ABHILASHI UNIVERSITY

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BACHELOR OF PHYSIOTHERAPY COURSE

Duration: 4 years& 6 months

DURATION OF COURSE:

- BPT course will be a full time course.
- Duration will be four years followed by compulsory six months rotatory internship.
- This course shall be divided into four professional examinations namely BPT
    - First Professional B.P.T.
    - Second Professional B.P.T.
    - Third Professional B.P.T.
    - Fourth (Final) Professional B.P.T.
    - Internship

Admission criteria and qualifications:

A candidate seeking admission to first year BPT course should have passed senior secondary examination conducted by Boards/Councils/ Intermediate examination established by State/Central Governments or equivalent studies within India or abroad, with English as one of the subjects and Physics, Chemistry and Biology as optional subjects not less than 50%. The candidate should have completed 17 years of age on or before 31st day of December of the year of admission. The selection of students to the physiotherapy course shall be based on:

i) The candidate must appear for Abhilashi University competitive entrance examination and must have come in the merit list by securing not less than 40% marks in Physics, Chemistry and Biology taken together.
ii) The admission to the B.P.T. course shall be made on the terms & conditions prescribed in the Notification issued by the Government from time to time.

English shall be the medium of instruction for study and examination of the Bachelor of Physiotherapy degree course.

ATTENDANCE:

Every candidate should have attendance not less than 75% of total classesconducted in theory and 80% in practical in each calendar year calculated from the date of commencement of the term to the last working day as notified by the University, in each of the subjects prescribed to be eligible to appear for the University examination. Acandidate lacking in the prescribed attendance and progress in any subjects in theory or practical/clinical shall not be permitted to appear for the University examination in those subjects.

EXAMINATION & CRITERIA FOR PASSING:

- There shall be an annual university examination at the end of each academic year in the form of theory papers and practical examinations. The candidate shall be required to appear in every subject as specified in the course structure for each year.
- There shall be a provision of internal assessment of 20% marks in each subject of B.P.T. course in theory.
- The minimum number of marks to pass the examination shall be 50% in theory including Internal Assessment and 50% in practical / clinical in each subject.
- A candidate securing 75% or above marks in any of the subjects shall be declared to have passed with Distinction in that subject provided he/she has passed the examination in first attempt.
- A candidate who passes in one or more subjects shall be exempted from appearing in all subject at a subsequent examination, but the candidate must pass the examination in a maximum of four attempts, failing which he/she shall have to appear in all the subjects, of the next year examination.

DURATION OF EXAMINATION:

- Each theory paper shall be of 3 hours duration.

SUPPLEMENTARY EXAMINATION:

A candidate failing in a subject/ subjects will be required to appear in the university examination after 3 months in that subject/ subjects while attending classes of next year.

If the candidate fails in supplementary examination his/her session will be shifted by one professionalyear. The candidate will have to take admission in the previous year and pay the tuition fee for the academic year. He/she will have to appear in all the subjects in the examination.

Supplementary examination will be held not earlier than 3 months and later than 6 months from the date of annual University examination.

DEGREE:

The degree of B.P.T. course of the University shall be conferred on the candidates who have pursued the prescribed course of study for not less than four academic years and have passed examinations as prescribed under the relevant scheme and completed 6 months of compulsory rotatory internship.

Internship:

- There shall be six months of Internship after the final year examination for candidates declared to have passed the examination in all the subjects.
- During the internship candidate shall have to work full time average 7 hours per day (each working day) for 6 Calendar months.
- The Internship should be rotatory and cover clinical branches concerned with Physiotherapy such as Orthopedics, Cardiothoracic including ICU, Neurology & Neurosurgery, Pediatrics, General Medicine, General Surgery, both inpatient and outpatient services.

- Based on the attendance and work done during posting the Director/Principal/ head of institution/department shall issue '**Certificate of Satisfactory completion**' of training following which the University shall award the Bachelor of Physiotherapy Degree or declare the candidate eligible for the same.

SUBJECTS AND TEACHING SCHEDULE

Table I: FIRST YEAR BACHELOR OFPHYSIOTHERAPY OF PHYSIOTHERAPY (II BPT)
(0-12Months)

		Teaching hours		
Sr. No	**Name of the subject**	**Theory**	**Practical**	**Total**
1.	Anatomy	120	80	200
2.	Physiology	120	80	200
3.	Biochemistry	50	-	50
4.	Electrotherapy –I	100	100	200
5.	Exercise Therapy –I	100	100	200
6.	Computer Application		50	50
7.	English	50	-	50
8.	Clinical Education & Training	-	400	400
	TOTAL			**1000**

Table II: SECOND YEAR BACHELOR OF PHYSIOTHERAPY (II BPT)
(13-24Months)

		Teaching Hours		
Sr. No.	**Name of the subject**	**Theory**	**Practical**	**Total**
1.	Pharmacology	50	-	50
2.	Pathology& Microbiology	100	-	100
3	Exercise Therapy-II	150	150	300
4	Electrotherapy-II	150	150	300
5	Bio-mechanics	75	75	150
6	Psychology & Sociology	100	-	100
7	Clinical Education & Training	-	400	400
	TOTAL			**1400**

Table III: THIRD YEAR
BACHELOR OF PHYSIOTHERAPY (III BPT)
(25-36Months)

Sr. No.	Name of the Subject	Teaching Hours		
		Theory	**Practical**	**Total**
1.	Orthopedics	120	80	200
2.	General Medicine	120	80	200
3.	PT in Ortho-Condition	125	150	275
4.	PT in Medical Condition-I	125	150	275
5.	Research Methodology & Biostatics	50	-	50
6.	Clinical Education & Training	-	400	400
	TOTAL			***1400***

FOURTH YEAR
BACHELOR OF PHYSIOTHERAPY (IV BPT)
(37-48Months)

Sr. No.	Name of the subject		Teaching hours	
		Theory	**Practical**	**Total**
1.	General Surgery	90	60	150
2.	Neurology	90	60	150
3.	PT in Neurological Condition	100	100	200
4.	PT in Surgical Conditions	100	100	200
5.	Physiotherapy ethics, Administration&& Rehabilitation	100	70	170
6.	Applied therapeutics	60	60	130
7.	Clinical Education & Training	-	400	400
	TOTAL			**1400**

Table V: SCHEME OF EXAMINATION FOR I BPT

Table I: FIRST YEAR BACHELOR OF PHYSIOTHERAPY (I BPT)

Sr. No.	Subject Name	Subject code	Marks		Marks		Total
			Theory	Internal Assessment	Practical	Internal Assessment	
1	Anatomy	AUBPT-101	80	20	100	-	200
2	Physiology	AUBPT-102	80	20	100	--	200
3	Biochemistry	AUBPT-103	80	20	-		100
4	Electrotherapy –I	AUBPT-104	80	20	100	-	200
5	Exercise Therapy-II	AUBPT-105	80	20	100	-	200
6	English	AUBPT-106	40	10	-	-	50
7	Computer Application	----------	-	-	50	-	50
	Total						**1000**

Table II: SECOND YEAR BACHELOR OF PHYSIOTHERAPY (II BPT)

Sr. No	Name of the subject	Subject code	Marks				Total
			Theory	Internal Assessment	Practical	Internal Assessment	
1	Pathology& Microbiolog	AUBPT-201	80	20	-	-	100
2	Pharmacology	AUBPT-202	40	10	-	-	50
3	Exercise Therapy-II	AUBPT-203	80	20	100	-	200
4	Electrotherapy-II	AUBPT-204	80	20	100	-	200
5	Bio-mechanics	AUBPT-205	80	20	50	-	150
6	Sociology & Psychology	AUBPT-206	80	20	-	-	100
	TOTAL						**800**

Table III: THIRD YEAR BACHELOR OF PHYSIOTHERAPY (III BPT)

Sr. No.	**Name of the subject**		**Marks**				**Total**
		Subject code	**Theory**	Internal Assessment	**Practical**	**Internal Assessment**	
1	Orthopedics	AUBPT-301	80	20	100	-	200
2	General Medicine	AUBPT-302	80	20	100	-	200
3	PT in Ortho-Condition	AUBPT-303	80	20	100	-	200
4	PT in Medical Condition	AUBPT-304	80	20	100	-	200
5	Research Methodology & Biostatics	AUBPT-305	80	20	-	-	100
	TOTAL						**900**

Table IV: FOURTH YEAR BACHELOR OF PHYSIOTHERAPY (IV BPT)

Sr. No.	**Name of the subject**	**Subject code**	**Marks** **Theory**	Internal Assessment	**Practical**	**Internal Assessment**	**Total**
1.	General Surgery	AUBPT-401	80	20	100	-	200
2.	Neurology	AUBPT-402	80	20	100	-	200
3.	PT in neurological Conditio	AUBPT-404	80	20	100	-	200
4.	PT in Surgical Conditions	AUBPT-405	80	20	100	-	200
5.	Physiotherapy ethics, Administration & Rehabilitation	AUBPT-406	80	20	50	-	150
6.	Applied therapeutics	AUBPT-407	80	20	50	-	150
	TOTAL						**1100**

1ST Year Syllabus

BACHEOLAR OF PHYSIOTHERAPY

ANATOMY

M. Marks: 200
Theory: 100
Practical:100

Course description:
It is designed to provide students with the working knowledge of the structure of the human body which is essential foundation for their clinical studies. Studies are concerned with the topographical and functional anatomy of the limbs and thorax. Particular attention is paid to the muscles, bones and joints of the regions. The abdomen, pelvis, perineum, head and neck and central nervous system (CNS) are studies with particular reference to topics of importance to physiotherapists. The study of CNS includes detailed consideration of the control of motor function.

Theory –

1. **General introduction** **15hrs**
   - **a.** Histology

General Histology, study of the basic tissues of the body;
Microscope, Cell, Epithelium, Connective Tissue, Cartilage, Bone, Muscular tissue, Nerve Tissue – TS
& LS, Circulatory system – large sized artery, medium sized artery, large sized vein, lymphoid tissue, Skin and its appendages.

   b. Osteology –
      Theory of structure, function and growth,
      Fracture & repair of bones
      Physical study of all bones in the body
      Also general features and functions of the cartilage, tendon, ligaments, articular capsule, synovial membranes, burse, miscue, intra-articular cartilages.
      Classification of joints with their examples & specific features.
   c. Embryology- Development of muscles, bones, joints and nerves etc.

2. **Systems of the Human Body:** **40 Hrs**
   a. Cardio – Vascular System Mediastinum: Divisions and contents

Pericardium: Thoracic Wall: position, shape and parts of the heart; conducting System; blood Supply and nerve supply of the heart; names of the blood vessels and their distribution in the body – region wise.

b. Respiratory system

Outline of respiratory passages

Pleura and lungs: position, parts, relations, blood supply and nerve supply; Lungs – emphasize on bronchopulmonary segments.

Diaphragm: Origin, insertion, nerve supply and action, openings in the diaphragm.

Intercostal muscles and Accessory muscles of respiration: Origin, insertion, nerve supply and action.

c. Digestive System –Anatomy of the gastro intestinal tract with special emphasis on surface marking.
d. Urogenital System - Anatomy of Urinary System, male and female reproductive systems.
e. Endocrine System - The various endocrine glands with their structure, functions and neuro-regulation. Also role of hypothalamus.
f. Integuinentary System

3. **Neuro Anatomy20 hrs**

Organization of Central Nervous system - Spinal nerves and autonomic nervous system mainly pertaining to cardiovascular, respiratory and urogenital system

Cranial nerves
Peripheral nervous system
Peripheral nerve
Neuromuscular junction
Sensory end organs
Central Nervous System
Spinal segments and areas
Brain Stem
Cerebellum
Inferior colliculi
Superior Colliculi
Thalamus
Hypothalamus
Corpus striatum
Cerebral hemisphere
Lateral ventricles
Blood supply to brain

Basal Ganglia
The pyramidal system
Pons, medulla, extra pyramidal systems
Anatomical integration

4. Musculo Skeletal Anatomy - (All the topics to be taught in detail) 40 hrs

(A) Myology:

1. The fascia and muscles of upper limb.
2. The fascia and muscles of lower limb.
3. The fascia and muscles of trunk.
4. The fascia and muscles of head, neck and face.
5. Muscles of eye.

(B) Osteology & Artlirology:

1. General structure and classification of all bones of skeleton and their attachments.
2. Classification of joints.
3. Movements of Joints.
4. Factors permitting and limiting movements of joints.
5. Joints of Upper Limb.
6. Joints of Lower Limb.
7. Shoulder girdle
8. Pelvic Girdle
9. Joints of Head & Neck and T.M Joints.
10. Joints of Trunk.

5. Surface & Radiological Anatomy: 15 Hrs

Surface Anatomy of the body. Radiographic appearance of musculoskeletal system of upper limb, lower limb and spine.

PRACTICAL -

List of Practical / Demonstrations *

Topics

1. Surface anatomy: to study identify and mark the surface landmark on the human body.
2. To study the muscles of trunk, lower and upper extremities and face on a dissected human body.
3. To study the Bones of Human Body with special emphasis on origin and insertion of muscles & ligaments.

4. To study the anatomy of joints of upper and lower extremities and vertebral column on a dissected human body.
5. To study the anatomy of C.N.S. and P.N.S. on a dissected human body.
6. To study the gross anatomy of Respiratory, Digestive, Endocrine, Urinary and Genital system on a dissected human body.

PHYSIOLOGY

M. Marks: 200
Theory: 100
Practical:100

Subject Description

The course in Physiology over the first year is designed to give the student an in-depth knowledge of fundamental reactions of living organisms, particularly in the human body.

The major topics covered include the following: the cell; primary tissue; connective tissue; skin; muscle; nervous tissue; blood; lymphoid tissues; respiration; blood vessels; circulation; cardiac cycle; systemic circulation; sensory receptors; special senses; motor unit; spinal cord; control of movement; hypothalamic functions; gastrointestinal tract; kidneys; uterus; urinary tract; pregnancy; endocrine system.

Practical classes include hematology experiments, clinical examinations, and recommended demonstrations.

Section—I **GeneralIntroduction: 20hrs**

1. Cell Introduction: Outline of basic concepts of cell structure,functionsofcomponentsandtransportacross membrances.
2. Skin: Functions, blood of flow andtemperatureregulation.
3. Blood and Lymph: Cell renewal system, haemoglobin, erythrocyte granulocyte, lymphocyte, coagulation, regulation of hydrogen within concentration of body fluids, fluid distribution andexchange.

Section —II **Physiology of the *system of* the body: 45 hrs**

1. Digestion: Control of food and water intake and secretion and absorption movements of the alimentary canal.
2. Circulation: Cardio-vascular system, mechanicaland electro-physiological activity of the heart, regulation of heart, coronary circulation, hemodynamics,circulationthrough brain, skin and skeletal muscle.
3. Excretion:Renalfunctions includingformationofUrine &Micturition.
4. Respiration: Respiratory gases, pulmonary gas exchange, control and mechanics of breathing, hypoxia, asphyxia, dyspnoea, oxygen therapy andresuscitation.
5. EndocrineSystem:Outlineofvarioushormonesandtheir actions, pituitary gland, thyroid, parathyroid, adrenal glands &Gonads.

6. General Metabolism: Carbohydrate, Protein &Fat Metabolism.

Section — III **Neuro - Physiology:** **20 hrs**

1. Neuron: Properties and functions.
2. Action Potential.
3. Special properties of nerve trunks and tracts.
4. Motor units.
5. Reflex physiology.
6. Synapse and synaptic transmission.
7. Supraspinal control.
8. Cerebellum and basal ganglia.
9. Autonomic nervous system
10. Somatic sensation.
11. Pain
12. Taste, Olfaction, Auditory and Vision
13. Neuro Physiological Psychology

Section — IV **Muscle Physiology:** **15 hrs.**

1. Structure and function of Muscle tissue - skeletal and cardiac
2. Chemical processes involved in muscle contraction
3. Physlology Of muscle contraction.

Section—V **Physiology of exerciseandwork:** **20Hrs**

1. Neuromuscular activity, human movement, physiological mechanism in movement behavior, strength, endurance, analysis of movement.

2. Circulatory and respiratory response to exercise including effects on the heart blood circulation body fluid changes, pulmonary -ventilation, gas exchange and transport, etc.
3. Effects of exercise and work on other body functions.
4. Metabolic and environmental aspects of exercise and work - metabolism, energy requirement, efficiency of muscular work, nutritional aspects, heat and body temperature regulation & environmental factors.
5. Effects of Exercise training - endurance, fatigue and recovery.
6. Fitness and health - age sex, body type, race, stress and medical aspects of exercise.

PRACTICAL

To study the following physiological Phenomena: Identification of blood cells and different counts.

1. W.B.C. Count.
2. R.B.C. Count.
3. Haemoglobin percentage and color index.
4. E.S.R. and Blood groups.
5. Bleeding time and clotting time.
6. Respiratory efficiency tests.
7. Artificial respiration and C.P.R.
8. Pulse rate, heart rate and measurement of Blood I'ressure.
9. Respiratory rate and Ausculation.
10. Normal E.C.G.
11. Reflexes - Superficial Deep.
12. Sensations.
13. Tests for functions of Cerebrum. Tests for functions of Cerebellum

REFERENCE BOOKS:-

- Essentials of Medical Physiology – K.Sembulingam ,Prema Sembulingam
- A Textbook of practical Physiology-C.L.Ghai
- Textbook of Physiology - Guyton & Hall
- A Textbook of Human Physiology – A.K.Jain
- Concise Medical Physiology-Chaudhuri
- Human Physiology: Dr.C.C.Chatterjee

BIOCHEMISTRY

M. Marks: 100
Theory: 100
Practical:0

Theory

1. Nutrition -
Introduction, Importance of nutrition Calorific values, Respiratory quotient – Definition, and its significance Energy requirement of a person - Basal metabolic rate: Definition,
Normal values, factor affecting BMR Special dynamic action of food.
Physical activities - Energy expenditure for various activities. Calculation of energy requirement of a person
Balanced diet
Recommended dietary allowances
Role of carbohydrates in diet: Digestible carbohydrates and dietary fibers Role of lipids in diet
Role of proteins in diet: Quality of proteins - Biological value, net protein utilization, Nutritional aspects of proteins-essential and non - essential amino acids. Nitrogen balance, Nutritional disorders.

2. Carbohydrate Chemistry -
Definition, general classification with examples, Glycosidic bond
Structures, composition, sources, properties and functions of Monosaccharides, Disaccharides, Oligosaccharides and Polysaccharides.Glycosaminoglycans (mucopolysaccharides)

3. Lipid Chemistry -
Definition, general classification
Definition, classification, properties and functions of Fatty acids, Triacylglycerol,
Phospholipids, Cholesterol
Essential fatty acids and their importance
Lipoproteins: Definition, classification, properties, Sources and function Ketone bodies

4. Amino-acid Chemistry -
Amino acid chemistry: Definition, Classification, Peptide bonds
Peptides: Definition, Biologically important peptides
Protein chemistry: Definition, Classification, Functions of proteins,

5. Enzymes -
Definition, Active site, Cofactor (Coenzyme, Activator), Proenzyme. Classification with examples, Factors effecting enzyme activity, Enzyme inhibition and significance,
Isoenzymes, Diagnostic enzymology (clinical significance of enzymes)

6. Nucleotide and Nucleic acid Chemistry -
Nucleotide chemistry: Nucleotide composition, functions of free nucleotides in body.
Nucleic acid (DNA and RNA) chemistry: Difference between DNA and RNA, Structure of DNA (Watson and Crick model), Functions of DNA. Structure and functions of tRNA,
rRNA, mRNA.

7. Digestion and Absorption -
General characteristics of digestion and absorption, Digestion and absorption of carbohydrates, proteins and lipids. Disorders of digestion and absorption – Lactose intolerance,

8. Carbohydrate Metabolism -
Introduction, Glycolysis – Aerobic, Anaerobic Citric acid cycle, Substrate level phosphorylation.
Glycogen metabolism – Glycogenesis, Glycogenolysis, Metabolic disorders glycogen,
Gluconeogenesis, Cori cycle Hormonal regulation of glucose, Glycosuria, Diabetes mellitus.

9. Lipid Metabolism -
Introduction to lipid metabolism, Lipolysis, Oxidation of fatty acids -oxidation of fatty acids,
Lipogenesis - Denovo synthesis of fatty acids, chain elongation, desaturation, triacylglycerol synthesis, fat metabolism in adipose tissues
Ketone body metabolism: Ketone body formation (ketogenesis), utilization (ketolysis), ketosis, Rothera's test.
Cholesterol metabolism: synthesis, degradation, cholesterol transport
Hypercholesterolemia and its effects (atherosclerosis and coronary heart diseases)
Hypocholesterolemic agents, Common hyperlipoproteinemia, Fatty liver

10. Amino acid and Protein Metabolism -
Catabolism of amino acids - Introduction, transamination, deamination, Fate of ammonia, transport of ammonia, Urea cycle
Specialized products formed from amino acids - from glycine, arginine, methionine, phenylalanine and tyrosine.

11. Vitamins -
Definition, classification according to solubility,
Individual vitamins - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity.

12. Mineral Metabolism-
Definition, Sources, RDA, Digestion, absorption, transport, excretion, functions, disorder of Individual minerals - Calcium, phosphate, iron, Magnesium, fluoride, selenium, molybdenum, copper. Phosphate, calcium and iron in detail.

13. Cell Biology -
Introduction, Cell structure, Cell membrane structure and function, various types of absorption.Intracellular organelles and their functions, briefly on cytoskeleton.

14. Muscle Contraction -
Contractile elements in muscle, briefly on the process of muscle contraction, Energy for muscle contraction.

15. Biochemistry of Connective tissue -
Introduction, various connective tissue proteins: Collagen, elastin - Structure and associated disorders. Glycoproteins, Proteoglycans.

16. Hormone Action -
Definition, classification, Mechanism of hormone action. Receptors, signal transduction, second messengers and cell function.

17. Acid-Base balance -
Acids, bases and buffers, pH. Buffer systems of the body, bicarbonate buffer system Role of lungs and kidneys in acid base balance, Acid base imbalance.

18. Water balance–
Water distribution in the body, Body water, water turnover, Regulation of water balance:role of ADH and thirst centre.

19. Electrolyte balance -
Osmolarity.Distribution of electrolytes. Electrolyte balance: Role of aldosterone, rennin angiotensin system and ANF.

20. Clinical Biochemistry -
Normal levels of blood and urine constituents, Relevance of blood and urine levels of Glucose, Urea, Uric acid, Creatinine, Calcium, Phosphates, pH and Bicarbonate. Liver function tests, Renal function tests.

Suggested Readings
1. Murray RK, Garnner K, Mayes PA, Rodwell VW: Harper‟s Biochemistry. 26th Ed, Appleton & Lange, Connecticut, 1993.

2. Montgomery, Conway, Spector, Chappell: Biochemistry - A Case Oriented Approach. 6th Ed, Mosby Publishers, Missouri, 1996.

3. Devlin TM: Textbook of Biochemistry with clinical correlation. 5th Ed, Wiley-Liss, New York, 2002.
4. Nelson DL, Cox MM: Lehinger Principles of Biochemistry. 4th Ed, W.H.Freeman, New York, 2005.

5. Apps DK, Cohen BB, Steel CM: Biochemistry – A concise textbook for medical students, 5th Ed, ELBS with BailliereTindall, London, 1992.

6. Deb AC: Fundamentals of Biochemistry. 8th Ed, New Central Book Agency, Kolkata, 2004.

7. Satyanarayana U, Chakrapani U: Biochemistry. 3rd Ed, Arunabhasen Books & Allied (P) Ltd, Kolkata, 2006.

8. Dandekar SP: Prep manual for Under Graduate Medical Biochemistry. 2nd Ed, Urban &Schwarzenberg P Ltd, New Delhi, 2002.

9. Vasudevan DM, Sreekumari S: Textbook of Biochemistry for Medical Students. 5th Ed, Jaypee Brothers, New Delhi, 2007.

10. Chatterjee MN &Shinde R: Textbook of Biochemistry. 2nd Ed, Jaypee Brothers, New Delhi, 1995.

Exercise Therapy (I)

M. Marks: 200
Theory: 100
Practical: 100

Course Description-
In this course, the students will learn the principles and effects of exercise as a therapeutic modality and will learn the techniques in the restoration of physical functions.

Section – I **40hrs**

1. Introduction to Exercise therapy, Principles, techniques and general areas of its application, Assessment & its importance,
2. **Mechanics:** Force, Gravity, line of gravity, center of gravity in human body, Base, Equilibrium, Axes and Planes, mechanica1 principles of Lever, order of lever, examples in human body, Pendulum, Spring.
3. Descriptions of fundamental starting positions and derive position including joint positions, muscle work, stability, effects and uses.
4. Introduction to Movements including analysis of joint motion, muscle work and neuromuscular coordination.
5. **Classification of movements**: Describe the types, technique of application, indications, Contraindications, effects and uses of the following:
    a. Active Movement
    b. Relaxed passive movements, basic knowledge of classification of relaxed passive movements, definition, technique, effects and uses of relaxed passive movements
    c. Active assisted movement
    d. Resisted exercises- Techniques and types of resistance, Oxford method, Delorm method, Mc queen method, Zinoviff Method, DAPRE Method, SAID Principle
    e. **Suspension Therapy**: To study the principles, techniques of application indication at various joints of the upper limbs and lower limbs, Contraindication, Indications, Precautions, effects and uses
    f. **Assisted Exercises:** Technique and uses
    g. **Free exercises**: Classification, technique, Effects of frequent exercises on various systems
    h. **Posture:** Types, factors responsible for good posture, factors for poor posture, principles of development of good posture
    i. Bed Rest Complications

Section – II

Manual Muscle Testing **10 hrs**

a) Principles and application techniques of Manual muscle testing.
b) Testing position, procedure and grading of muscles of the upper limb, lower limb and trunk etc.

Section – III

Goniometry: 10 hrs

Goniometers and its types

a) Principles, techniques and application of Goniometry.
b) Testing position, procedure and measurement of R.O.M. of the joints of upper limbs, lower limbs and trunk
c) Causes of restriction of joint movement, prevention of restriction of joint range of motion etc

Section – IV

Soft Tissue Manipulation (Therapeutic Massage) **20hrs**

a) History, various types of soft tissue manipulation techniques.
b) Physiological effects of soft tissue manipulation on the following systems of the body; Circulatory, Nervous, Musculoskeletal, Excretory, Respiratory, Integumentary system and Metabolism.
c) Classify, define and describe: - effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.
d) Preparation of patient: Therapeutic Effects, uses, indications and contraindications of the above manipulation

Section – V

Relaxation & Therapeutic Gymnasium 10 hrs

Relaxation

1. Describe relaxation, muscle fatigue, muscle spasm and tension (mental & physical).
2. Factors contributing to fatigue & tension.
3. Techniques of relaxation (local and general)
4. Effects, uses & clinical application.
5. Indication & contraindication.

Therapeutic Gymnasium

Setup of a gymnasium & its importancevarious equipments in the gymnasium
Operational skills, effects & uses of each equipment

Section - VI Motor Learning: 10 hrs

Introduction to motor learning:

i. Classification ofmotor skills.
ii. Measurement of motorperformance.

Introduction to motorcontrol

i. Theories of motorcontrol.
ii. Applications.

Learning Environment

i. Learning of Skill.
ii. Instruction & augmented feedback.
iii. Practice conditions.

Exercise Therapy - I (Practical)

1) To practice the entire soft tissue manipulative techniques region wise – upper limb, lower limb, neck, back and face.
2) To practice the measurement of ROM of joints – upper limb, lower limb & trunk.
3) To practice the grading of muscle strength region wise – upper limb, lower limb and trunk.
4) To study the position of joints, muscle work, and stability of various fundamental and derived positions.
5) To study the different types of muscle contraction, muscle work, group action of muscles and coordinated movements.
6) To practice the various types of suspension therapy and its application on various parts of body – region wise.
7) To study & practice local & general relaxation techniques.
8) To study the structure & function along with application of various equipment in a Gymnasium.

Electrotherapy (I)

M. Marks: 200
Theory: 100
Practical: 100

Course Description -
In this course the student will learn the Principles, Techniques, Effects, Indication,Contra-Indication and the dosage parameter for various indications of electro therapeutic modalities in the restoration of physical function. The objective of this course is that after 240hrs of lectures, demonstration, practical and clinics the student will be able to list the indications, contra indications, dosages of electro therapy modalities, demonstrates the different techniques, and describe their effects on various conditions.

Section I- **20 hrs**

1. Electrical Fundamentals

Physical Principles-Structure and properties of matter" molecular atom, proton, neutron, electron, ion, etc. Electrical Energy: Nature of electricity-Current Static Electricity Current - Electric potentials generated by cell-Ohm's Law, Joule's Law.

2. Magnetic Energy: Nature and property of a magnet, magnetic induction snow rule, Mexwel corkscrew rule, Electromagnetic induction, Principle of working of choke coil-transformer-rectification of A.C to D.C. Metal Oxide Rectifier, Semi-conductor-Diode and Triode.

3. Valves-Principle working-condenser-principle-Details of charging and discharging, etc. Transistors, measurement of current intensity, EMS and power-moving coil millimeter and voltmeter.

Section II- **5 hrs**

Electrical supply:

a) Brief outline of main supply of electric current.
b) Dangers – short circuits, electric shocks.
c) Precautions – safety devices, earthling, fuses etc.
d) First aid & initial management of electric shock.

Section III - **20 hrs**

Low Frequency Currents:

a. Introduction to direct, alternating & modified currents.

b. Production of direct current – Physiological and therapeutic effects of constant current, anodal and cathodal Galvanism, Ionization and their application in various conditions.
c.Iontophoresis – Principles of clinical application, indication, contraindication, precaution, operational skills of equipment & patient preparation.
d. Modified direct current – various pulses, duration and frequency and their effect on Nerve and Muscle tissue. Production of interrupted and surged current & their effects
e. Modified direct current – Physiological and therapeutic effects, principles of clinical application, indications, contra indications, precautions, operational skills of equipment & patient preparation.
f. High Voltage Pulsed Galvanic Stimulation, Diadynamic Currents
g. Transcutaneous Electrical Nerve Stimulations (TENS):
a) Types of Low Frequency, pulse widths, frequencies & intensities used as TENS applications.
b) Theories of pain relief by TENS.
c) Principle of clinical application effects & uses, indications, contraindications, precautions, operational skills of equipment & patient preparation.

Section IV- **20 hrs**

Electrical Reactions and Electro – diagnostic tests: 10 hrs
- Electrical Stimuli and normal behavior of Nerve and muscle tissue.
- Types of lesion and development of reaction of degeneration.
- Faradic – Intermittent direct current test.
- S.D. Curve and its application.
- Chronaxie, Rheobase, F.G.Testetc

Section V- **20 hrs**

Infra red rays – Wavelength, frequency, types & sources of IRR generation, techniques of irradiation, physiological & therapeutic effects, indications, contraindications, precautions, operational skills of equipment & patient preparation.

Ultraviolet rays (UVR):
a) Wavelength, frequency, types & sources of UVR generation, techniques of irradiation, physiological & therapeutic effects, indications, contraindications, precautions, operational skills of equipment & patient preparation.
b) Dosimetry of UVR.

Section VI - **10 hrs**
Superficial heat - Paraffin wax bath, moist heat, electrical heating pads, Contrast bath, Whirl pool bath, Fluido therapy

a) Mechanism of production.
b) Mode of heat transfer.
c) Physiological & therapeutic effects.
d) Indications, contraindications, precautions, operational skills of equipment & patient preparation.

Electrotherapy I - (Practical)

1. To study the basic operation of electric supply to the equipment & safety devices.
2. To experience sensory and motor stimulation of nerves and muscles by various types of low frequency currents on self.
3. To locate and stimulate different motor points region wise, including the upper & lower limb, trunk
4. Therapeutic application of different low frequency currents Faradic foot bath, Faradism under pressure, Ionotophoresis.
5. To study the reactions of degeneration of nerves, to plot strength duration curves.
6. To find chronaxie and Rheobase.
7. To study a hydrocollator unit, its operations and therapeutic application of Hot packs –region wise.
8. To study the various types of Infrared lamps and their application to body region wise.
9. To study a paraffin wax bath unit, its operation and different methods of application – region wise.
10. To study the different types of Ultra violet units, their operation, and assessment of test dose and application of U.V.R. – region wise.
11. To study a TENS Stimulator, its operation and application – region wise.
12. To study various forms of therapeutic cold application region wise including – ice, cold packs, vapocoolant sprays, etc.

COMPUTER APPLICATIONS

M. Marks: 50
Theory: 0
Practical:50

Note : Only Practical examination will be conducted for this paper.

Basic computers and information science

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

Topics to be covered under the subject are as follows:

- To study the various components of a personnel computer.
- To have working knowledge of various hardware and software.
- To have working knowledge of Common Operating Systems.
- To practice the operational skills of common computer applications, including work processing and spread sheet software.
- To have a basic knowledge of utility of multi-media.
- To learn skills of web surfing - For literature, researches relevant to the field of medicine.

English

M. Marks: 50
Theory: 50
Practical: 0

Course Description: The Course is designed to enable students to enhance ability to comprehend spoken and written English (and use English) required for effective communication in their professional work. Students will practice their skills in verbal and written English during clinical and classroom experiences.

Unit	Time (Hrs)	Learning Objectives	Content	Teaching Learning activities	Assessment methods
1.	10	Speak and write grammatically correct English	❖ Review of Grammar ❖ Remedial study of grammar ❖ Building Vocabulary ❖ Phonetics ❖ PublicSpeaking	-Demonstrateuse of dictionary -Class-room conversation -*Exercise onuse* Of Grammar -practice in public speaking	Objective type -Fill inthe blanks -Para Phrasing
11.	10	Develop ability to read, understand and express meaningfully, the prescribed text.	Read and comprehend passages NoteMaking	Exercise on: – Reading – Summarizing – Comprehension	Short Answers EssayTypes
III	10	Developwriting skills	Variousformsof composition — Letter writing – Precisewriting – Noticewriting -anecdotal records –Dairywriting	• Exercise on writing: — Letter writing —Precis -Diary –Healthproblems –Storywriting –Resume /CV	Assessment of the skills based on the check list

			— Report onhealth	– Discussion	
IV	10	• Develop skillin spoken English	• SpokenEnglish - Oral report - Discussion - Debate -Telephonic conversation	• Exercise on : — Debating -participating in seminar panel symposium, Telephonic conversation	Assessment of the skills based on the check list
V	10	• Develop skill in listening comprehension	• Listening Comprehension - Media, audio, video. speeches etc.	• Exercise on: — Listening to audio, video,tapes and identify thekey points.	Assessment of the skills based on the check list

BACHELOR OF PHYSIOTHERAPY (BPT) SECOND YEAR

PATHOLOGY & MICROBIOLOGY

M. Marks: 200
Theory: 100
Practical:100

Pathology –
Subject Description
This subject follows the basic subjects of Anatomy, Physiology and Biochemistry and it forms a vital link between preclinical subjects and clinical subjects. Pathology involves the study of causes and mechanisms of diseases. Microbiology involves the study of common organisms causing diseases including nosocomial infections and precautionary measures to protect one from acquiring infections. The knowledge and understanding of Microbiology & Pathology of diseases is essential to institute appropriate treatment or suggest preventive measures to the patient.
Particular effort is made in this course to avoid burdening the student.

Theory – General Pathology

1. Introduction to Pathology.

2. Cell injuries -
   Aetiology and Pathogenesis with a brief recall of important aspects of normal cell structure. Reversible cell injury: Types, Sequential changes, Cellular swellings, vacuolation, Hyaline changes, Mucoidchanges.Irreversible cell injury: Types of Necrosis & Gangrene, Autolysis. Pathologic calcification: Dystrophic and Metastatic.Intracellular
   Accumulations - Fatty changes, Protein accumulations, Glycogen accumulations,
   Pigments - Melanin / Hemosiderin.
   Extra cellular accumulations: Amyloidosis - Classification, Pathogenesis, Pathologyincluding special stains.

3. Inflammation and Repair -

Acute inflammation: features, causes, vascular and cellular events.

Inflammatory cells and Mediators. Chronic inflammation: Causes, Types, Classification nonspecific and granulomatous with examples.

Repair, Wound healing by primary and secondary union, factors promoting and delaying the process.

Healing in specific site including bone healing.

4. Immunopathology -

Immune system: General concepts.

Hypersensitivity: type and examples, antibody and cell mediated tissue injury with examples. Secondary immunodeficiency including HIV infection. Auto-immune disorders: Basic concepts and classification, SLE.

AIDS-Aetiology, Modes of transmission, Diagnostic procedures, handling of infected material and health education.

5. Infectious diseases -

Mycobacterial diseases: Tuberculosis, Leprosy and Syphilis.

Bacterial disease: Pyogenic, Diphtheria, Gram negative infection, Bacillary dysentery.

Viral diseases: Poliomyelitis, Herpes, Rabies, Measles, Rickttsia, Chlamydial infection,

HIV infection.

Fungal disease and opportunistic infections.

Parasitic diseases: Malaria, Filaria, Amoebiasis, Kala-azar, Cysticercosis, Hydatid cyst.

6. Circulatory Disturbances -

Hyperemia/Ischemia and Haemorrhage Edema: Pathogenesis and types. Chronic venous congestion: Lung, Liver, Spleen, Systemic Pathology Thrombosis and Embolism:

Formation, Fate and Effects.

Infarction: Types, Common sites.

Shock: Pathogenesis, types, morphologic changes.

7. Growth Disturbances and Neoplasia

Atrophy, Hypertrophy, Hyperplasia, Aplasia, Hypoplasia, Metaplasia, Malformation,agenesis, dysplasia.

Precancerous lesions.

Neoplasia: Definition, classification, Biological behaviour: Benign and Malignant, Carcinoma and Sarcoma.

Malignant Neoplasia: Grades and Stages, Local & Distant spread.

Carcinogenesis: Environmental carcinogens, chemical, viral, occupational. Heredity and cellular oncogenes and prevention of cancer.

Benign & Malignant epithelial tumoursEg. Squamous papilloma, Squamous cell carcinoma, malignant melanoma. Benign & Malignant mesenchymaltumoursEg:

Fibroma, Lipoma, Neurofibroma, Fibrosarcoma, Liposarcoma, Rhabdo-myosarcoma,

Teratoma.

8. Nutritional Disorders -

Protein energy malnutrition: Marasmus, Kwashiorkor, and Vitamin deficiency disorders, classification with specific examples.

9. Genetic Disorders -

Basic concepts of genetic disorders and some common examples and congenital malformation.

Systemic pathology

10. Hematology -

Constituents of blood and bone marrow, Regulation of hematopoiesis. Anemia: Classification, clinical features & lab diagnosis.
Nutritional anemias: Iron deficiency anemia, Folic acid,Vit. B 12 deficiency anemia including pernicious anemia. Hemolytic Anaemias: Classification and Investigations. Hereditary hemolytic
anaemias: Thalessemia, Sickle cell anemia, Spherocytosis and Enzyme deficiencies.
Acquired hemolytic anaemias
i. Alloimmune, Autoimmune
ii. Drug induced, Microangiopathic Pancytopenia - Aplastic anemia.
Hemostatic disorders, Vascular and Platelet disorders & lab diagnosis. Coagulopathies –
(i) Inherited (ii) Acquired with lab diagnosis.
Leukocytic disorders: Leukocytosis, Leukopenis, Leukemoid reaction.
Leukemia: Classification, clinical manifestation, pathology and Diagnosis. Multiple myeloma and disproteinemias.
Blood transfusion; Grouping and cross matching, untoward reactions, transmissible infections including HIV & hepatitis, Blood-components & plasma-pheresis.

11. Respiratory System

Pneumonia, Bronchitis, Bronchiectasis, Asthma, Tuberculosis, Carcinoma of lungs, Occupational lung diseases

12. Cardiovascular Pathology

Congenital Heart disease: Atrial septal defect, Ventricular septal defect, Fallot's tetralogy, Patentductusarteriosus.
Endocarditis.Rheumatic Heart disease.
Vascular diseases: Atherosclerosis, monckeberg's medial calcification, Aneurysm and Arteritis and tumours of Blood vessels.
Ischemic heart Disease: Myocardial infarction. Hypertension and hypertensive heart Disease.

13. Alimentary tract:

Oral Pathology: Ulcers, leukoplakia, Carcinoma, oral cavity diseases and tumour of salivary gland & esophagus and precancerous lesions, Esophagus inflammatory, functional disorders and tumours.
Stomach: Gastritis, Ulcer &Tumours.
Tumours and tumour like condition of the small and large Intestine: Polyps, carcinoid, carcinoma, Lymphoma.
Pancreatitis and pancreatic tumours: i) Exocrine, ii) Endocrine Salivary gland tumours : Mixed, Warthin's

14. Hepato – biliary pathology. Jaundice: Types, aetio-pathogenesis and diagnosis. Hepatitis:

Acute, Chronic, neonatal.
Alcoholic liver disease

Cirrhosis: Postnecrotic, Alcoholic, Metabolic and Portal hypertension Liver abscesses; Pyogenic, parasitic and Amoebic. Tumours of Liver

15. Lymphatic System

Diseases of the gall bladder: Cholecystitis, Cholelithiasis, Carcinoma. Lymphadenitis – Non-specific and granulomatous.Causes of Lymph Node enlargements. Reactive Hyperplasia,
Primary Tumours - Hodgkin's and Non hodgkin's Lymphomas, Metastatic Tumours.
Causes of Splenic Enlargements.

16. Musculoskeletal System

Osteomyelitis, acute, chronic, tuberculous, mycetoma
Metabolic diseases: Rickets/Osteomalacia, osteoporosis, Hyperparathyroidism, Paget's disease.
Tumours Classification: Benign, Malignant, Metastatic and synovial sarcoma. Arthritis:
Suppurative, Rheumatoid.Osteoarthritis, Gout, Tuberculous.

17. Endocrine pathology

Diabetes Mellitus: Types, Pathogenesis, Pathology, Laboratory diagnosis Non-neoplastic lesions of Thyroid: Iodine deficiency goiter, autoimmune Thyroiditis, Thyrotoxicosis, myxedema,
Hashimoto's thyroiditis.
Tumours of Thyroid: Adenoma, Carcinoma: Papillary, Follicular, Medullary, Anaplastic. Adrenal diseases: cortical hyperplasia, atrophy, tuberculosis, tumours of cortex and medulla.

18. Neuropathology

Inflammations and Infections: TB Meningitis, Pyogenic Meningitis, viral meningitis and Brain Abscess
Tuberculosis, Cysticercosis
CNS Tumors, Astrocytoma, Neuroblastoma, Meningioma, Medulloblastoma

19. Dermatopathology

Skin tumors:Squamos cell carcinoma, Basal cell carcinoma, Melanoma

Practical

Demonstration of Slides – The students may be demonstrated the common histopathological, hematological and cytological slides and specimens and charts and their interpretations.

MICROBIOLOGY

1. Immunology: Brief description of immune system, immunity, immune responses & immune deficiency Immunology, Hypersensitivity disorders

2. Infectious diseases: Brief description of classification of microorganisms, identification, Sterilization and disinfections with special reference to principles of antisepsis and prevention of communicable diseases in clinical practice

3. Brief description of identification of infectious diseases; principles of prevention of infectious diseases caused by common pathogens - streptococci, staphylococci, gonococci, Meningococci, salmonella, V. cholerae, E. coli, shigella, tetanus, Diphtheria, M. leprae, M. tuberculosis, Poliomyelitis, Rabies, Malaria, Amoebiasis, Helminthiasis, Scabies, ringworm, candidiasis

Suggested Readings:

S.No.	Author	Title	Publisher
1	Chakraborty, P.	Textbook of Microbiology	NCB, Calcutta
2	Ananth Narayan,	Text Book of Microbiology	Orient Longman, Madras
3	Chatterjee, K. D.	Parasitology: Protozoology and helminthology	Chatterjee, Calcutta
4	Cotran, Ramzi S	Pathologic Basis of Disease	W. B. Saunders, Singapo
5	Vinay Kumar	Basic Pathology	Harcourt
6	Nagalotimath, S.J.	Textbook of Pathology	CBS, New Delhi
7	Talib, V. H.	Essential Parasitology	Mehta, New Delhi

Pharmacology

M. Marks: 50
Theory: 50
Practical: 0

Course Description -
This course introduces the student to basic pharmacology of common drugs used, their importance in the overall treatment including Physiotherapy. The student after completing the course will be able to understand the general principles of drug action and the handling of drugs by the body. The student will be aware of the contribution of both drug and physiotherapy factors in the outcome of treatment.

1. General action of drugs.
2. Drug allergy and idiosyncrasy
3. Drug toxicity.
4. Metabolic fate of drug.
5. Methods of administration.
6. Chemical character of drugs.
7. Common Drugs acting on Central nervous system, Peripheral nervous system, neuromuscular junction and muscles.
8. Common Drugs acting on cardio-respiratory system.
9. Common Antibiotics & Chemotherapeutic agents.
10. Hormones, Vitamins and drugs affecting endocrine functions.

Exercise Therapy (II)

M. Marks: 200
Theory: 100
Practical: 100

Course Description-
In this course, the students will learn the principles and effects of exercise as a therapeutic modality and will learn the techniques in the restoration of physical functions.

Section - I
Therapeutic Exercises
1. Principle, classification, techniques, physiological & therapeutic effects, indications &contraindications of therapeutic exercises.
2. Assessment & evaluation of a patient (region wise) to plan a therapeutic exercise program.
3. **Joint Mobility** – Etiogenesis of Joint stiffness, general techniques of mobilization, effects, indications, contraindications & precautions.
4. **Muscle Insufficiency** – Etiogenesis of muscle insufficiency (strength, tone, power, Endurance& volume), general techniques of strengthening, effects, indication, Contraindications& precautions.
5. **Neuromuscular Inco-ordination** – Review normal neuromuscular coordination, Etiogenesis of neuromuscular in co-ordination & general therapeutic techniques, effects, indications, contraindications & precautions.
6. **Functional re-education** – General therapeutic techniques to re-educate ADL function.

Section – II
Posture, Balance, Gait:
1. Normal Posture – Overview of the mechanism of normal posture.
2. Abnormal Posture – Assessment, Types, etiogenesis, management, including therapeutic exercises.
3. Static and Dynamic Balance – Assessment & management including therapeutic exercises.
4. Gait – Overview of normal gait & its components.
5. Gait deviations - Assessment, Types, etiogenesis, management, including therapeutic exercises.
6. Types of walking aids, indications, effects & various training techniques

Section – III

Hydrotherapy:

1. Basic principles of fluid mechanics, as they relate to hydrotherapy.
2. Physiological & therapeutic effects of hydrotherapy, including joint mobility muscle Strengthening & wound care etc.
3. Types of Hydrotherapy equipment, indications, contraindications, operation skills & patient preparation.

Section – IV

Special Techniques:

1. Introduction to special mobilization & manipulation techniques, effects, indications &contraindications
2. Conceptual framework, principle of Proprioceptive Neuromuscular Facilitation (PNF) techniques, including indications, therapeutic effects and precautions.
3. Principles of traction, physiological & therapeutic effects classification, types, indications, contraindications, techniques of application, operational skills & precautions.
4. Review normal breathing mechanism, types, techniques, indications, contraindications, therapeutic effects & precautions of breathing exercises.
5. Group Therapy – Types, advantages & disadvantages.
6. Exercises for the normal person - Importance and effects of exercise to maintain optimal health & its role in the prevention of diseases. Types, advantages disadvantages, indications, contraindications precautions for all age groups.
7. Introduction to Yoga — Conceptual framework, various “asanas” the body — mind relationship effects & precautions.

Exercise Therapy – II (Practical)

1. To practice assessment & evaluative procedures, including motor, sensory, Neuromotor coordination, vital capacity, limb length & higher functions.
2. To study & practice the various techniques of mobilization of joints region wise.
3. To study & practice the various techniques of progressive strengthening exercises of muscles region wise.
4. To study & practice the use of various ambulation aids in gait training.
5. To assess & evaluate ADL’s and practice various training techniques.
6. To study & practice Mat Exercises.
7. To assess & evaluate normal & abnormal posture & practice various corrective techniques.
8. To assess & evaluate equilibrium / balance & practice various techniques to improve balance.

9. To study the structure & functions of hydrotherapy equipments& their applications.
10. To study & practice various traction techniques, including manual, mechanical & electrical procedures.
11. To study & practice various group exercise therapies.
12. To practice & experience effects of basic Yoga “asanas”.
13. To study, plan & Practice exercise programmes for normal persons of various age groups.

Suggested Readings:

S. No.	Author	Title	Publisher	Year	Vol.
1	Hollis, M. and Cook, P.F.	Practical Exercise Therapy	Blackwell, Oxford	1999	
2	Gardiner, Dena M.	Principles of Exercise Therapy	CBS, New Delhi	1999	
3	Lippert, Lynn	Clinical Kinesiology for Physical Therapy	Jaypee, New Delhi	1996	
4	Paliarulo, M. A.	Introduction to Physical Therapy	Mosby, London	2001	
5	Jones and Barker,	Human Movement Explained	Butter worth- Heine	2000	
6	Thomson, Ann	Tidy’s Physiotherapy	Varghese, Mumbai	1991	
7	Hislop, H.J. and Montgomery, J.	Daniels and Worthingham’s Muscle Testing: Techniques of Manual Examination	W.B.Saunders, Philadelphia	2002	

8	Norkin	Measurement of Joint Motion			
9	Kisner, C. and Kolby, L.A.	Therapeutic Exercise Foundation and Technique	Jaypee, New Delhi	1996	
10	Holey, E. and Cook, E.	Therapeutic Massage	Harcourt, Singapore	1998	
11	Bates, Andrea and Hanson, Norm	Aquatic Exercise Therapy	W.B.Saunders, Philedelphia	1996	

Electrotherapy (II)

M. Marks: 200
Theory: 100
Practical:100

Course Description -
In this course the student will learn the Principles, Techniques, and Effects, Indication,Contra-Indication and the dosage parameter for various indications of electro therapeutic modalities in the restoration of physical function. The objective of this course is that after 240hrs of lectures, demonstration, practical and clinics the student will be able to list the indications, contra indications, dosages of electro therapy modalities, demonstrates the different techniques, and describe their effects on various conditions.

Section – I 30hrs
1. Review of Neuro muscular Physiology including effects of electrical stimulation.
2. Physiological responses to heat gain or loss on various tissues of the body.
3. Therapeutic effects of heat, cold and electrical currents.
4. Physical principles of Electro – magnetic radiation.
5. Physics of sound including characteristics and propagation.

Section – II 60hrs
1. **High frequency currents (Short Wave Diathermy and Micro Wave Diathermy) -** Production, biophysical effects, types, therapeutic effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.
2. **Medium frequency currents (Interferential Therapy and Russian Current) -** Conceptual framework of medium frequency current therapy, production, biophysical effects, types, therapeutic effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.
3. **High frequency sound waves (Ultrasound) -** Production, biophysical effects, types, therapeutic effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.

Section – III 40hrs
1. **Therapeutic light in Physiotherapy (LASER)** – Definition, historical background, physical principles, biophysical effects, types, production, therapeutic effects, techniques of application, indications, contraindications, precautions, operational skills and patient preparation.
2. Therapeutic cold (Cryotherapy) - Sources, biophysical effects, types, therapeutic effects, indications, contraindications, precautions, application technique and patient preparation.
3. **Therapeutic mechanical pressure (Intermittent compression therapy)** – Principle, biophysical effects, types, therapeutic effects, indications, contraindications, precautions, operational skills and patient preparation.

4. **Extracorporeal Shock Wave Therapy**: Principles, Effects and Uses, Indications, Contraindications, Precautions and preparation of the patient

Section – IV 20hrs

1. **Electro – diagnosis** – Instrumentation, definition & basic techniques of E.M.G. and Nerve Conduction Velocity Studies
2. **Bio–feedback** – Instrumentation, principles, therapeutic effects, indications, contraindications, limitations, precautions, operational skills and patient preparation.

Electrotherapy – II (Practical)150hrs

1. To study a Short Wave Diathermy unit, its operation and different methods of application – region wise.
2. To study a Micro Wave Diathermy unit, its operation unit, its operation and different methods of application – region wise.
3. To study an Ultrasound unit, its operation and different methods of application – region wise.
4. To study a Laser unit, its operation and different methods of application – region wise.
5. To study an Interferential therapy unit, its operation and different methods of application – region wise.
6. To study various forms of therapeutic cold application region wise including — ice, cold packs, vapor coolant sprays etc.
7. To study a Bio feedback unit, its operation and different methods of application - region wise.

Suggested Readings:

S.No.	Author	Title	Publisher	Year	Vol.
1	Froster, A. and Palastanga, N.	Clayton's Electrotherapy: Theory and Practice	AITBS, Delhi	1999	
2	Jhon, Low and Ann, Reed	Electrotherapy Explained: Principles	Butterworth Heine, Oxford	2000	
3	Nelson, R.M. and Currier, D.P.	Clinical Electrotherapy	Appleton and Lange	1987	
4	Chemeron, M.H.	Physical Agents in Rehabilitation	W B Saunders, London	1999	
5	Michlovitz, S L	Thermal Agents in Rehabilitation	F A Davis, Philadelphia	1996	

BIOMECHANICS

M. Marks: 200
Theory: 100
Practical: 100

Biomechanics -

Biomechanics involves the study of basic concepts of human movement, and application of various biomechanical principles in the evaluation and treatment of disorders of Muskuloskeletal system.

Students are taught to understand the various quantitative methods of movement. Mechanical principles of various treatment methodsare studied. Study of posture and gait are also included.

THEORY

1. Basic Concepts in Biomechanics: Kinematics and Kinetics 10hrs

a) Types of Motion
b) Location of Motion
c) Direction of Motion
d) Magnitude of Motion
e) Definition of Forces
f) Force of Gravity
g) Reaction forces
h) Equilibrium
i) Objects in Motion
j) Force of friction
k) Concurrent force systems
l) Parallel force system
m) Work
n) Moment arm of force
o) Force components
p) Equilibrium of levers

2. Joint structure and Function - 20 hrs

- Basic principles of Joint design and a human joint.
- Tissues present in has joint including fibrous tissue, bone cartilage and connective tissue.
- Classification of joints.
- Joint function, Kinematics chains and range of motion.

- Recall anatomy and study the biomechanics of the spine, shoulder girdle, joints of the upper extremity, pelvic girdle and the joints of the lower extremity.

3. Muscle structure and function - 15hrs

- Mobility and stability functions of muscle.
- Elements of muscle structure and its properties.
- Types of muscles contractions and muscle work.
- Classification of muscles and their functions.
- Group action of muscles, Co-ordinated movement.

4. Analysis of Posture and Gait – 30hrs

- Posture — Definition, factors responsible for posture, relationship of gravity on posture.
- Postural imbalance — factors responsible for imbalance in Static and dynamic positions including ergonomics.
- Description of Normal gait, determinants of gait, spatio temporal features and analysis.
- Gait deviations — Types, Causative factors and analysis.

Practical 75hrs

1. To study the effects of forces on objects
2. To identify axis and planes of motion at the joints, spine, shoulder, girdle, joints of upper extremity, Pelvic girdle and joints of lower extremity
3. To study the different types of muscle contraction, muscle work, group action of muscles of co- ordinated movements.
4. Analysis of Normal posture respect to L.O.G. and the optimal position of joints in Anterio-posterior and lateral views.
5. Analysis of normal gait and measurement of spatic temporal features.

Suggested Readings

1. Levangie PK, Norkins CC: Joint Structure and Function: A Comprehensive Analysis. 3rd Ed, Jaypee Brothers Medical Publishers, New Delhi, 2001.
2. Smith, Weiss, Lehmkuhl: Brunnstrom‟s Clinical Kinesiology. 5th Ed, Jaypee Brothers, New Delhi, 1998.
3. Hollis M, Cook PF: Practical Exercise Therapy. 4th Ed, Blackwell, Oxford, 1999.
4. Gardiner DM: Principles of Exercise Therapy. 4th Ed, CBS Publishers, New Delhi, 1999.
5. Lippert LS: Clinical Kinesiology for Physical Therapy Assistants. 3rd Ed, Jaypee Brothers, New Delhi, 2002.

6. Jones and Barker: Human Movement Explained.3rd Ed, Butterworth- Heine, London, 2000.

7. Norkin C, White JD: Measurement of Joint Motion: A Guide to Goniometry. 2nd Ed, Jaypee Brothers, Daryaganj, 1995.

8. Kisner C, Kolby LA: Therapeutic Exercise Foundation and Technique. 3rd Ed, Jaypee Brothers, New Delhi, 1996.

9. Campion MR: Hydrotherapy: Principles and Practice, 1st Ed, Butterworth, Oxford 2000.

10. Palastanga N, Field D, Soames R: Anatomy and Human movement – Structure & Function. 5th Ed, Elsevier LTd, Philadelphia, USA, 2006.

PSYCHOLOGY&SOCIOLOGY

M. Marks: 100
Theory: 100
Practical: 0

Course description -
Human Psychology involves the study of various behavioral patterns of individuals, theories of development, normal and abnormal aspects of motor, social, emotional and language development, communication and interaction skills appropriate to various age groups.
Sociology will introduce student to the basic sociology concepts, principles and social process, social institutions in relation to the individual, family and community and the various social factors affecting the family in rural and urban communities in India will be studied.
The study of these subjects will help the student to understand their clients while assessment and while planning appropriate treatment methods.

PSYCHOLOGY

1. **Introduction**
   - What is psychology?
   - Fields of application of psychology
   - Scope of psychology
2. **Learning**
   - Theories of learning
   - Principles of learning
   - Factors affecting learning
3. **Memory**
   - Forgetting
   - Theories of memory and forgetting
   - Methods to improve memory
4. **Intelligence**
   - Theories of intelligence
   - Influence of heredity and environment on the individual
   - Tests of intelligence
5. **Personality**
   - Theories of personality

- Factors influencing personality
- Assessments in personality
- Personality disorders

6. Behavior

- Normal and abnormal behavior
- Development and growth of behavior in infancy and childhood, adolescence, adulthood and old age

7. Thinking

- Definition
- Thinking process
- Problem solving
- Decision making
- Creative thinking

8. Motivation

- Theories
- Types of motivation

9. Emotions

- Theories of emotions
- Stress
- Conflicts
- Frustration

10. Attitudes

- Theories
- Attitudes and behavior
- Factors in attitude change

11. Emotional and behavioral disorders of childhood and adolescence (in brief)

- Disorders of under and over controlled behavior
- Eating disorders

12. Mental deficiency

- Mental retardation
- Learning disabilities
- Autistic behavior

13. Anxiety disorders

- Phobias, panic disorder
- Generalized anxiety disorder

- Obsessive compulsive disorder
- Post –traumatic stress disorder

14. Somatoform and dissociate disorders

- Conversion disorder
- Somatization disorder
- Dissociate amnesia & dissociate fugue

15. Patho-physiological disorders

- Stress and health

16. Severe psychological disorders

- Mood disorders
- Psychosis

17. Counseling

- Definition
- Aims and principles
- Quality of a good counselor

18. Psychotherapy

- Brief introduction to paradigms in psychopathology and therapy

19. Communication

- Effective and faulty
- Audiovisual aids and its effects on communication

20. Psychological need of pediatric and geriatric patients

SOCIOLOGY

1. Introduction

- Meaning-definition and scope of sociology
- Its relation with anthropology, psychology, social psychology and ethics
- Methods of sociology-case study, social survey, questionnaire, interview and opinion poll methods
- Importance of its study with special reference to health care professionals

2. Socialization

- Meaning and nature of socialization
- Primary, secondary, and anticipatory socialization
- Agencies of socialization

3. Social groups

- Concepts of social groups
- Influence of formal and informal groups on health and sickness
- The role of primary groups and secondary groups in the hospital and rehabilitation settings

4. Community

- Rural community – meaning and features – health hazards of rural population
- Urban community – meaning and features – health hazards of urban population

5. Family

- The family - meaning and definition, functions
- Changing family patterns
- Influence of family on the individual health, family, and nutrition
- The effects of sickness on family and psychosomatic disease and their importance to physiotherapy

6. Culture and health

- Concept of culture
- Cultures and behavior
- Cultural meaning of sickness
- Culture and health disorders

7. Social change

- Meaning of social changes & factors of social change
- Human adaptation and social change
- Social change and stress
- Social and deviance
- Social change and health program
- The role of social planning in the improvement of health and in rehabilitation

8. Social security

- Social security and social legislation in relation to the disabled

9. Social worker

- Meaning of social work
- The role of a medical social worker

10. Social Factors in health and disease

- The meaning of social factors
- The role of social factors and illness

11. Social problems of disabled

- Consequences of the following social problems in relation to sickness and disability, remedies to prevent these problems
- Population explosion

- Poverty and unemployment
- Beggary
- Juvenile delinquency
- Prostitution
- Alcoholism
- Problems of women in employment

Suggested Readings

Psychology & Sociology

1 Morgan CT, King RA, Weisz JR, Schopler J: Introduction to Psychology.7th Ed, Tata McGraw Hill, New Delhi, 1993.
2 Munn NL, Farnald LD, Fernald PS: Introduction to Psychology. 3rd Ed, Houghton Mifftin Company, Boston or Oxford & IBH Publishers, New Delhi, 1972.
3 Worchle S, Shebilske W: Principles and Applications - Psychology. 5th Ed, Prentice Hall, Englewood Cliffs, New Jersy, 1994.
4 Nolen HS: Abnormal Psychology. 2nd Ed, McGraw Hill Higher Education, New York, 2001.
5 Cushman LA, Scherer MJ: Psychological Assessment in Medical Rehabilitation. 1st Ed, American Psychological Association, USA, 1995.
6 Bond.J. &Bond.S: Sociology & Health Care – An Introduction for Nurses & other Health Professions. 2nd Ed, Churchill Livingstone, Edinburgh, 1994.
7 Taylor S & Field D: Sociology for Health & Health Care. 4th Ed, Blackwell Publishing, USA, 2007.
8 BhusanVidya, Sachdeva.DR: Introduction to Sociology. 3rd Ed, KitabMahal, Patna, 2004.
9 Dibyendunarayan B: Sociology for Physiotherapists. 1st Ed, Jaypee Brothers, New Delhi, 2006.

BACHELOR OF PHYSIOTHERAPY (BPT) THIRD YEAR

ORTHOPAEDICS

M. Marks: 200
Theory: 100
Practical:100

Subject Description

This subject follows the basic science subjects to provide the knowledge about orthopedic conditions the therapist would encounter in their practice. The objective of this course is that after completion of the lectures and discussion the student will be able to demonstrate an understanding of orthopedic conditions causing disability, list the etiology, clinical features and methods of investigations and management.

Section — I **15 Hrs**

1. Introduction to Orthopaedics — Introduction to orthopaedic terminology. Types of pathology commonly dealt with, clinical examination, common investigations X-rays & imaging techniques and outline of non-operative management.

2. Principles of operative treatment Lift:

Indications, contraindication and briefly outline principles of: Athrodesis, Artluoplasty, Osteotomy, Bonegrafting Tendon — Transfers and Arhroplasty.

3. Sprains, Strains & Contractures: - List common sites of sprain, strains & contractures and describe the clinical manifestations and treatment. Viz. tennis elbow, golfer's elbow. Dequervan's disease, tenovaginitis, trigger, finger, carpal tunnel syndrome and plantar fasciitis etc.

4. Sports Injuries: - Injuries related to common sports their classification and management.

Section — II **30 Hrs**

1. **Fractures and Dislocations:**

General Principles, outline the following:

- Types of Fractures including patterns. Open & closed fractures and fracture dislocations.
- Differences between dislocation & sub location.
- General& Local signs & symptoms of fractures & dislocation.
- Principle of management of fractures & dislocations.
- Prevention & treatment of complication including. Fracture — disease, Volkmann's ischaemic contracture, Sudeek's Atrophy, Carpal Tunnel Syndrome, Myositis ossificans and shoulder — hand syndrome.
- Fracture healing.

2. UpperLimbFractures&Dislocations

- Enumerate major long bone fractures and joint injuries.
- Briefly describe their clinical features, principles of management andcomplications.

3. LowerLimbFractures&Dislocations

- Enumerate major long bone fractures and joint injuries.
- Briefly describe their clinicalfeatures, principles of management andcomplications.

4. Spinal fractures and dislocations

- Outline the mechanism, clinical features, and principles of management and complications of spinal injuries.

5. Recurrent Dislocations: Outline the mechanism, clinical features, principles of management and complications of recurrent dislocation of the shoulder and patella.

Section III **10 Hrs**

1. Amputations
- Classify amputations, List indication for surgery.
- Outlinepre-operative, operative and prosthetic management.
- Outline prevention and treatment of complications.
2. Bone & Joint Infections: Outline the etiology, clinical features, management and complications of septic arthritis osteomyelitis, Tuberculosis (including spinal T.B.).

3. Bones Joint Tumors: - Classify the outline the clinical features, management and complications of the following (benign / malignant bone and joint tumors, esteomas, osteosarcomas, osteoclastomas, Ewing's sarcoma, multipiemyeloma.

Section IV **20 Hrs**

1. Chronic Arthritis: - Outline of pathology clinical features, mechanism of deformities, management and complications of Rheumatoid arthritis. Osteoarthritis of major joints and spine, Ankylosing spondylitis.
2. Neck & Back Pain, Painful Arc Syndrome, Tendonitis, Fasciitis & Spasmodic Torticollis. Outline the above including clinical features and management.
3. Spinal Deformities: - Classify spinal deformities and outline the salient clinical features, management and complications of Scoliosis, Kyphosis and Lordosis.

Section — V **30 Hrs**

1. Poliomyelitis: Describe the pathology, microbiology, prevention, managements and complications of polio. Outline the treatment of residual paralysis including use of orthoses. Principles of muscle transfers and corrective surgery.
2. Congenital Deformities: - Outline the clinical features and management of CTEV, CDH, Flat foot, vertical talus, limb deficiency (radial club hand and femoral, tibial and tibula deficiencies meningomyelocoele, Arthrogryphosis multiplex congentia and Osteogenesis imperfect, Cerebral palsy.
3. Peripheral Nerve Injuries: - Outline the clinical features and management, including reconstructive surgery of:

- Radial, median and unlar nerve lesions.
- Sciatic and lateral popliteal lesions.
- Brachial Plexus injuries including Erbs, Klumpke's and crutch palsy.

4. Hand Injuries: - Outline of clinical features, management and complications of Skin and soft tissue injury, tendon injury, bone and joint injury.

5. Leprosy : Outline of clinical features, management and complications of neuritis, muscle paralysis, tropic ulceration and hand and feet deformities

Practical- Practical shall be conducted for all the relevant topics discussed in theory in the following forms:

1. Bedside case presentations and case discussions
2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.

GENERAL MEDICINE

M. Marks: 200
Theory: 100
Practical:100

Subject Description
This subject follows the basic science subjects to provide the knowledge about relevant aspects of general medicine. The student will have a general understanding of the diseases the therapist would encounter in their practice. The objective of this course is that discussion the student will be able to list the etiology, pathology, clinical features and treatment methods for various medical conditions.

Section I: **25 hrs**

1. Introduction to modes of transfer of communicable diseases & general preventive measures.
2. Bacterial Diseases: Tuberculosis, Leprosy, Rheumatic fever, Tetanus, Typhoid fever, Diphtheria, Pneumonia, Bacillary Dysentery and Measles.
3. Viral Diseases: Herpes — simplex and zoster, Varicella, Measles, Mumps, Hepatitis B and C, AIDS and influenza.
4. Metabolic and Deficiency Diseases: Diabetes, Anemia, Vitamin & Nutritional Deficiency diseases, diseases of the endocrine glands.

Section II: **30 hrs**

1. **Common Diseases of Respiratory System :** Asthma, Bronchitis, Massive collapse of lungs, Bronchiectasis Bronchial Pneumonia, lung abscess, Emphysema, Empyema, Paralysis of diaphragm and vocal cords, chronic infection of larynx and trachea. Abnormalities of tracheal infract of lungs, chronic passive congestion, chronic obstructive pulmonary disease, chest wall deformities.
2. **Common Diseases of circulatory System:** Thrombosis, Embolism, Gangrene, Valvular disease, Hemorrhage, various diseases of arteries, diseases of blood forming organs, Anemia, Peripheral Vascular diseases, disease of the lymphatic systems : Diseases of the Heart — Hypertension, Hypotension, Aortic Aneurysm. Endocarditis, Pericarditis, Cardiac failure, coronary heart diseases, congenital heart malformation and its manifestation etc.
3. **Diseases of Digestive Systems:-**Pharyngitis, spasm of the Oesophagus, Diverticulum stenosis, Gastric ulcer, Hememesis, Pyloric stenosis, Dyspepsia, Vomiting, Diarrhoea, Duodenal ulcer etc.
4. **Diseases of Liver:-**Jaundice Cirrhosis of liver, Abscess of liver, Ascitis.

5. **Diseases of Kidney:** Polyuria, Hematuria, Uremia, Anuria, Nephritis, Urinary infections, Urinary calculi.

Section III: Diseases of Skin **15 Hrs**

1. Characteristics of normal skin, abnormal changes, types of skin lesions.
2. Conditions — Leprosy, Acne, Boil, Carbuncles, Impetigo, Infections of skin, Herpes, Urticaria. Skin disorders associated with circulatory disturbances, Warts, Corn, Defects in Pigmentation, Psoriasis, Leukoderma, Fungal infections, Alopecia, Dermatitis, Eczema, Skin-allergies, venereal disease.

Section IV: Paediatrics **15 Hrs**

1. Review normal foetal development & child birth, including assessment of a neonate.
2. Development of a normal child — neuromotor, physical growth, cognitive, intellectual, social etc.
3. The examination and assessment of a pediatric patient.
4. Congenital & acquired musculoskeletal disorders — etiogenesis, clinical manifestation & principles of management.
5. Congenital & acquired Cardio-pulmonary disorders — etiogenesis, clinical manifestation & principles of management.
6. Congenital & acquired neurological disorders (CNS & PNS) — etiogenesis, clinical manifestation & principles of management.
7. Hereditary disorders — etiogenesis, clinical manifestation & principles of management.
8. Nutritional Vitamins — Deficiency & development disorders — etiogenesis, clinical manifestation & principles of management.
9. Bums, Injuries & accident — Types & principles of management, including preventive case.
10. Surgical intervention—Indications & common surgical procedure.

Section V: Geriatrics **15 Hrs**

1. Normal aging — definition the anatomical, physiological and cognitive changes related to aging.
2. Epidemiology and socio-economic impact of aging.
3. The examination and assessment of a geriatric patient.
4. Musculoskeletal disorders — etiogenesis, clinical manifestation & principles of management.
5. Cardio — pulmonary disorders — etiogenesis, clinical manifestation & principles of management.
6. Neurological disorders (CNS & PNS) — etiogenesis, clinical manifestation & principles of management.
7. Diet & Nutritional requirement of the elderly. Nutritional disorders & their management.
8. Burns, Injuries & accident as related to the elderly & preventive care.
9. Dementia- Types and principles of management.

10. Overview of depressive disorders in the elderly.

Practical - Practical shall be conducted for all the relevant topics discussed in theory in the following forms:
1. Bedside case presentations and case discussions
2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.

Books Suggested:

1. Davidson's Principles and Practices of Medicine — Edward — Churchill Livingstone.
2 Hutchinson's Clinical Methods — Swash — Bailliere Tindall.
3. A Short Textbook of Medicine — Krishna Rao — Jaypee Brothers.
4. The Short Textbook of Paediatrics — Gupte — Jaypee.
5. A Short Textbook of Psychiatry — Ahuja Niraj — Jaypee Brothers.
6. Textbook of Paediatrics — Parsarthy — Jaypee.
7. Geriatric Physical Therapy — Guccione — Mosby.
8. Motor Assessment of the Developing infant — Piper & Davrah — W.B. Saunders

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P.T.IN ORTHO CONDITION

M. Marks: 200
Theory: 100
Practical:100

1. Brief review of the following surgical condition and various physiotherapeutic modalities, aims, means and technique of physiotherapy should be taught. **10 Hrs**
    a. Traumatology General physiotherapeutic approach for the following conditions: **40 hrs**
    I. Fracture and dislocations; Classification and type of displacement, method of immobilization, healing of fractures and factors affecting union, delayed union etc. common sites of fractures. **20 Hrs**
        a. Specific fractures and their complete physiotherapeutic management. **20 Hrs**
    - Upper Limb; Clavical, humerus, ulna, radius, crush injuries of land.
    - Lower Limb; fracture neck of femur, shaft of femur patella tibia fibula, pott's fracture, fracture of tarsal and metatarsals.
    - Spine: fracture and dislocations of cervical, thoracic and lumber vertebrate with and without neurological deficits.
2. Surgical procedures; Pre and post-operative management of common corrective procedure like arthroplasty, arthrodesis, osteotomy, tendon transplants, and soft tissue release grafting, including polio residual paralysis and leprosy deformities corrections**15 Hrs**
3. Injuries: Soft tissue injuries, synovitis, capsulitis volkman's ischemic contracture etc. tear of semilinar cartilage and cruciate ligaments of knee, menisectomy, patellectomy, internal derangement of knee.**10Hrs**
4. Amputation; level of amputation of upper limb and lower limb, stump care, stump bandaging, pre and post prosthetic management including check out of prosthesis, training etc. **10 Hrs**
5. Deformities:- congenital torticollis and cervical rib, CTEV, Pes cavus, pes planus and other common deformities.

Acquired — Scoliosis, kyphosis, lordosis, coax vara, genu valgum, genu varum and recurvatum. **10 hrs**

6. Degenerative and infective conditions : osteoarthritis of major joints, spondylosis, spondylitis spondylolisthesis, PIVD, Periarthritis of shoulder, Tuberculosis of spine, bone and major joint, perthes disease Rheumatoid arthiritis, Ankylosing spondylitis etc. and other miscellaneous orthopaedic conditions treated by physiotherapy. **15 Hrs**

7. Principles of sports physiotherapy — causes of sports injury, prevention of sports injuries, management of acute sports injury, common occurred injuries. Role of physiotherapist in sports, principle & advanced rehabilitation of the injured athlete. **15 Hrs**

Practical **150 hrs**

Various physiotherapy modalities and treatment techniques for the above mentioned conditions to be demonstrated, practiced by the students in clinical setup.

Student must maintain a logbook**.** The duly completed logbook should be submitted during practical examination.

P.T. IN MEDICAL CONDITION- I

M. Marks: 200
Theory: 100
Practical: 100

THEORY

Section I: General Medicine 30 Hrs

Review of the Pathological and principles of management by Physiotherapy to the following conditions:

1. Inflammation — acute, chronic and supprative.
2. Oedema — Traumatic, obstructive, Paralytic, Oedema due to poor muscle and laxity of the fascia.
3. Arthiritis and Allied Conditions (in details) :
    - Osteo — arthiritis — generalized, Degenerative and traumatic, spondylosis and disorders.
    - Rheumatoid Arthritis, Still's disease, infective Arthiritis.
    - Spondylitis, Ankylising Spondylitis.
    - Nonarticular Rheumatism — Fibrositism,
    - Myalgia, bursitis, Periarthritis etc.
4. Common conditions of Skin Acne, Psoridsis, Alopcia, Leucoderma, Leprosy, Sexually transmitted diseases.
5. Deficiency diseases - Rickets, Diabetes, Obesity, Osteoporosis and other deficiency disorders related to Physiotherapy.
6. Psychiatric Disorders — Psychosis, Psychoneurosis, Senile dementia.

Section II Respiratory 25 Hrs

1. Review of mechanism of normal respiration.
2. Chest examination, including auscultation, percussion.
3. Knowledge of various investigative procedures (invasive and noninvasive) used in the diagnosis of various respiratory disorders.
4. Review of pathological changes and principle of management by physiotherapy of the following conditions:
    - Bronchitis, Asthma, Lung abscess, Bronchiectasis, Emphysema, COPD.
    - Pleurisy and Empyema, Pneumonia.
    - Bacterial Disease.
    - Rheumatic fever, carcinoma of respiratory tract.
    - Paralysis of diaphragm and vocal cords.
    - Chest wall deformities.

Section III: Cardiovascular 25 Hrs

1. Review of anatomy and physiology of the cardiovascular system.
2. Knowledge of various investigative procedures (invasive and noninvasive) used in the diagnosis of various cardiovascular disorders.
3. Review of the 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, aneurysm.

Section IV Paediatrics 25 Hrs

1. Review of the examination & assessment of a Paediatric patient.
2. Review of pathological changes and principle of management by physiotherapy of the following conditions. :
    - Common congenital & acquired musculoskeletal disorders.
    - Common congenital & acquired neurological disorders (CNS & PNS).
    - Common heredity disorders.
    - Common nutritional, metabolic & vitamin deficiency disorders.
    - Cerebral palsy, myopathy and muscular dystrophies.

Section V Geriatrics 20 Hrs

1. Review of the examination & assessment of a Geriatric patient.
2. Review of pathological changes and principle of management by physiotherapy of the following conditions :
    - Musclo skeletal disorders
    - Cardiopulmonary disorders.
    - Neurological disorders (CNS & PNS).
    - Injuries & accidents specific to the aged.

PRACTICAL

1. Practical demonstration of basic principles of physiotherapy assessment, functional assessment and application of physiotherapy in cardio – respiratory, OBG, Skin, and other medical conditions.

2. Student must maintain a logbook**.** The duly completed logbook should be submitted during practical examination.

Books Suggested:

l. Cash's Textbook of general medical and surgical conditions for Physiotherapists -Downie — Jaypee Brothers.

2. Essentials of Cardiopulmonary physical therapy — Hillegass & Sadowsky — W.B. Saunders.

3. Cash's Textbook of Chest, Heart and Vascular Disorders for Physiotherapists — Downie — J.F. Brothers.

4. The Brompton Guide to Chest Physical Therapy.

5. Cardiopulmonary Physlcal Therapy—and Tecklin — Mosby.

6. Cardiovascular / Respifatory Physiotherapy — Smith & Ball — Mosby.

7. ACSM Guideliness for Exercise testing and Prescription — ACSM — Williams and Wilkins.

8. ChestPhysiotherapy in Intensive Care Unit — Mackenzie et a1 — Williams and Wilkins.

9. Motor Assessment of Developing Infant — Piper & Darrah — W.B., Saunders.

10. Paediatric Physical Therapy — Tecklin — Lippincott.

11. Treatment of Cerebral Palsy and Motor Delay — Levitts — Blackwell Scientific Publications, London.

12. Physiotherapy in Paediatrics — Shephered — Butterwouh Heinmann.

13. Geriatric Physical Therapy — Gucciona — Mosby.

RESEARCH METHODOLOGY AND BIOSTATISTICS

M. Marks: 100
Theory: 100
Practical: 0

The objective of this module is to help the students understand the basic principles of research and methods applied to draw inferences from the research findings.

RESEARCH METHODOLOGY

1. Introduction to Research methodology: Meaning of research, objectives of research,Motivation in research, Types of research & research approaches, Research methods vs methodology, Criteria for good research.
2. Research problem: Statement of research problem, Statement of purpose and objectives of research problem, Necessity of defining the problem
3. Research design: Meaning of research design, Need for research design, Features for good design, Different research designs, Basic principles of research design.
4. Measurement & scaling techniques: Measurement in research- Measurement scales, sources of error in measurement, Technique of developing measurement tools, Meaning of scaling, its classification, important scaling techniques.
5. Methods of data collection: collection of primary data, collection data through questionnaires & schedules, Difference between questionnaires & schedules.
6. Computer technology: Introduction to Computers, computer application in research computers & researcher.

BIOSTATISTICS

1. **Introduction**: Meaning, definition, characteristics of statistics. Importance of thestudy of statistics, Branches of statistics, Statistics and health science ,

   Parameters and Estimates, Variables and their types, Measurement scales.
2. **Tabulation of Data**: Basic principles of graphical representation, Types ofdiagrams – histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, Normal probability curve.
3. **Measures of Central Tendency**: Need for measures of central Tendency,

   Definition and calculation of **Mean** – ungrouped and grouped, interpretation and calculation of Median-ungrouped and grouped, Meaning and calculation of Mode, Geometric mean &Hormonic mean, Guidelines for the use of various measures of central tendency.
4. **Measures of Dispersion**: Range, mean deviation, standard deviation & variance.
5. **Probability and Standard Distributions:** Meaning of probability of standarddistribution, the binominal distribution, the normal

distribution, Divergence from normality – skewness, kurtosis.

6. **Correlation & regression:**Significance, correlation coefficient, linear regression& regression equation.
7. **Testing of Hypotheses, Level of significance, Degrees of freedom.**
8. **Chi-square test, test of Goodness of fit & student t-test.**
9. **Analysis of variance & covariance:** Analysis of variance (ANOVA), what isANOVA? Basic principle of ANOVA, ANOVA technique, Analysis of Co variance (ANACOVA)
10. **Sampling:** Definition, Types- simple, random, stratified, cluster and doublesampling. Need for sampling - Criteria for good samples, Application of sampling in community, Procedures of sampling and sampling designs errors

Forth Year BPT

GENERAL SURGERY

M. Marks: 200
Theory: 100
Practical: 100

Section I: 10 Hrs

1. Introduction to principles of surgery and its procedure.
2. Shock — definition, types, clinical, feature, pathology & management.
3. Haemorrhage — common sites, complication, clinical features & management.
4. Blood Transfusion — Blood group matching, indication & complication.
5. Anaesthesia — Principles of anaesthesia, types &procedure.

Section II 20 Hrs

1. Wounds, Tissue repair, Classification—Acute Wounds, Chronic wounds, Scars& their Management.
2. Wound infections: Psychology & manifestation, Types of infections & their management.
3. Tumors and Ulcers:
   a) Tumors — Types of Management
   b) Ulcers — Types & Management.
4. Burns — Causes, Classification, Clinical features & Management.
5. Skin Grafting — Indications, Types & Procedures.
6. Hand Infections — Types & Management.
7. General Injuries — Types & Management.

Section III 10 Hrs

- Complications of Surgery.
- Abdominal Surgery — Types of Incisions & common surgical procedures.
- Thoracic and Cardiac Surgery — Types of incision and common surgical procedures.

Section IV 20 Hrs

Obstetrics & Gynecology

- Pregnancy, stages of labor and its complications, indications and types of surgical procedures.

- Gynecological disorders — Salpingitis, parameters, retro-uterus, prolapse of uterus, pelvic inflammatory diseases, urinary incontinence.

Section – V 20 Hrs

Ophthalmology

- Common conditions of eye: Cataract, Glaucoma, Diabetic complications of eye, injuries, inflammations and other infections of eye.
- Ptosis.
- Blindness — common causes & management.
- Refractions — testing, errors & remedies.
- Strabismus — types, features & corrective measures.

Section VI 20 Hrs

Ear, Nose & Throat (ENT)

- Introduction — Outline, mechanism of audition, olfaction & speech.
- Classify causes of hearing impairment, assessment techniques, conservative & surgical management.
- Hearing Aids — types & indications.
- Outline common ENT infections & lesions, which affect hearing, breathing, speech & their management.
- Outline the function of vestibular organ, its common disorders & their management.

Practical –

Practical shall be conducted for all the relevant topics discussed in theory in the following forms:
1. Bedside case presentations and case discussions
2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.

Suggested Readings:

S.No.	Author	Title	Publisher	Year	Vol.
1	Russell, R.C.G.	Short practice In Surgery	Arnold, London	2000	

2	Gupta, R. L.	Text Book of Surgery	Jaypee, New Delhi	1996	

NEUROLOGY

M. Marks: 200
Theory: 100
Practical: 100

Section I: 15 Hrs

1. **Neuroantomy:**

Review the basic anatomy of the brain and spinal cord lncluding Blood supply of the brain and spinal cord, anatomy of the visual pathway, connections of the cerebellum and extrapyramidal system, relationship of the spinal nerves to the spinal cord segments, 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 the tone and posture, bladder control, muscle contraction, movement and pain.

3. Assessment and evaluate procedures for the neurological patient.
4. Review of the principles of the management of a neurological patient. '

Section II 25 Hrs

Briefly outline the etiogenesis, clinical features and management of the following Neurological disorders

1. Congenital and childhood disorders — Cerebral palsy, Hydrocephalus and Spina Bifida.
2. Cerebrovascular accidents — General classification, thrombotic, embolie, harmorrhagic and inflammatory, strokes, gross localization and sequelae.
3. Trauma — localization, first aid and management of sequelae of head injury and spinal cord injury.
4. Diseases of the spinal cord — Craniovertebral junction anomalies, Syringomyelin, Cervical and lumbar disc lesions, Tumors and Spinal arachnoiditis.
5. Demyelinating diseases (central and peripheral) — Guillain — Bane syndrome, Acute disseminated encephalomyelitis, Transverse myelitis and Multiple sclerosis.

Section III 25 Hrs

Briefly outline the etiogenesis, clinical features and management of the following Neurological disorders:

1. Degenerative disorders — Parkinson's disease and dementia.
2. Infections — Pyogenic Meningitis sequelae, Tuberculous infection of central nervous system and Poliomyelitis.
3. Diseases of the muscle — Classification, signs, symptoms, progression and management.
4. Peripheral nerve disorders — Peripheral nerve injuries, Entrapment neuropathies and Peripheral neuropathies.

Section — IV 20 Hrs

1. Epilepsy — Definition, classification and ' management.
2. Myasthenia Gravis — Definition, course and management.
3. Intracranial Tumors — Broad classifications, signs and symptoms.
4. Motor neuron disease — Definition, classification and management.
5. Cranial nerve — Types of Disorders, clinical manifestation & management.

Section V: Psychiatry 15 Hrs

1. Introduction to neuropsychology: Definition, defense mechanism, symptomatology, types, causes, assessment of mental disorders, psychosomatic disorders.
2. Disorders:

- Psychosis — Schizophernia (including paranoid) maniac depressive psychosis, involvement psychosis.
- Psychoneurosis — Anxiety, hysteria, anxiety states, neurasthesis, reactive depression, obsessive compulsive neurosis.
- Organic reaction to — toxins. Trauma & infection.
- Senile dementia.

3. Mental retardation — definition, causes manifestation and management.
4. Therapies:
    - Psychotherapy—Group therapy, Psychodrama, behavior, modification, family therapy, play therapy, psychoanalysis, hypnosis.
    - Drug therapy.
    - Electro convulsive therapy.

Practical

Practical shall be conducted for all the relevant topics discussed in theory in the following forms:
1. Bedside case presentations and case discussions
2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.

Suggested Readings:

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S. No.	Author	Title	Publisher	Year	Vol.

1	Bannister, R.	Brain and Bannister Clinical Neurology	Oxford university press, oxford	2002	
2	Chamberlain, E.N.	Symptoms and Signs in Clinical Medicine	John Wright, Bristol	1974	
3	Friedman, H.H.	Problem-Oriented Medical Diagnosis	Little Browne, Boston	1979	3V
4	Swash, Michael	Hutchison's Clinical Method	W B Saunders, London	2000	
5	Rees, Lingford	New Short Text Book Of Psychiatry	Arnold, New Delhi	1988	
6	Walton, John	Brain's Disease of the Nervous System	Oxford university press, Delhi	1998	
7	Haerer, A.F.	Neurological Examination	Lippincott, Philedelphia	1999	
8	Ahuja, Neeraj	Short Text Book Of psychiatry	Jaypee, New Delhi	1999	
9	Haslett, C.	Davidson's Principal and Practice of Medicine	Churchill Living stone, London	1999	
10	Kasper, D.L	Harrison 's Principles of Internal Medicine	Mc-Graw Hill, New York	2005	2V

Physiotherapy in Neurological Conditions

M. Marks: 200
Theory: 100
Practical: 100

THEORY

1) Review of basic Neuro - Anatomy and Physiology
2) Physiotherapy evaluation of a neurological patient, electro diagnostic procedures, interpretations and prognosis in different neurological conditions, Upper and Lower motor neuron lesions.
3) Principles of physiotherapy programs, reeducation and retraining techniques in neurological conditions, approaches like: Bobath's / neuro developmental therapy, Rood's approach, PNF, Vojta techniques, biofeedback, Brunnstorm movement therapy, Motor Relearning

programming, sensory integration therapy.

4) Disturbance of speech and aphasia
5) Spinal cord injury:
   Review of anatomy and physiology, Physiotherapy Assessment of Spinal cord injury, Principles of Physiotherapy at various stages of Spinal cord injury Rehabilitation goals and ADL training

6) Assessment and principles of therapeutic management of following neurological conditions:
   - Stroke, meningitis, encephalitis, Parkinson's disease, Cerebral palsy, cerebellar lesions, Brain tumors, Multiple Sclerosis, facial palsy.
   - Hemiplegia, Paraplegia, Tabes doraslis, cerebellar ataxia, extra pyramidal lesions, Gulllan Barre Syndrome, Parkinsonism.
   - Motor neuron disease, disseminated sclerosis, transverse myelitis, polio, syringomyelia, spina bifida, Amyotrophic lateral sclerosis, Symgomyela subacute combined degeneration of cord motor neuron disease.
   - Neuropathies, neuromuscular junction disorders and myopathies

7) Peripheral nerve injuries, surgical resection & repair:
   - Classification & types
   - Functional assessment, investigation, diagnosis & prognosis
   - Physiotherapeutic management
   - Poly neuropathy

8) Traumatic brain injury & spinal cord injuries.
   - Types and Mechanisms
   - Clinical features, potential complications
   - Physiotherapy principles of immediate and postoperative therapeutic management

PRACTICAL

1. Practical demonstration of basic principles of physiotherapy assessment, functional assessment and application of physiotherapy in neurology conditions.
2. Student must maintain a logbook**.** The duly completed logbook should be submitted during practical examination.

Books Suggested:

1. Cash's textbook of neurology & physiotherapists — Downi — J.P. Brothers.
2. Adult Hemiplegia — Evaluation & treatment — Bobath— Oxford Butterworth Heinmann.
3. Neurological Rehabilitation — Carr & Shepherd —Butterworth Heinmann.
4. Tetraplegia & Paraplegia — A guide for physiotherapist — Bromley — Churchill Livingstone.
5. Neurological Physiotherapy — A problem solving ! Approach — Susan Edwards — Churchill Livingstone. ,
6. Neurological Rehabilitation — Umpherd- Mosby.
7. Motor Assessment of Developing Infant — Piper & Darrah — W.B., Saunders.
8. Treatment of Cerebral Palsy and Motor Delay— Levitts — Blackwell Scientific Publications, London.

P.T. IN SURGICAL CONDITIONS

M. Marks: 200
Theory: 100
Practical: 100

Section I: General Surgery, Eye & ENT 20 Hrs

Review of pathological changes and principle of pre and post-operative management by physiotherapy of the following conditions:

1. Common abdominal surgeries, including GIT, liver, spleen, kidney, bladder & Endoscopy etc.
2. Common organ transplant surgeries — heart, liver, bone marrow etc.
3. Common operations of the ear, nose, throat & jaw as related to physiotherapy.

Section II: Thoracic Surgery 20 Hrs

Review of pathological changes and principle of pre and post-operative management by physiotherapy of the following conditions:

1. Lobectomy, Pneumonectomy, Thoracotomoy, Thoracoplasty & Key hole surgeries.
2. Corrective surgeries of congenital heart defects, angioplasties, blood vessel grafting, open heart surgeries & heart transplant.

Section III: Gynaecology and Obstetrics 20 Hrs

Common operation of reproductive system, including surgical intervention for child delivery Ante natal & postnatal, physiotherapy.

Section IV - Wounds, Burns & Plastic Surgery 20 Hrs

Review of pathological changes and principle of pre and post-operative management by physiotherapy of the following conditions:

- Wounds, ulcers, pressure sores.
- Bums & their complications.
- Common reconstructive surgical proceedings of the management of wounds, ulcers, burns & consequent contractures & deformities.

Section V - Neurosurgery 20 Hrs

Review of pathological changes and principle of pre and post-operative management by physiotherapy of the following conditions:

- Common surgeries of the cranium & brain.
- Common surgeries of vertebral column & spinal cord.
- Common surgeries of peripheral nerves.
- Surgical interventions in traumatic head injuries.

PRACTICAL

Demonstration of physiotherapy modalities and treatment techniques of above mentioned conditions.

Books Suggested:

1. Cash's Textbook of general medical and surgical conditions for physiotherapists — Downie — Jaypee Brothers.
2. Cash's textbook of heart, chest and vascular disorders for physiotherapists — Downie — Jaypee Brothers.
3. Principles and practices of cardiopulmonary physical therapy — Frown Felter — Mosby.
4. Chest physiotherapy in intensive care unit —
5. Mackanzie — Williams & Wilkins.
6. Restoration of Motor Functions in stroke patient A Physiotherapist Approach — Johnstone Churchill Livingstone.
7. Physiotherapy in obstetrics and gynaecology-Polden — F.A. Davis.

APPLIED THERAPEUTICS

M. Marks: 200
Theory: 100
Practical:100

THEORY

1. Pre-exercise evaluation
2. Diet and nutrition

   Measurement of fitness components and sports skills - Measurement of muscular strength, Measurement of muscular endurance, Measurement of flexibility, Determination exercise endurance,

3. Physiological effects of exercise on body systems - Muscular system, Endocrine system, Cardio-respiratory system, Nervous system

4. Sports injuries - Spine – PIVD, Kissing spine, cervical whiplash injuries, facet joint syndrome, SI joint dysfunction, Hip – muscle strain, piriformis syndrome, ITB syndrome, osteitis pubis, Knee – menisci, cruciate, collateral, osteochondritis, chondromalacia patellae, biceps femoris tendonitis, swimmers knee, patello-femoral pain syndrome, Leg & ankle – shin splint, achillis tendonitis & rupture, TA bursitis, ankle sprain, plantar fascitis, turf toe syndrome, Head & face – maxillo-facial injuries, helmet compression syndrome**.**
5. Sports injuries

   Shoulder – instability, rotator cuff injury, biceps tendonitis and rupture, pectoralis major rupture, scapular dyskinesis and acromio-clavicular joint injuries, Elbow – tennis elbow, golfer's elbow, Wrist and hand – carpal tunnel syndrome, gamekeeper's thumb.
6. Principles of injury prevention.
7. Principles of training & Rehabilitation in sports injuries.

8. Sports in Special age groups: Female athletic triad, Younger athlete- Musculo-skeletal problems, management, children with chronic illness and nutrition. Older athlete- Physiological changes with aging, benefits, risks of exercise in elderly, exercise prescription guidelines for elderly.

PRACTICAL

1. Practical demonstration of basic principles of physiotherapy assessment, functional assessment and application of sports physiotherapy
2. Student must maintain a logbook**.** The duly completed logbook should be submitted during practical examination.

PHYSIOTHERAPY ETHICS, ADMINISTRATION& REHABILITATION

M. Marks: 100
Theory: 100
Practical: 0

Subject Description
The subject serves to integrate the knowledge gained by the students in community medicine and other areas with skills to apply these in clinical situations of health and disease and its prevention.

The objective of the course is that after the specified hours of lectures and demonstrations the student will be able to be masters inPhysiotherapy Ethics, Administration& also rehabilitation methods to prevent disabilities and dysfunctions due to various disease conditions and plan and set treatment goals and apply the skills gained in rehabilitating and restoring functions.

Section I: Physiotherapy Ethics 20 Hrs

1. History of Physiotherapy.
2. Philosophy and Philosophical statements.
3. Major Ethical principles applied to moral issue in health care.
4. Rules of Professional conduct.
5. Scope of practice.
6. Relationships with patients.
7. Relationships with medical colleagues.
8. Relationships between professionals.
9. Relationships with in the profession.
10. Sale of goods.
11. Personnel and professional standard.
12. Professional standard.

Section II: Physiotherapy Administration 10 Hrs

1. Responsibility and Confidentially.
2. Provision of services and advertising.
3. Professional and government licensing, Accreditation and Education standards.

4. Laws and Legal concepts:

- Protection from Malpractice claims, Consumer Protection Act
- Liability and Documentations.

Section III Principles of Rehabilitation

Section III A 20 Hrs

1. Conceptual framework of rehabilitation, roles of rehabilitation team members, definitions and various models of rehabilitation.

2. Epidemiology of disability with emphasis on locomotor disability, its implications — individual, family, social, economic and the state.

3. Preventive aspects of disability and organizational skills to manage it.

4. Community Based Rehabilitation and outreach programmes to rehabilitate persons with disabilities living in rural areas.

5. Statutory provisions, Schemes of assistance to persons with disability.

6. Role of NGOs in rehabilitation of the persons with disabilities.

7. Basic principles of administration and finance including personnel management and budget preparation and procurement etc.

Section — III B 15 Hrs

l. 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 application.

3. Principles of Prosthetics — types, indications, contra- indications, assessment (check out), uses and fittings upper and lower extremity.

Section III C 10 Hrs

1. Principles and mechanisms of Communication including speech and hearing.

2. Common disorders of speech and hearing etiogenesis, clinical features, assessment and principles of management.

3. Principles in the management of vocational problems, including evaluation and vocational goals for people with disability.

4. Principles of rehabilitation nursing, including function of Nursing personnel and Nursing practice in rehabilitation.

Section — III D 10 Hrs

1. Identification, assessment and classification of mentally subnormal.

2. Etiogenesis and principles of management including prevention.

3. Rehabilitation of the mentally subnormal, including vocational training & home education programme.

Section — III E 15 Hrs

1. Definition, scope & importance of Activities of Daily Living (ADLs).

2. The teaching and training of (a) wheel chair activities, (b) bed activities (c) transfer activities (d) Locomotor activities (e) Self-care activities, such as toilet, eating, dressing etc.

Practical

1. Introduction, Identification & Indications for the application of various aids & appliances like common splints; orthotics & prosthetic devices.
2. Visit to some NGO's dealing with persons with disabilities.
3. Learning basic principles of pre-vocational evaluation & occupational therapy.
4. Learning basic principles of vocational training.

Books Suggested:

1. Physical Rehabilitation — assessment & Treatment — Sullivan & Schmitz — F.A. Davis.
2. Occupational Therapy and Physical dysfunction Principles, Skills & Practices — Turner, Foster & Johnson — Churchill Livingstone.
3. Hand Splitting — Wilson — W.B. Saunders.
4. Orthotics in Rehabilitation: Splinting the hand and the body — Mckee & Morgan — F.A. DaVlS.
5. Atlas of Limb Prosthetics — American Academy of Orthopaedic Surgeon - Mosby.
6. Atlas of Orthotics—American Academy of Orthopaedic Surgeon — Mosby.
7. Knisen's Handbook of Physical Medicine & Rehabilitation — Kottke & Lehmarin — W.B.Saunders.