1. Antenatal care
2. Antenatal assessment of foetal well-being
3. Normal labour, normal Puerperium
4. Complications of pregnancy and labour
5. Special considerations (previous history of C-Section, RH – elderly, Primigravida, grand multipara, bad obstetric history, obesity)
6. Term, newborn infant, low birth weight baby.
7. Diseases of the fetus and newborn.
8. Pharmacotherapeutics, induction of labour, operative obstetrics.
9. Special topic (foetal distress, intrapartumfoetal monitoring, shock in Obstetrics, acute renal failure, blood coagulation disorders, high risk Pregnancy, immunology in obstetrics).

10. Aids to diagnosis in obstetrics.

BOOKS RECOMMENDED

1. Love & Bailey's Short Practice of Surgery – Clinical examination.(26th edition)
2. Shaw's - Text Book of Gynecology. (16th edition)
3. Textbook of obstetrics- D.C. Dutta. (9th edition 2017)

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 353	Biomechanics and Kinesiology - I	PC	4- 0- 0	4

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the General scheme of body mechanics, muscle, Joint structure and function.

Unit -I

1. Introduction to mechanic including motion, forces, parallel force System and vectors
2. Newton's law of motion, concurrent force system – composition of forces, Muscle action line etc.
3. Center of gravity, line of gravity, stability and equilibrium, law of inertia.
4. Levers, torque, mechanical advantage
5. Moment arm and anatomic pulleys

Unit –II

1. Basic principles of human joint design
   a. Tissues present in human its including dense fibrous tissue, bone, cartilage and conductive tissue
   b. Classification of joint
   c. Joint function, kinematic chains and range of motion
   d. General effects of injury and disease

Unit –III

1. Mobility and Stability function of Muscle
2. Elements of Muscle Structure and Its properties
3. Factors affecting Muscle Tension
4. Type of Muscle Contraction and Muscle Work
5. Classification of Muscle and their Function
6. Group Action of Muscle, Co-ordination of Movement

Unit –IV

1. Shoulder complex
2. Elbow complex
3. Wrist and hand complex

BOOKS RECOMMENDED

1. Norkin& Leonie-joint structure and function. (5^{th} edition)
2. A comprehensive analysis – FA. Davis. (5^{th} edition)
3. Burnstorm – Clinical Kinesiology – FA. Davis (6^{th} edition)
4. Kreighbaun E., Barthels, K. : Biomechanics – A Qualitative approach for Studying Human Motion, Mac Millan (4^{th} edition)
5. Rasch& Burk : Kinesiology and Applied Anatomy – Lee and fabiger (5^{th} edition)
6. Levac B.F. : Basis of Biomechanics in Sports and Orthopedic Therapy – C.V. Mosby
7. De Boor & Groot : Biomechanics of Sports, CRI Press, Florida
8. Norden& Frankel : Basis of Biomechanics of Muscular Skeletal System – Williams and Wilkins (4^{th} edition)
9. Laughens K., Hamilton N. Kinesiology – Scientific Basis of Human Motion – Brown and Benchmark. (11^{th} edition)

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 354	Physical Assessment & Manipulative Skills - I	PC	6- 0- 0	6

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the general principles of human development & maturation, electrodiagnosis and assessment & evaluation of a patient.

Unit-I

1. General principles of human development and maturation.
2. Aspects – physical, motor, sensory, cognitive, emotional, cultural and social.
3. Factors influencing human development and growth – Biological Environment, inherited.
4. Principles of maturation-
    a. In general
    b. In anatomical directional pattern-Cephalo-caudal, Proximal-distal, center-lateral, Mass to specific pattern, gross to fine
    c. Neuro Development of Hand function

Unit-II

1. Bioelectricity: Physiology of generation & propagation of Action potential, volume conduction.
2. Therapeutic current – as a tool for electrodiagnosis

1.Physiological principles & use of alternating & direct current, such as sensory & pain threshold, Pain Tolerance, short & long pulse test
2.S.D. Curve, Integrated EMG, use of Biofeedback unit for assessment of muscle function

3. Principles of Electromyography-Motor unit and its Characteristics-activity at rest, recruitment/frequency pattern at minimal activity, Interference pattern abnormal EMG. pattern
4. Principles of nerve conduction
5. Late responses-F-wave, H reflex, Blink reflex.
6. Electro-physiological principles of assessment of myoneural junction.
7. EMG: instrumentation, basic components, panel diagram, types of electrodes.

Unit-III

1. Assessment and Evaluation of a patient (region wise) to plan a therapeutic programme – Evaluation and Therapy region wise: Shoulder, Forearm-Complex, Wrist and Hand, Hip, Knee, Ankle and Foot.

Unit-IV

1. Assessment of cardio pulmonary dysfunction-Chest expansion, Abnormal breath sounds, Quality of life questionnaires/Borg scale/Principles of exercise tolerance test-assessment of vital parameters in simple functional test-6 minute walk test/symptom limited test/Breath holding test Spirometry Peak-flowmetry – Theoretical basis of Bruce's protocol, Astrand protocol, and step test.
2. Assessment of Hand – pinches, grips, routine sensory & motor evaluation, stereognosis.

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 354 P	**Physical Assessment & Manipulative Skills-I (Practical)**	**PC**	**0- 0- 4**	**2**

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the general principles of human development & maturation, electrodiagnosis and assessment & evaluation of a patient.

1. Electro-diagnostic assessment using short/long pulse direct currents, alternating currents and biofeedback for:
    a. Motor function-Galvanic/Faradic type test/accommodation test/SD curves/ Integrated EMG.
    b. Sensory function-sensory and pain threshold, pain tolerance.
2. Identification of abnormal breath sounds/chest expansion/pattern of breathing/Respiratory rate/Grades of Dyspnoea/Rate of Perceived exertion.
3. Basic skill development of Manual therapy for extremities as per SNo. 3 above.

BOOKS RECOMMENDED

1. Maitlands Book on Manual Therapy
2. Clinical Electro Therapy – Nelson Currier – Appleton and Lange Publication (3rd edition 1999)
3. Clinical Eletromyography – Mishra (3rd revised edition 2014)
4. Mobilization – Kaltenborn (8th edition 2014)
5. Manual Examination of Spine and Extermities – Wads Worth
6. Orthopedic Physical Examination – Magee (6th edition)
7. Mobilization Methods – Kaltonborn
8. Mulligans Manual Therapy (7th edition)
9. Clinical Electrical mayography – Kimura (5th edition)
10. Orthopedic Physical Therapy – Donnatelli (4th edition)
11. Exercise and heart – Wenger
12. Exercise Physiology – M. Cardel (8th edition)
13. Susan D.O. Sullivan & Thomas J. Schmitz- Physical Rehabilitation (5th edition)

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 355	Physiotherapy in Orthopedic Conditions - I	PC	6- 0- 0	6

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the students about review of the condition, assessment, medical & Physiotherapy management and treatment goals & plan of the conditions.

Unit-I

1. Assessment of patients
2. Setting of treatment goals and plans
3. Principal of treatment soft tissue bone and joint problems
4. Identifying soft tissue lesions
5. State of inflammation and repair
6. Clinical feature and treatment during acute stage of soft tissue lesions
7. Clinical feature and treatment during sub acute stage of healing
8. Clinical feature and treatment during chronic remodeling stage
9. Recurring pain – Treatment guidelines

Unit-II

1. General physiotherapy approach

2. Principles of fracture management at different stages
3. Prevention & management of complication of fractures
4. Fracture, Dislocation & soft tissue injuries: Sign, symptom, common sites, assessment & Physiotherapeutic management.
1. Upper limb trauma
2. Lower limb trauma

Unit-III

a. Fracture, Dislocation & soft tissue injuries: Sign, symptom, common sites, assessment & Physiotherapeutic management of Spinal trauma.
b. Assessment, management & Treatment goals of amputation. Level of amputation, stump care, Bandaging, Pre- and post- Prosthetic management, prosthetic checkout, complication and the management
c. Review of the condition, assessment, management and treatment goals & plan of the Congenital deformities: Torticollis, Thoracic inlet/outlet syndrome, CTEV, foot deformities, Developmental Dysplasia of the Hip

Unit-IV

1. Acquired Deformities: Deformities of Spine, Knee, Hip, Ankle, Shoulder, Elbow, Hand, etc
2. Bone and Joint Tuberculosis
3. Diseases of the joint: Osteoarthrosis, Rheumatoid arthritis, Ankylosing spondilytis, Reiter's disease, Gout.

Course Code	**Subject**	**Title**	**Teaching Hours/ Week**	
			L–T –P	**Credits**
BPT 355 P	**Physiotherapy in Orthopedic Conditions-I (Practical)**	**PC**	**0- 0- 4**	**2**

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Course Objectives & Course Outcomes

This course provides the students about review of the condition, assessment, medical & Physiotherapy management and treatment goals & plan of the conditions.

1. The students will be shown patients of the relevant diseases and disorders for:
    a. History taking of condition
    b. Soft tissue lesions
    c. Degenerative arthritis of joints
2. Evaluation of Injury cases and management

BOOKS RECOMMENDED:

a) Orthopedic Physical Therapy – Donatelli (4th edition)
b) Cash's Text Book of Orthopaedics and Rheumatology for Physiotherapists – Jaypee Brothers (2nd edition)
c) Manual Mobilization of Extremity Joints – FredyKaltenborn, Maitland (8th edition)
d) Therapeutic Exercises – Kolby and Kisner (17th edition)
e) Therapeutic Exercises – O'Sullivan (6th edition)
f) Taping techniques – Rose Mac Donald (2nd edition)
g) Tissue Neural Mobilization – Butler (4th edition)
h) Zulunga et al.: Sports Physiotherapy - W.B. Saunders (6th edition)
i) Brukner and Khan: Clinical Sports Medicine – Mac Graw Hill (3rd edition)
j) Reed: Sports Injuries – Assessment and Rehabilitation – W.B. Saunders (3rd edition)
k) Gould: Orthopedic Sports Physical Therapy – Mosby
l) C. Norris: Sports Injuries – Diagnosis and Management

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 600	Clinical Training	PC	0- 0- 4	2

Course Assessment Methods (Internal: 100)

Course Objectives & Course Outcomes

Students will engage in clinical training in hospital based medical and physiotherapy departments/ settings to enhance their clinical skills and apply contemporary knowledge gaining during teaching sessions.

BACHELOR OF PHYSIOTHERAPY: THIRD YEAR

SEMESTER VI

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 361	Neurology – II	PC	4- 0- 0	4

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the anatomy, physiology of brain, assessment & management of neurological patients and briefly outlines the etio-pathogenesis, clinical features and management of the following Neurological Disorders.

Unit-I

1. Briefly outline the etio-pathogenesis, clinical features and management of the following Neurological disorders.

a. Infections – Pyogenic Meningitis sequelae, Tuberculosis infection, Central Nervous System and Poliomyelitis.
b. Degenerative disorder – Parkinson's disease and Dementia.
c. Diseases of the muscles – Classification, Signs, Symptoms, Progression and Management.

Unit-II

1. Briefly outline the etio-pathogenesis, clinical features and management of the following Neurological disorders.
    a. Peripheral nerve disorders – Peripheral Nerve Injuries, Entrapment Neuropathies and Peripheral Neuropathies.
    b. Epilepsy – Classification and Management.
    c. Myasthenia Gravis – Definition, Course and Management.

Unit-III

1. Briefly outline the etio-pathogenesis, clinical features and management of the following Neurological disorders.
    a. Intracranial Tumors: Broad Classifications, Signs and Symptoms.
    b. Motor Neuron Disease: Definition, Classification and Management.
    c. Cranial Nerve: Types of Disorders, Clinical Manifestations and Management.
    d. Acquired Immuno Deficiency Syndrome: Clinical Manifestation.

Unit-IV

1. Introduction to Neuro-psychology.
2. General Assessment procedure and Basic Principles of Management.

Course No	**Subject**	**Title**	**Teaching Hours/ Week**	
			L–T –P	**Credits**
BPT 361 P	**Neurology-II (Practical)**	**PC**	**0- 0-2**	**1**

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the anatomy, physiology of brain, assessment & management of neurological patients and briefly outlines the etio-pathogenesis, clinical features and management of the following Neurological Disorders.

1. Motor and Sensory Examination of Neurological Disorders.
2. Knowledge of various investigative procedures (invasive and noninvasive) used in the diagnosis of various neurological disorders.
3. Assessment of peripheral nerve disorders, Poliomyelitis and other mentioned neurological disorders.

BOOKS RECOMMENDED

a. Brain's Diseases of the Nervous System – Nalton – ELBS.
b. Guided to clinical Neurology – Mohn&Gaectier - Churchill Living Stone.
c. Principles of neurology – Visitors – McGraw – International Edition.
d. Davidson's Principles and Practices of Medicine – Edward – Churchill Living Stone (22nd edition)

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 362	General Surgery including Eye & ENT	PC	4- 0 -0	4

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the General scheme of case taking history, physical examination, investigations, progress, follow-up, Termination and surgeries of the disorders.

Unit-I

1. Eye
   1 Brief description of anatomy and physiology of the eye.
   2 Opthalmic optics and brief description of examination.
   3 Diseases of the eye and addenda of the eye.
   4 Disorders of motility of the eye.
   5 Ocular manifestations of diseases of the nervous system.
   6 Brief description of immunopathology of the eye.
   7 Preventive ophthalmology.

Unit-II

1. Ear
   a. Brief description of anatomy and physiology, peripheral receptors and central neural pathways of auditory and Vestibular system.
   b. Audiology and acoustics.
   c. Brief description of assessment of hearing.
   d. Hearing loss.

e. Assessment of Vestibular functions.
f. Disorders of Vestibular system.
g. Diseases of the external and middle ear.
h. Otosclerosis.
i. Facial nerve and its disorders
j. Brief description of meniere's disease, acoustic neuroma, otalgia, tinnitus
k. Tumors of external ear, middle ear, and mastoid

Unit-III

1. Nose and paranasal sinuses
    a. Brief description of anatomy and physiology
    b. Classification of diseases and disorders
    c. Rhinitis (acute, chronic, allergic, other forms of non-allergic rhnitis)
    d. Trauma to the face
    e. Sinusitis

Unit-IV

1. Throat
    1. Brief description of diseases of the oral cavity, salivary glands, pharynx, larynx, trachea, Esophagus.
    2. Brief description of the techniques used.
    3. Brief description of clinical examination.
    4. Indications and types of operative surgery.
    5. Instrumentation.

BOOKS RECOMMENDED

1. Bailey & low's Short Practice of Surgery – Clinical examination. (26^{th} edition)
2. Shaw's - Text Book of Gynecology. (16^{th} edition)
3. Textbook of obstetrics- D.C. Duttta. (9^{th} edition)

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 363	Biomechanics and Kinesiology-II	PC	4- 0- 0	4

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the General scheme of body mechanics, muscle, Joint structure and function.

Unit-I

1. Posture: Definition, factors responsible for posture, relationship of gravity on posture, Postural in imbalance: factors responsible for in imbalance in static and dynamic positions including ergonomics
2. Description of normal gait, determinants of gaits, spatio temporal features, and analysis
3. Gait Deviations: Types, Causative Factors and Analysis

Unit-II

1. Regional Structure and Function: The vertebral column

Unit-III

1. Regional Structure and Function Hip Complex

Unit-IV

1. Regional Structure and Function: Knee Complex, Ankle and Foot complex

BOOKS RECOMMENDED

1. Norkin& Leonie-joint structure and function. (5th edition)
2. A comprehensive analysis – F.A. Davis. (5th edition)
3. Burnstorm – Clinical Kinesiology – F.A. Davis (6th edition)
4. Kreighbaun E., Barthels, K: Biomechanics – A Qualitative approach for Studying Human Motion, Mac Millan (4th edition)
5. Rasch& Burk: Kinesiology and Applied Anatomy – Lee and fabiger (5th edition)
6. Levac BF: Basis of Biomechanics in Sports and Orthopedic Therapy – C.V. Mosby
7. De Boor & Groot: Biomechanics of Sports, CRI Press, Florida
8. Basmajian: Muscle Alive – Williams and Wilkins
9. Norden& Frankel: Basis of Biomechanics of Muscular Skeletal System – Williams and Wilkins (4th edition)
10. Laughens K., Hamilton N. : Kinesiology – Scientific Basis of Human Motion – Brown and Benchmark. (11th edition)

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 364	Physical Assessment & Manipulative Skills - II	PC	6- 0- 0	6

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rest of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the General principles of manual therapy, electrodiagnosis and assessment & evaluation of a patient.

Unit-I

1. Basics in Manual Therapy, and application in Clinical reasoning
2. Examination of joint – stability – normal/abnormal, Mobility-assessment of accessory movement and End feel
3. Assessment of articular and extra-articular soft tissue status-differentiation of spasm, acute and chronic muscle hold, tightness/pain-original and Referred
4. Interpretation of various investigations like – Radiological [X-rays], routine Biochemical investigations, Electrodiagnosis
5. Assessment of pain – Intensity/quality-Objective assessment/documentation.

Unit-II

1. Basic principles of mobilization skills for joints and soft tissues:
1. Maitland
2. Kaltenborn
3. Mulligan
4. Mc'kenzie
5. Muscle energy technique
6. Myofascial stretching

7. Cyriax, trigger points
8. Neural tissue mobilization i.e.-slump, butler, and ULTT
2. Indications, contra-indications, Practice of Manipulative therapy basic skills of mobilization of extremities on Models:
    a. Kaltenborn
    b. Mulligan
    c. Maitland
    d. Cyriax friction massage

Unit-III

a. Introduction to motor learning

1. Classification of motor skills.
2. Measurement of motor performance.

b. Introduction to motor control
a. Theories of motor control
b. Applications
c. Learning Environment
d. Learning of skill

Unit-IV

a. Assessment of movement dysfunction

1. Higher functions
2. Cranial nerves
3. Altered muscle strength
4. Power
5. Balance
6. Endurance
7. Tone
8. Spasticity
9. Incoordination
10. Abnormal deep and superficial reflexes
11. Limb-length discrepancy
12. Goniometry
13. Trick movements
14. Special Tests

b. Assessment Scales
c. Altered Posture and Gait
d. Functional analysis as per I.C.I.D.H.-II norms
e. Functional diagnosis

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 364 P	Physical Assessment & Manipulative Skills Practical - II	PC	0- 0-4	2

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the General principles of manual therapy, electrodiagnosis and assessment & evaluation of a patient.

a. Basic Skill development of manual therapy for Extremities
b. Exercise tolerance and fitness testing-6minutes walk test, Symptom limited test.
c. Interpretation of various investigations like X-rays, electro-diagnostic findings

BOOKS RECOMMENDED:

1. Maitland Book on Manual therapy,
2. Clinical Electro Therapy –Nelson-Currier – Applcton and Lange publication,
3. Clinical Electromyography-by Mishra. (3rd edition)
4. Mobilisation – Kaltenborn,
5. Mulligans Manual Therapy,
6. Manual Examination of Spine and Extremities by Wads Worth.
7. Orthopaedic Physical examination – Magee,(6th edition)
8. Clinical Electromyography – Kimura,(5th edition)
9. Orthopaedic Physical therapy – Donnatelli,(6th edition)
10. Exercise and Heart – Wenger,
11. Exercise Physiology – M'Cardal,(8th edition)
12. Susan B.O.Sullivan& Thomas J Schmitz- text book of Physical Rehabilitation (5th edition)

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 365	Physiotherapy in Orthopedics including Sports Medicine - II	PC	6- 0 - 0	6

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Instructions for Paper Setters

For the end semester examination, nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the Four Units). It will contain seven short answer type questions each of two marks. Rests of the eight questions are to be given by setting two questions from each of the four units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four units. All the questions including Qno.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student of review of the condition, assessment, management and treatment goals & plan of the orthopaedic conditions.

Unit-I

Review of the conditions, assessment, management and treatment goals and plan for the following conditions:

1. Shoulder: Tendinitis, Periarthritis, Rotator Cuff Injury, Deltoid Fibrosis, Adhesive Capsulitis, Frozen Shoulder etc.
2. Elbow: Tennis Elbow, Golfer's Elbow, Recurrent Slipping of Ulnar Nerve, Pulled Elbow etc.
3. Wrist and Hand: Ganglion, DeQuervain's Disease, Trigger Thumb and Finger, Carpal Tunnel Syndrome, Dupuytren's Contracture etc
4. Spine: Cervical: Brachial Neuralgia, Brachial Plexus Injury, Thoracic outlet/Inlet Syndromes, Torticollis, Cervical Spondylitis, Prolapse Intervertebral Disk Syndrome, etc.

Unit-II

Review of the conditions, assessment, management and treatment goals and plan for the following conditions:

1. Hip: CoxaVara, Slipped Upper Femoral Epiphysis, AVN etc.
2. Knee: Deformities, Quadriceps Fibrosis, Recurrent Dislocation of the Patella, Osgood Schlatter's Disease, Loose Bodies, Anterior Knee Pain, Chondromalacia Patellae etc.
3. Foot and Ankle: Painful Heel, Plantar Fascitis, Posterior Heel Pain, Deformities, Forefoot pain, metatarsalgia, tarsal tunnel Syndrome etc.
4. Peripheral Nerve Injuries: Outline the clinical features and management, including reconstructive surgery of Radial, Median and ulnar nerve lesions, Sciatic and lateral popliteal lesions, Brachial plexus injuries including Erb's, Klumpke's and crutch palsy.

Unit-III

Pre and postoperative assessment and management of surgeries like:

1. Osteotomy, Arthrodesis, Arthroplasty, Joint replacements
2. Tendon transplant, soft tissue release, Grafting
3. Spinal stabilization, Reattachment of limbs, illizarov's technique

Unit-IV

1. Introduction to Sports Physiotherapy
2. Introduction to Exercise Testing
3. Introduction to Body Composition Analysis
4. Basic Principles of Conditioning, Resistance Training, Exercise Physiology, Functional Rehabilitation
5. Introduction to Applied Biomechanics in Tennis, Running & Swimming
6. Introduction to protective gear used for spine, upper limb, and lower limb.
7. The athlete with a disability
8. Mechanism, prevention, assessment and physiotherapy and medical management of common sports injuries of Spine, Upper limb and lower limbs
9. Female Athlete
10. Introduction to Emergency care of a sports person
11. Taping and sports massage

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 365 P	**Physiotherapy in Orthopedics including Sports Medicine Practical - II**	**PC**	**0- 0- 2**	**2**

Course Assessment Methods (Internal: 30; External: 70)

Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc (6 marks) and end semester examination of 70 marks.

Course Objectives & Course Outcomes

This course provides the student of review of the condition, assessment, management and treatment goals & plan of the orthopaedic conditions.

1. Evaluation and Treatment Planning: its presentation and documentation of Minimum two cases each in:
1. Upper Limb (including Hand Injury)
2. Lower Limb
3. Spine with/without Neurological condition.
4. Musculoskeletal condition of hand and foot.
2. Clinical discussions on different diagnosis and management
3. Evaluation of Sports injury cases and management

BOOKS RECOMMENDED:

1. Orthopedic Physical Therapy – Donatelli (4^{th} edition)
2. Cash's Text Book of Orthopaedics and Rheumatology for Physiotherapists – Jaypee Brothers (2^{nd} edition)
3. Manual Mobilization of Extremity Joints – FredyKaltenborn, Maitland (8^{th} edition)
4. Therapeutic Exercises – Kolby and Kisner (17^{th} edition)
5. Therapeutic Exercises – O'Sullivan (6^{th} edition)
6. Taping techniques – Rose Mac Donald
7. Neural Tissue Mobilization – Butler
8. Zulunga et al.: Sports Physiotherapy - W.B. Saunders
9. Brukner and Khan: Clinical Sports Medicine – Mac Graw Hill
10. Reed: Sports Injuries – Assessment and Rehabilitation – W.B. Saunders
11. Gould: Orthopedic Sports Physical Therapy – Mosby
12. C. Norris: Sports Injuries – Diagnosis and Management

Course Code	Subject	Title	Teaching Hours/ Week	
			L–T –P	Credits
BPT 600	Clinical Training	PC	0- 0-4	2

Course Assessment Methods (Internal: 100)

Course Objectives & Course Outcomes

Students will engage in clinical training in hospital based medical and physiotherapy departments/ settings to enhance their clinical skills and apply contemporary knowledge gaining during teaching sessions.

BACHELOR OF PHYSIOTHERAPY: FOURTH YEAR

SEMESTER VII

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 471	Physiotherapy in Neurological Conditions – I	PC	5 – 0 – 0	5

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Units. All the questions including Q.No.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

Unit-I

1. Examination of neurological disorder and principal of treatment.
2. Knowledge of various investigative procedures (invasive & non-invasive) used in the diagnosis of various neurological disorders
3. Application of appropriate electrotherapeutic mode for relief of pain and functional re-education with clinical reasoning.

Unit –II

1. Review of the examination & assessment of paediatric condition.
2. Review of pathological changes and principal of management of physiotherapy of following condition (congenital and acquired disorders)

a. Cerebral palsy
b. Myopathies
c. Cervical Radiculopathy
d. Cervical Myelopathy

Unit –III

1. Review of pathological changes and principle of management by physiotherapy of following conditions:
   a. Hemiplegia (includes – approaches – Bobath, Roods, etc.)
   b. Diseases effecting extra pyramidal system (includes Parkinsonism, Wilson's disease etc.)
   c. Peripheral nerve and cranial nerve lesions
   d. Neuritis
   e. Myopathies
   f. Bells palsy & facial palsy

Unit-IV

1. Application of skill as PNF coordination & balancing exercise by using techniques based on neuro-physiological principles and tools of therapeutic gymnasium such as medicinal ball, tilt board etc.
2. Application for transfer & functional re-education exercise, posturalexercise & gait training.
3. Prescription of appropriate orthotic devices and fabrication of temporary splints during urgent requirement with clinical reasoning

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 471 P	**Physiotherapy in Neurological Conditions Practical – I**	**PC**	**0 – 0 – 4**	**2**

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

Evaluation and treatment planning its presentation and documentation of minimum 2 cases each in:
1. UMN lesion.
2. Paediatric neuro cases

BOOKS RECOMMENDED:

1. Cash textbook for Physiotherapist in Neurological disorders- J .P. Brothers Publication.2nd edition
2. Textbook of Physical Rehabilitation - Susan O'sullivan, F.A. Davis.5th edition.
3. Proprioceptive Neuro Muscular Facilitation – Herman Kabet.3rd edition.
4. Practical Physical Therapy – Margaret Hollis.4th edition.
5. PNF in Practice - Alder &Aldea.4th edition
6. Therapeutic Exercise - O' Sullivan.6th edition.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 472	Physiotherapy in Medical Conditions – I	PC	5 – 0 – 0	5

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Units. All the questions including Q.No.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

Unit-I

1. Review of pathological & principles of management by Physiotherapy of following conditions.
   a. Inflammation – acute, chronic
   b. Oedema
   c. Common conditions of skin – Acne, Psoriasis, Alopecia,
   d. Leucoderma, Leprosy, clubbing
   e. Deficiency disease – Rickets, Diabetes, Obesity, Osteoporosis and other vitamin deficiency disorders related to physiotherapy

Unit –II

1. Review of intensive therapy:
   a. Intensive Therapy – Apparatus and clinical management
   b. Intensive Therapy – Physiotherapy management of the adult patient
   c. Paediatric and neonatal intensive therapy

Unit -III

1. Technique used in chest physiotherapy and mechanical aids as an adjunct to Physiotherapy:

a. Breathing Exercise
b. Postural Drainage
c. Coughing and huffing techniques.
d. Respiratory PNF
e. Methods of using different types of inhalers and Nebulizers.

Unit –IV

1. Review of normal functioning of respiratory and cardio vascular system:
   a. Review of anatomy and physiology of respiratory system including mechanism of respiratory system
   b. Review of anatomy and physiology of cardiovascular system

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 472 P	**Physiotherapy in Medical Conditions Practical– I**	**PC**	**0 – 0 – 4**	**2**

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

1. History taking of the condition of the patient
2. Evaluation and assessment of medical and cardiopulmonary function of various disorders including auscultation and General Physical Examination
3. Clinical demonstration of physiotherapy techniques used in cardiopulmonary disorders
4. Knowledge of ICU equipment and orientation of ICU

BOOKS RECOMMENDED:

1. Cash Textbook of general medical and surgical conditions for physiotherapists – Downie Jaypee Brothers.2nd edition.
2. Essentials of Cardiopulmonary physical therapy – Hillegass and Sadowsky – W.B. Saunders.3rd edition.
3. Cash Textbook of Chest, Heart and Vascular Disorder for Physiotherapists – Downie – J.P. Brothers.2nd edition.
4. The Brompton guide to chest Physical Therapy.5th edition.
5. Cardiopulmonary Physical Therapy – Irwin and Tecklin – Mosby.4th edition.
6. Cardiovascular/Respiratory Physiotherapy – Smith and Ball – Mosby.5th edition.

7. ACSM Guidelines for Exercise testing and Prescription – ACSM – Williams and Wilkins.6th edition.
8. Chest Physiotherapy in Intensive Care Unit – Mackenzie et al – Williams and Wilkins.2nd edition.
9. Cash Textbook of General Medical and Surgical Conditions for Physiotherapists – Downie – Jaypee Brothers.2nd edition.
10. Cash Textbook of Heart, Chest and Vascular Disorders for Physiotherapists – Downie – Jaypee Brothers.2nd edition.
11. Principles and practices of cardiopulmonary physical therapy – Frown Felter – Mosby.3rd edition.
12. Chest Physiotherapy in intensive care unit – Mackenzie – Williams and Wilkins. 2nd edition
13. Restoration of Motor functions in stroke patient: A Physiotherapist Approach – John stone – Churchill Livingstone.1st edition.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 473	Physiotherapy in Surgical Conditions – I	PC	5– 0 – 0	5

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Units. All the questions including Q.No.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

Unit –I

1. Review of Pathological changes and principle of Pre and Post operative management by Physiotherapy of the following conditions.
   a. Lobectomy, Pneumonectomy, Thoracotomy, Thoracoplasty, Endoscopy, eye hole surgeries.

Unit –II

1. Review of Pathological changes and principle of Pre and Post operative management by Physiotherapy of the following conditions.
   a. Corrective surgeries of congenital heart defects, Angioplasty, open heart surgeries, heart transplant & blood vessel grafting
   b. Common organ transplant surgeries – liver & bone marrow etc.

Unit III

1. Review of Pathological changes and principles of Pre and Post Operative management by Physiotherapy of the following condition:
   a. Wound, Ulcer, Pressure Sores.
   b. Burns and their complications

Unit –IV

1. Review of Pathological changes and principle of Pre and Postoperative management by Physiotherapy of the following conditions.
    a. Common reconstructive surgical proceedings of the management of wounds, ulcers, burns and consequent contractures and deformities.

Course code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 473 P	Physiotherapy in Surgical Conditions Practical – I	PC	0– 0 – 4	2

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

1. History taking of the condition of the patient
2. Assessment of medical and cardiopulmonary functions
3. Evaluation and treatment planning presentation and documentation of two cases each :
    a. Thoracic surgical Condition.
    b. Cardiac surgical Condition.

BOOKS RECOMMENDED:

1. Textbook of general medical and surgical conditions for physiotherapists - Downie Bros.2nd edition.
2. Essential of Cardiopulmonary physical therapy – Hillegass and Sadowsky – WB Saunders.3rd edition.
3. Text book of Chest, Heart and Vascular Disorders for Physiotherapists – Downie Bros.2nd edition.
4. Cardiopulmonary physical therapy – Irwin and Tecklin – Mosby.4th edition.
5. Vascular and respiratory physiotherapy – Smith and Ball – Mosby.5th edition.
6. Physiotherapy in Intensive Care Section – Mackenzie et al – Williams andWilkins.2nd edition.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 474	Research Methodology	PC	3– 0 – 0	3

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Units. All the questions including Q.No.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the importance of research basis in order to validate technique and technology in practice to physiotherapy.

Unit –I

1. Introduction importance to research in clinical practice, scientific approach , characteristics, purposes and limitation.

Unit –II

1. Ethical issues and drafting in research, elements of informed consent
2. Structure of a research proposal

Unit –III

1. Research question including literature review
2. Measurement: Principles of measurement, reliability and validity

Unit –IV

1. Experimental sampling and design
2. Descriptive research

BOOKS RECOMMENDED:

1. Research for Physiotherapist: Project Design and Analysis-Hicks-Churchill Livingstone, 5th edition.
2. Research Methodology: Methods & Techniques-C R Kothari & Gaurav Garg. 3rd edition

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 475	Organization and Physiotherapy Ethics	PC	3– 0 – 0	3

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Units. All the questions including Q.No.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information of practicing of appropriate professional relationship in multidisciplinary set up patient management and co-partnership basis, practicing the concept of protection of right of the community.

Unit –I

1. Physiotherapy Ethics:
   a. History of Physiotherapy
   b. Philosophy of Physiotherapy
   c. Major Ethical principles applied to moral issues in health care
   d. Rules of professional conduct and scope of practice
   e. Relationship with patient
   f. Confidentiality and responsibility
   g. Relationship with profession

2. Law:
   a. Legislative support for rehabilitation
   b. Describe the social security measure for protection from Occupational hazards, accidents, diseases
      i. Outline of the Employees State Insurance Scheme and its various benefits
      ii. Workman's Compensation Act

iii. American's with Disability Act
iv. People with Disability Act
v. Other financial benefits available for disabled.

c. Laws and legal concepts
d. Law protection from mal practice claim.
e. Consumer Protection Act, Liability and Documentation
f. Sale of Goods Act
g. Professional and Government Licensing Accreditation and Educational Standards

Unit –II

1. Plan assessment forms e.g. prevocational hand functions and higher functions for initial evaluation and progress recording.
2. Outline the writing of physiotherapy department annual reports, calculate monthly and annual statistics. Make plan for future requirements, e.g. consider staff patient ratio, equipment and staff requirement
3. Administration:
   a. Basic principle of administration
   b. Describe method of administration in a physiotherapy department: discussion on:
      i. Maintenance of records, attendance, statistics, inventory stocks
      ii. Details of administrative set up of rehabilitation Section
      iii. Referrals – Purpose and type of referrals
   c. Demonstrate administration of the following:
      i. Storekeeping materials, inventory records, purchase ordering petty cash accounting
      ii. General maintenance of equipment, furniture, Building costing of splints/aids/equipment/articles in physiotherapy
   d. Describe and demonstrate:
      i. Types of correspondence
      ii. Methods of filling
   e. Describe methods for care of equipment and materials
   f. Discuss budgeting including items for annual budget, budget preparation and procurement.

Unit -III

1 Plan to organize picnic or sports programme for patients.
2 Role of technology and manpower for rehabilitation
3 Organization & Management
   a. Planning & organization
      i. Planning cycle
      ii. Principle of organizational chart, resources and quality management
      iii. Planning
   b. Financial issue including budget and income generation.
   c. Hospital management.
      i. Hospital organization
      ii. Staffing
      iii. Information
      iv. Communication and coordination with physiotherapy.

v. Service of hospital
vi. Cost of service
vii Monitoring and evaluation

d. Self management.

i. Preparing for first job
ii. Time management
iii. Career development

Unit –IV

1. Personnel management.
2. Profession of service and advertisement.
3. Discuss consideration for construction of a new department and modification of an old department including:
   a. Space required.
   b. Allotment of space e.g. suitability for access, plumbing requirements and circulation of air.

BOOKS RECOMMENDED:

1. Physical rehabilitation – Assessment and treatment – Sullivan and Schrultz – FA. Davis.5th edition.
2. Park's Textbook of Preventive and social medicine - John Everett Park. 24th edition.
3. Lecture notes on rehabilitation medicine – Dr. S. Sunder – Jaypee Brothers.3rd edition.
4. Hand Splinting – Wiltons, W.B. Saunders.3rd edition.
5. Occupational Therapy and Physical dysfunction: Principles, Skills and Practice – Turner, Foster and Johnson – Churchill Livingstone.3rd edition.
6. Orthotics in Rehabilitation: Splinting the Hand and the Body – Mcree& Morgan – FA. Davis. illustrated edition.
7. Atlas of Limb Prosthetics – American Academy of Orthopedic Surgeon – Mosby.2nd edition.
8. Atlas of Orthotics - American academy of Orthopedic Surgeon – Mosby.2nd edition.
9. Krusen's handbook of physical medicine and rehabilitation – Kottke& Lehmann – W.B. Saunders.4th edition.
10. Willard and Spackman's Occupational Therapy – Neistadt and Crepeau – Lippencot.9th edition.
11. Physical therapy management – An Integrated science – John walter.1st edition.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 476	Physiotherapy in Community Health	PC	3– 0 – 0	3

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Units. All the questions including Q.No.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information of practicing of appropriate professional relationship in multidisciplinary set up patient management and co-partnership basis, practicing the concept of protection of right of the community.

Unit-I

1. General concept and determinants of health and diseases
    a. National and International definition of health
    b. Role of socio-economic and cultural environment in health and diseases
    c. Epidemiology – definition and scope
    d. Environmental hygiene – including man and his surroundings, occupational and industrial hygiene, village and town sanitation, bacteriology of water, milk and food hygiene
2. Principles of Community Based Rehabilitation:
    Principle of a team work of medical person, PT, OT, Audiologist, speech therapists and vocational guide in a CBR Team

Unit-II

1. Industrial Health – Environmental stress in the industrial area – accidents due to:
    a. Physical agents e.g. heat/cold, light, noise, vibration, U.V. Radiation
    b. Chemical agents – inhalation, local action, ingestion
    c. Mechanical hazards – over use/fatigue injuries due to ergonomic alteration and ergonomic evaluation of work place, mechanical stresses as per hierarchy

i. Sedentary table work – executive, clerk
ii. Inappropriate sitting arrangement – vehicle drivers
iii. Constant standing – watchman, defence forces, surgeons
iv. Over-exertion in labours – common accidents, role of Physiotherapy, stress management
v. Psychological hazards – e.g. executives, monotonicity and dissatisfaction in job
vi. Occupational diseases and their hazards

2. Overview of public health administration – at central and state level strategy of health delivery system for "health for all" National Health Programme.

Unit-III

1. Family planning – objective of National Family Planning Programmes, Family planning methods with a general idea of advantage and disadvantage of methods
2. Mental Health – socio-economical and cultural aspect

Unit-IV

1. Communicable diseases – An overview (including prevention and control) of TB, HIV, Leprosy
2. Immunization Programmes – For children and hospital staff
3. Geriatrics – Role of physiotherapy in a home for the aged

BOOKS RECOMMENDED:

1. Park's Textbook of Preventive and Social Medicine – K. Park. 3rd edition.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 600	Clinical Training	PC	0– 0 – 4	2

Course Assessment Methods (Internal: 100)

Course Objectives & Course Outcomes

Students will engage in clinical training in hospital based medical and physiotherapy departments/ settings to enhance their clinical skills and apply contemporary knowledge gaining during teaching sessions.

BACHELOR OF PHYSIOTHERAPY: FOURTH YEAR

SEMESTER VIII

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 481	Physiotherapy in Neurological Conditions – II	PC	5 – 0 – 0	5

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Units. All the questions including Q.No.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

Unit-I

1. Review of pathological changes and principles of management by physiotherapy of the following conditions:
   a. Paraplegia (includes spinal cord injury)
   b. Common polyneuropathies conditions (includes GuillianBarre Syndrome, Diabetic poly neuropathy etc.)
   c. Infection – includes poliomyelitis, meningitis, encephalitis, polyneuritis, Transverse myelitis, etc.)
   d. Head injury (includes concussion, contusion, coma, etc.)
   e. Disseminated sclerosis, amylotropic lateral sclerosis, syringomyelia, motor neuron disease (MND)
   f. Tabesdorsalis, Cerebellar ataxia.

Unit-II

1. Review of pathological changes & principles of management of physiotherapy of the following conditions (congenital and acquired disorders).
   a. Spina bifida
   b. Spinal muscular atrophy
   c. Wasting of small muscles of hand.

Unit –III

1. Review of the examination, assessment and physiotherapy managementof the geriatric conditions.

Unit –IV

1. Functional Training in Bladder and Bowel dysfunction.
2. Ergonomic advice for prevention/rehabilitation and patient care education about handling of paralytic patients.

Course Code	Subject	Title	Teaching Hours/ Week	
			L – T - P	Credits
BPT 481 P	Physiotherapy in Neurological Conditions Practical – II	PC	0 – 0 – 4	2

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

Evaluation and treatment planning its presentation and documentation of minimum 2 cases each in

1. LMN lesion
2. Geriatric Neuro cases
3. Pediatric Neuro Cases

BOOKS RECOMMENDED:

1. Cash textbook for Physiotherapist in Neurological disorders - J.P. Bros. Publication.2nd edition.
2. Textbook of Physical Rehabilitation - Susan O'sullivan- F.A. Davis.5th edition.
3. Proprioceptive Neuro Muscular Facilitation – Herman Kobet.3rd edition.
4. Practical Physical Therapy – Mergeret Hollis.4th edition.
5. PNF in Practice - Alder &Aldea.4th edition.
6. Therapeutic exercise by O'Sullivan.6th edition.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 482	Physiotherapy in Medical Conditions – II	PC	5 – 0 – 0	5

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Units. All the questions including Q.No.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

Unit-I

1. Knowledge of various investigative procedures (invasive and non-invasive) used in the diagnosis of various respiratory disorders.

Unit –II

1. Review of Pathological changes and principle of management by physiotherapy of the following conditions: Bronchitis, Asthma, Lung abscess, Bronchiectasis, Emphysema, COPD, Empyema, pneumonia, Chest wall deformities, Tumours of bronchi and lung tissue.

Unit-III

1. Knowledge of various investigative procedures (invasive and non-invasive) used in the diagnosis of various cardiovascular disorders.

Unit-IV

1. Review of Pathological changes and principle of management by physiotherapy of the following conditions: Thrombosis, Embolism, Buerger's diseases, Arteriosclerosis, Thrombophlebitis, Phlebitis, Gangrene, Congestive Cardiac failure, Hypertension, Hypotension and Aneurysm.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 482 P	**Physiotherapy in Medical Conditions Practical – II**	**PC**	**0 – 0 – 4**	**2**

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

1. Knowledge of diagnostic and clinical tests of various diseases.
2. Case Presentations.
3. Physiotherapy management of various diseases.

BOOKS RECOMMENDED:

1. Cash Textbook of general medical and surgical conditions for physiotherapists – DownieJaypee Brothers.2nd edition.
2. Essentials of Cardiopulmonary physical therapy – Hillegass and Sadowsky – WB. Saunders.3rd edition.
3. Cash Textbook of Chest, Heart and Vascular Disorder for Physiotherapists – Downie – JP. Brothers.2nd edition.
4. The Brompton guide to chest Physical Therapy.5th edition.
5. Cardiopulmonary Physical Therapy – Irwin and Tecklin – Mosby.4th edition.
6. Cardiovascular/Respiratory Physiotherapy – Smith and Ball – Mosby.5th edition.
7. ACSM Guidelines for Exercise testing and Prescription – ACSM – Williams and Wilkins.6th edition.
8. Chest Physiotherapy in Intensive Care Unit – Mackenzie et al – Williams and Wilkins.2nd edition.
9. Cash Textbook of General Medical and Surgical Conditions for Physiotherapists – Downie – Jaypee Brothers.2nd edition.
10. Cash Textbook of Heart, Chest and Vascular Disorders for Physiotherapists – Downie – Jaypee Brothers.2nd edition.

11. Principles and practices of cardiopulmonary physical therapy – Frown Felter – Mosby.3rd edition.
12. Chest Physiotherapy in intensive care unit – Mackenzie – Williams and Wilkins. 2nd edition.
13. Restoration of Motor functions in stroke patient: A Physiotherapist Approach – John stone – Churchill Livingstone.1st edition.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 483	Physiotherapy in Surgical Conditions – II	PC	5 – 0 – 0	5

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Units. All the questions including Q.No.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

Unit-I

1. Review of Pathological changes and principle of Pre and Post operative management by Physiotherapy of the following conditions:
   a. Common abdominal surgeries, including GIT, liver, Spleen, Kidney, bladder, etc.

Unit –II

1. Review of Pathological changes and principles of pre and post operative management by Physiotherapy of the follow conditions:
   a. Common operation of reproduction system including surgical intervention for child delivery, Antenatal and post natal Physiotherapy
   b. Common operation of the ear, nose, throat and jaw as related to Physiotherapy.

Unit –III

1. Review of Pathological changes and principles of pre and post operative management by Physiotherapy of the follow conditions:
   a. Common surgeries of the cranium and brain.
   b. Common surgeries of vertebral column and spinal cord.

Unit-IV

1. Review of Pathological changes and principles of pre and post operative management by Physiotherapy of the follow conditions:
   a. Common surgeries of Peripheral nerves.
   b. Surgical Interventions in Traumatic head injuries

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 483 P	**Physiotherapy in Surgical Conditions Practical – II**	**PC**	**0 – 0 – 4**	**2**

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Course Objectives & Course Outcomes

This course provides the student with information on the epidemiology, pathology, clinical presentation and medical, surgical and physiotherapy management of various disorders.

1. Clinical diagnosis of the presentations.
2. Investigations and tests of different clinical presentations.
3. Physiotherapy management of the various diseases and surgical conditions

BOOKS RECOMMENDED:

1. Textbook of general medical and surgical conditions for physiotherapists – Downie Bros.2nd edition.
2. Essential of Cardiopulmonary Physical Therapy – Hillegass and Sadowsky – WB. Saunders.3rd edition.
3. Textbook of Chest, Heart and Vascular Disorders for physiotherapists – Downie – Bros.2nd edition.
4. Cardiopulmonary Physical Therapy – Irwin and Tecklin – Mosby.4th edition.
5. Vascular and Respiratory Physiotherapy – Smith and Ball – Mosby.5th edition.
6. Physiotherapy in Intensive Care Unit – Mackenzie et al – Williams and Wilkins.2nd edition.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 484	Biostatistics	PC	3– 0 – 0	3

Course assessment Method*(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.*

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Units. All the questions including Q.No.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information on the importance of statistical tool in order to validate technique and technology in practice to physiotherapy

Unit –I

1. Meaning and Purpose of Statistics
   a. Definition, scope and limitations
2. Descriptive statistics
   a. Measure of Central Tendency, Measure of Dispersion, Skewness, Kurtosisand Probability

Unit –II

1. Theoretical Distributions
   a. Binomial, Poisson and normal distribution with its application, mean and variance
2. Test of Significance
   a. Chi-square test, Z-Test, T-Test and F-Test etc .with their application

Unit –III

1. Design and Sampling Survey
   a. One way ANOVA, Two way ANOVA, Basic Principles of design, Analysisof variance: CRD and RBD, concept of sample survey, its advantages and Basic sampling techniques
2. Multiple comparisons

a. Comparison between pairs of means, comparison between groupsof means, Trend comparisons and Mean comparison for factorial treatments

Unit –IV

1. Non-parametric statistics
   a. Sign test, run test, median test, Mann Whitney test and Wilcoxon test
2. Regression and Correlation
   a. Equation of the regression plan Y and X and X on Y, Least Square Method, Karl Pearson's Correlation Coefficient and Spearman's Rank Correlation etc.

BOOKS RECOMMENDED:

1. Methods in Biostatistics – Mahajan JP, 8th edition.
2. Statistics in Medicine-Colton, Little Brown & co publisher,6th edition.
3. Research for Physiotherapist: Project Design and Analysis-Hicks-Churchill Livingstone, 5th edition.
4. Biostatistics: The manual for Statistical methods for use in health and nutrition – KV Rao JP,2nd edition.
5. Research methods in Behavioural Sciences -Mohsin -Orient Publication.illustrated edition.
6. Statistics for Health Professionals – William C. Schefler.2nd edition.
7. Introduction to Biostatistics and research methods: A manual for students – Rao -PPS Sundar, 5th edition.
8. Teaching Health Statistics – L Wanga SK, 2nd edition.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 485	Rehabilitation Medicine including Orthotics and Prosthetics	PC	3– 0 – 0	3

Course assessment Method ***(Internal: 30; External: 70) Two minor test each of 20 marks, class performance measured through percentage of lecture attended (4 marks), assignments, quiz etc. (6 marks) and end semester examination of 70 marks.***

Instructions for Paper Setters

Nine questions are to be set by the examiner. Question no.1 will be compulsory and based on the entire syllabus (all the four Units). It will contain Seven Short Answer Type questions, each of two marks. Rests of the eight questions are to be given by setting two questions from each of the Four Units of the syllabus. A candidate is required to attempt other four questions by selecting one from each of the four Units. All the questions including Q.No.1 shall carry equal marks. Each question carries 14 marks.

Course Objectives & Course Outcomes

This course provides the student with information of practicing of appropriate professional relationship in multidisciplinary set up patient management and co-partnership basis, practicing the concept of protection of right of the community.

Unit –I

1. Conceptual framework of rehabilitation, definitions and various models of rehabilitation.
2. Physical restorative services.
3. Education of person with disabilities.
4. Vocational Rehabilitation.
5. Community Based Rehabilitation & out-reach programs to rehabilitate persons with disabilities living in rural area.
   a. Define community based and institution based rehabilitation.
   b. Describe the advantage and disadvantages of institution and community based rehabilitation.
6. Role of the voluntary sector in rehabilitation of the persons with disabilities.
7. Strategies for awareness, public education and information.
8. List the principles of health education, role of health education in rehabilitation services and methods of communication.
9. Outline selected National Health Programs.

Unit -II

1. Constitution and functions of Indian Association of Physical Therapy (IAP).
2. Functioning of the World Confederation of Physical Therapy (WCPT) and its various branches – special interest groups (brief) and the role of WCPT.
3. Role of World Health Organization.

Unit –III

1. Principles of Orthotics – types, indications, contra-indications, assessment (check out), uses and fitting region wise.
2. Fabrication of simple splints and self help devices for upper and lower extremity – indications and applications.
3. Principles of Prosthetics – types, indications, contra-indications, assessment (check out), uses and fitting – upper and lower extremity

Unit -IV

1. Definitions, Biomechanical Principles, Designing, Fabrication, Use, check-ups, Maintenance, Indications & Prescriptions of:

a. Walking Aids and crutches (all types)
b. Wheel Chairs
c. Splints
d. Spinal Supports, Collars, Belts Frames and Braces
e. Orthotic appliances: Below knee & elbow and above knee & elbow
f. Prosthesis: Below knee & elbow and above knee & elbow
g. Adaptive devices

BOOKS RECOMMENDED:

1. Atlas of Orthotic & Prosthetics-4th edition
2. Normal Human Locomotion, ALIMCO
3. Text book of rehabilitation- S. Sunder,3rd edition.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 600	Clinical Training	PC	0– 0 – 4	2

Course Assessment Methods (Internal: 100)

Course Objectives & Course Outcomes

Students will engage in clinical training in hospital based medical and physiotherapy departments/ settings to enhance their clinical skills and apply contemporary knowledge gaining during teaching sessions.

Course Code	Subject	Title	Teaching Hours /Week	
			L – T – P	Credits
BPT 601	Project Work	PC	0– 0 – 4	2

Course Assessment Methods (External: 100)

Course Objectives & Course Outcomes

As part of their requirement for the Bachelor Degree the student is required to undertake a research study under the guidance of Guide. Students have to undergo a project viva-voice by examining committee.

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BACHELOR OF PHYSIOTHERAPY

SIX MONTH COMPULSORY INTERNSHIP

S. No.	Subject	Teaching Hours/Week	
		Hours	Credits
1	Rotatory Internship	Minimum 24 hrs/Week (Total hrs=500hrs)	Qualifying

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