ACADEMIC REGULATIONS

Bachelor of Physiotherapy (B.P.T.) Programme

BPT R 1: Duration of course:

Every student shall undergo a period of certified study extending over four academic years divided into 8 semesters i.e. 6 months each from the date of commencement of study for the subjects comprising P.T. curriculum to the date of completion of final B.P.T. examination successfully and followed by 6 months compulsory rotating internship.

The academic year for U.G.P.T. students shall consist of two terms viz.

1. The first terms commencing on 1st August and ending on 31st January.
2. Second term from 1st February to 31st July.

BPT R 2: Medium of instruction, eligibility criteria & Admission criteria:

English shall be the medium of instruction for all the subjects of study and for the exams of B.P.T. course.

Candidate must have passed Higher Secondary Certificate Examination under 10+2 education pattern taking with Physics, Chemistry, Biology and English or equivalent examination.

Eligible candidates should have completed the age of 17 years by 31st December of the year of his/her joining the college.

Admission in the course will be done through central Admission council.

BPT R 3:course evaluation:

(a) The performance of every student in each course for university examination will be evaluated as follows:

Internal evaluation by the course faculty member(s) based on continuous assessment, for 20% of the marks for the course;

Final examination by the university through written paper or practical examination or oral examination by the student of combination of any two or more of these, for 80% of the marks of the course.

(b) Internal evaluation:

The internal assessment is done based on continuous evaluation method.

Every year, there will be two internal examinations for theory and practical. For the award of internal marks in theory and practical, the average of the two tests shall be considered along with other components like attendance, presentations, assignments and journal submission.

Marks distribution for internals should be as follows.

Attendence – 5 marks

Assignment – 5 marks

Internal exam – 10 marks

BPT R 4: Essentialities for qualifying to appear in university examinations

Fresh appearing candidates before presenting themselves for the University examination shall, have

(a) Attended 75% of the minimum prescribed teaching hours as per O.B. PHYSIO-9 (Lectures and practical including clinics, seminars, group discussions, tutorials, demonstrations etc.)

(b) Secured at least 35% marks of internal assessment.

(c) If a student is found appearing in the university exams without fulfilling the conditions in O.B. Physio-3 criteria, his/her university result of the concerned subject/s should be cancelled.

BPT R 5: Criteria for passing:

To pass any B. Physiotherapy examination a student must obtain at least 50% marks in theory and practical aggregate. It is not compulsory to pass in section – I and section – II separately.

(a) Passing in First Year B.P.T Examination is not compulsory before proceeding to second year B.P.T training. However, passing in First Year B.P.T. examination is compulsory for being eligible for second year B.P.T. examination.

(b) Passing for 2nd year B. Physiotherapy Examination is not compulsory

before entering for 3rd B. Physiotherapy training. However, passing in 2nd year B. Physiotherapy is compulsory for being eligible for 3rd year B. Physiotherapy Examination.

(c) Passing in 3rd year B. Physiotherapy Examination is not compulsory before entering for 4th year B. Physiotherapy training. However, passing in 3rd year B. Physiotherapy is compulsory for being eligible for 4th year B. Physiotherapy Examination.

BPT R 6: Definition of Trail:

First trial is deemed to take place when the candidate is due to appear for the examination irrespective of his/her actual appearance, provided that non-appearance is not a result of reasons beyond his/her control. Similarly 2nd, 3rd, etc, trials relating to subsequent examination.

BPT R 7:

(A) With held:

Candidates who have passed in any of the subject/subjects may at their option be excused for appearing in that subject/subjects at a subsequent examination. But they should not be declared to have passed the whole examination until they have passed in all subjects in the particular examination.

(B) University examinations will be held twice during the year at the end of each Term.

BPT R 8:

(A) Awards and Prizes:

The Following shall be eligible for the university awards and prizes. Those who appear and pass the first, second, third, or final B. Physio Examination at their first attempt in a regular batch.

(B) Declaration of class:

Distinction – 75% and more marks in grand total aggregate in 1st attempt First class – 60-75% in grand total aggregate in 1st attempt

Second class – 50-60% in grand total aggregate in 1st attempt

Pass class – passed in more than 1 attempt irrespective of the % of marks secured.

(C) Students will be awarded a degree only after completion of the internship.

Rank shall be declared on the basis of aggregate marks obtained by a candidate in university subjects only. Students who have passed all the subject in 1st attempt in all four Years without a gracing shall be eligible for the award of rank.

BPT R 9: Compulsory Rotating Internship:

In order to qualify for B.P.T. degree every student after passing final B.P.T. exam shall do compulsory rotating internship for a period of 6 months in a physiotherapy institution/center/more than 50 bed hospital. The concerned college authorities shall do the posting of the successful candidates for internship within 15 days of declaration of result of final B.P.T. exam

During training of internship 75% presence is compulsory, failing which an intern will have to repeat the term (training).

BPT R 10: Transcript:

The transcript issued to the student at the time of leaving the University will contain a consolidated record of all the courses taken, credits earned, grades obtained, class obtained, etc.

BPT R 11: Course of study

YEAR	TOTAL TEACHING HOURS	MARKS		
		THEORY	PRACTICAL	TOTAL
F.Y. B.P.T.	1405	500	350	850
S.Y. B.P.T.	1425	350	200	550
T.Y. B.P.T.	1330	500	100	600
FINAL YEAR B.P.T.	1760	500	450	950

BPT R 12: Course of study and exams: F.Y. B.P.T.

Consisting of 2 semesters (1st and 2nd). University exams of F.Y.B.P.T. shall be held at the end of the 2nd semester.

SUBJECT	TEACHING HOURS		
	THEORY	PRACTICAL	TOTAL
HUMAN ANATOMY	125	175	300
HUMAN PHYSIOLOGY &	100	100	200
BIOCHEMISTRY	50	-	50
PSYCHOLOGY	60	-	60
SOCIOLOGY	60	-	60
BIO-MEDICAL PHYSICS	70	30	100
(FUNDAMENTALS OF PHYSIOTHERAPY)			
EXERCISE THERAPY – I	175	100	275
COMPUTER APPLICATION*	60	40	100
ENGLISH & COMMUNICATION SKILLS*	60	-	60
TOTAL HRS (THEORY & PRACTICAL)			1205
REVISION, PRELIM EXAMS			200
Grand Total			1405
* Computer Application & English are not for University Examination			

Exams:						
		MARKS				
		THEORY				
PAPER NO.	SUBJECT	INTERNAL	EXTERNAL	INTERNAL	EXTERNAL	TOTAL
1	HUMAN ANATOMY	80	20	80	20	200
2	HUMAN PHYSIOLOGY & BIOCHEMISTRY	80 (56+24)	20 (14+06)	80	20	200
3	PSYCHOLOGY + SOCIOLOGY	80 40+40	20 10+10	-	-	100
4	BIO-MEDICAL PHYSICS	80	20	40	10	150
5	EXERCISE THERAPY – I	80	20	80	20	200

TRUCTURE OF QUESTION PAPERS

Subjects:

F.Y. B. Physio: Human Anatomy, Psychology-Sociology, Biomedical Physics and Exercise Therapy-I

Duration: 3 Hours

	SECTION – I (40 Marks)	
Q – 1	Full Question	15 Marks
	OR	
Q – 1	Full Question	15 Marks
Q – 2	Write Short Notes (3 out of 4) (5 Marks each)	15 Marks
Q – 3	Write Short Notes (5 out of 6) (2 Marks each)	10 Marks

	SECTION – II (40 Marks)	
Q – 4	Full Question	15 Marks
	OR	
Q – 4	Full Question	15 Marks
Q – 5	Write Short Notes (3 out of 4) (5 Marks each)	15 Marks
Q – 6	Write Short Notes (5 out of 6) (2 Marks each)	10 Marks

Subjects:

F.Y. B. Physio: Human Physiology & Biochemistry

Duration: 3 Hours

	SECTION – I (56 Marks)	
Q-1	Full Question	16 Marks
	OR	
Q-1	Full Question	16 Marks
Q-2	Full Question	16 Marks
	OR	
Q-2	Full Question	16 Marks
Q-3Write short notes on: (4 out of 5) (4 Marks each)		16 Marks
Q-4Write short notes on: (4 out of 5) (2 Marks each)		08 Marks

	SECTION – II (24 Marks)	
Q-5	Full Question	16 Marks
	OR	
Q-5	Full Question	16 Marks
Q-6	Write short notes on: (2 out of 3) (4 Marks each)	08 Marks

F.Y. B. PHYSIOTHERAPY

HUMAN ANATOMY

OBJECTIVES:

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

1) Acquire the knowledge of structure of human body in general.
2) Understand the regional anatomy in detail
3) Anatomical changes right from embryonic period till old age
4) Understand histological features of various organs
5) Understand its application in medical science

DETAILED SYLLABUS

1. General Introduction:

1) Definitions and subdivisions
2) Plan of human body
3) System of the body
4) The unit of structure and function of the cell

2. Histology: (Not For University Examination)

1) Cell
2) Tissues of the body
3) Epithelium
4) Connective tissue
5) Cartilage
6) Bone
7) Lymphoid tissue

3. Embryology: (Not For University Examination)

1) Ovum, spermatozoa, fertilization and formation of germ layers and their derivations

2) Development of skin, fascia, blood vessels and lymphatics

3) Neural tube, brain vessels, spinal cord

4) Development of brain and brainstem structures, developmental anomalies (brief)

5) Development of bones, axial and appendicular skeleton and muscles

4. Musculoskeletal Anatomy: (all topics to be taught in detail)

Osteology:

1) Anatomical positions of the body, axes, planes, common anatomical terminologies (grooves, tuberosity, trochanters etc)

2) Connective tissue classification

3) Bones:- Composition and functions, classification of types according to morphology and development, growth and repair, structure of long bone, vertebral column, types of vertebrae, bones of extremities and body landmarks

Arthrology:

1) Definitions

2) Classification of joints

3) Construction of joints

4) Motions of joints

5) Structure of fibrous, cartilaginous joints

6) Blood supply and nerve supply of joints

7) Articulations – articular surfaces, types of joints, motions of upper and lower extremities, trunk, head

Myology:

1) Types of muscle tissue

2) Muscles of upper extremity, lower extremity, trunk, eye, face etc. origin, insertion, nerve supply and action (in detail)

Myology of other systems:

1) Cardiovascular system

2) Blood lymph, tissue fluid-characteristics, composition, and function

3) The heart-main arteries, veins, capillaries

4) Lymph circulation

5. Neuro-anatomy

1) Division and function of the nervous system

2) Brain, spinal cord-their structures, division

3) Nerve tissue-neuron, nerve, fibre, synapse, end-organs etc

4) Organization of Central Nervous System-spinal nerves and autonomic nervous system-mainly pertaining to cardiovascular, respiratory and urogenital system.

5) Cranial nerves

6) Peripheral nervous system-Peripheral nerves, sensory and organs, neuromuscular junction, spinal segments and areas

7) Nerve supply to voluntary muscles and segmental distribution

8) Central nervous system-Brain, cerebellum, Thalamus, Hypothalamus, Corpus striatum, Cerebral hemispheres – white and gray matter, lateral ventricles, blood supply of brain, meninges, pyramidal system, extrapyramidal systems, anatomic integration.

9) Cerebro-spinal fluid

10) Sensory end-organs and sensations

11) Autonomic nervous system-sympathetic, parasympathetic

6. Respiratory System:

1) Thoracic cage
2) Brief outline of air passages
3) Brief gross anatomy of respiratory organs-lungs, pleura, bronchial tree, broncho-pulmonary segments
4) Intercostals muscles in detail
5) Mechanisms of respiration and muscles of respiration
6) Diaphragm

7. Cardiovascular System:

1) Heart (gross anatomy and functions)
2) Arteries
3) Veins
4) Collateral Circulation

8. Digestive System:

1) Anatomy of digestive organs – Oesophagus, stomach, intestine, rectum etc
2) Digestive glands

9. Urinary System:

1) Anatomy of urinary organs, kidneys, ureters, urinary bladder urethra in males and females etc.
2) Types of bladder especially in paraplegics

10.Reproductive System:

1) Brief outline of genital organs
2) Outline of male and female reproductive system

11.Endocrine System:

1) Glands – classification, sites and section
2) Enzymes
3) Hormones

12.Special sensory organs and sensations:

1) Emphasis on skin, ear and eyes
2) Less detail on smell and taste

13.Regional Anatomy:

Upper Extremity:

1) Osteology: Clavicle, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, Phalanges in articulated hand

2) Soft parts: Breast, pectoral region, axilla, front of arm, cubital fossa, front of forearm, back of forearm, palm, dorsum of hand, muscles, fascia, nerves, blood vessels and lymphatic drainage of upper extremity

3) Joints: shoulder girdle, shoulder joint, elbow joint, radio-ulnar joint, wrist joint and joints of hand

4) Arches of hand, skin of the palm and dorsum of hand

Lower Extremity

1) osteology: Hip bone, femur, tibia, fibula, patella, tarsals, metatarsals, phalanges.

2) Soft parts: Gluteal region, front and back of thing {femoral triangle, femoral canal and inguinal canal}, medical side of the thigh {adductor canal}, lateral side of the thigh, popeliteal fossa, anterior and posterior compartment of leg, sole of the foot, lymphatic drainage of lower limb, venous drainage of the lower limb, arterial supply of the lower limb, arches of the foot, skin of foot.

3) Joints: Pelvic girdle, Hip joint, knee joint, ankle joint, joints of the foot.

Trunk

1) Osteology: Cervical, thoracic, lumbar, sacral and coccygeal vertebra and ribs.

2) Sift tissue: Pre and para vertebral muscles, anterior abdominal wall muscles, intervertebral disc.

3) Joints: Intervertebral Joints

Head and neck

1) Osteology: Mandible and bones of the skull.

2) Soft parts: Muscles of the face and neck and their nerve and blood supply – Extraocular muscles, salient points about the eye ball and internal ear.

TEXT BOOKS

1. Human Anatomy – by Snell
2. Anatomy by Chaurasia all 3 volumes
3. Neuro anatomy by Inderbir Singh
4. Human Anatomy by Kadasne (All three volumes)

REFERENCE BOOKS

1. Gray's Anatomy
2. Externities by Quining Wasb
3. Atlas of Histology by Mariano De Fiore
4. Anatomy & Physiology by Smout and Mcdowell
5. Kinesiology by Katherine Walls
6. Neuroanatomy by Snell
7. Neuroanatomy by Vishram Singh

HUMAN PHYSIOLOGY

OBJECTIVES:

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

1) Acquire the knowledge of functions of various systems of human body

2) Understand the role of hormones, enzymes and other different types of cells of Human body.

DETAILED SYLLABUS

1. General Physiology:

1. Cell Structure and Organelle.
2. General Principles of Biophysics
3. Body Fluid Compartments.

2. Blood:

1. Composition of Blood, Plasma, Protein Formation and their Function.
2. Structure, formation and functions of R.B.C.
3. Structure, formation and functions of W.B.Cs. and platelets.
4. Coagulation and its defects of bleeding and clotting time.
5. Blood Groups and their significance, Rh. Factor.
6. Reticulo-endothelial system, Jaundice, Structure and functions of spleen.
7. Hemoglobin and E.S.R.

3. Cardiovascular System:

1. Structure, properties of heart muscle and nerve supply of heart structure and function of arteries, arterioles, capillaries and veins.
2. Cardiac cycle and heart sounds.
3. Cardiac output measurement, factors affecting.

4. Heart rate and its regulation, Cardiovascular reflexes.
5. Blood pressure, its regulations and physiological variations.
6. Peripheral resistance, factors controlling and its role in B.P.
7. Hemorrhage.
8. Changes in muscular exercise.

4. Respiratory System:

1. Mechanism of respiration, intra-pleural and intrapulmonary pressure.
2. Lung volumes and capacities.
3. O2 and CO2 carriage and their exchange in tissues and lungs.
4. Nervous chemical regulation of respiration – Respiratory Centers. Respiratory states – Anoxia, Asphyxia, Cyanosis, and Acclimatization.

5. Digestive System:

1. General outline and salivary digestion.
2. Gastric secretion and its mechanism of section and functions.
3. Digestion, Absorption and Metabolism of Proteins
4. Structure, Secretions and Function of Liver

6. Nutrition:

1. Digestion, Absorption and Metabolism of Carbohydrates.
2. Digestion, Absorption and Metabolism of Fats.
3. Digestion, Absorption and Metabolism of Proteins.
4. Vitamins, its sources, functions and resources.
5. Balanced diet in different age groups and occupation.

7. Endocrines:

1. Anterior Pituitary.
2. Posterior Pituitary and Parathyroid.
3. Thyroid.
4. Adrenal Cortex.
5. Adrenal Medulla, Thymus
6. Pancreas and Blood sugar regulation.

8. Reproductive System:

1. Sex determination and development, Puberty.
2. Male sex hormones and their functions, spermatogenesis.
3. Female sex hormones and functions, menstrual cycle, ovulation and contraceptives.
4. Pregnancy, functions of placenta and lactation.

9. Excretory System:

1. Gross and minute structure of Kidney and features of Renal circulation.
2. Mechanism of formation of Urine, GFR and Tubular function.
3. Renal function.
4. Physiology of Micturition.

10.NEURO MUSCULAR PHYSIOLOGY:

Muscle and Nerve:

1. Structure of Neurons, membrane potential and generation of action potential.
2. Nerve impulse conduction, Saltatory conduct ion.
3. Neuromuscular junction and drugs acting on it – Myasthenia.
4. Degeneration and regeneration in peripheral nerves – Wallerian degeneration of electro tonus and Pflugers Law.

Muscle:

1. Type of muscles and their gross structure, stimulus chronaxie, strength duration curve.

2. Structure of sarcomere – Basis of muscle contraction, Starling's Law and changes during muscle contraction.

3. Electrical – Biphasic and monophasic action potentials.

4. Chemical, Thermal and Physical changes, isometric and isotonic contraction.

5. Motor units and its properties, Clonus, Tetanus, All or None Law, Beneficial Effect.

6. Nature of Voluntary contraction, Fatigue.

Nervous System:

1. Types and properties of Receptors, types of sensations.

2. Structure of Synapses, Reflex and its properties, occlusion summation, sub minimal fringe, etc.

3. Tracts of Spinal Cord.

4. Descending, Pyramidal and Extra pyramidal Tracts.

5. Hemi section and complete section of spinal cord, upper and lower motor neuron paralysis.

6. Cerebral cortex – areas and functions, E.E.G.

7. Structure, connections and functions of Cerebellum.

8. Connections and functions of Basal Ganglia and Thalamus.

9. Reticular formation, tone, posture and equilibrium.

10. Autonomic nervous system.

Special Senses:

1. Broad features of Eye, errors of refraction, lesions of visual pathways.
2. Speech and its disorders.
3. Ear and vestibular apparatus.

➢ PRACTICAL AND DEMONSTRATIONS

Blood:

1. Haemoglobinometer and total R.B.C. count.
2. Total W.B.C. count
3. Preparation and staining of blood smears, determination of differential W.B.C. count.
4. Blood grouping
5. Erythrocyte sedimentation rate
6. Bleeding and clotting time.

Respiratory System:

1. Artificial respiration.
2. Pulmonary function test

Cardiovascular System:

1. Heart Sounds
2. Arterial Blood Pressure in Man.
3. Cardiac efficiency tests.
4. Recording and study of E.C.G.

Central Nervous System:

1. Testing of peripheral sensations and cranial nerves.
2. Superficial and deep reflexes.
3. Tests for Cerebral and Cerebellar functions

Neuromuscular System:

1. Varieties of stimuli
2. Electrical Apparatus for physiological experiments.

TEXT BOOKS

1. Course in Medical Physiology – Vol – I & II by Dr.Chaudhary
2. Medical Physiology – by Dr Bijlani
3. Text book on Medical Physiology – by Gayton

REFERENCE BOOKS

1. Review of Medical Physiology – Ganong
2. Samson & wright's applied physiology
3. Human Physiology – Chaudhary & Bijlani
4. Semibulingum – Essentials of Medical Physiology – K Semubulingam

BIOCHEMISTRY:

OBJECTIVES:

At the end of the course the candidate will be able to

1. Describe the structure and function of the cell in brief.
2. Describe the normal functions of different components of food.
3. Describe basal metabolic rate and the factors affecting the same (in brief) with special reference to obesity.
4. Discuss nutritional aspects of carbohydrates, lipids, proteins, vitamins and minerals and their metabolism with special reference to obesity.
5. Define enzymes and discuss in brief the factors affecting enzyme activity and diagnostic use of enzymes.
6. Describe in detail the biochemical aspects of muscle contraction.
7. Acquire knowledge in brief about the clinical biochemistry, with special reference to liver and renal function tests, blood study for lipid profile, metabolism of fat, carbohydrates, proteins, bone minerals, electrolyte balance, water balance and acid – base balance.

DETAILED SYLLABUS

1. Cell Biology:

1. Membrane structure and function.
2. Function of intracellular organs in brief.

2. Carbohydrates:

1. Chemistry, definition, classification with examples
2. Function of mucopolysaccharide (in detail)

3. Reducing properties of sugars of clinical and diagnostic importance (e.g. Benedict's test, Barfoed's test, etc)

4. Metabolism, digestion and absorption of carbohydrates, glycosis – aerobic and anaerobic, energetics and regulation.

5. Kerbs's cycle, its energetics regulation and role of TCA cycle

6. Glycogenesis, Glycogenolysis, their regulation and the role of liver and muscle glycogen

7. Significance of HMP shunt and gluconeogenesis

8. Hormonal regulation of blood sugar level, important metabolic disorders of glycogen, lactose intolerance, diabetes mellitus.

3. Proteins:

1. Chemistry, definition, classification of amino – acids, protein structure, effect of temperature on proteins, denaturation, coagulation, isoelectric pH and its importance.

2. Metabolism, digestion and absorption, decarboxylation, deamination, transmethylation, transamination and their importance and detoxification of ammonia including urea cycle.

3. Special products of amino acids, example: phenylalanine, glycine, methionine

4. Neurotransmitters

5. Plasma proteins including immunoglobulins

6. Hemoglobin, Myoglobin, their functions, haemoglobinopathies, thalassemias

7. Structural proteins: Collagen, Elastin

4. Lipids:

1. Chemistry, definition, classification and function

2. Metabolism, digestion and absorption of lipids, beta oxidation of fatty acids and its energetics, regulation of fat metabolism in adipose tissue, ketone bodies formation and its utilization, cholesterol and importance of lipoproteins, lipoproteinemia with atherosclerosis – causes and prevention, fatty acid synthesis, fatty liver and obesity.

5. Nucleic Acids:

1. DNA, RNA – definition, structure and function, types, genetic code, catabolism of purines – gout.

6. Enzymes:

1. Definition, classification, factors
2. Coenzymes.
3. Inhibition and type of inhibitors
4. Isoenzymes
5. Clinical and therapeutic uses of enzymes

7. Vitamins:

1. Definition, classification, functions
2. Deficiency symptoms, RDA

8. Biological Oxidation:

1. Oxidative phosphorylation, ETC

9. Minerals:

1. Phosphate, calcium and iron (in details)
2. Magnesium fluoride, Zinc, Copper, Selenium, Molybdenum
3. RDA, iodine sources, absorption, transport, excretion, function and disorders

4. Acid – base balance, water and electrolyte balance

10.Connective tissue:

1. Biochemistry of connective tissue – Collagen, Glycoprotein, Proteoglycans

11.Nutrition and BMR, PEM, Balance diet.

TEXT BOOKS:

1. Essentials of Bio-chemistry by U. Satyanarayan, 1st Edition, Books and Allied Publications.

REFERENCE BOOKS:

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

PSYCHOLOGY

OBJECTIVES:

At the end of the course the candidate will be able to

1. Define the term psychology and its importance in the health delivery system and gain knowledge of psychological maturation during human development and growth and alteration during ageing process

2. Understand the importance of psychological status of the person in the health and diseases, environmental and emotional influence on the mind and personality

3. Acquire the knowledge as to how to deal with the patient

Reference should be made whenever appropriate to the therapist relationship with the patient and with his professional colleagues. Emphasis should be laid on the effects of disease on the patient's behavior.

DETAILED SYLLABUS

1. **Biological foundation** of behavior, hereditary and environment and logical basis for development, developmental psychology (child).

2. **Learned and unlearned behavior:** Simple learning and conditioning, social learning.

3. **Thinking and intelligence:** Learning and problem solving development of conceptual thinking in children. Communication, language and thinking. Measurement of intelligence influences on intelligence, extent and consequence of individual differenced.

4. **Perception:** Sensory basis of perception, attention and perception, observer error.

5. Memory: Phases of memory, short term storage, memory and perception thinking etc. Forgetting testimony and recall of events, memory and ageing.

6. **Motivation and emotion:** Approaches to motivations, emotion, development, influence of early experience. Family and social influences on motivation and behaviour.

7. **Personality:** Nature of personality structure and dynamics, dimensional, psychoanalytical and constitutional theories of personality, measurement of personality, culture and personality patterns.

8. **Attitude:** Nature of attitude and beliefs including prejudice, group influences on attitudes, attitude change, doctor – patient expectations and attitude, prejudice formation and education.

9. **Interpersonal behaviour:** Experimental analysis on social interaction, studies of the interview situation, behaviour in formal and informal groups, group norms and rules. Leadership in formal and informal groups, group morale.

10. **Social psychology:** Nature and scope of social psychology, social interaction, psychological groups and their classification, socialization of the individual, social control (social hierarchy) – moves, customs, fashion, propaganda and its techniques.

11. **Tests:** Wescher scales, Stanford-Binet intelligence scale, Bender and Gestalt-other projective test, anxiety scale.

TEXTBOOKS:

1. Introduction to psychology by S.K.Mangal, Sterling Publishers
2. Introduction to psychology by – Morgan and King, 7th Edition, Tata McGraw-Hill Edition.

REFERENCE BOOKS:

1. Psychology: The Study of Human Behaviour, Mishra B.K, PHI Learning.
2. Essentials of Educational Psychology, Skinner Charles E, Surjeet Publication.
3. Abnormal Psychology, Page James D, Surjeet Publication.

SOCIOLOGY

OBJECTIVES:

At the end of the course the candidate will be able to

1. Define the term sociology and its importance in the health delivery system.

2. Understand the basic sociological concepts, principles and social process, social institution in relation to the individual family and community and the various social factors affecting the family in the rural and urban communities in India.

DETAILED SYLLABUS

1. Introduction:

1. Meaning – definition and scope of Sociology.
2. Its relation with anthropology, psychology, social psychology and ethics.
3. Methods of Sociology – case study, social survey, questionary interview and opinion poll methods.
4. Importance of its study with special reference to health care professionals.

2. Social Factors in health and disease:

1. The meaning and nature of socialization.
2. The role of social factors in health and illness.

3. Socialization:

1. Meaning and nature of socialization.

2. Primary, secondary and anticipatory socialization.

3. Agencies of socialization.

4. Social Groups:

Concepts of social groups, influence of formal and informal groups on health and sickness, the role of primary groups and secondary groups in the hospital and rehabilitation settings.

5. Family:

1. The family

2. Meaning and definition

3. Function

4. Types

5. Changing family patterns

6. Influence of family on individual health, family and nutrition, the effects of sickness on family and psychosomatic disease and their importance to physiotherapy.

6. Community:

1. Rural community – meaning and features – health hazards of rural ties.

2. Urban community – meaning and features – health hazards of urbanities.

7. Cultural and Health:

1. Concept of culture.

2. Culture and behavior.

3. Cultural meaning of sickness.

4. Cultural and Health Disorders.

8. Social Change:

1. Meaning of social changes.
2. Factors of social changes.
3. Human adaptation and social change.
4. Social change and stress.
5. Social change and deviance.
6. Social change and health programme.
7. The role of social planning in the improvement of rehabilitation.

9. Social Problems of disabled:

Consequence of the following social problems in relation to sickness and disability, remedies to prevent this problem.

1. Population explosion.
2. Poverty and unemployment.
3. Beggary.
4. Juvenile delinquency.
5. Prostitution.
6. Alcoholism
7. Problems of women in employment

10.Social Security:

Social security and social legislation in relation to disabled.

11.Social Worker:

Meaning of Social work, role of a medical social worker.

TEXTBOOK:

1. Sociology for Physiotherapists by Dibyendunarayana Bid, 1st edition, Jaypee Publication.

REFERENCE BOOKS:

4. An introduction to sociology by - Sachdeva and Bhushan, 32nd Edition, Kitab Mahal Publication.
5. Textbook of Sociology for Physiotherapy Students by KP Neeraja, 1st Edition, Jaypee Publication.
6. Indrani T K, Text Books of Sociology for Graduates Nurses and Physiotherapy Students, JP Brothers.

BIOMEDICAL PHYSICS (FUNDAMENTALS OF PHYSIOTHERAPY):

OBJECTIVES:

At the end of the course the candidate will be able to:

1. Recall the physics principles & Laws of Electricity, Electro-magnetic spectrum & ultra-sound.

2. Describe effects of environmental & man made electro-magnetic field at the cellular level & risk factors on prolonged exposure.

3. Describe the main electrical supply, electric shock – precautions.

4. Enumerate types & production of various therapeutic electrical currents. Describe the panel diagrams of the machines.

5. Describe in brief, certain common electrical components such as transistors, valves, capacitors, transformers etc & the simple instruments used to test / calibrate these components (such as potentiometer, oscilloscope etc) of the circuitry; & will be able to identify such components.

6. Describe & identify various types of electrodes used in therapeutics, describe electrical skin resistance & significance of various media used to reduce skin resistance.

7. Acquire knowledge of various superficial thermal agents such as Paraffin wax bath, cryotherapy, homemade remedies, etc; their physiological & therapeutic effects, merits / demerits; & also acquire the skill of application.

DETAILED SYLLABUS:

1. Fundamentals of Low frequency currents:

a) Production of electricity, mains supply,

b) A.C. currents & Faradic type current

c) D.C. currents – Types, Fundamentals of electrical charges, static electricity, physic of direct currents Ohm's law, Conductors, Capacitors, Rheostats, Potentiometers,

Ammeters & Oscilloscopes,

d) Types of electrodes, galvanic skin resistance, electrode, gels, types & significance

2. Fundamentals of High frequency currents:

a) Magnetism, E.M.F. Conduction, Lenz's Law, transformers, types.

b) Thermionic valves.

c) Semi–conductors: types, transistors

d) Electronic circuits– oscillators, pulse generators

3. E.M. spectrum: Laws of transmission- reflection, refraction, absorption, attenuation; Grothus' law, cosine law, inverse square law and its practical application

4. Cellular Bio-physics: Reception & emission of E.M.F. signals.

5. Environmental currents & fields risk factors on prolonged exposure to E.M. field.

6. Production, Physical principles, Panel diagram, testing of apparatus – S.W.D., Ultra-sound, U.V.R., I.F.T., Beat frequency currents, I.R., LASER (no panel diagram).

7. Therapeutic continuous / interrupted direct currents & their various wave forms, A.C. current.

8. Bio-physics of superficial heat & cold (Only basic principles):

a) Home remedies,

b) Paraffin wax bath

c) Whirl pool

d) Contrast bath

e) Hydro-collator hot packs / cold packs

f) Cryotherapy

9. Basic Concepts:

a) COG, LOG, Planes and axis of motion (mechanical and anatomical)

10.Principles of stability:

a) BOS, Height, COG, LOG, Mass of body, the impact of forces, Friction, Segmentation, Visual factors, Psychological and Physiological factors.

11.Principles of motion:

a) Causes of motion, Kinds, Motions experienced by the body, Laws of motion, Centripetal and Centrifugal force.

12.Musculoskeletal mechanics:

a) Anatomical levers, Wheel and axis and Pulley

13.Force and work:

a) Magnitude of force, Point of application, Direction of force and Resistance, Arm of lever, Perpendicular distance, Composite effect of two or more forces, Methods of determining the components of force and work, Movements of body as a whole and of segments of body in air, water and on surface.

TEXT BOOKS:

1. Clayton's Electro therapy – 3rd & 10th Ed,
2. Electrotherapy explained – by Low & Read
3. Electro Therapy – by Kahn
4. Basics of Electrotherapy – Dr. Subhash Khatri
5. Kinesiology - Katharine F. Wells

REFERENCE BOOK:

1. Clinical Electrotherapy – by Nelson & Currier.

EXERCISE THERAPY – I

OBJECTIVES:

At the end of the year the student will be able to

1. Understand the basic mechanical principles and effect of exercise, therapeutic modality in the restoration of physical function.

2. Describe and acquire the skills of application and demonstration of the use of various tools of the therapeutic gymnasium and various starting and derived positions.

3. Describe the physiological and therapeutic effect of various movements and demonstrate in various anatomical planes.

4. Acquire the skills of application of various massage manipulations and describe the physiological effects, therapeutic uses, merits – demerits of the same.

5. Demonstrate and acquire the skill of relaxation.

DETAILED SYLLABUS

1. General Mechanical Principles:

1. Mechanical principles applied in Physiotherapy like force, momentum, torque etc.

2. Momentum action and reaction, friction, rotation about a pivot, angle or pull of muscle.

3. Gravity: Definition, line of gravity, centre of gravity.

4. Equilibrium: supporting base, stability and uses.

5. Work, energy and power.

6. Lever: Definition, orders of lever, examples in human body, levers at home and work; levers in Physiotherapy.

7. Springs: Properties of springs, springs in series and parallel.

8. Mechanics of muscle: Group action of muscles, types of contraction, muscle work.

2. Introduction to Physical Therapy.

3. Basic of exercise: Physiological effects and Therapeutic uses of exercises

Psychogenic aspects of exercises

Pharmacological effects of exercises

4. Use of apparatus in Exercise Therapy.

5. Joint movements – Terminology, ange of motion, axis and planes of movement, levers.

6. Fundamental starting positions, derived positions – effects and uses and muscle work

7. Pelvic tilt.

8. Muscle work for all positions.

9. Measurement of joint movements/ Goniometry – principles of goniometry, types (Bubble and gravity goniometers), method for measuring each movement.

10. Classification of movements:

Active movements: Definition, types, effects and uses techniques.

Passive movements: Definition, types, effects and uses, techniques of relaxed Passive movements and comparison of both movements.

11. Causes for restriction of range of motion – Distinguish between skin, muscle, capsular contractures.

12. Group work – Criteria for selection of patients, advantages and disadvantages of group therapy / class exercise.

13. Posture – Definition, types, factors influencing posture, posture training, physiological deviations.

14. Free exercises – Classification, techniques, therapeutic effects of free exercises, application for shoulder, neck, hip and knee joints.

15. Suspension therapy – Definition and concepts of suspension

Points of suspension

Weight & pulleys and application of pulleys for suspension

Application of suspension therapy either to increase the Joint range or muscle power

16. Resisted Exercises – Techniques and types of resistance

SET system (Heavy resisted exercises, Oxford method, Delorme method, McQueen's method.)

Application of resistance to increase power and endurance Progress of exercises: Free, resisted-assisted-with use of apparatus.

17. Mat Exercises – Principles

Equilibrium / balancing exercises

Transfer activities

Indications and contraindications

18. Evaluation methods – principles – techniques – merits/demerits

Individual and group muscles

Limb length and girth

Posture and gait

19. Locomotion – Normal gait, gait training

Training with supportive aids: principles, selection of aid, pre-crutch training, Crutch walking, progression.

Walking on slopes, staircase climbing, transport with walking aids

20. Breathing exercises – Mechanism of breathing, muscles of respiration

Diaphragmatic and segmental breathing Principles and techniques

Therapeutic effects

Exercises for bronchial hygiene, coughing and huffing, home programme

21. Assessment of sensation, reflex testing, blood pressure, pulse rate, chest expansion and respiratory rate

22. Maintenance of record – range of motion, resistance

23. Trick Movements

24. Home Exercises

25. Soft Tissue Manipulation – Massage Mobilization:

1. Introduction – brief history, definition, classification
2. Physiological effects and therapeutic uses
3. Indications – contraindications
4. Preparation of patient, basic points to be considered during the treatment
5. Specific techniques, effects and uses of each manipulation
6. Massage techniques for upper and lover limbs, neck and back.
7. Massage for edema, scar, tendonitis, fibrosis (tight fascias)
8. Practice of soft tissue manipulation in subjects.
9. Mobilization of soft tissues, joints and fluid collection.

TEXTBOOKS:

1. Principles of Exercise Therapy by Dena Gardiner, 4th Edition, CBS Publication.
2. Practical Exercise Therapy by Margaret Hollis, 4th Edition; Blackwell Sciences Publicatio
3. Therapeutic Exercise by Kisner & Colby, 4th Edition; Jaypee Publication.
4. Principles and Practices of Therapeutic Massage, Sinha A G, Jaypee Publication

REFERENCE BOOKS:

1. Handbook of Clinical Massage 2nd ed Casser M P, Elsevier Publication.
2. Fundamentals of Therapeutics Massage , Fritz Sandy, Mosby Publication.
3. Massage Therapy Principles and Practice 3rd ed, Salvo S G, Saunders Elsevier Publicatio
4. Measurement of Joint Motion – a guide to Goniometry by Cynthia Norkins, 2nd Edition; Jaypee Publication.
5. Therapeutic exercise by Hall & Brody.

COMPUTER APPLICATIONS

(Not for University Exam)

OBJECTIVES:

The course enables the students to understand the fundamentals of computer and its basic applications.

DETAILED SYLLABUS

1. Introduction to data processing:

- Features of computers. What are Hardware and Software?
- Advantages of using computers. Role and uses of computers. What is data processing?
- Application areas of computers and common activities in data processing. Types of data processing, characteristics of application.

2. Hardware concepts:

- Architecture of computers – characteristics of discs, tapes, terminals, printers, network.
- Types of storage devices.
- Concept of damage. Application of networking concept of PC system care, floppy care, data care etc.

3. Concept of software

- Classification of software: System software. Application of software, Operating System, Computer System, computer virus, precautions against viruses, dealing with viruses, computers in medical electronics.

4. Basic anatomy of Computers:

- Principles of programming: Computer application – principles in scientific research, work processing, medicine, libraries, museum, education, information system.
- Data processing
- Computers in Physical Therapy – Principles of EMG, Exercise testing equipment, Laser.

TEXTBOOKS:

1. Windows Vista: Step by Step, Joan Preppernau and Joyce Cox, Prentice Hall of India, New Delhi, 2007.
2. WORD 2000, Guy Hart Davis, BPB Publications, New Delhi, 1999.
3. MS Office by Pierce, Prentice Hall of India, New Delhi, 2007 9. MS Office: Plain & Simple, Jerry Joyce, and Marianne Moon, Prentice Hall of India, New Delhi, 2007.
4. Taxali R.K., P.C. Software for Windows 98 made simple – 8th Edition – 2002 – Tata Mc, New Delhi.
5. Working with personal computer software: R.P.Soni, Harshal Arolkar, Sonal Jain, Books India Publications, First Edition, New Delhi, 2008.

ENGLISH & COMMUNICATION SKILLS

(Not for University Exam)

Course Outline:

The course is designed to help Acquire a good command and comprehension of the English language through individual papers and conferences.

Objectives:

At the end of the course the candidate will be able to

1. Read and comprehend English language.
2. Speak and write grammatically correct English.
3. Appreciate the value of English language in personal and professional life.

1. Introduction:

- Study techniques
- Organization of effective note taking and logical processes of analysis and synthesis.
- Use of the dictionary
- Enlargement of vocabulary
- Effective diction

2. Applied Grammar:

- Correct usage
- The structure of sentences
- The structure of paragraphs
- Enlargement of vocabulary

3. Written composition:

- Precise writing and summarizing
- Writing of Bibliography
- Enlargement of vocabulary

4. Reading and Comprehension:

- Review of selected materials and express oneself in one's words and enlargement of vocabulary.

5. The study of various forms of composition:

- Paragraph, essay, letter, summary, practice in writing

6. Verbal Communication:

- Discussions and summarization, debates, oral reports, use in teaching.

TEXTBOOKS:

1. Clinical Communication Skills By: Fielding R. Hong Kong University Press.
2. Clinical Communication Skills by Richard Fielding.

REFERENCE BOOKS:

1. Communication Skills in Clinical Practice: Doctor- Patient Communication By K R Sethuraman Publisher: Jaypee Edition Number: 1, ISBN: 8171798497.
2. Technical Communication by Raman M & Sharma S.
3. Effective Technical Communication by M Ashraf Rizvi. The McGraw – Hill Education Pvt. Ltd., 2005