DEPARTMENT OF PHYSIOTHERAPY

UNDER

Faculty of Medical Paramedical and Allied Health Sciences

Bachelor of Physiotherapy

(w.e.f. 2018-2019)

- **Scheme of Examination**
- **Detailed Syllabi**

University Campus

NH-12, Chaksu Bypass, Tonk Road, Jaipur-303901
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JAGANNATH UNIVERSITY, JAIPUR

Faculty of Medical Paramedical and Allied Health Sciences

BPT

4 ½ Years Degree Course

Scheme of Examination & Detailed Syllabi

*Approved by AC vide resolution no. ……Dated ……..……

Course Structure (BPT)

BPT 1ST Year

			THEORY			PRACTICAL					
Code No.	Paper	Type	Total Marks	Internal Marks	External Marks	Total Marks	Internal Marks	External Marks	L	T/P	Credits
BPT 101	ANATOMY	Core	100	30	70	100	30	70	4x2 =8	2x2 =4	12
BPT 102	PHYSIOLOGY	Core	100	30	70	100	30	70	4x2 =8	2x2 =4	12
BPT 103(A)	BIO-CHEMSTRY	ELECTIVE	100	30	70	-	-	-	3x2 =6	-	6
BPT 103(B)	ENVIRONMENTAL SCIENCE	ELECTIVE	100	30	70	-	-	-	3x2 =6	-	6
BP T 104	SOCIOLOGY	AECC	100	30	70	-	-	-	3x2 =6	-	6
BPT 105	GENERAL & CLINICAL PSYCHOLOGY	Core	100	30	70	-	-	-	3x2 =6	-	6
BPT 106	BASIC PRINCIPLES IN PHYSIOTHERAPY	Core	100	30	70	100	30	70	3x2 =6	2x2 =4	10
BPT 107	ENGLISH COMMUNICATIOIN	AECC	100	30	70	-	-	-	2X 2=4	-	4
	Total								**44**	**12**	**56**

Yearly credits have been calculated by multiplying the semester-wise credits by two.

BPT 2ND Year

			THEORY			PRACTICAL					
Code No.	Paper	Type	Total Marks	Internal Marks	External Marks	Total Marks	Internal Marks	External Marks	L	T/P	Credits
BPT 201	PATHOLOGY & MICRO-BIOLOGY	Core	100	30	70	-	-	-	4x2 =8	-	8
BPT 202	PHARMACOLOGY	Core	100	30	70	-	-	-	3x2 =6	-	6
BPT 203	BIO-MECHANICS	SEC	100	30	70	100	30	70	4x2 =8	2x2 =4	12
BPT 204	EXERCISE THERAPY	Core	100	30	70	100	30	70	4x2 =8	2x2 =4	12
BPT 205	ELECTRO THERAPY	Core	100	30	70	100	30	70	4x2 =8	2x2 =4	12
BPT 206(A)	ETHICS AND LAW IN PHYSIOTH	ELECTIVE	100	30	70	-	-	-	3x2 =6	-	6

	ERAPY										
BPT 206(B)	**COMPUTER SCIENCE**	**ELECTIVE**	**100**	**30**	**70**	**-**	**-**	**-**	3x2 =6	**-**	**6**
	Total								**44**	**12**	**56**

Yearly credits have been calculated by multiplying the semester-wise credits by two.

BPT 3RD Year

			THEORY			PRACTICAL					
Code No.	**Paper**	**Type**	**Total Marks**	**Internal Marks**	**External Marks**	**Total Marks**	**Internal Marks**	**External Marks**	**L**	**T/P**	**Credits**
BPT 301	GENERAL MEDICINE	Core	100	30	70	-	-	-	4X2 =8	-	8
BPT 302	GENERAL SURGERY AND OBSTETRICS & GYANECOLOGY	Core	100	30	70	-	-	-	4X2 =8	-	8
BPT 303	CLINICAL ORTHOPEDICS	Core	100	30	70	100	30	70	4X2 =8	2X2 =4	12
BPT 304	CLINICAL NEUROLOGY & PAEDIATRICS	Core	100	30	70	100	30	70	4X2 =8	2X2 =4	12
BPT305	RESEARCH MATHDOLOGY & BIO-STATISTICS	Core	100	30	70	-	-	-	3X2 =6	-	6
BPT 306 (A)	COMMUNITY MEDICINE	ELECTIVE	100	30	70				3X2 =6	-	6
BPT 306(B)	BIOENGINEERING	ELECTIVE	100	30	70				3X2 =6	-	6
BPT 307	SUPERVISED CLINICAL TRAINING	Core	-	-	-	100	30	70	-	2X2 =4	4
	Total								**46**	**14**	**60**

Yearly credits have been calculated by multiplying the semester-wise credits by two.

BPT 4RT Year

			THEORY			PRACTICAL					
Code No.	**Paper**	**Type**	**Total Marks**	**Internal Marks**	**External Marks**	**Total Marks**	**Internal Marks**	**External Marks**	**L**	**T/P**	**Credits**
BPT 401	PHYSIOTHERAPEUTIC IN ORTHOPAEDIC CONDITIONS	Core	100	30	70	100	30	70	4X2 =8	2X2 =4	12
BPT 402	PHYSIOTHERAPEUTIC IN NEUROLOGICAL CONDITIONS	Core	100	30	70	100	30	70	4X2 =8	2X2 =4	12
BPT 403	PHYSIOTHERAPY IN GEN. MEDICINE & SURGICAL CONDITION	Core	100	30	70	100	30	70	4X2 =8	2X2 =4	12
BPT 404	PHYSIOTHERAPY IN CARDIOTHORACIC CONDITIONS	Core	100	30	70	100	30	70	4X2 =8	2X2 =4	12
BPT 405(A)	RATIONALE OF REHABILITATION	ELECTIVE	100	30	70	100	30	70	3X2 =6	2X2 =4	10
BPT 405(B)	**FIRST AID**	**ELECTIVE**	**100**	**30**	**70**	**-**	**-**	**-**	3x2 =6	**-**	**6**
BPT 406	MINOR PROJECT & CLINICAL TRAINING	Core	-	-	-	100	30	70	-	3X2 =6	4
	Total								**38**	**26**	**64**

6 MONTHS (180 DAYS) COMPULSORY CLINICAL INTERENSHIP & PROJECT (MAJOR) SUBMISSION

			THEORY			PRACTICAL					
Code No.	**Paper**	**Type**	**Total Marks**	**Internal Marks**	**External Marks**	**Total Marks**	**Internal Marks**	**External Marks**	**L**	**T/P**	**Credits**
BPT 501	CLINICAL INTERENSHIP & PROJECT	Core	-	-	-	100	30	70	-	24	24

Note: **Yearly credits have been calculated by multiplying the semester-wise credits by two.**

A student is required to obtain min. 50% marks in individual paper to pass

MAXIMUM & MINIMUM CREDITS OF THE PROGRAM

The total number of the credits of the BPT Programmes is 260

Each student shall be required to appear for examinations in all courses. However, for **the award of the degree a student should secure all 260 credits**.
A student may drop only one course in one year, out of electives only..

- AECC - Ability Enhancement Compulsory Course
- SEC - Skill Enhancement Course
- L - No. of Lectures per week
- T/P - No. of Tutorial/Practical per week

B.P.T. 1ST YEAR

PAPER - ANATOMY
CODE-BP101
THEORY--70

COURSE DESCRIPTION

The study of anatomy will include identification of all gross anatomical structures. Particulars emphasis will be placed on description of bones, joints, muscles, the brain, cardio pulmonary and nervous system, as these are related to the application of physiotherapy and occupational therapy in patients.

Course objectives

The objective of this course is that after 200 hrs. of lectures, demonstrations, and practical, the student will be able to demonstrate knowledge in human anatomy as needed for the study and practice of physiotherapy and occupational therapy.

In addition the student will be able to fulfill with 75% accuracy (as measured written & oral internal evaluation) the following objectives of the course.

INTRODUCTION

Define anatomy and mention its subdivisions.

Name regions, cavities and systems of the body.

Define anatomical positions and anatomical terms.

Unit 1

Upper limb and its joints

UNIT II

cardio-vascular system.

respiratory system.

digestive system

NERVOUS SYSTEM:

1. a.Define the subdivisions of the nervous system. Define central, peripheral and autonomic nervous systems and name their subdivisions:-

b.Mention the nuclei of origin & termination and indicate the site of attachment to brain /brain stem.

LOWER EXTREMITY: Unit-III

Lower limb and its joints

THORAX : Unit –IV

Thorax and ribs,

Temporomandibular joint, Atlantoccipital and Atlantoaxial Joint, Cutaneous distribution of trigeminal Nerve.

.

Abdomen & pelvis : Unit –V

Abdominal wall, kidney with ureter and spleen, small Intestine, Large Intestine, Abdominal Aorta, Portal vein, Diaphragm. Sacral plexus, Sacroiliac joint, Intervetebral disc

PRACTICAL: practical demonstration human body .

BOOK REFERENCES:-

1. Grays Anatomy
2. Human Anatomy- Snell
3. Anatomy – BD Chourasiya, Volume-I,II, & II
4. Human Anatomy – Kadasemn Volume –I , II & III
5. Human Anatomy- Dutta

B.P.T. 1ST YEAR

***PAPER* - PHYSIOLOGY**
CODE-BP102
THEORY---70

Course Description:

The course is designed to assist the students to acquire knowledge of the normal.Physiology of various body systems and understand the alternation in physiology in disease and practice of Physiotherapy as applicable for each systemic disorder.

UNIT:-I

Learning objectives

Describe the physiology of cell, tissues, Membranes and glands.

.**Cell Physiology**

Cell structures, functions and homeostasis. Cell membrane permeability and transport mechanisms.Bio electric potentials.

Teaching Learning activities**.**
Lecture discussion

Assessment methods
Short answer question, objective type.

UNIT-II

Learning objectives

Describe the contraction and tone various chemical & mechanical activities taking place in muscles & Nerves with special reference to injuries should be able to demonstrate fatigue and then phenomena related to muscles.

Muscle & Nerve

-General introduction types of responses by living organism, essentials of a system to produce movements. Structure of neuron neuromuscular junction and synapse.
-Electrophysiology of nerve and muscle. Generation conduction and transmission of nerve impulse.
-Classification of nerve fibers.
-Properties of nerve fibers, strength duration curve, accommodation.
-Structure and properties of different types of muscle.

***Teaching Learning activities*.**

- Lecture discussion,
- Explain using charts, models and films.
- Demonstration of joint movements.

Assessment methods
Short answer question, objective type.

UNIT-III

Learning objectives

- Describe the physiology of blood as applicable to various component of blood and should be able to carryout various hematological examination.

Blood:

-Composition and functions of blood plasma proteins, functions. Red blood cell-site of production, function

-Erythropoiesis and regulation, physiological and pathological variations.

Teaching Learning activities

- Lecture discussion, Explain using charts, models slides, specimen and films. Demonstrate the blood cell count Estimation of Hemoglobin determination of BT & CT, Blood grouping & ESR. W.B.C. count, RBC count & indices of Blood & DLC.

Assessment methods

- Short Answers Question , Objective Type

UNIT-IV

Learning objectives

- Describe the physiology of sympathetic & parasympathetic action & reflexes

Respiratory system.

-Introduction functional anatomy, functions respiratory and non respiratory.

-Mechanics of respiration inspiration, expiration, intra alveolar and intra pleural pressures, pneumo thorax. Pulmonary ventilation, airways resistance, compliance, work of breathing,

-Lung volumes and capacities. Gas law, partial pressures. Gas tension, Alveolar ventilation, composition of inspired alveolar and expired gases.

- Haemodynamics

- Blood pressure, measurement, regulation short term, intermediate and long term. Regulatory mechanisms. Venous circulation flow, pressure and factors affecting venous circulation, central venous mechanism, venous circulation-flow, pressure, factor affecting, central venous pressure. Microcirculation. Coronary circulation and patho physiological considerations. regional circulation..

UNIT-V

Gastro intestinal system.

-Introduction, functional anatomy, mastication swallowing. Physiology of gastro-intestinal secretions in general, Functions and regulation of gastric, Pancreatic, intestinal and bile secretions. Movement of alimentary canal, gastric emptying and intestinal movements function tests. Body fluids- distribution, volume and regulation. Path physiology of kidney-Renal failure -, Artificial Kidney Diuretics.

pregnancy and and parturition, changes in reproductive organs and different systems of the body. Physiology of lactation, mamogenesis, galactopoiesis, secretion and ejection of milk, lactation Ammenorthoea.Foetal and placental circulation.

Skin

Structure, blood circulation, functions, Temperature regulation-physical

Applied physiology

Effects of heat and cold (localized and generalized)
Effects of electrical stimulation on skin, muscle and nerves, Effect of mechanical pressure.
Effect of local and general exercise. Compensation and training in nervous system.
Effects of various sensory proprioceptive stimuli etc.

Teaching learning activities

- Lecture discussion, Explain using, charts films.

Assessment methods:

- Short answer, question, Objective type

Book Reference:-

1. Concise medical physiology. Dr. S.C. Choudhary
2. Human physiology Dr. C.C. Chatterjee.
3. Samsan writes applied physiology handbook –by Cyril a keeleeric B. Neil
4. Best and Taylor's physiological basic of Medical practice- C.H. Best aetal
5. Medical physiology Dr. A.C. Gutton.
6. Review of Medical Physiology – William F. Ganong.

B.P.T. 1ST YEAR

***PAPER* - BIOCHEMSTRY**
CODE-BP103(A)
THEORY---70

UNIT	CONTENTS
Cell & Sub cellular organelles	Structure & function of Cell & Sub-cellular organelles Biochemical characteristics of living matter, Physiochemical Phenomena & their significance (Osmosis Diffusion, Donnan Membrane equilibrium), Structure organization of plasma membrane & transport systems.
Definition, Structure, Functions & classification of Biological Macromolecules.	Carbohydrates, Lipids & Fatty acids, Nucleic acids, Amino acids & Proteins, Plasma proteins.
Enzymes	Classification & Mechanism of action, factors affecting enzyme activity, Enzyme kinetic, Enzyme inhibition, Coenzymes, Allosteric enzymes, Diagnostic significance of enzymes &isoenzymes.
Digestion & Absorption	Carbohydrates, Lipids, Proteins & Nucleic acids.
Biological oxidation & Bioenergetics.	Concepts of free energy change, Exergonic & Endergonic reactions, Biological oxidation, Electron transport chain, Oxidative phosphorylation, inhibitors &uncouplers of electron transport chain & Oxidative phosphorylation.
Metabolism	Introduction of intermediary metabolism & stage of catabolism.
Metabolism of Carbohydrates	Carbohydrate metabolic pathways such as Glycolysis, Gluconeogenesis, TCA cycle, HMP shunt pathway, Glucuronic acid pathway & Glycogen metabolism with their physiological importance, Interconversion of different sugars, Metabolic integration, Regulation of blood Glucose level, DM.
Metabolism of Lipids & Lipoproteins	B-Oxidation & synthesis of fatty acids, Metabolism of Ketone bodies, Metabolism of Cholesterol &Lipoprotiens with their clinical implications, Fatty liver & lipotropic factors.
Metabolism of proteins & amino acids.	Transmission, Deamination, Decarboxylation of amino acids, Fate pf ammonia (Liver & Brain), Urea cycle, Metabolism of aromatic amino acids & inborn errors of metabolism, Biologically important peptides & specialized products derived from amino acids.

Nucleic Acid metabolism & molecular biology.	Synthesis & catabolism of purines &pyrimidines gout, Necleosides, Nucleotides & Biologically important nucleotides, Replication, Transcription, Translation & inhibitors of protein synthesis.
Organ function tests	Liver, Pancreatic & Gastric
Biochemstry of tissues	Connective tissue, Nerve tissue & Muscle.
Kidney	Concepts of buffers, Ph & Body buffers, Mechanism of urine formation, Water, electrolyte & acid base balance, Kidney function tests.
Biochemical Endocrinology	General characteristics & Classification of hormones, Mechanism of action and metabolic effects of hormone of Pituitary, Thyroid, Parathyroid, Adrenal &Pncreas.
Nutrition & Dietetics.	Proximate principles of food & their physiological importance, Caloric requirements & Computation of diet, Balance diet, BMR & factors affecting BMR, SDA & its significance, RQ, Nitrogen balance, Malnutrition (Kwashiorkor & Marasmus), Obesity, diet in health & disease, Role of dietary fibre, Metabolism in exercise.
Vitamins	Dietary sourace, Daily requirements, Biochemical function & deficiency diseases of water soluble & fat soluble vitamins.
Mineral Metabolism	Dietary sources, Daily requirements, Biochemical functions & deficiency diseases of Iron, Zinc, Copper, Calcium & Phosphorus.
Interpretation of common clinical biochemistry investigations.	Sugar, Urea, Creatinine, Protein, Bilirubin, Uric acid, Cholesterol.

SUGGESTED TEXT BOOKS

1. Text Book of Biochemistry by Harbanslal
2. Essentials of medical biochemistry by R.C. Gupta
3. Harper's Illustrated Biochemstry by Murry et.al.26 Ed.
4. Text Book of Biochemstry by D.M. Vasudevan and sreekumari S. 4th Ed.
5. Biochemstry by U. Satyanarayana II Ed.

B.P.T. 1ST YEAR

PAPER ENVIRONMENTAL SCIENCE
CODE-103 (B)
THEORY---70

Unit-I: Fundamentals of Environmental Sciences

- Definition, Principles and Scope of Environmental Science. Structure and composition of atmosphere, hydrosphere, lithosphere and biosphere.
- Laws of thermodynamics, heat transfer processes, mass and energy transfer across various interfaces, material balance.
- Meteorological parameters - pressure, temperature, precipitation, humidity, mixing ratio, saturation mixing ratio, radiation and wind velocity, adiabatic lapse rate, environmental lapse rate. Wind roses. Interaction between Earth, Man and Environment.

Unit-II: Environmental Chemistry

- Fundamentals of Environmental Chemistry: Classification of elements, Stoichiometry, Gibbs' energy, chemical potential, chemical kinetics, chemical equilibria, solubility of gases in water, the carbonate system, unsaturated and saturated hydrocarbons, radioisotopes. Composition of air.
- Particles, ions and radicals in the atmosphere. Chemical speciation. Chemical processes in the formation of inorganic and organic particulate matters, thermochemical and photochemical reactions in the atmosphere, Oxygen and Ozone chemistry.

Unit-III: Environmental Biology

- Ecology as an inter-disciplinary science. Origin of life and speciation. Human Ecology and Settlement.
- Ecosystem Structure and functions: Structures - Biotic and Abiotic components. Functions - Energy flow in ecosystems, energy flow models, food chains and food webs. Biogeochemical cycles, Ecological succession. Species diversity, Concept of ecotone, edge effects, ecological habitats and niche.

Unit-IV: Environmental Geosciences

- Distribution of water in earth, hydrology and hydrogeology, major basins and groundwater provinces of India, Darcy's law and its validity, groundwater fluctuations, hydraulic conductivity, groundwater tracers, land subsidence, effects of excessive use of groundwater, groundwater quality. Pollution of groundwater resources, Ghyben-Herzberg relation between fresh-saline water.
- Natural resource exploration and exploitation and related environmental concerns. Historical perspective and conservation of non-renewable resources.
- Natural Hazards: Catastrophic geological hazards - floods, landslides, earthquakes, volcanism, avalanche, tsunami and cloud bursts. Prediction of hazards and mitigation of their impacts.

Unit-V: Energy and Environment

- Sun as source of energy; solar radiation and its spectral characteristics. Fossil fuels: classification, composition, physico-chemical characteristics and energy content of coal, petroleum and natural gas. Shale oil, Coal bed Methane, Gas hydrates. Gross-calorific value and net-calorific value.
- Principles of generation of hydro-power, tidal energy, ocean thermal energy conversion, wind power, geothermal energy, solar energy (solar collectors, photo-voltaic modules, solar ponds).
- Nuclear energy - fission and fusion, Nuclear fuels, Nuclear reactor – principles and types.
- Bioenergy: methods to produce energy from biomass.

B.P.T. 1ST YEAR

***PAPER* - SOCIOLOGY**
CODE-BPT104
THEORY---70

I. **Introduction:**
Definition of sociology, sociology as a science of society, uses of the study of sociology, application of knowledge of sociology in physiotherapy and occupational therapy.

II. **Sociology & health:**
Social factors affecting health status, social consciousness and perception of illness, social consciousness and meaning of illness, decision making in taking treatment. Institution of health of the people.

III. **Socialization**:
Meaning of socialization, influences of social factor on personality socialization in hospitals, socialization in rehabilitation of patients.

IV. **Social Group**:
Concept of social group, influence of formal and informal groups on health and sickness, the role of primary groups and secondary groups in the hospitals and rehabilitation setting.

V. **Family:**
Influence of family on human personality, discussion of changes in the function of a family, influence of family on the individual's health family and nutrition, the effect of sickness on family, and psychosomatic disease.

VI. **Community**:
Concept of community, role of rural and urban communities in public health, role of
community in determining beliefs, practices and home remedies in treatment.

VII. **Culture**:
Components of culture, impact of culture on human, behavior , culture meaning of sickness, response & choice of treatment (role of culture as social consciousness in moulding the perception of reality) culture induced symptoms and disease, sub-culture of medical workers.

VIII. **Caste system**: Feature of modern caste system and its trends.

IX. **Social change**:
Meaning of social change, factors of social change, human adaption and social change, social change and stress, social change and deviance, social change and health programmes, the role of social planning in the improvement of health and in rehabilitation.

X. **Social control**:
Meaning of social control, role of norms, folkways, customs, morals, religion, law and other means of social control in the regulation of human behavior, social deviance and disease.

XI. **Social problems of the disabled**:
Consequences of the following social problems in relation to sickness and disability:
remedies to prevent these problems:
a) Population explosion
b) Poverty and unemployment

c) Beggary
d) Juvenile delinquency
e) Prostitution
f) Alcoholism
g) Problems of women in employment.

XII. **Social Security**: Social security and social legislation in relation to the disabled.

XIII. **Social Worker:** The role of medical social worker.

Books Recommended:

1. Megee- sociology-Drydon press Illinois.
2. Kupuswamy- Social Changes in India –Vikas, Delhi
3. Ahuja- Social problems-Bookhive, Delhi
4. Gihnsberg- Principles of sociology-sterling publications.
5. Parter& Alder- Psychology & sociology applied to medicine- W.B. Sunders.
6. Julian- Social Problem- Prentice hall.

B.P.T. 1ST YEAR

***PAPER* – GENERAL & CLINICAL PSYCHOLOGY**
CODE-BP105
THEORY---70

Section- I

GENERAL PSYCHOLOGY

1. **Definition of psychology**: Definition of psychology, in relation to following schools method and branches
    a. Schools: Structuralism, functionalism, behaviorism, psychoanalysis, Gestalt Psychology.
    b. Methods: Interspection, observation, inventory and experimental method.
    c. Branches:General, child, social, abnormal, industrial, clinical, counseling, educational.
2. **Heredity and Environment**: Twins relative importance of heredity an environment, their role in relation to physical characteristics, intelligence and personality, nature-nature controversy.
3. **Development and growth behavior**: Infancy, childhood, adolescence, adulthood, middle age, old age.
4. **Intelligence**: Definitation, IQ, Mental age, list of various intelligence tests- WAIS, WISC, and Bhatia's performance test, raven's Progressive Metrics test.
5. **Motivation**: Definition, motive, drive, incentive and reinforcement, basic information about primary needs: hunger thirst, sleep elimination activity, air avoidance of pain, attitude to sex.
   Psychological needs: Information, security, self esteem, competence, love and hope.
6. **Emotions**: Definition: differentiate from feelings, psychological changes of gland, heredity and emotion, nature and control anger, fear and anxiety
7. **Personality:**
    a. Definitions: List of components: physical characteristics character, abilities temperament, interest and attitudes.
    b. Discuss briefly the role of heredity, nervous system, physical characteristics, abilities, family and culture of personality development.
    c. Basic concept of Freud: Unconscious, conscious, id ego and supergo, list and define the oral, anal and phallic stages of personality department list and define the stages as proposed by Erickson, 4 concept of learning as proposed by Dollard and Miller, drive cue, response and reinforcement.
    d. Personality assessment: Interview, standardized, non-standardized, exhaustive, and stress interviews, list and define inventories BAI, CPI and MMPI, projective test. Rorschach, TAT and sentence completion test.
8. **Learning:** Definition: List the laws of learning as proposed by Thorndike, type of learning: Briefly describe, classical conditions, operant conditioning, insight observation and Traila and error type list the effective ways to learn: Massed Vs. spaced, whole vs. part, Recitation Vs reading serial Vs. International learning, role of language.

9. **Thinking:** Definition, concepts creativity, steps in creative thinking, list the traits of creative people, delusions.
10. **Frustration:** Definition, sources, solution, conflict, Approach, Avoidance avoidance and approach- Avoidance solutions.
11. **Sensation, Attention and perception**.
    a. List of senses: Vision, Hearing, Olfactory, Gustatory and cutaneous sensation, movement equilibrium and visceral sense. Define attention and list factors that determine attention: nature of stimulus intensity, color, change, extensity, repetition, movement size, curiosity, primary motives.
    b. Define perception and list the principles of perception: Figure ground, constancy, similarity, proximity, closure continuity values and interests, past experience context, needs moods, religion, sex and age, perceived susceptibility perceived seriousness, perceived benefits and socioeconomic status.
    c. Define illusion and hallucination.
    d. List visual, auditory, cautaneous, gustatory and olfactory hallucination.
12. **Democratic and Authoritarian Leadership**:Qualities of leadership: physical factors intelligence, self –confidence, sociability, will and dominance. Define attitude. Change of attitude by: Additional information, change in group- affiliation, enforced modification by law and procedures that affect personality. (Psychotherapy, counseling and religious conversion).
13. **Defense Mechanisms of the Ego**: Denial, rationalization, projection, reaction formation, identification, repression, emotional insulation, undoing, interjection, acting depersonalization.

Section- II

HEALTH PSCYCHOLOGY

1. **Psychological reactions of a patient**: Psychological reactions of a patient during admission and treatment anxiety, shock denial, suspicion, questioning, loneliness, regression, shame, guilt, rejection, fear withdrawal, depression, egocentricity, concern about small matters, narrowed interests, emotional over reactions, perpetual changes, confusion disorientation, hallucination, delusion, illusions anger, hostility, lose of hope.
2. **Reaction to loss**: Reactions to loss, death and bereavement shock and disbelief, development of awareness, restitution, resolution, stages of acceptance as proposed by kulbir – Ross.
3. **Stress:** Physiological and psychological relation to health and sickness: psychosomatic, professional stress burnout.
4. **Communications:**
    a. Type verbal, non-verbal, element in communication, barriers to good communication, developing effective communication, specific communication techniques.
    b. Counseling: Definition, Aim differentiates from guidance, principles in counseling and personality qualities of counselors.
5. **Compliance**: Nature, factors, contributing to non – compliance, improving, compliance.
6. **Emotional Needs**: Emotional needs and psychological factors in relation to unconscious patients, handicapped patients, bed – ridden patients, chronic pain, spinal

cord, injury, paralysis, cerebral palsy, burns, amputations, disfigurement, head injury, degenerative disorders, parkinsonism. Leprosy, incontinence and mental illness.

7. **Geriatric psychology**: Specific psychological reactions and needs of geriatric patients.
8. **Pediatric psychology**: Specific psychological reactions and needs of pediatric patients.
9. **Behavior Modifications**: Application of various conditioning and learning principles to modify patient behaviors.
10. **Substance abuse**: Psychological aspects of substance abuse: smoking alcoholism and drug addiction.
11. **Personality styles:** Different personality styles of patients.

SECTION-III

CLINICAL PSYCHOLOGY

Introduction: Definition: sign & synapsing types of mental disorders psychosomatic complication

Disorders:

1. Psychosis schizophrenia delusional disorders acute and transient psychotic Disorders
2. Affective disorders: depression disorders mania bipolar affective disorders.
3. Anxiety disorders agoraphobia panic disorder generalized anxiety disorders,
4. Dissociative disorders somatoform disorders OCD,
5. Organic conditions - dementia delirium tranmutic

Special therapies:

1. psychotherapy – psychoanaigisisnarcesynerhesisthypnosis psychodrama
2. Group therapy.
3. shock therapy

Books Recommended:

1. Introduction to psychology- Mums- I.D.P. Co.
2. Foundation of psychology- Weld- Publishing house, Bombay.
3. Introduction to social psychology- Akolkar- Oxford publishing house.
4. Psychology and sociology – Applied to Medicine – Porter & Alder – W.B.Saunders.
5. Behavioral Science for Medical - undergraduates –Manju Mehta – Jaypee Brothers
6. Elementary Psychology –MohsinMotiLalBanarsiDass, Delhi.

B.P.T. 1ST YEAR

***PAPER* - BASIC PRINCIPLES IN PHYSIOTHERAPY**
CODE-BP106
THEORY---70

SECTION – I

1. Physical Principles:

- Structure and properties of matter- solids, liquids and gases, adhesion, surface tension viscosity, density and elasticity.
- Structure of atom, molecules, elements and compounds.
- Electron theory, static and current electricity.
- Conductors, Insulators, Potential difference, Resistance & Intensity.

Ohm's Law- Its application to AC & DC currents.

a) Rectifying devices – Thermionic Valves, Semiconductors, Transistors, Amplifiers, Transducers Oscillator circuits.
b) Capacitance, condensers in DC and AC Circuits.
c) Display devices & indicators- analogue & digital.

2. Effects of Current Electricity

1. Chemical effects – Ions and electrolytes, Ionization, Production of a E.M.F. by chemical actions.
2. Magnetic effects, Molecular theory of Magnetism, Magnetic fields, Electromagnetic induction.
3. Millimeter and Voltmeter, Transformers and Choke Coil, thermal effect-joule law, heat production.
4. Physical principles of sound and its properties.
5. Physical principles of light and its properties.
6. Electromagnetic spectrum – biophysical application.

3. Electrical supply:

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

SECTION – II

1. Introduction to exercise therapy, principles, technique and general areas of its application, Assessment & its importance.
2. BIOMECHANICS AND EXERCISE THERAPY
   a. Force: Composition of force, parallelogram of forces.
   b. Equilibrium: Stable, unstable, neutral.
   c. Gravity: Center of gravity, Line of gravity.
   d. Levers: 1st order, 2nd order, 3rd order, their examples in the human body and their practical applications in physiotherapy, forces applied to the body levers.

e. Pulleys: Fixes, Movable.
f. Springs: Series; Parallel
g. Tension
h. Elasticity: Hook's law.
i. Axis: Sagittal, Frontal, Transverse, vertical.
j. Planes: Sagittal, frontal, Horizontal.
k. Definition of speed, Velocity, work, Energy, power, Acceleration, Momentum, Friction and Inertia.

3. Introduction to movements including analysis of joint motion, muscle work and Neuro muscular co- ordination.
4. Principal classification techniques physiological &therapeutic effects indications & contraindications of therapeutic exercises.
5. Classification of movements: Describe the types, technique of application, indication, contraindications, effects and uses of the following.
   a) Active movement b) Passive movement.
   c) Active assisted movement d) Resisted movement

Book Reference:

1. Clayton's electrotherapy theory and practice IX Edition by Angela Forester Nigel Palastanga.
2. Clayton's electrotherapy theory and practice X Edition by Kitchen &Bazin.
3. Clinical Electrotherapy by RogarM.Nelson& Dean P. Currier.
4. Electrotherapy explained Principles and practice III Edition by John Low & Ann Reed.
5. Therapeutic heat and cold by Lehmann.
6. Principle and practice of Electrotherapy by Joseph Kahn.
7. Electrotherapy: Clinics in physical therapy- Wolf.
8. Practice exercise therapy- Hollis- Blackwell Scientific Publication
9. Therapeutic Exercises- Basmajjan- Williams and Wilkins.
10. Therapeutic Exercises Foundations and Techniques –Kisner and Colby – F.A. Davis.
11. Proprioceptive Neuromuscular Facilitation –Voss et. al –Williams and Wilkins.
12. Principle of exercise of therapy – Gardiner –C.B.S. Delhi

B.P.T. 1ST YEAR

***PAPER* - COMMUNICATION SKILLS & PERSONALITY DEVELOPMENT FOR PROFESSIONALS**

CODE-BP107
THEORY---70

Unit I Introduction

Nature, scope and importance of effective communication; Challenges in today's workplace and need for communicating effectively; Process of Communication, Barriers to Communication and ways to overcome them; Channels of Communication.

Unit II Communication in Organizations

Defining Communication and Communication in Organizational Setting-Communication Oral, written & Non Verbal Communication; 7C's of Communication; Listening Skills.

Unit III Written Communication

Advantage of Written Communication; Basics of Writing Reports; Preparing Powerful Resumes; Memos; Business Emails.

Unit IV Effective Business Writing: letters

Nature and Forms of Business letters; Process of Writing Business letters; Writing Routine; Good News, Bad News letters, Goodwill letters and Persuasive letters.

Unit V Speech Dynamics

Basics of Speaking in Public; Participating in Meetings and Group Discussions; How to face Interviews; Presenting yourself before; at and after interviews; FAQ during interviews.

Unit VI Designing and Delivering Presentation

Concept and types of presentation; Subject selection and organizing information; Organizing a presentation.

Unit VII Time Management

Concept and importance of Time management; Techniques of time management; Barriers to effective time management.

Unit VIII Leadership skills

Concept; Qualities of a good leader; Leadership styles.

Unit IX Team Management Skills

Concept; Understanding group formation; Team effectiveness assessment; Team management techniques.

Unit X Increasing Effectiveness

Goal Setting, Handling Stress, Building Confidence

Text Books:

1. Business Communication Today, Bovee, Thill and Schatzman, Pearson Education
2. Alex K. (2012) Soft Skills – Know Yourself & Know the World, S.Chand & Company LTD, Ram Nagar, New Delhi- 110 055.

Reference books:

- Soft skills Training – A workbook to develop skills for employment by Fredrick H. Wentz
- Personality Development and Soft skills , Oxford University Press by Barun K. Mitra
- Basic Business Communication; Raymond V. Lesikar and Marie E. Flately, Tata McGraw-Hill Publishing Company Limited

B.P.T. 2ND YEAR

***PAPER* - PATHOLOGY & MIC-BIOLOGY**
CODE-BP201
THEORY---70

(Part –I): Pathology

Note for Paper setters / Examiners

- Paper setter is required to set 4 questions from the entire syllabus.
- Question No.1 will be compulsory which carries 14 marks (long essay)
- Students will be required to attempt two more questions out of three carrying thirteen marks each.

Objective: - At the end of the course, the student will be able to-

i) Acquire the knowledge of concepts of cell injury and changes produced
ii) Thereby in different tissues and organs; Capacity of the body in healing Process.
iii) Recall the Etio-pathological effects and the Clinco-pathological correlation of common infection and non-infections diseases.
iv) Acquire the knowledge of concepts of Neoplasia with reference to the Etiology gross and microscopic features diagnosis and prognosis in defferent tissues and organs of the body.
v) Correlate normal and altered morphology of different organ systems in different diseases needed for understanding disease process and their clinical significance (with special emphasis on neuro-musculo- skeltol and cardio-respiratory system).
vi) Acquire knowledgeof common immunological disorders and their resultant effects on the human body.
vii) Understand in brief, about the Hemmatological diseases and their results effects on the human body.

COURSE DESCRIPTION

A. Introduction to Pathology

1. **General Pathology**:

a. Cell injury- causes, mechanisms with special reference to
b. Physical, Chemical and toxic injury and ionizing radiation.
c. Reversible cell injury(degenerations)-types morphology-cellular swelling fatty change.
d. Intracellular accumulations –hyaline change and mucinous change,
e. Irreversible cell injury types of necrosis apoptosis Gangrene types and Etiopathogenesis.
f. Pathological calcification-dystrophic and metastatic, pathogenesis and morphology
g. Extra- cellular accumulation-amyloidosis.
h. Pigments and pigmentations.

2. Inflammation & Repair-

a. Acute inflammations features, causes, vascular & cellular events,

b. Morphologic variations.
c. Inflammatory cell & mediators,
d. Chronic inflammation:-causes, types, non-specific & granulomatous-with examples.
e. Wound healing by primary & secondary intension factors promoting &delaying healing process, healing at various sites including bones nerve &muscle.
f. Regeneration &repair.

3. A. Immumno-Pathology—(Basic concepts)-

a) Immune system:- organizations cell- Antibodies- Regulations of immune responses,
b) Hyper-sensitivity,
c) Secondary immune deficiency including HIV,
d) Organ transplantation

B. Brief Medical Genetics
C. Deficiency disorders of Vitamin A, B,C and D.

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4. Circulatory disturbances-

a Edema- pathogenesis-Types transudate/ exudates,
b Chronic venous congestion- lung, liver and spleen
c Thrombosis- formations fate and effects
d Embolism- types clinical effects
e Infarction- types common sites
f Shocks Pathogenesis, Types, morphologic changes.

5. Growth Disturbance

a. Atrophy- malformation, agenesis dysplasis
b. Neoplasisa- classification, histogenesis, biologic behavior, differences between & malignant tumors
c. Malignant neoplasm's- grades stages local invasion &distal spread-,
d. Carcinogenesis- environmental carcinogens-
   i) Chemical, viruses radiations
   ii) Physical
   iii) occupational,
   iv) Heredity and miscellaneous factors.
e. Precancerous lesions & carcinoma in situ.
f. Tumor &host interactions- systemic effects- metastasis or spread of tumors especially affecting bones spinal cord leading to paraplegia,etc

6. Diseases of Blood.

a) Red cell disorders anemia's polycythemia,
b) Non Neoplastic disorders and neoplastic proliferation of white cell,
c) Bleeding Disorders: - DIC, Thrombocytopenia, coagulation Disorders.

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7. Topics in Special Pathology:-

a. **Cardio Vascular system**: - Atherosclerosis, Ischemic heart disease-Myocardial- infarctions-Pathogenesis/ pathology, hypertension, congestive cardiac Failure Rheumatic heart diseases and Peripheral vascular diseases.
b. **Respiratory System** :-COPD, pneumonia (lobar broncho viral)

Tuberculosis: - primary and secondary morphologic types pleuritis: Complication lung collapses atelectasis.

c. **Neuropathology reaction of nervous tissue to injury infection-** & Ischemia pyogenic tuberculours and viral meningitis cerebro-vascular diseases Atherosclerosis thrombosis embolism aneurysm hypoxia infarction &hemorrhage effects of Hypotension on CNS. Coma polio myelitis leprosy demyelinating diseases, parkinsonism..Cerebral palsy metachromatic leucodystrophy dementia, Hemiplegia and paraplegia pathogenesis& pathology of Wilson's disease space occupying lesions (in brief) peripheral nerve injury.
d. **Muscle diseases**- muscular dystrophy hypertrophy pseudo hypertrophy atrophy, poliomylelitis myositis ossificanes necrosis regeneration myotonia
e. **Neuro-muscular junction**: - myasthenia gravis myasthenics syndromes.
f. **Bone & joints-**a) Fracture healing osteomyelitis rickets osteomalacia bone,tumors osteoporosis spondylosis PID scoliosis haemarthrosis, gout T.B, Arthritis degenerative inflammatory rhematiod arthritis,Ankylosing sponsdylitis-tenosynovitis.
g. **Urinary:** commonly encountered in paralytic bladder common urinary tract,Infections (brief) –uninary calculi-
h. **Gastrointestinal system**- (1hr.) Gastric/duodenal ulcer enteric fever, tuberculous enterits gastritis (related to consumption of NSAID)
i. **Endocrine**- hyperthyroidism diabetes.
j. **Hepatic diseases** (1hr.)-cirrhosis and emphasis on systemic effects of portal hypertension.
k. **Skin-** melanin pigment disorders vitillogo tenia vericolor psoriasis,bacterial / fungal infections cutaneous tuberculosis scleroderma, SLE leprosy,alopecia.

8. **Clinical pathology**- (Including demonstrations)-a)-anemias total leucocyte count differential leucocyte count eosinophilla, ESR,C P K, Muscle /skin /nerve biopsy. Microscopic appearance of muscle necrosis-fatty infiltrations. Lab. Investigation in liver &renal failure.

Text books:-

1. Text book of pathology for dental student by harsh Mohan
2. Basic pathology by cotran Kumar Robbins

(Part-II) Microbiology

Note for Paper setters / Examiners

- Paper setter is required to set 4 questions from the entire syllabus.
- Question No.1 will be compulsory which carries 14 marks (long essay)
- Students will be required to attempt two more questions out of three carrying thirteen marks each.

*(**Objectives**: Only brief descriptions of the following topics are necessary so that the student get a general idea.Of the fundamental aspects of the topics elaborate descriptions are to be avoided)*

General Bacteriology

Sr. No.	**Topic of lecture**	**Contents**
1.	Introductions and historical background	importance of medical microbiology in diagnosis & prevention of infectious diseases. Contributions of antony van leeuwenhoeck, Pasteur lister Robert koch fleming jenner etc.
2.	Definition	a) Medical microbiology which includes the Bacteriology virology mycology parasitology nd Immunology infection pathogen commensalsymbiosis Host vector contagious disease infections disease, Eqidemec endemic pandemic & Zoonosisentionormal Flora of the human body. b) Source mode of infection route of infection and endogenous and exogenous infections, reservoirs of infection.
3.	Morphology of Bacteria	Bacterial cell morphological classifications, method of studying of bacteria, staining methods and their principles especially gram and zeihl neelsen staining their importance in presumptive diagnosis.
4.	Physiology of bacteria	Nutritional requirements growth curve culture media:- definition classifications and application. Can add a note on important constituents of culture media.
5.	Identification of bacteria	Specimen collection, transportation and processing of specimens for microbiology diagnosis which include smear examination

		culture methods, biochemical reactions serological tests and animal pathogenicity.
6.	Sterilization and disinfection	Definition of sterilization disinfection aspesis antisepsis discussion of physical methods of erilization which includes principles and their application details on working and efficacy testing of autoclave hot air oven inspissator and koch ,s steamer modes of action of chemical

Systemic bacteriology

Sr.No.	Topic of Lecture	contents
1.	Gram positive cocci	staphylococcus/streptococcus/peneumococcus morphology pathogenesis laboratory diagnosis.
2.	Gram negative cocci	- neisseria - morophology pathogenesis laboratory diagnosis
3.	Gram positive bacilli	- C.diphtheriase - Morophology pathogenesis laboratory diagnosis treatment prevention and control. - Mycobacterium tuberculosis. Classification morphology growth on L.J medium Pathogenesis laboratory diagnosis briefly mention National T.B control programme. - Atypical mycobacterium. Pathogenesis laboratory diagnosis HIV and Mycobacterium. -M.leprae. classification morphology pathogenesis laboratory diagnosis.
4.	C l. welchii cl.tetani	classification morphology athogenesis laboratory diagnosos ention and control
5.	Enterobacteriaece	General characters classification (briefly mention about E coli klebseilla, proteus and shigella)
6.	Salmonella	morphology pathogenesis laboratory diagnosis, prevention and control.
7.	Vibrio	Morphology pathogenesis laboratory diagnosis V.cholera)
8.	Spirochaetes	Morphology pathogenesis laboratory diagnosis (T. pallidum) Bacteriology of Air , mention briefly Water, milk and flood

Mycology

Sr.No.	Topic of lecture	contents
1.	General mycology	characterization of fungi morphological and clinical classification of fungi.
2.	Superficial mycosis	mention briefly.
3.	Subcutaneous mycosis	mycetoma- pathogenesis and lab diagnosis.
4.	Systemic mycosis	candida Cryptococcus- morphology pathogenesis lab diagnosis with cultural characteristic.
5.	Opportunistic fungal Infection	Aspergilliois

Virology

Sr. no.	Topic of lecture	contents
1.	General virology	morphology multiplication classification of viruses bacteriophage. Laboratory diagnosis o viral infections collection of Samples Transport Cultivation and method of diagnosis:
2.	Herpes virus	classification morphology pathogenesis.
3.	Hepatitis viruses	Hepatits-B,C-Morphology, laboratory diagnosis prophylaxiin detail (Mention briefly about the other hepatits viruses)
4.	Picorna viruses' (Polio virus)	morphology pathogenesis clinical feature Immunoprophylxis.
5.	Paramyxo viruses	Important feature of measles in relation to physiotherapy (SSPE)
6.	Retroviruses	HIV/AIDS, morphology pathogenesis lab diagnosis Universal precautions specific precaution and Prophylaxis

Parasitology

Sr. No.	Topic of Lecture	contents
1.	Introduction to parasitology	Parasite: - their nature, classification explanation of Terminology, emerging parasitic infections.
2.	Malaria	Malaria parasities:- Morpology, life cycle, pathogenesis, laboratory diagnosis.

3. Miscellaneous	mention briefly about toxoplasma pathogenic protozoa
4. Cestodes	taenia saginata and solium echinococcus granulosus life cycle morphology pathogenesis laboratory diagnosis,
5. Tissue nematodes	morphology life cycle pathogenesis laboratory diagnosis of w.brancrofti briefly mention about T. SPIALIS.

Applied Microbiology

1. Upper respiratory tract infections (sore throat) and their laboratory diagnosis.
2. Lower respiratory tract infections and their laboratory diagnosis.
3. Infection of central nervous system and their laboratory diagnosis
4. wound infection and pyogenic infections
5. Bone and joint infections and their laboratory diagnosis.
6. Hospital infections role of laboratory in cross infections control policies.

Practical

General bacteriology:-

Microscopy morphology

a. Stains Sing method- gram staining Z-N stading.
b. Culture media biochemical reaction
c. Demonstration of bacterial capsule spore metachromatic granules
d. Scheme for laboratory diagnosis of infective diseases which includes
e. Collection storage and transport microbiological specimens.

Sterilization - demonstration of details on working and efficacy testing of autoclave

a. Hot air oven Inspissator and koch, s steamer.
b. Modes of actions of chemical agents on microbes –phenols halogens aldehdes,
c. Acids alcohols heavy metals oxidizing agent. Universal biosafety.

Systemic bacteriology:-

Identification by staining culture biochemical reactions serology and special Diagnostic procedures for important bacteria.

Immunology: - Demonstration of agglutination and precipitation reactions.

Virology: - Demonstration of morphology of important viruses.

Mycology: - Demonstration of fungal mounting colony characteristics.

Parasitology:- stool examination,Demonstration of blood smears
Agents on microbes- phenols halogens aldehydes acids. Alcohols heavy metals oxidizing agents Universal biosafety measures.

7.	Chemotherapy	anti-microbial susceptibility tests (disk diffusion test Kirby bauer,s method and stoke,s method.)
8.	Waste disposal	definition of waste classification and disposal.

Immunology

Sr. No.	Topic of lecture	contents
1.	Introduction	Definition of immunity types of immunity, factors influencing mechanism of innate mmunityactiveand passive immunity local immunity and herd immunity
2.	Antigens	definition types antigen determinanats properties of antigen.
3.	Antibodies	definition nature structure classes physical and biological properties of immunoglobulin.
4.	Serological	Definition of titer sensitivity and specificity, Reactions mention about principles types and application of Precipitation gel diffusion gliutination complement Fixation ELISA RIA immune fluorescence, neutralization And opsonization..
5.	Structure	primary and secondary lymphoid organs Function of immune mention about cells of immune system lymphocytes, System t cells, cells null cell antigen presenting cells (APC).
6.	Immune response	humeral CMI.
7.	Complement	definition components biological functions.
8.	Hypersensitivity	definition classification defference between immediate and delayed reactions mechanism and manifestation of anaphylaxis types and tests foranaphylaxis.
9.	Vaccination	national immunization programme.. nature of vaccines rationale and dosage..

Books recommended:

1. Text book of microbiology for dental student — baveja
2. Text book of medical microbiology — rajesh Bhatia&
3. Itchpujani
4. Textbook of medical microbiology — arora &arora
5. Text book of medical parasitology — arora &arora

Reference book:

1. Text book of microbiology -R ananthanarayan & c.k jayaram paniker

B.P.T. 2ND YEAR

***PAPER* - PHARMACOLOGY**
CODE-BP202
THEORY---70

Note: **For Paper setters / Examiners**

- Paper setter is required to set 8 questions from the entire syllabus.
- Question No.1 will be compulsory which carries 15 marks (long essay)
- Students will be required to attempt five more questions out of seven carrying thirteen marks each.

1. GENERAL PHARMACOLOGY:

1. Definition division of pharmacology dosage forms drug nomenclature.
2. Routes of administration adv & disadv. of commonly used routes of administration
3. Factors affecting dose of a drug.
   3a. bioavailability and other imp pharmacokinetic parameters.
4. Various mechanism of action of a drug.
5. Adverse drug reaction include drug.
6. Adverse drug reaction including drug allergy idiosyncrasy.
7. Drug interactions synergism antagonism etc.

2. ANS:

1. Sympathomimetic drug therapeutic uses of adrenaline etc.
2. Beta adrenergic blockers alpha adrenergic blockers.
3. Parasympatomimetic drug their therapeutic uses and uses and adverse effects treatment of myasthenia gravis.
4. Atropine, Atropine substitute T/t of organ phosphorus poisoning.

3. PERIPHERAL NERVOUS SYSTEM &AUTOCOIDS:

1. Skeletal Muscle Relaxants.
2. Centrally acting muscle reaxants.
3. Local anaesthetics.
4. Anti histaminics(HI blockers).

4. CNS:

1. Pre Anaesthetic medication &G.A. and stapes of anaesthesia.
   1. a Analgesic –Opioids.
2. Analgesics –NASID, s etc.
3. Anti –Parkinson an drug &T/t of neurodegenerative disorders.
4. Sedative &hypnotics &T/t of Insomnia.
5. Antiepileptic drug &T/t of epileptics
6. Ethylacohol drug of addiction T /t of Methyl alcohol poisoning
7. Drug used in common psychiatric disorders.

5. ENDOCRINES:

1. Anti diabetes drug T/t of DMT/t of Diabetic ketoacidosis.
2. Glucocorticoids
3. Anabolic steroid
4. Ca++Metabolism T/t of osteoporosis etc.

6. GIT:

1. Laxative & purgative and T/t of constipation.
2. Anti diarrhoeal drugs & T/t of diarrhea.
3. Drug for gastric and peptic ulcer.
4. Anti emetics & misc . Drugs digestants etc.

7. CHEMOTHERAPY:

1. Penicillin's & Sulphonamides.
2. Broad spectrum Antibiotics.
3. Aminoglycosiders &T/t of urinary tract infection.
4. Macrolides &Misc. AMA
5. Quinolones
6. Anti TB Drugs
   6a. HIV, AIDS & Treatment of AIDS
7. Anti leprosy drug T/t of anaerobic infections.
8. Anti cancer drugs.
9. T/t of amoebiasis, helminthic infection.
10. Antifungal druges.
11. Anti septics & disinfectants.

8. CVS & BLOOD:

1. Anti hypertensive & T/t of hypertension etc.
2. Antianginal druge & T/t of MI
3. Drugs used in shocks/t of anaphylactic shock Hemorrhagic shocks etc.
4. Iron – deficiency anemia and other anemias.

9. MISC . TOPIC

1. Drug acting on skin e.g. Lotions liniments ointments.
2. Vitamins vit deficiency.
3. Heavy metal antagonists & general principles of T/t of poisoning.
4. Immunostimulants and Immunosuppressant.
5. Antitussives & Bronchial asthma.
6. Drugs banned in sports & Athletes.
7. Vaccines & sera, Immunization schedule

RECOMMENDED BOOKS:

1. Essentials of pharmacology by Surendra Singh
2. pharmacology by Bhattacharya Sen ray choice editor P.K. Das
3. Clinical Pharmacology by Sennet.

B.P.T. 2ND YEAR

***PAPER* - BIOMECHANICS**
CODE-BPT203
THEORY---70

NOTE: FOR PAPER SETTERS / EXAMINERS

- Paper setter is required to set 8 questions from the entire syllabus.
- Question No.1 will be compulsory which carries 15 marks (long essay)
- Students will be required to attempt five more questions out of seven carrying thirteen marks each.

COURSE DESCRIPTION

This Course Supplements the Knowledge of anatomy and enables the student to have a better understanding of the principles of biomechanics and their application in musculoskeletal and dysfunction.

COURSE OBJECTIVE

The objective of this course is that student will be able to demonstrate the basic principles of biomechanics along with their application in the normal as well as in various pathological conditions.

I- BASIC CONCEPTS OF BIOMECHANICS*:*

- Introduction to Bio-Mechanics and kinesiology, Basic Concept of Kinetics and Kinematics
- Types of motion: Translatory, Rotatory, Angular Motion
- Forces: forces systems, Parellel Force system, Concurrent force system and Linear Force System, Friction Force
- Newton's law of motion, concurrent force systems – composition forces, muscle action line etc.
- Axis & Planes
- Levers, Types of Levers , Mechanical Advantage and Disadvantage
- Pulleys, Anatomic pulleys
- Centre of Gravity, line of gravity, Segmental Centres of Gravity, Stability and equilibrium.

II- JOINT STRUCTURE AND FUNCTION

- Basic principles of Joint design and a human joint.
- Tissues present in human joint including fibrous tissue, bone cartilage and connective tissue.
- Classification of joints.
- Joint function, Kinematics chains and range of motion
- Effect of Disease or injury on Structure and function of Joints.

III- MUSCLE STRUCTURE AND FUNCTION*:*

- Elements of muscle structure – Composition of a muscle fiber, the motor unit, types of muscle fibers, muscle fiber size, arrangement and number, Muscle tension, length- tension relationship.
- Mechanism of Muscle Contraction.
- Mobility and stability functions of muscle.
- Types of muscle contractions and muscle work.
- Classification of muscles and their functions.
- Factors affecting muscle function: Type of joint and location of muscle attachment, number of joints, passive insufficiency, sensory receptors.

REGIONAL BIOMECHANICS

IV- BIOMECHANICS OF VERTEBRAL COLUMN (SPINE)

- Structure & Biomechanics of Intervertebtral Disc
- Muscles and Ligaments of Cervical, Thoracic, Lumbar & Sacral regions.
- Biomechanics of facet joint & Interbody Joint during spinal motions: Flexion, Extension, Side Flexion, Rotation Pathomechanics of spinal motion

V- SHOULDER COMPLEX

- Structural components of the shoulder complex including the articulating surfaces, capsular attachments and ligaments and movements of the following joints:
  - i) Sternoclavicular
  - ii) Acromioclavicular
  - iii) Scapulothoracic
  - iv) Glenohumeral.

- Dynamic and Static stability of shoulder joint including function of shoulder complex including dynamic stability of the glenohumeral joint musculohumeral Rhythm, Scapulothoracic and glenohumeral contributions.
- Muscles of Shoulder Complex

VI- ELBOW COMPLEX

- Structure of the Humeroulnar and Humeroradial joints including articulating surfaces, joints capsule, Ligaments & Muscles
- Function of the Humeroulnar and Humeroradial joints including the axis of motion, Range of motion, Muscle action.
- Structure and Function of superior and inferior radioulnar joints
- Mobility and Stability of Elbow Complex

VII- THE WRIST AND HAND COMPLEX.

- Structure and Function of
  - Radiocarpal joint
  - Metacarpal joint.
  - Carpometacarpal,
  - Metacarpophalangeal and
  - Interphalangeal joints
- Describe Prehension, Power, Cylindrical, Spherical & Hook grips.
- Describe Precision handling, Pad to pad, Tip to tip and pad to side prehension and functional position of wrist and hand.
- Stability and Mobility of Wrist and Hand Complex

VIII- THE HIP COMPLEX.

- Structure of Hip Joint including the articulating surfaces on the pelvis & the femur; joint capsule. Ligaments & Muscles of Hip Complex
- Pelvis motion; anterior posterior pelvic tilting. Lumbar pelvic rhythm, lateral pelvic tilting, Pelvic rotation.
- Describe reduction of forces with weight shifting and using a cane and deviations form normal in muscular weakness & bony abnormalities.
- Stability and Mobility Function of Hip Complex

IX- THE KNEE COMPLEX.

- Structure of the Tibiofemoral joint, Articulating surfaces on femur and tibia, the menisci, joint capsule and bursa, Ligaments and Muscles.
- Anterior- posterior and medio- lateral stability of Knee joint:
- Locking and Unlocking Mechanism of Knee Joint : function of menisci and Muscle function.
- Structure and Function of the patellofemoral joint
- Effects of injury and disease in the Tibiofemoral and patellofemoral joints.
- Stability and Mobility Of Knee Complex

X- ANKLE- FOOT COMPLEX.

- Structure,Function ligaments, Muscles and function of the following:
  - Ankle joint,
  - Tibiofibular joint
  - Subtalar joint
  - Talocalcaneonavicular joint
  - Transverse tarsal joint
  - Tarsometatarsal joint
  - Metatarasophalangeal joint
  - Interphalangeal joint
- Compound articulations of the ankle subtalar talocalcaneonavicular, transverse tarsal and tarsometatarsal joints
- The articular movements in the weight- bearing and Non Weight Bearing subtatar joint motion
- Supination and Pronation Twist .
- Structure and function of the plantar arches
- Metatrsal Break

XI- POSTURE

- Definition, factors responsible for posture, relationship of gravity on posture.
- Postural imbalance – factors responsible for imbalance in Static and dynamic positions.
- Introduction to ergonomics

XII- GAIT

- Description of Normal gait, determinants of gait, spatio temporal features and analysis.
- Gait deviations – Types, Causative factors and analysis.
-

XIII- ACTIVTIES OF DAILY LIVING (ADLS)- BADL, IADL.

Books Recommended:

1. Joint Structure and Function – A Comprehensive Analysis - Norkins & Levangie - F.A. Davis.
2. Measurement of Joint Motion – A Guide to Goniometry - Norkins & White - F.A. Davis.
3. Brunnstrom's Clinical Kinesiology - Smith et al - F.A. Davis.
4. Basic Biomechanics explained - Low & Reed - Butterworth Heinmann.
5. Kinesiology: Applied to Pathological Motion - Soderberg Lippincott.

B.P.T. 2ND YEAR

***PAPER* - EXERCISE THERAPY**
CODE-BP204
THEORY---70

SECTION –I

1. Review of biomechanical principles.

2. Description of fundamental starting position and derived position including joint positions, muscle work, stability, effects and uses.
3. PELVIC TILT
   Describe the following:
   a. Normal pelvic tilt; alteration from normal, Anterior tilt (forward), posterior tilt
   (backward), Lateral tilt.
   b. Muscles responsible for alteration and pelvic rotation.
   c. Identification of normal pelvic tilt, pelvic rotation and altered tilt and their corrective measures.

SECTION –II

1. Manual Muscle Testing.
   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.
2. Goniometry and its types.
   a) Principle 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.
3. Muscle insufficiency –etiogenessis of muscle insufficiency (strength tone power, endurance & volume), general techniques of strengthening effects indication, contraindications & precautions.
4. Neuromuscular inco-ordination-review normal neuromuscular coordination, etiogenesis of neuromuscular in co-ordination &general therapeutic techniques effects indications,Contraindication & precautions.
5. Functional re-education- general therapeutic techniques to re-educate ADL function.
6. To study the principles, techniques of application indication, Contraindication, precaution, effects and uses of Suspension Therapy

SECTION –III

Special techniques:

1. Introduction to special mobilization & manipulation techniques effects indication & contraindications.
2. Conceptual framework, principle of proprioceptive neuromuscular facilitation (PNF) techniques including indication therapeutic effects and precautions.
3. Principles of traction physiological & therapeutic effects classification types indications
   contraindications techniques of application operational skill & precautions.
4. Review normal breathing mechanism types techniques indication contraindications

Therapeutic effects & precautions of breathing exercise.

5. Group theory –types advantages & disadvantages.
6. Exercise 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 group.
7. Introduction to yoga – conceptual framework various areas the body mind relationship
   effects & precautions.
8. Soft Tissue Manipulation –History and various types of STM , Physiological effects, techniques

SECTION –IV

Posture balance gait:

1. Normal posture-overview of the mechanism of normal posture.
2. Abnormal posture –assessment types etiotenesis management including therapeutic Exercise.
3. Static and dynamic balance- assessment & management including therapeutic exercise.
4. Gait-overview of normal gait &its components.
5. Gait deviations-assessment, types etiogenesis management including therapeutic exercise.
6. Types of walking aid indications effects & various training techniques.

SECTION – V

Hydrotherapy:

1. Basic principles of fluid mechanic 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 operations skill & patien preparation.

Relaxation & Therapeutic Gymnasium

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 and contraindication.

Therapeutic Gymnasium

i) Setup of a gymnasium & its importance.
ii) Various equipment in the gymnasium.
iii) Operation skills, effects & uses of each equipment.

Practical:

1. To practice all the soft tissue manipulative technique region wise – upper limb, lower limb,neck, back and face.
2. To practice to measurement of ROM of joints- upper limb, lower limb and 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 practice the various type of suspension therapy and its application on various parts of body – region wise.
6. To study & practice local and general relaxation techniques.

7. To study & practice the various techniques of progressive strenghthening exercise of muscles region wise.
8. To study & practice the use of various ambulation aids in gait training.
9. To assess & evaluate and practice various training techniques.
10. To study practice mat exercise.
11. To assess & evaluate normal & abnormal posture & practice various corrective techniques.
12. To assess & evaluate equilibrium balance & practice various techniques to improve balance.
13. To study the structure & functions of hydrotherapy equipment & their application.
14. To study & practice various traction techniques including manual mechanical & electrical procedures.
15. To study & practice various group exercise therapies.
16. To practice & experience effects of basic yoga asanas.
17. To study plan & practice exercise programmes for normal person of various age group
    a. muscle.

Book Recommended:

1. Practice exercise therapy- Hollis- Blackwell Scientific Publication
2. Therapeutic Exercises- Basmajjan- Williams and Wilkins.
3. Therapeutic Exercises Foundations and Techniques –Kisner and Colby –F.A. Davis.
4. Proprioceptive Neuromuscular Facilitation –Voss et. al –Williams and Wilkins.
5. Principle of exercise of therapy – Gardiner –C.B.S. Delhi
6. Beard's Massage –Wood- W.B. Saunders.
7. Motor control theory and practical application Shumway –Cook & Wallcott. - Lippincott.
8. Hydrotherapy, principle and practice- Campion – Butterworth Heinmann.
9. Muscle testing and functions – Kendall- Williams & Wiikins.
10. Deniels and Worthingham's- Muscle testing- Hislop & Montgomery –W.B. Saunders.
11. Measurement of joint motion: A guide to Goniometry- Norkins & White- F.A. Davis.

B.P.T. 2ND YEAR

***PAPER* - Electrotherapy**
CODE-BP205
THEORY---70

Section –I

1. Review of neuro muscular physiology including effects of the body.
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. Physic of sound including characteristics and propagation.

Section- II
BASIC PHYSICS FOR ACTINOTHERAPY (IRR & UVR)

1. Define heat and temperature (in brief)S
2. Physical effects of heat- (in brief)
3. Transmission of heat (in brief)
4. Sources of therapeutic heating and its physiological effects.
5. Radiation energy and its properties.
6. Electromagnetic spectrum-production and its properties.
7. Laws governing radiation.
8. Skin
    a. Structure
    b. Depth of penetration
9. Discuss in brief piezo-electric effect.

II Infra red rays-

Wavelength, frequency, types & sources o IRR generation, techniques of irradiation, physiological and therapeutic effects, indications, contraindications, precautions, operational skills of equipments and patient preparation.

III Ultra violet rays (UVR)

i. Wavelength, frequency, types & sources o IRR generation, techniques of irradiation, physiological and therapeutic effects, indications, contraindications, precautions, operational skills of equipments and patient preparation.
ii. Dosimetry of UVR.

IV Superficial heat- Paraffin wax bath, Moist heat, Electrical heating pads and Fluidotherapy

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

Section –III

A. Low Frequency Currents:

1. Introduction of direct, alternation & modified currents.
2. Production of direct current – Physiological and therapeutic effects of constant current, anodal and cathodal, Galvanism, Ionization and their application in various conditions.

3. Iontophoresis – principles of clinical application, indication, contraindication, precaution, operational skill of equipment and patient preparation.
4. Modified direct current – various pulses, duration and frequency and their effect on nerve and muscle tissue. Production of interrupted and surged current and their effects.
5. Modified direct current – Physiological and therapeutic effects, principles of clinical application, indications, contra indications, precautions, operational skill of equipment & patient preparation.

B. Transcutaneous Electrical nerve stimulations (TENS):-

a) Type of low frequency, pulse widths, frequencies & intensities used as TENS application
b) Theories of pain relief by TENS.
c) Principle of clinical application effects & uses, indications, contraindications, precautions, operational skills of equipment & patient preparation.

C. Electrical Reactions and Electro – diagnostic tests:

a) Electrical stimuli and normal behavior of nerve and Muscle tissue.
b) Type of lesion and development of reaction of degeneration.
c) Faradic – Intermittent direct current test.
d) S.D. Curve and its application.
e) Chronaxie, Rheobase & Pulse ratio.

Section –IV

1. Medium frequency currents (interferential therapy)- conceptual framework of medium Frequency current therapy production biophysical effects types therapeutic effects, Techniques of application indication contraindication precautions operational skill and patient preparation.

2. High frequency currents (SWD and MWD)-production biophysical effects types, Therapeutics effects techniques of application indicate contraindications precautions, Operational skills and patient preparation.

3. High frequency sound waves (ultrasound)-production biophysical effects types Therapeutic effects techniques of application indication contraindications precautions operational skill and patient preparation.

Section—V

1. Therapeutic Light physiotherapy (LASER) Definition historical background physical Principal biophysical effects types' production therapeutic effects techniques of application
   Indications contraindications precautions operational skill and patient preparation.

2. Therapeutic cold (cryo therapy) – source, biophysical effects types therapeutic effects, indications contraindications precaution application techniques and patient preparation.
3. Therapeutic mechanical pressure (Intermittent compression therapy)-principal, biophysical Effects, types therapeutic effects indications contraindication precautions operational Skill and patient preparation.

Section --VI

1. Electro- diagnosis – Instrumentation, definition & basic techniques of E.M.G. and .ENG.

2. Bio- feedback – Instrumentation, principles, therapeutic effects indications contraindication Limitatations precautions operational skill and patient preparations.

Electrotherapy—II (Practical)

1. To experience sensory and motor stimulation of nerves and muscles by various types of low frequency current on self.
2. To locate and stimulate different motor points region wise, including the upper & lower limbs.
3. Therapeutic application of different low frequency currents faradic foot bath, faradism under pressure, Ionotophoresis.
4. To study the reactions of degeneration of nerves, to plot strength duration curves.
5. To find chronaxie and Rheobase.
6. To study a hydro collator unit, its operations and therapeutic application of Hot packs region wise.
7. To study the various types of Infrared lamps and their application to body region wise.
8. To study a paraffin wax bath unit, its operation and different methods of application – region wise
9. To study the different types of Ultra violet units, their operation, and assessment of test dose and application of U.V.R. – region wise.
10. To study a TENS Stimulator, its operation and application –region wise.
11. To study a short wave diathermy unit its operation and different methods of application- Region wise.
12. To study a micro wave diathermy unit its operation and different methods of application Region wise.
13. To study an ultrasound unit its operational and different methods of application-region wise.
14. To study laser unit its operation and different methods of application –region wise.
15. To study various forms of therapeutic cold application region wise include ice cold packs Vapour coolant sprays, etc.
16. To study a intermittent therapy unit its operation and different methods of application region wise
17. To study a interferential pneumatic therapy unit its operation and different methods of Application—region wise.
18. To observe various electro- myography (EMG) procedures.
19. To observe various electro – neurography (EMG) Procedures.
20. To study a bio feedback unit its operation and different methods of application-region wise.

Books Recommended:

1. Electrotherapy explained principles &practice low & reed – Butterworth Heinemann.
2. Claytons electrotherapy (10^{th} edition) kitchen &Bazin- w.b. Saunders..
3. Therapeutic heat and cold Lehman William & Wilkins.
4. Principles and practice of electrotherapy Kahn Churchill Livingstone.
   Electrotherapy: clinics in physical therapy- wolf Churchill Livingston.

B.P.T. 2ND YEAR

***PAPER* – ETHICS AND LAW IN PHYSIOTHDERAPY**
CODE-BP206(A)
THEORY---70

Note: **For Paper setters / Examiners**

- Paper setter is required to set 8 questions from the entire syllabus.
- Question No.1 will be compulsory which carries 15 marks (long essay)
- Students will be required to attempt five more questions out of seven carrying thirteen marks each.

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 collogues
8. Relationships between professional with carrier.
9. Relationships with in the profession.
10. Confidentiality and responsibility.
11. Pervasion of services and advertising.
12. Sale of goods.
13. Personnel and professional standard.
14. Professional standard.
15. Professional and government licensing, Accreditation and Education standards.

Laws and legal concepts.

- Law
- Legal concepts.
- Protection from Malpractice claims.
- Consumers protection Act.
- Liability and Documentation.

Book References.

1. British Journal of Physiotherapy 1994 Issues
2. Medical Ethics- By. CM. Francis.

B.P.T. 2ND YEAR

***PAPER* – COMPUTER SCIENCE**
CODE-BP206(B)
THEORY---70

Unit-I
Basic Structure of Computers (Qualitative Discussion) Computer Types, Basic Functional Units, Basic Operational Concept, Bus Structure, Software, Performance, Multiprocessor and Multicomputer, IAS Computer, Historical perspectives.
Unit-II
Register Transfer and Micro-operation Register Transfer Language, Register Transfer, Bus and Memory Transfers, Three State Bus Buffers, memory Transfer, Arithmetic and Logical micro-operations, Shift and Arithmetic shifts.
Unit-III
Basic Computer Organization and Design Instruction Codes, Stored Program Organization, Indirect Address, Computer Registers, Common Bus System, Computer Instruction, Timing and Control, Instruction Cycle, fetch Decode, Register Reference Instructions, Memory Reference Instruction, Input-Output and Interrupt, Design of Basic Computer, Design of Accumulator Logic.
Unit-IV
CPU Organization Arithmetic and Logic Unit (ALU)- Combinational ALU, 2'S Complement Addition, Subtraction Unit, Booths Algorithm for Multiplication, Division Hardware using Restoration Division Algorithm. General register organization, Control Word, Accumulator Based, Register Based, Stack Type CPU organization.
Unit-V
Introduction to C++: Principles Of Object Oriented Programming (Oop) – Software Evolution - Oop Paradigm – Basic Concepts Of Oop, Benefits Of Oop – Applications Of Oop. Tokens, Keywords, Identifiers, Variables, Operators, Manipulators, Expressions and Control Structures in C++

B.P.T. 3RD YEAR

***PAPER* - GENERAL MEDICINE**
CODE-BP301
THEORY---70

COURSE DESCRIPTION

Infection diseases:

- Tuberculosis tetanus typhoid fever bacillary dysentery amoebiasis HIV
- Infection &AIDS

Measles:

- Nosocornial infection

Metabolic & deficiency disease

- Diabetes mellitus obesity vitamin deficiency disease

Diseases of respiratory system (Anatomy & physiology aspects)

- Asthma bronchitis collapse bronchiectasis pneumonia lung abscess empyema
- COPD (Chronic bronchitis & emphysema)

CVS
(Anatomy & physiological aspect):

- Hypertension Congestive Heart Failure rheumatic fever infective endocarditis,
- Pericarditis valaular heart diseases (mitral stenosis mitral regurgitation aortic
- Stenosis aortic regurgitation
- Congenial heart disease (ASD VSD PDA Failot tetra logy) Eisenrnenger syndrome
- Ischemic heart diseases
- Myocardial infarction
- Deep vein thrombosis & pulmonary embolism.

Hematology:

- Anemia (iron deficiency anemic megalobiastic anemia hemolytic anemia aplastic anemic)
- Thrombocytopenia (idiopathic thrombocytopenia purura).
- Leukemia (ALL CML CLL AML)
- Hemophilla, lymphadenopathy spenomegaly

Gastrointestinal system:

- Peptic ulcer hematemesis dyspepsia diarrhea malabsorption syndrome.

Diseases of liver

- Jaundice viral hepatitis cirrhosis of liver ascites

Diseases of kidney

- Post streptococcal giomerulonephritis nephritic syndrome urinary tract infection
- Urinary calculi chronic renal failure.

Endocrionology

- Hypothyroidism, hyperthyroidism, Addison's diseases Cushing s syndrome, gigantism.

DERMATOLOGY

1. Structure and function of normal skin primary and secondary lesion scales & pediculosis
2. Fungal infection dermatophytosis pitysiasis vesicular candidacies
3. Bacteriall infection of the skin impetigo boil.
4. Viral infections herpes.
5. Eczema dermatitis allergies
6. Acere aiopheria, vitiligo ,lekoderma
7. Psoriasis
8. Leprosy
9. STD &VD- Syphilis gonorrhea HIV

PEDIATRIC:-

1. Introduction to pediatrics.
2. B. Growth and devlopment: laws of growth, factors affecting growth & development delay.
3. Developmental mile stone: Motor, adaptived, social mile stones.
4. Club foot and flat foot. Clinical profile and treatment.
5. Knock knees & bow legs Etiology sign, symption and treatment
6. Spina bifida & meningocele Diagnosis treatment and complication.
7. Scoliosis Diagnosis & Management
8. Congenital Dysplasia Hip. Diagnosis & Management.
9. Obstetric palsies : Etiology management and folloup & pneaeution
10. Cerebral palsy
11. Osteogenesis imperfect. Pathogenesis type and treatment
12. Rickets : Etiology clinical picture and treatment
13. Scurvy Etiology clinical picture and treatment.
14. Anemia Etiology type and management
15. PEM Type classification and nutritional therapy.
16. Muscular dystrophy Presentation and management.
17. Genetic Disorders: Diagnosis and treatment.
18. Down's syndrome Clinical profile and management.
19. Epilepsy: Types and treatment.
20. Tuberculosis Primary complex diagnosis & treatment.
21. Bronchial asthma: Etiology & treatment including Ac secure asthma.
22. Rheumatic fever Diagnosis criteria, complication & treatment.
23. Rheumatoid arthritis Types and treatment.
    .
24. Pneumonia Causes sign symptom & treatment
25. Congenital Heart Disease Diagnosis and treatment.

Book Reference:

1. Davidson principle ad practice of medicine
2. Brain clinical neurology
3. Medicine & neurology by Golewala
4. Surgery by Nan
5. Baily & love short practice of surgery.
6. Nelson text book of pediatrics- Behraman & varghan.

B.P.T. 3RD YEAR

***PAPER* - GEN. SURGERY AND OBS. & GYNAE**
CODE-BP302
THEORY---70

Section-I

1. GENERAL PRINCIPLES OF SURGERY INCLUDING DIFFERENT INCISIONS AND RESULATION.

2. DIFFERENT TYPES OF ANESTHESIS, PRINCIPLES OF PROCEDURES, COMPLICATIOON AND MANAGEMENT.

3. WOUND HEALING

a. Healing by 1ST & 2nd intention.
b. Factors influencing would healing
c. Pathogenesis of healing
d. Scars
   i) Hypertrophic scar
   ii) Keloid
   iii) Types of wounds

4. RESUSITATION & SUPPORT

a. Shock-types, clinical feathers, pathogenesis treatment.
b. Haemoshage- types, clinical features & management.
c. Fluid & electrolyte balances.
d. Blood transfusion - Indications & management.

5. ARTERIAL AND VENOUS DISORDERS

a. Varicose veins
b. Deep vein thrombosis.
c. Arteriosclerosis and atherosclerosis
d. Aneurysm, Burergers disease, Raynauds disease
e. Thrombophlebitis, pulmonary embolism.

6. **LYMPHATICS & LYMPH NODES**

e. Lymphomas
f. Filariasis
g. Lymphangilis
h. Lymphoedema

7. ***CARDIAC SURGERY***

Type of incision, pre and post operative Assessment, management and complications of Cardiothoracic Surgery and their management.
Outline indications, Contra-indication, site of incision, pre and post operative management and complications of the following.

i. Valvotomy and Valve Replacement.
j. Open Heart Surgery/ Cardiac By pass Surgery.
k. Surgery on Pericardium.
l. Operations in congenital disorders.
m. Heart transplantation.
n. Pacemaker

o. Coronary Angioplasty.
p. Balloon Angioplasty and Vascular Surgery.
(Outline surgery of Artery and veins)

8. THORACIC SURGERY

a. Outline clinical features and management of the following: fracture of ribs, Flail chest, stove in chest, Pneumothorax, Lung Contusion and Laceration and injury to Vessels and Bronchus.
b. Outline indication, Contraindication, site of incision pre and post operative management and complication of Lobectomy, Pneumonectomy, Segmentectomy, Pleuro pneumonectomy, thoracoplasty, Decortication, Tracheostomy.
c. Outline clinical features and management of carcinoma of lung.
d. Management of Endotracheal tube, Tracheal suction, weaning the patient from ventilator, Extubation and Post-extubation care.

9. ABDOMINAL SURGERY

a. Describe abdominal surgical incisions.
b. Outline about definition, indications with features, anesthesia, incisions, drains and complications about various surgeries like Nephrectomy, Appendicectomy, Herniorraphy, Mastectomy, thyriodectomy, colostomy, Adrenalectomy, Cystectomy, Hysterectomy, Prostatectomy, Cholecystectomy, lleostomy, Surgical procedures in various types of
Hernias.
c. Anal fissure, fistula, hemorrhoids caranal canal rectal prolapsed
d. Cholelethiasis, Cholecystitis Neoplasms

10. NEURO SURGERY

a. Outline about definitions, indications with features, anesthesia, incisions, drains & complications about various surgeries of
    1. Surgeries of cranium & brain
    2. Surgeries of vertebral column & spinal cord.
    3. Surgeries of peripheral nerves.
b. Surgical interventions in traumatic head injuries.

11. BURNS & PLASTIC SURGERY

a. Classify burns by depth and surface area; outline the causes, medical management and precautions in the acute stage.
b. List the potential deformities due to burns, methods of prevention and precautions, Mentions cosmetics and functional treatment measures.
c. Outline the plastic surgery procedures and management in burns, including common deformities and prevention of burns contractures.
d. Skin grafting & other procedures.

12. TRAUMA OF CARVICAL & LUMBER DISC LESION

i) First Aid management of severely injured patients.
ii) Tendon & nerve injuries with surgical repair.
iii) Entrapment neuropathy with surgical intervention
iv) Diagnosis & management of Hand injures and infections
v) Missile injuries mechanism & management
vi) Blast injures -- Mechanism & Management
vii) Spinal cord injuries tumors of spinal cord.

13. TUMER, CYSTS, VICERS & SINUSES

a. Introduction types and clinical features of Tumors
b. Benign
c. Malignant
   - Carcinoma
   - Sarcoma
   - Like malignant melanoma etc.

d. Surgical procedure involved in management of cancer.

Section-II
OBS & Gyane

SR. NO.	TOPIC	DETAIL OF SYLLABUS	LECTURE
1.	Anatomy of female reproductive system	i) External genital ii) Ovaries fallopian tubes uterus vagina iii) Blood and Nerve supply to genital organs.	2
2.	Physiology of pregnancy	i) Menstruation ii) Pregnancy and fetal development iii) Physiological changes in various maternal system and organs. iv) Endocrine system in pregnancy.	3
3.	Complication of pregnancy	i) Abortion, Ectopic ii) APH & PPH iii) PIH iv) Abnormal presentation	2
4.	Antenatal and postnatal cases	i) Normal Pregnancy- Symptoms signs, investigation, immunization, nutrition and supplements. ii) Normal Delivery iii) Normal Puerpericum iv) Role of physiotherapy in pregnancy, delivery, puerpericum.	4
5.	Common Gynecological problems and role of physiotherapy	i) Disorders of menstruation, menorrhagia, DUB, menopause, menarche ii) Pelvic inflammatory disease iii) Fibroid uterus iv) Stress incontinent	3
6.	Common Obstetrics and Gynecological operation	i) Caesarean ii) Hysterectomy iii) D & C iv) MTP v) Tubectomy vi) D&E	3
7.	Role of physiotherapy in Obstetrics and Gynecological post operative cases.	Post operative Breathing exercise Mobility	3

Section -III

ENT

1. Rhinitis:
- AC rihinitis
- Chronic rihinitis
- Chronic non-specific & specific rhinitis
- Atrophic rhinitis
- Vasomotor rihinitis

2. Sinusitis
- AC rhino sinusitis
- Chronic sinusitis
- Surgical Rx of ch sinusitis

3. Otitis Media

AC otitis media (Stages and treatment) chronic otitis media (safe & unsafe type) Complications cyotitis media.

4. Oloscleosis
a. Incidence
b. Clinical features
c. Medical and surgical Rx.

5. Mastardectomy

Types of mastadectomy surgical procedure, complication Tymponoplasty

6. Loss of hearing

Types of hearing loss, Methods to detect hearing loss. Presbyacusis, hearing aids, hearing loss in children.

7. Andrology: Puretone audiometry, impedance audomatry, types of speech .

Section -IV

Opthalmology

Eye- Anatomy and physiology
a) Common inflammations and other infections of the eye.
b) Ptosis, defects of the external rectus.
c) Cataract.
d) Refractions- Morpia, Taybper Metropia
e) Pleoptic Exercises
f) Physiological defects of vision.
g) Cornea ulcers.

BOOK REFERENCE:-

1. Bailey & Love Shorts
2. Surgery by Nan
3. General surgery operations by R.M Kirk & R>C>N Williston.
4. Modern trend of ophthalmology- Arnold Sorsby.
5. ENT of general Practitioners.

B.P.T. 3RD YEAR

***PAPER* - CLINICAL ORTHOPEDICS**
CODE-BP303
THEORY---70

Section -I

A. Fractures

1. Types healing complications general principles of treatment
2. spine pelvis hip joint femur patella knee joint cartilage and ligaments tibia Fibula ankle calcaneum metacarpal phalanges.
3. Fracture separation of epiphysis
4. strains and sprains
5. injuries of muscles and tendons
6. dislocations elbow shoulder hip ankle
7. traumatic paraplegia

B. INFLAMMATION OF BONE

Tuberculosis &pyogenic osteomyelits aetiobgy clinical features pathology, Management operation and non operative

C INFLAMMATION OF JOINT

RHEUMATIOD ARTHORITIS
Tuberculosis arthritis
Pyogenic arthritis
Etiobgt pathology clinical features management operative and non- operative

D ANKYLOSING SPONDYLITIS

GOUTY ARTHRITIS
Hemophilic joints
Neuropathy joints
Etiology pathology clinical features management

E SOFT TISSUE

Tendon sheath and bursa cause management of injures tenosynovitis Bursitis etc. ankle wrist knee elbow shoulder hip hand.

F SPINE

torticollis cervical rib spin bifida spondylolisthesis scoliosis kyphosis lordosis spondylosis (cervical spine and lumber spine) prolapsed disc Etiology pathology clinical feature management.

Section –II

A **Metabolic Diseases of Bone**

Rickets, Osteomalacia., Osteoporosis, Etolobgy, Pathology, Clinical features, Management

B Bone Tumours,

Benign & Malignant, Classification, Pathology, Clinical Features, Management including chaemotherapy and Radiotherapy.

C. Congenital Dislocation

Hip, Perthe,s Disease, Avn Hip, Coxa Vara, Coxa , Valga, Paralytic Dislocations, Etiology, Pathology, Clinical Features, Management

D. Knee

Dislocation, Cartilage lesions, Osteoarthritis and loose bodies, Dislocation of patella, Chondromalacia patella, Genu Valgum, Genu Varum, Genu Recurvatum Osgood schlatter's disease.

E Degenerative Disease

Of Hip, Knee, Ankle, Spine, Shoulder, Elbow, Wrist, Hand.

F. Poliomyelitis.

G. Cerebral Palsy.

H. Peripheral Nerve Injuries.

I. Amputations

Foot above knee, below knee, hip and pelvis , above elbow, below elbow.

J. **Foot and Ankle**.

CTEV, Pescavus, Pesvalgus, Hallux Valgus, Footstrains, Metatasalgia, Hallux Rigius calcaneal owing toe nail.

K. Shoulder

Painful are syndrome, periarthritis, recurrent dislocation, Biceps-tendinitis frozen shoulder.

L. Elbow, Wrist, Hand

Osteoarthritis, tennis elbow, Golfer's elbow cubitus varus, valgus, Myositis, ossificans Tardy Ulnar neuritis, Madelug;s deformity carpal tunnel syndrome, Duputerynes contracture Mallet finger, De-querveins disease.

M. Operations

Operation Management of fractures, operative management of joints.
Arthroplasty, ARTHRODESIS.
Bone grafting osteotomy, tendon transfers.

Book reference:-

1. orthopedics & traumatology – natarajan
2. applied orthopedics
3. Outline of fracture -- Adams.
4. Outline of orthopedics – Adams.

B.P.T. 3RD YEAR

***PAPER* - CLINICAL NEUROLOGY**
CODE-BP304
THEORY---70

COURSE DESCRIPTION

Following the basic science and clinical science course, this course introduces the student to the neurological conditions which commonly cause disability. Particular effort is made in this course to avoid burdening the student with any detail pertaining to diagnosis which will not contribute to their understanding of the limitations imposed by neurological pathology on the functioning of the individual.

COURSE OBJECTIVE

The objective of this course is that after 55 hours of lectures & demonstrations. In adding to clinics, the students will be able to demonstrate an understanding of neurological conditions causing disability and their management. In addition, the student will be able to fulfill with 75% accuracy (as measured by written, oral& practical, internal evaluation) the following objectives of the course.

COURSE OUTLINE

1. NEUROANATOMY.

Review the basic anatomy of the brain and spinal cord including: Blood supply of the brain and spinal cord, anatomy of the visual pathway, connections of the cerebellum, and extra pyramidal system, relationship of the spinal nerves to the spinal cord segments, long tracts of the spinal cord, the brachial and lumber plexuses, and cranial nerves.

2. **NEUROPHYSIOLOGY**

Review in brief the Neurophysiologic basic of disorder of tone posture, bladder control, muscle contraction, movement and pain.

3. CLINICAL FEATURE & MANAGEMENT.

Briefly outline the clinical features and management of the following Neurological Disorders:

1) Congenital childhood disorders.
   a. Cerebral palsy
   b. Hydrocephalus
   c. Spina Bifida

2) Cerebrovascular accident.
   General classification: thrombotic, embolic. Haemorhagic, inflammatory strokes.
   Gross localization and sequelae.
   Detailed rehabilitative programme.

3. Trauma-broad localization, first aid and management of sequelae of head injury and spinal cord injury.
4. Diseases of the spinal cord.
   Craniocerebral junction anomalies.
   Syringomyelia.
   Cervical and lumber disc pesions.
   Tumours.
   Spinal archnoiditis.

5. Demyelinating diseases (central and peripheral)
   Guillian- Barre syndrome.
   Acute disseminated encephalomyelitis.
   Transverse myelitis.
   Multiple sclerosis
6. Degenerative disorders.
   Parkinson's disease.
   Dementia
7. Infections.
   a. Pyogenic Meningitis seqeleae.
   b. Tuberculous infection of central nervous system.
   c. Poliomyelitis.
8. Diseases of the muscle : classification, signs, symptoms, progression and management.
9. Peripheral nerve disorders.
   a. Peripheral nerve injuries : localization and management.
   b. Entrapment neuropathies.
   c. Peripheral neuropathies.
10. Miscellaneous.
   a. Epilepsy: Definition, classification and management.
   b. Myasthenia Gravis: Definition, course and management.
   c. Intracranial tumours : Broad classification, signs and symptoms.
   d. Motor neuron disease.

4. ASSESSMENT

Clinical assessment of neurological function to be taught through bedside or demonstration clinics spread out over at least 5 sessions.

a. Basic history taking to determine whether the brain, spinal cord of peripheral nerve is involved.
b. Assessment of higher mental function such as orientation, memory, attention, speech and language.
c. Assessment of cranial nerves.
d. Assessment of motor power.
e. Assessment of sensory function: touch, pain and position.
f. Assessment of tone: spasticity, rigidity and hypotonia.
g. Assessment of cerebellar function.
h. Assessment of higher cortical function: apraxia, etc.
i. Assessment of gait abnormalities.

B.P.T. 3RD YEAR

***PAPER* - Research Methodology and Biostatics**
CODE-BP305
THEORY---70

COURSE DESCRIPTION

Section-I

a. Introduction importance of research in Clinical practice scientific approach, characteristics, purpose and limitations.
b. Ethical issues in research, elements of informed constant
c. Structure of a research proposal and research report.
d. Consent form- steps of documentation, structure.

Section-II

a. Research question including literature review.
b. Measurement: Principles of measurement, reliability and validity.
c. Overview of study design
d. Various sampling methods.
e. Drawing tables, master charts and graphs.

Section-III

Biostatistics:

a. Basic probability distribution and sampling distribution.
b. Descriptive statistics.
c. Standard errors and confidence interval, skewness, & kurtosis.
d. Comparison of means, T-tests.
e. Analysis of variance.
f. Multiple comparisons.
g. Non-parametric statistics.
f. Correlations.
g. Test of significance

Books Recommended:

1. Methods in Biostatistics- Mahajan- J.P.
2. Statistics in Medicine-Colton-Little Brown, Boston.
3. Research for Physiotherapist: Project Design and Analysis-Hicks – Churchill Livingstone
4. Biostatistics: The manual for Statistical methods for in health and nutition- K.V.Rao. J.P.
5. Research methods in behavioural Sciences- Mohsin- Orient Publication.

B.P.T. 3RD YEAR

***PAPER* - COMMUNITY MEDICINE**
CODE-BP306(A)
THEORY---70

1. Natural history of disease and the influence of social economic and cultural aspect.

2. Describe the various measures of prevention and levels of intervention for person with disability

3. Public health administrative system at central and state government.

4. Describe the selective national health schemes.

5. Objectives and strategies of national family welfare program
.
6. Describe various Employees state insurance schemes.

7. Describe Community based and Institution based rehabilitation. Advantages and disadvantages.

8. Describe occupational health and various hazards. And prevention .

9. Workman's Compensation act

10. Describe the following community diseases :- Poliomyelitis, Meningitis , encephalitis, tuberculosis, Filariasis, leprosy, tetanus, Measles.

11. Describe the Influence of nutritional factors on disability and various nutritional deficiency disorders

Book Reference :

1. Textbook of preventive and social medicine, Dr. J E Park

B.P.T. 3RD YEAR

***PAPER* - BIOENGINEERING**
CODE-BP306(B)
THEORY---70

UNIT 1.

- Introduction and terminology: prosthesis and orthosis.
- Classification of orthoses and prostheses.
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UNIT II:

- Bio-mechanical principles of orthotic application.
- Bio-mechanical principles of prosthetic application.

UNIT III:

- Designing of upper and lower extremity and spinal orthosis including indications and check out.

UNIT IV:

- Designing of upper extremity prostheses, indications and check out.
- Designing of lower extremity prostheses, indications and check out
- Materials used for fabrications.

UNIT V:.

- Psychological aspects of orthotic and prosthetic application.
- Prescription and design of foot wear and modifications.
- Wheel chairs
- Design and construction of adaptive devises.

Practical : The student is trained in evaluation and planning prosthesis and orthosis as well as in acquiring ability to do the check out.

Recommended Books: 1. Atlas of Orthotics: Biomechanical Principles and Applications, St. Louis, C.V. Mosby, 1975. 2. American Academy of Orthop

B.P.T. 4th YEAR

***PAPER* - PHYSIOTHERAPT IN ORTHOPAEDIC CONDITIONS**
CODE-BP401
THEORY---70

COURSE DESCRIPTION

Theory

1. Introduction Brief review of the following surgical condition and various physiotherapeutic modalities, aims, means and technique of physiotherapy should be taught.
2. Traumatology General Physiotherapeutic approach for the following conditions:
3. Fracture and dislocations: Classification and type of displacement, method of immobilization, healing of fractures and factors affecting union, non union, delayed union etc. common sites of fractures,.
4. Specific fractures and their complete physiotherapeutic management.
5. Upper limb: Clavicle, humerus, ulna, radius, crush injuries of hand.
6. Lower Limb: fracture neck of femur, shaft of femur, patella, tibia fibula, pott's fracture, fracture of tarsal and metatarsals.
7. Spine: fracture and dislocations of cervical thoracic and lumber vertebrate with and without neurological deficits.
8. Surgical procedures: Pre and post operative management of common corrective procedure like arthroplastry, arthrodesis, osteotomy, tendon transplants, soft tissue release grafting, including polio residual paralysis and leprosy deformities corrections.
9. Injuries: Soft tissue injuries, synovitis, capsulitis volkman's ischemic contracture etc. tear of semilunar cartilage and cruciate ligaments of knee, menisectomy, patellectomy, internal derangement of knee.
10. 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.
11. Deformities: Congenital tortiCollis and cervical rib, CTEV, Pes cavus , pes planus and other common deformities.
12. Acquired- Scoliosis, kyphosis, lordsis, coax vara, genu valgum, genu varum and recurvatum.
13. Degenerative and infective conditions: osteoarthritis of major joints, spondytosis, spendylitis, spondylolisthesis, PIVD, Periarthritis of shoulder, Tuberculosis of spine, bone and major joint perthes disease, Rheumatiod arthritis, Ankylosing spondylitis etc. and other miscellaneous orthopaedic conditions treated by physiotherapy.
14. Principle 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 and advanced rehabilitation of the injured athlete.

Practical

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

Books Recommended:

1. Cash textbook orthopaedics and aRheumatology for physiotherapists – Downie –Jaypee brothers.
2. Tidy's physiotherapy- Tomson et. al Butterworth Heinmann
3. Essentials of orthopaedics and applied physiotherapy – Joshi and Kotwal- B.L. Churchill Livingstone.
4. Tetraplegia & Paraplegia- Bromley- W.B. Saunders.
5. Orthopaedics physiotherapy- Donatelli & Wooden- WB. Saunders.
6. Rheumatological Physiotherapy- David – Mosby
7. Orthopaedic Physiotherapy- Tid well – Mosby
8. Physiothearpy for amputee- Engstrom & Van de van – Churchill Livingsstone
9. Sports Injuris: Diagnosis and management: Norris Butterworth Heinmann.

B.P.T. 4th YEAR

***PAPER* - PHYSIOTHERAPT IN NEUROLOGICAL CONDITIONS**
CODE-BP402
THEORY---70

SECTION-I:

Physiotherapy in Neurological conditions

COURSE DESCRIPTION

This course serves to integrate the knowledge gained by the students in Clinical Neurology, with the skills gained in exercise therapy, electrotherapy and massage, thus enabling them to apply these in clinical situations of dysfunction due to pathology in the nervous system.

COURSE OBJECTIVES

The objective of this course in that after 120 hours of lectures & demonstrations, practical and clinics, the student will be able to identify disability due to neurological dysfunction, set treatment goals and apply their skill in exercise therapy, electrotherapy and massage in clinical situation to restore neurological function.

In addition, the student will be able to fulfill with 75% accuracy(as measured by written, oral & practical internal evaluations) the following objectives of the course.

COURSE OUTLINE

A. **REVIEW OF NEUROANATOMY AND PHYSIOLOGY**.

Review the structure and function of a) neuron b) synapse c) supporting tissue, Review the organization and function of a) cerebral hemispheres b) cerebellum c) spinal cord d) peripheral nerves e) pyramidal system f) extra pyramidal system. Review the factors influencing alpha motor neuron activity. Review the neurological basis of muscle tone and movement and demonstrate the following: a) hypertonia b) – spasticity and rigidity c) ataxia d) athetosis e) chorea).

B. **PRINCIPLES OF ASSESSMENT** :

Review a) skill in history taking b) assessment of higher functions, cortical sensations, cranial nerves, dorsal column sensation and pain & temperature sensations c) assessment of motor function : grading of muscle power, assessment of range of movement, balance and coordination d) assessment of superficial and deep reflexes e) assessment of reflex maturation in terms of stimulus, position negative/positive reaction and their significance f) assessment of gait- both normal and abnormal (spastic, ataxic and paralytic patterns) Emphasis should be placed on teaching accurate assessment techniques and various recording methods e.g. colour coding on body charts, graphs etc

C. PRICIPLES OF TREATMENT :

Review the treatment principles as follows:-

a. Sensory re –education: hypersensitivity, hyposensitivity and anesthesia.
b. Treatment of altered tone: hyper tonicity and hypo tonicity.
c. Motor re-education: Strengthening exercise, coordination exercise, joint mobilization exercise, use of equilibrium and labyrinthine systems, use of PNF patterns, controlled sensory stimulation to bias the spindle cells e.g. Vibration, tactile, ice etc. use of stretch to elicit movement (facilitation), light joint compression (inhibition) use of rifle, activity to improve motor function, phylogenic sequence of motor behavior.

d. Treatment to improve function: Free exercise, gait training with and without aids, activities of daily living, mat exercise, exercise for recreation.

e. Review the use of ambulatory aids in neurological conditions: In spastic upper motor neuron lesions, In lower motor lesions, in dorsal column dysfunction and cerebral dysfunction.

f. Review the use of splints and braces in spastic upper motor neuron and in flaccid lower motor neuron lesions, in both upper and lower limbs.

g. Review the management of chronic pain in neurological conditions with respect to the type of pain, treatment modalities available, selection criteria for each modality and possible complications.

D. **CEREBRAL PALSY**:

Define cerebral palsy and describe the topographical classification- monoplegia, diplegia, paraplegia, hemiplegia & tetraplegia. Describe types of cerebral palsy. Visual hearing, speech and intelligence. Assess reflex activity at different levels: Cortical, mid brain, brain stem, spinal. Assess developmental milestones form birth to five years, Assess functional ability: Prone to supine (rolling) Coming to sitting, quadruped, crawling, kneeling, kneel-stand, stand with support and walking. Examine for contractures as follows: hip flexion, adduction, internal rotation: Knee flexion: ankle plantar flexion, inversion/ aversion. Flexion contracture of elbow, wrist & fingers and spinal deformities.

Treatment – Describe and demonstrate the treatment motor dysfunction: Passive movement, stretching of soft tissue tightness, use of ice to reduce spasticity, positioning the child to prevent soft tissue contractures, to inhibit abnormal reflexes and to facilitate volitional movement. Describe and demonstrate techniques of carrying of different type of CP children, encouraging bimanual activities in different starting positions like prone sitting and standing and activities across the midline. Describe appropriate home programmes for positioning the child, handling them and assisting improvement of function. Introduction to treatment techniques: Bobath, Rood.

E. **PERIPHERAL NERVE LESIONS**:

Identify type of peripheral nerve lesions. Assess the motor system: Specific muscles. Range of motion, active and passive ranges, muscle girth. Assess sensory system: touch, pain, temperature, par aesthesia, nerve reverberation. Assess autonomic function: sweating, skin condition, soft tissue atrophy. Treatment: describe muscle reeducation techniques: electrical stimulation (selection of current): active, assisted, resisted movements: Passive and self assistive stretching and massage. Describe sensory reeducation and pain relief by various modilities, describe the common splints used peripheral nerve lesions. Static, dynamic and functional. Isolating muscle contraction, specific muscle strengthening.

Post- Operative management: Pressure bandaging & muscle reeducation after transfer. Describe a home programme.

F. **MUSCULAR DYSTROPHY**.

Describe stages of the disease: ambulatory, wheelchair and bed stages. Describe significance of exercise resisted, active and free. Identify and assess common contractures and deformities. Assess range of motion and muscle power. Assess functional ability.

Demonstrate treatment programme for strengthening weak muscles: active movements and hydrotherapy. Increase range of motion by suspension therapy, powder board, passive stretching positioning etc. demonstrate gait training with appropriate orthoses, Describe management of chest complication: breathing exercises chest percussion, drainage of secretions and assisted coughing.

G. **PARKINSONISM**:

Review the natural history, course and prognosis of the disease. Identify and assess problems in posture sitting, kneeling and standing balance, voluntary and automatic movements, rigidly. Tremor and gait. Assess also hearing, speech and finger dexterity. Describe disability grading according to Yulu.

Demonstrate treatment: postural awareness and relaxation training. Gait training techniques: associated reactions, heel-toe gait, overcoming obstacles, start and stop on command, turning and walking backwards, forwards and sideward. Describe an appropriate home exercise programme.

H. **SPINAL CORD LESIONS**:

Describe types of spinal cord lesions. Describe sign of tract and root interruptions, Describe positioning of the patient in acute spinal cord injury, Describe assessment of the motor system: tone, power of specific muscle range of motion and limbs girth. Describe assessment of sensory system and reflexes. Describe assessment of functional ability and balance reactions in appropriate cases. Describe assessment of respiratory function. Muscles of respiration, coughing ability and vital capacity. Describe how the level of lesion is ascertained.

Treatment: Describe the stages of immobilization & stage when weight bearing is allowed, Describe spinal orthosis. Demonstrate motor reeducation programmes and programme for respiratory care in high level paraplegics and quadriplegics. Demonstrate progressive amputation, mat exercises, various strengthening programmes, methods of decreasing spasticity and improving sitting balance. Demonstrate paraplegic gaits and reeducation in functional activities: transfer and protective falling. Describe common ambulatory aids used in paraplegics and common plints used in tetraplegics. Describe the use of Hydrotherapy in paraplegics. Describe the concept of team approach in rehabilitation of thses patients.

I. **HEMIPLEGIA**:

Define hemiplegia and identify the following: Sensory disturbance, alterations in tone, loss of selective movement, loss of balance reactions and communications problems.

Treatment: Describe the unilateral and bilateral approaches to treatment, Describe positioning in the supine position, on the affected and on the unaffected sides. Demonstrate activities in the recumbent position arm mobilization. Trunk elongation-scapular movement, arm elevation, activities for a recovering arm: activities for the lower limb. I.e. hip and knee flexion over the side of the bed, knee extension with dorsiflexion, hip control, and isolated knee extension

Mat activities : demonstrate rolling on to affected and unaffected sides, sitting and kneeling. Describe the technique of making a patient sit passively and active

assisted in sitting: Demonstrate Transfer Technique. Describe activities in sitting: equal weight transference on both buttocks shuffling on buttocks, weight transfer through arms balance reaction on truck.- head. Demonstrate activities in the standing position : standing from plinth, from chair (assisted and independent), weight bearing on affected leg, knee, control in stand weight transfers forward, backward and side wards, Gait training and stair climbing. Describe till board activities in the lying and sitting positions. Describe additional methods of stimulation using verbal cues, ice, pressure & tapping. Describe management of shoulder pain and shoulder hand syndrome. Identify and describe hemiplegics gait, identify synergy components and abnormal reflex activities.

Demonstrate reeducation of gait: motor relearning techniques functional approach and use of orthosis.

J. **CEREBELLAR LESIONS**:

Identify and assess abnormal tone, decomposition of movement. Rapid alternate movements. Pleurothotonus, proprioception,dysmetria, posture and gait.

Treatment: Demonstrate exercises for incoordination - Frenkel's and weighted exercises. Demonstrate techniques for reeducation of balance and quilibrium reactions by visual compensation. Describe use of appropriate aids for ambulation depending on the severity of affection - walker, elbow crutches, quadruped, walking sticks, etc.

K. **POLIOMYELITIS:**

Define poliomyelitis and review the stages in the disease –acute, recovery and residual paralysis. Describe treatment in the acute stage: heat chest care, positioning. Describe the assessment of a patient in the recovery stage: active and passive range of motion, soft tissue tightness, muscle power & spinal deformities. Demonstrate treatment in the recovery stage: muscle strengthening – progress resistive exercises. Describe the role of suspension and hydrotherapy. Describe the treatment of soft tissue tightness by passive stretching, auto stretching pre-operative assessment of contractures: hip flexion, TA contracture, knee flexion and foot deformities. Review orthotic aids commonly used the management of polio. Describe tendon transfer operations commonly performed. Describe functional retraining for self care, gait training and posture correction.

EVALUATION.

Section-II Pediatrics.

A. Review the examination & assessment of a pediatric patient.
B. Review of pathological change and principle of management by physiotherapy of the following conditions:
   1) Common congenital and acquired muscle skeletal disorders.
   2) Common congenital and acquired neurological disorders (CNS & PNS)
   3) Common heredity disorders.
   4) Common nutritional, metabolic & vitamin deficiency disorders
   5) Cerebral palsy, myopathy and muscular dystrophies.

Section-III

Geriatrics.

A. The ageing process- Loss of reserve. altered homeostasis and how these may affect pathological processes.
B.
C. Review of the examination & assessment of a Geriatric patient.
D. Review of pathological changes and principle of management by physiotherapy of the following conditions:
    1) Musculo skeletal disorders.
    2) Cardiopulmonary disorders
    3) Neurological disorders (CNS & PNS)
    4) Injuries & accidents specific to the aged.
    5) Falls
    6) Urine & fecal incontinence.
    7) Prevention & cause of bed sores.

Practical

Various Physiotherapy modalities and treatment techniques for above mentioned conditions should be demonstrated and practiced by the students.

Books Recommended:

1. Cash's textbook of neurology for physiotherapists – Dowani – J.P. Brothers.
2. Adult Hemiplegia – Evaluation & treatment – Bobath – Oxford Butterworth Heinman
3. Neurological Rehabilitation – Carr & Shepherd – Butterworth Heinman
4. Tetraplegia and paraplegia – A guide for physiotherapist – Bromley – Churchill Livingstone.
5. Neurological physiotherapy – A Problem solving approach – Susan Edwards – Churchill Linvigstone.
6. Neurological Rehabilitation – Umpherd – Mosby.
7. Geriatric physical therapy – Gucciona – Mosby.
8. Motor assessment of Developing Infat – Piper & Darrah – W.B. Saunders.
9. Paediatric physical therapy – Teckling Lippincott.
10. Treatment of cerebral Palsy and motor Delay – Levitts- Blackwell Scientific Publications, London.
11. Aging the Health care Challenge – Levis- F.A. Davis.
12. Physiotherapy in Paediatrics – Shepherd – Butterworth Heinman.

B.P.T. 4th YEAR

***PAPER* -PHYSIOTHERAPY IN GEN. MEDICINE & SURGICAL CONDITION**
CODE-BP403
THEORY---70

Section-I

General Medicine
Review of the Pathological and principles of management by physiotherapy to the following conditions.

2. Inflammation – acute, chronic and suppurative
3. Edema-Traumatic, Obstructive, Paralytic, Edema due to poor muscle and laxity of the fascia.
4. Arthritis and Allied conditions (in details):
    a) Osteo- Arthritis-generalized, Degenerative and traumatic, Spondylosis and disorders.
    b) Rheumatoid Arthritis, Still's disease, infective Arthritis.
    c) Spondylitis, ankylosing spondylitis.
    d) Nonarticular Rheumatism- Fibrositism, Myalgia, bursitis, periarthritis etc.
5. Common conditions of Skin-Acne, Psoriasis, Alopecia, Leucoderma, leprosy, Sexually transmitted diseases.
6. Deficiency disease- Rickets, Diabetes, Obesity, Osteoporosis and other deficiency disorders related to physiotherapy.
7. Psychiatric Disorders- Psychosis, Psychoneurosis, Senile dementia.

Section-II

General, Gynaecology and Obsteries and ENT.

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 etc.
2) Common operation of reproductive system, including surgical intervention for child delivery. Ante natal & post natal, physiotherapy.
3) Common operations of the ear, nose, throat & Jaw as related to physiotherapy.
4) Common organ transplant surgeries – heart, liver, bone marrow etc.

Wounds, Burns & Plastic Surgery.

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

1) Wounds, ulcers, pressure sores:
2) Burns & their complications.
3) Common reconstructive surgical proceedings of the management of wounds, ulcers, burns & consequent contractures & deformities.

Neurosurgery.

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

1) Common surgeries of the cranium & brain.
2) Common surgeries of vertebral column & spinal cord.
3) Common surgeries of peripheral nerves.
4) Surgical interventions in traumatic head injuries.

Book Recommended:

1. Cash textbook of general medical and surgical conditions for physiotherapists- Downie Jaypee Brothers.
2. Cash textbook of heart, chest and vascular disorders for physiotherapists- Downie Jaypee Brothers.
3. Principle and practices of cardiopulmonary physical therapy – Frown Felter- Mosby.
4. Chest physiotherapy in intensive care unit- Mackanzie – Wiiliams & Wilkins.
5. Restoration of motor functions in stroke patient: A Physiotherapist approach- Johnstone Churchill Livingstone.
6. Physiotherapy Obstetrics and Gynecology – Polden – F.A. Davis.

B.P.T. 4th YEAR

***PAPER* - PHYSIOTHERAPY IN CARDIOTHORACIC CONDITIONS**

CODE-BPT404

THEORY---70

Section-II

Respiratory

1. Review of mechanism of normal respiration (rate, rhythm, use of accessory muscles)
2. Chest examination, including auscultation, percussion (Symmetry of chest movement)
3. Knowledge of various investigative procedures (invasive & non invasive) use in the diagnosis of various respiratory disorders.
4. Chest deformities (Barssel chest, pigeon chest)
5. Measurement: Chest expansion at different levels.
6. Techniques of physical treatment: Breathing exercise, Chest mobilization exercises Postural drainage. Huffing coughing, Vibratory chest shaking & percussion.
7. Brief idea About cardiothoracic procedure like suction , mechanical ventilation, AMBU Bag, extubation care.

Review of the Pathological and principles of management by physiotherapy to the following conditions.

2. Bronchitis, Asthma, Lung abscess, Bronchiedtasis, Emphysema, COPD
3. Pleurisy and Empyema, Pneumonia
4. Pulmonary tuberculosis
5. Lung Abcess, Pneumonia,
6. Bacterial Disease.
7. Rheumatic fever, Carcinoma of respiratory tract.
8. Paralysis of diaphragm & vocal cords.
9. Chest wall deformities
10. Principles of intensive case physiotherapy, Aerosol Therapies, Humidification therapy

Section-III

Cardiovascular

1) Review of anatomy and physiology of the cardiovascular system.
2) Knowledge of various investigative procedures (invasive & non invasive) used in the diagnosis of various cardiovascular disorders.
3) Review of pathological changes and principle of management by physiotherapy of the following conditions:
   Thrombosis, Embolism, Burger's diseases, Arteriosclerosis, Thrombophlebitis, Phlebitis, Gangrene, Congestive Cardiac failure, Hypertension, Hypotension, Aneurysm., Congenital heart disease, Cardiac myopathies, ischemic heart disease, endocarditis and pericarditis.

Section- III

Thoracic Surgery

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

1) Lobectomy, Pneumonectomy, Thoracotomy, Thoraccoplasty, Endoscopy & eye role surgeries.
2) Corrective surgeries of congenital heart defects, angioplasties, blood vessel grafting, open heart surgeries & heart transplant.
3) Principals, modes , indication of mechanical ventilation.

Book Recommended:

1. Cash Textbook of general medical and surgical conditions for physiotherapists- Donnie Jaypee Brothers.
2. Essential of Cariopulmonary physical therapy- Hillegass & Sadowsky- W,B. Saunders.
3. Cash textbook of Chest, Heart and Vascular Disorders for physiotherapists- Downie- J.P. Brothers.
4. The Brompton Guide to chest physical therapy
5. Cardiopulmonary Physical Therapy- Irwin and Tecknin, Mosby.
6. Cardiovascular/Respiratory physiotherapy- Smith & Ball- Mosby
7. ACSM Guidelines for exercise testing and prescription- ACSM- Williams and Wilkins.
8. Chest physiotherapy in intensive care unit- Mackenzie et al – Williams and Wilkins.

B.P.T. 4th YEAR

***PAPER* - RATIONALE OF REHABILITATION**
CODE-BP405
THEORY---70

PRINCIPLES OF ORGANIZATION & ADMINISTRATION OF REHABILITATION UNITS.

a) Principle or relationship between personnel of rehabilitation unit and other department.
b) Principles of relationship between the institution and the guardians of the handicapped or patient.
c) Principle of relationship between head of the unit with various government and semi-government, trusts and juniors.
d) Relationship between a staff and his supervisors equals and juniors.
e) Principle of maintaining department secrecy, handling difficult problems of day to day work.
f) Definition of policy and how best it is to be carried out:-
g) Introduction to job analysis of importance.
h) Methods of teaching to handicapped and other workers in rehabilitation Unit.
i) Principles of teaching and guiding student's juniors and senior in O.T. and P.T. training schools and centers.
j) International classification of disability

REHABILITATION THERAPY:

I a) The philosophy and need of rehabilitation.
b) Principles of physical Medicine.

II a) Basic principles of Administration and organization philosophy approach, budget, Personnel and space.

III. Principles of Orthotics and prosthetics.
i) Lower extremity Orthotics.
ii) Spinal Orthotics
iii) Upper Extremity Orthotic.

b) i) Lower Extremity Prosthetics.
ii) Upper Extremity Prosthetics

IV. Walking and ambulatory Aids
i) Wheel Chair
ii) Cruches and Canes

V Principle of Management of Communication: Impairment.
i) Speech production
ii) Communication disorders secondary to brain damage.
iii) Evaluating Language
iv) Aphasia and its treatment.
v) Dysarthria and its treatment.
iv) Non- aphasic Language disorders.

VI. a) Principles in management of social probems.

i) Social needs of the patient.
ii) Rehabilitation center environment.
iii) The social worker as a member of the rehabilitation team.
iv) Contribution on social work.
v) Community Resources.
vi) Principle in Management of Vocational problems and occupational therapy.
   i) Vocational Evaluation.
   ii) Vocational Goals for the severely disabled.

VII a) The Evaluation Process.
   b) Principles of prescription writing.
VIII. Disability evaluation and management , Architectural barrier ,

Book Reference:-

1. Rehabilitation –Evans.
2. Directory for disabled people.
3. Improvement residential life for disabled people- truly.
4. Physical medicine & rehabilitation- Okawanta.
5. Community diagnosis & Health action- Bennerth.
6. Hand book of Physical medicine & rehabilitation.- Rusk.

B.P.T. 4th YEAR

***PAPER* – FIRST AID**
CODE-BPT405(B)
THEORY---70

UNIT I: Advanced First Aid, CPR & AED
Practical demonstration of first aid, CPR, AED skills IV.

UNIT II: Automated External Defibrillators (AED)

- Airway Obstructions
- Controlling Bleeding
- Shock
- Wounds and Soft Tissue Injuries

UNIT III: Burns

- Head and Spinal Injuries
- Chest, Abdominal and Pelvic Injuries
- Bone, Joint and Muscle Injuries
- Extremity Injuries and Splinting

UNIT IV: Assessment Measures :

- Cold and Heat Emergencies
- Rescuing and Moving Victims

UNIT V:General Outline of Topics Covered:
Acting in an Emergency- The Human Body Assessing the Victim Cardiopulmonary Resuscitation (CPR)

- Sudden Illness
- Poisoning
- Substance Misuse and Abuse
- Bites and Stings