1.1.2

Percentage of Programmes where syllabus revision was carried out during the last five years

Revised Syllabus for BPT

Ordinance for Revision in BPT in Year 2019-20	**View**
Revised Syllabus in Year 2019-20	**View**
Revised Syllabus in Year 2020-21	**View**

ORDINANCE
FOR
BACHELOR OF PHYSIOTHERAPY
(POST REVISION)
(2019-20)

SUSHIL KUMAR THAKUR

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BAREILLY INTERNATIONAL UNIVERSITY

FACULTY OF PARAMEDICAL SCIENCES

ORDINANCE

Bachelor of Physiotherapy

Session-2019-2020

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2019-20

BAREILLY INTERNATIONAL UNIVERSITY

Ordinance effective from session 2019-20

Bachelor of Physiotherapy (BPT)

1. **Scope**

This ordinance shall apply to the program leading to Bachelor of Physiotherapy (BPT).

2. **Eligibility for Admission:**

a) A candidate seeking admission to Bachelor of Physiotherapy (BPT) should have passed the 10+2 examination or equivalent examination from any Board /Council/ University approved by Bareilly International University with Physics, Chemistry, Biology and English as subjects.

b) A candidate must have obtained minimum 45% marks in the qualifying examination. The candidate belongs to the schedule cast and the schedule tribe must have obtained minimum 40% instead of 45%.

c) The minimum age for admission shall be 17 years as on 31st December of the year in which admission is sought.

d) Admission shall be made once in a year and open to both male and female candidates.

e) A candidate shall have to be medically fit.

3. **Eligibility for admission directly to 2nd yr (Lateral Entry):**

A candidate having completed two years Diploma in Physiotherapy course from any institution recognized by State Medical Faculty shall be eligible for direct admission to second year of Bachelor of Physiotherapy (BPT).

4. **Program Duration:**

a) The duration of the program leading to the award of Bachelor of Physiotherapy (BPT) shall be of four academic years followed by 6 months compulsory rotator internship.

b) The maximum period for successfully completion of program should not exceed Eight years and six years in case of lateral entry, excluding internship period.

5. **Annual Intake:**

a) The number of students shall be admitted as approved by the executive council of the university subject to maximum seat permitted by regulating body.

b) The last date for admission to program shall be 31st Aug of the admission year.

6. **Medium of Instruction:**

a) The medium of instruction for all subjects of study and examination shall be English.

7. **Organization of the Program**:

a) Each academic year shall comprise of two parts. First part shall be termed as odd semester and second part as even semester.

b) There shall be minimum 20 weeks devoted to academic activities in each semester.

c) The syllabi of the program shall contain subject-wise content details, semester-wise shall be published separately.

d) The six month compulsory rotatory internship after completion of successful completion of course of study is the part of course curriculum.

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e) The academic activities for subject given below shall be conducted semester-wise:

Semester I: Human Anatomy-1 Human Physiology -1 Biochemistry General & Clinical Psychology Practical: Human Anatomy-1 Practical: Human Physiology -1 Practical: Biochemistry **Subsidiary Subject:** English, Communication and soft skills Basic computer and information science	**Semester II:** Human Anatomy-II Human Physiology -II Basic Principles of Biomechanics Sociology Practical: Human Anatomy-II Practical: Human Physiology –II Practical: Basic Principles of Biomechanics **Subsidiary Subject:** Introduction to health Care Delivery System in India
Semester III : Pathology Microbiology Biomechanics & Kinesiology Foundation of Exercise therapy Practical: Biomechanics & Kinesiology Practical: Foundation of Exercise therapy **Subsidiary Subject:** Introduction to Quality and Patient Safety	**Semester IV :** Pharmacology Bio Physics Electro Therapy Exercise Therapy Practical: Electro Therapy Practical: Exercise Therapy **Subsidiary Subject:** Environmental Science
Semester V: Clinical Orthopedics & Traumatology General Surgery Obstetrics & Gynecology General Medicine **Subsidiary Subject:** Health Promotion, Fitness & Wellness	**Semester VI:** Clinical Neurology & Neurosurgery Clinical Cardiovascular & Pulmonary conditions Community Medicine Biostatistics & Research Methodology **Subsidiary Subject:** Physiotherapy Laws & Ethics, Professionalism & Values
Semester VII: Physiotherapy in Orthopedics & Sports Physiotherapy in Neurology Diagnostic Imaging for Physiotherapist Human Psychiatry Practical: Physiotherapy in Orthopedics & Sports Practical: Physiotherapy in Neurology **Subsidiary Subject:** Principle of Management	**Semester VIII:** Physiotherapy in Cardiovascular & Intensive Care Physiotherapy in General Medicine & General surgery Community Physiotherapy Clinical Reasoning & Evidence Based Physiotherapy Practical: Physiotherapy in Cardiovascular & Intensive Care **Subsidiary Subject:** Administration & Teaching Skills

6. **Evaluation Scheme:**

a) A student's performance will be evaluated through end term examination held at the end of each semester.

b) In addition, the continued evaluation of the student shall be made by way of class participation, class-test and assignments. The internal assessment shall be the part of total evaluation.

c) The distribution of marks for the subjects shall be as per the scheme below

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1st Semester

Sl	Subject	Examination	Internal Assessment	Grand Total
Theory				
1	Human Anatomy-1	70	30	100
2	Human Physiology -1	70	30	100
3	Biochemistry	70	30	100
4	General & Clinical Psychology	70	30	100
Practical				
1	Human Anatomy-1	35	15	50
2	Human Physiology -1	35	15	50
3	Biochemistry	35	15	50
			Grand Total	550
Subsidiary Subject				
1	English, Communication and soft skills	30	20	50
2	Basic computer and information science	30	20	50
Note: Subsidiary subject examination shall be non University Examination and will not be part of grand total.				

2nd Semester

Sl	Subject	Examination	Internal Assessment	Grand Total
Theory				
1	Human Anatomy-II	70	30	100
2	Human Physiology -II	70	30	100
3	Basic Principles of Biomechanics	70	30	100
4	Sociology	70	30	100
Practical				
1	Human Anatomy-II	35	15	50
2	Human Physiology -II	35	15	50
3	Basic Principles of Biomechanics	35	15	50
			Grand Total	550
Subsidiary Subject				
1	Introduction to health Care Delivery System in India	30	20	50
Note: Subsidiary subject examination shall be non University Examination and will not be part of grand total.				

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3rd Semester

Sl	Subject	Examination	Internal Assessment	Grand Total
Theory				
1	Pathology	70	30	100
2	Microbiology	70	30	100
3	Biomechanics & Kinesiology	70	30	100
4	Foundation of Exercise therapy	70	30	100
Practical				
1	Biomechanics & Kinesiology	35	15	50
2	Foundation of Exercise therapy	35	15	50
			Grand Total	500
Subsidiary Subject				
1	Introduction to Quality and Patient Safety	30	20	50
Note: Subsidiary subject examination shall be non University Examination and will not be part of grand total.				

4th Semester

Sl	Subject	Examination	Internal Assessment	Grand Total
Theory				
1	Pharmacology	70	30	100
2	Bio Physics	70	30	100
3	Electro Therapy	70	30	100
4	Exercise Therapy	70	30	100
Practical				
1	Electro Therapy	35	15	50
2	Exercise Therapy	35	15	50
			Grand Total	500
Subsidiary Subject				
1	Environmental Science	30	20	50
Note: Subsidiary subject examination shall be non University Examination and will not be part of grand total.				

5th Semester

Sl	Subject	Examination	Internal Assessment	Grand Total
Theory				
1	Clinical Orthopedics & Traumatology	70	30	100
2	General Surgery	70	30	100
3	Obstetrics & Gynaecology	70	30	100
4	General Medicine	70	30	100
			Grand Total	400
Subsidiary Subject				
	Health Promotion, Fitness & Wellness	30	20	50
Note: Subsidiary subject examination shall be non University Examination and will not be part of grand total.				

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6th Semester

Sl	Subject	Examination	Internal Assessment	Grand Total
Theory				
1	Clinical Neurology & Neurosurgery	70	30	100
2	Clinical Cardiovascular & Pulmonary conditions	70	30	100
3	Community Medicine	70	30	100
4	Biostatistics & Research Methodology	70	30	100
			Grand Total	400
Subsidiary Subject				
	Physiotherapy Laws & Ethics, Professionalism & Values	30	20	50
Note: Subsidiary subject examination shall be non University Examination and will not be part of grand total.				

7th Semester

Sl	Subject	Examination	Internal Assessment	Grand Total
Theory				
1	Physiotherapy in Orthopedics & Sports	70	30	100
2	Physiotherapy in Neurology	70	30	100
3	Diagnostic Imaging for Physiotherapist	70	30	100
4	Human Psychiatry	70	30	100
Practical				
1	Physiotherapy in Orthopedics & Sports	35	15	50
2	Physiotherapy in Neurology	35	15	50
			Grand Total	500
Subsidiary Subject				
	Principle of Management	30	20	50
Note: Subsidiary subject examination shall be non University Examination and will not be part of grand total.				

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8th Semester

Sl	Subject	Examination	Internal Assessment	Grand Total
Theory				
1	Physiotherapy in Cardiovascular& Intensive Care	70	30	100
2	Physiotherapy in General Medicine & General surgery	70	30	100
3	Community Physiotherapy	70	30	100
4	Clinical Reasoning & Evidence Based Physiotherapy	70	30	100
Practical				
1	Physiotherapy in Cardiovascular & Intensive Care	35	15	50
			Grand Total	450
Subsidiary Subject				
1	Administration & Teaching Skills	30	20	50
Note: Subsidiary subject examination shall be non University Examination and will not be part of grand total.				

9. **Attendance**:

a) Each student is normally required to attend all the lectures of every subject as well as the curricular and co-curricular activities.

b) A student must have minimum 75% attendance in each subject for appearing in the examination. In special circumstances, short-fall in attendance can be condoned on case's merit to the extent of 5% by the Principal. If the short-fall is more than 5%, but not more than 10%, the Principal may recommend on case's merit to the Vice Chancellor for condonation. The order of Vice Chancellor shall be final.

10. **Examinations:**

a) In an academic year, at the end of each Semester University examination shall be held.

b) The question papers shall be get prepared from the list of examiners for paper setting subject-wise duly approved by faculty Board.

c) The evaluation of answer books shall be carried out by examiners duly approved by Faculty Board subject-wise.

d) For subsidiary subject, question paper setting and evaluation shall be done at college level. However marks obtained and the examination record shall be submitted to University.

a) A student shall be allowed to appear in 8th semester examination but result will be declared only after clearing all the back / failed subjects of 1st to 6th semesters only.

b) There will not be any separate back paper examination for 1st to 6th semester subjects.

c) There shall be special carry over examination to clear back paper of 7th and 8th semesters within two months of declaration of 8th semester result.

d) A student not qualified in any subject can appear in the next examination held in the respective semester (Odd/ Even).

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Qualifying Standards:

a) Minimum qualifying marks for each subject shall be 50% in aggregate of examination.
b) The marks obtained in external examination and internal assessment of the subject shall be added to compute subject percentage.

Promotional Rules:

a) A student satisfying the qualifying standard of all the subjects shall be declared pass in the semester examination.
b) A student failing to satisfy the qualifying standards of one or more subjects in a semester shall be declared as promoted with back papers and shall be permitted to pursue course work of next semester and clear back papers in the subsequent University examination.
c) A student, if in conjunction of grace marks, satisfies the qualifying standards of all subjects of the semester shall be declared as 'Pass with grace marks'.
d) If a student, for any reason, fails to appear in the examination, he or she shall be declared fail and will not be promoted to the next semester. Such a student will be permitted to appear as ex-student during the subsequent examination.

Grace Marks:

a) A student fail to satisfy on his own, the qualifying standards prescribed to be declared pass in the semester examination can be awarded 'Grace Marks' not exceeding a maximum 5 marks which can be shared by not more than two subjects (theory only). However the grace marks shall not be part of the grand total. No Grace marks shall be admissible for subsidiary subjects.

Results:

a) The examination result of a student shall be declared separately for each examination which will indicate the status of his performance of the semester.
b) In case student appears in back paper, revised statement of marks will be issued incorporating the back paper examination result.
c) The Eight semester statement of marks shall carry result of all previous semesters and will be issued only once the student has completed the course successfully.
d) The final result for declaring division and award of degree shall be prepared on the basis of cumulative performance of student.
e) A student shall be eligible for award of degree subject to declared pass in the prescribed course work examination and successfully completed the six month rotatory internship.

Award of Division:

a) The division to a student shall be awarded on the basis of his/her 'FINAL RESULT' at the end of Eight semester examination.
b) A student will be said to have passed with 'First Division with Honors' if he/ she obtains 75% or more marks in the final result, provided he/she has passed all examinations in first attempt and without invoking any grace marks.
c) A student will be said to have passed with 'First Division' if he/she has obtained 60% or more marks in the final result without invoking any grace marks.
d) A student will be said to have passed with 'Second Division' if he/she has obtained 50% or more marks in the final result.
e) A student will be said to have 'Passed with Grace' if he/she invoke grace marks in any examination.

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16 **Merit List:**

The merit list to award the rank shall be prepared on the basis of aggregate marks of final result. However those students who have passed all examination in first attempt without invoking any grace marks shall be eligible for award of Rank.

17 **Award of Degree:**

A student shall be eligible for award of Bachelor of Physiotherapy (BPT) degree on successful completion of prescribed six month internship and declared pass in the course of study.

18 **Power to Amend the Ordinance**

The '**Academic Council**' shall have the powers to relax, amend any or all the provisions of the Ordinances, subject to the approval of the 'Executive Council' of the University. However, amendments shall not be in contravention of guidelines and directives of UGC.

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SYLLABUS
FOR
BACHELOR OF PHYSIOTHERAPY
(POST REVISION)
(2019-20)

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BAREILLY INTERNATIONAL UNIVERSITY

FACULTY OF PARAMEDICAL SCIENCES

Syllabus

Bachelor of Physiotherapy

(Session-2019-2020)

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I[st] Semester
Human Anatomy I

Unit 1

Introduction to Anatomy, terms and terminology. Regions of Body, Cavities and systems. Surface anatomy – musculo-skeletal, vascular, cardiopulmonary system, General Embryology. Applied anatomy.

Unit 2

Musculoskeletal system.

Connective tissue & its modification, tendons, membranes, special connective tissue. Bone structure, blood supply, growth, ossification, and classification. Muscle classification, structure and functional aspect. Joints – classification, structures of joints, movements, range, limiting factors, stability, blood supply, nerve supply, dislocations and applied anatomy.

Unit 3

Upper extremity: Bony architecture Joints – structure, range of movement Muscles – origin, insertion, actions, nerve supply Major nerves – course, branches and implications of nerve injuries Development of limb bones, muscles and anomalies. Radiographic identification of bone and joints, Applied anatomy

Unit 4

Lower Extremity: Bony architecture Joints – structure, range of movement Muscles – origin, insertion, actions, nerve supply Major nerves – course, branches and implications of nerve injuries, Development of limb bones, muscles and anomalies, Radiographic identification of bone and joints, Applied anatomy

Unit 5

Cardiovascular system and Circulatory system – major arteries and veins of the body, structure of blood vessels, Heart structure, positions, chambers, valves, internal & external features, Blood supply to heart Conductive system of heart.

Unit 6

Endocrine system - Pituitary gland, Pineal gland, Thyroid gland, Parathyroid gland

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Human Physiology-I

Unit 1

General Physiology

Cell: morphology, Structure and function of cell organelles Structure of cell membrane Transport across cell membrane Intercellular communication Homeostasis

Unit 2

Blood

Introduction-composition & function of blood W.B.C., R.B.C., Platelets formation & functions, Immunity Plasma: composition, formation & functions, Plasma Proteins:-types & functions

Blood Groups- types , significance, determination Hemoglobin Haemostasis Lymph-composition, formation, circulation &functions

Unit 3

Cardiovascular system

Conducting system-components, impulse conduction Heart valves Cardiac cycle- definition, phases of cardiac cycle Cardiac output- definition, normal value, determinants. Stroke volume and its regulation Heart rate and its regulation Arterial pulse, Blood pressure-definition, normal values, factors affecting blood pressure Shock-definition, classification, causes and features

Basic idea of ECG Cardiovascular changes during exercise

Unit 4

Respiratory System: Mechanics of respiration Lung volumes and capacities Pulmonary circulation, transport of respiratory gases Factors affecting respiration Regulation of respiration-neural regulation, voluntary control and chemical regulation Hypoxia, Hypercapnoea, Hypocapnoea Artificial respiration Disorders of respiration- dyspnoea, orthopnoea, hyperpnoea, hyperventilation, apnoea, tachypnoea Respiratory changes during exercise.

Unit 5

Nervous system : Introduction, central and peripheral nervous system, functions of nervous system Reflexes- monosynaptic, polysynaptic, superficial, deep &withdrawal reflex Sense organ, receptors, electrical & chemical events in receptors Sensory pathways for touch, temperature, pain, proprioception & others Control of tone & posture: Motor mechanism: motor cortex, motor pathway: the descending tracts pyramidal & extra pyramidal tracts-origin, course, termination & functions. UMN & LMN paralysis.

Unit 6

Endocrinology : Physiology of the endocrine glands – Pituitary, Pineal Body, Thyroid, Parathyroid, Adrenal, Gonads, Thymus, Pancreas. Hormones secreted by these glands, their classifications and functions.

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Biochemistry

Unit 1

Nutrition: Introduction, Composition of food, RDA, BMR, SDA, caloric requirement and Importance of nutrition Calorific values, Respiratory quotient, Physical activities (Energy expenditure), Role of carbohydrates, lipids and proteins in diet.Balanced diet and nutritional disorders.

Unit 2

Carbohydrates: Definition, classification, chemistry with examples, Structures, composition, sources, properties and functions of Monosaccharides, Disaccharides, Oligosaccharides and Polysaccharides. Glycosaminoglycan (mucopolysaccharides) metabolism (Glycogenesis, Glycogenolysis, Gluconeogenesis, Cori cycle), T.C.A cycle, glycolysis.

Unit 3

Lipids: Definition, classifications and general functions. Essential fatty acids and their importance, Metabolism- Oxidation of fatty acids, metabolism, oxidation of fatty acids, lipoproteins, Phospholipids, Cholesterol, lipolysis, lipogenesis, ketosis and ketone bodies metabolism.

Unit 4

Amino Acids; Definition, classification, essential and non essential aminoacids, metabolism(fate of ammonia) and urea cycle. Biological important pepetides, functions of proteins and amino acids.Enzymes : Definition, classification with examples, cofactors, Factors affecting enzyme action, isoenzyme and co-enzyme, Clinical importance of enzymes.

Unit 5

Biochemistry of connective tissue; Introduction, various connective tissue proteins: collagen, glycoproteins and proteoglycans, elastin- structure and associated disorders.

Vitamins: Definition, classification and functions, deficiency disorders, sources, RDA, digestion ,absorption, transport and toxicity of individual vitamins.

Unit 6

Clinical Biochemistry --; Relevance of blood and urine levels of Glucose, Urea, Uric acid, Calcium, Phosphates, Liver function tests, Renal function tests. Creatinine, pH and Bicarbonate. Lipid Profile- Tri -Glyceride, Cholesterol/HDL/LDL/ALDL Etc; Protein & Aggression, Glycosuria.

Nucleic acid:Function of DNA and RNA, chemistry, structure of DNA((Watson and Crick model),. Structure and functions of tRNA, rRNA, mRNA. Nucleotides and nucleosides.

Unit 7

Muscle Contraction - Contractile elements in muscle. Energy for muscle contraction

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Biochemical harmones- Definition, Classification,Receptors, signal transduction, second messengers. Mechanism of Hormone action, effect of Insulin, Glucagon, Catecholamines, Thyroxine, Mineralocortocoids and Glucocorticoids. Diabetes mellitus: definition, types & causes.

Unit 8

Biochemical organization of Human Cell - Introduction, cell structure, Cell membrane structure and functions, Types of Absorption of mechanism, organelles and their functions, Cytoskeleton Minerals metabolism- definition, sources, RDA, digestion, absorption, transport, excretion, functions and disorders- Calcium, Phosphate, Iron Magnesium, Fluoride, Selenium, Molybdenum, Copper.Phosphate, Calcium and Iron in detail.

Unit 9

Acid base balance: Acid, base and buffers, Ph, Buffer System of The Body,Biocarbonate buffer system. Role of Lungs and kidneys in acid base balance, acid base imbalance. Water balance-Body water and its distribution, Regulation of water balance-Role of ADH and Thirst centre. Electrolyte Balance- Osmolarity, Role of Aldosterone, Renin-Angiotensin System and ANF.

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General & Clinical Psychology

Unit 1

Introduction to Psychology.Schools: Structuralism, functionalism, behaviorism, Psychoanalysis. Methods: Introspection, observation, inventory and experimental method. Branches: pure psychology and applied psychology.Psychology and physiotherapy. Social psychology Leadership: Different types of leaders. Different theoretical approaches to leadership. Attitude: development of attitude. Change of attitude.

Unit 2

Growth and Development. Life span: Different stages of development (Infancy, childhood, adolescence, adulthood, middle age, old age).Heredity and environment: role of heredity and environment in physical and psychological development, "Nature v/s Nurture controversy".

Unit 3

Sensation, attention and perception: Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense. Attention: Types of attention, Determinants of attention (subjective determinants and objective determinants). Perception: Gestalt principles of organization of perception (principle of figure ground and principles of grouping), factors influencing perception (past experience and context). Illusion and hallucination: different types.

Unit 4

Motivation, Motivation cycle (need, drive, incentive, reward).
Classification of motives.Abraham Maslow's theory of need hierarchy
Frustration and conflict.Frustration: sources of frustration.Conflict: types of conflict. Management of frustration and conflict

Unit 5

Emotions.Three levels of analysis of emotion (physiological level, subjective state, and overt behavior).Theories of emotion.Stress and management of stress.
Intelligence.Theories of intelligence.Distribution of intelligence.Assessment of intelligence. Thinking.Reasoning: deductive and inductive reasoning.Problem solving: rules in problem solving (algorithm and heuristic).Creative thinking: steps in creative thinking, traits of creative people.

Unit 6

Learning.Factors effecting learning.Theories of learning: trial and error learning, classical conditioning, Operant conditioning,insight learning, social learning theory.The effective ways to learn: Massed/Spaced, Whole/Part, Recitation/Reading, Serial/Free recall, Incidental/Intentional learning, Knowledge of results, association, organization, and mnemonic methods.

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Personality-Approaches to personality: type & trait, behavioristic, psychoanalytic and humanistic approach.Personality assessment: observation, situational test, questionnaire, rating scale, interview, and projective techniques.
Defense Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting out.

Unit 7

Clinical psychology – Models of training, abnormal behavior assessment, clinical judgement, psychotherapy, self-management methods, physiotherapist patient interaction, aggression, self-imaging, stress management, assertive training, Group therapy, Body awareness, Pediatric, child and geriatric clinical psychology.

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English, Communication and Soft Skills

Unit 1

Basic Language Skills: Grammar and Usage.

Business Communication Skills. With focus on speaking - Conversations, discussions, dialogues, short presentations, pronunciation.

Unit 2

Teaching the different methods of writing like letters, E-mails, report, case study, collecting the patient data etc. Basic compositions, journals, with a focus on paragraph form and organization.

Basic concepts & principles of good communication

Unit 3

Special characteristics of health communication

Types & process of communication – verbal, non-verbal and written communication. Upward, downward and lateral communication.

Therapeutic communication: empathy versus sympathy.

Unit 4

Communication methods for teaching and learning.

Communication methods for patient education.

Barriers of communication & how to overcome.

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Basic Computers and Information Science

Unit 1

Introduction to computer: Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages.

Unit 2

Input output devices: Input devices(keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision-input devices), output devices(monitors, pointers, plotters, screen image projector, voice response systems).

Unit 3

Processor and memory: The Central Processing Unit (CPU), main memory.
Storage Devices: Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices.

Unit 4

Introduction of windows: History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, closing, moving, resizing, minimizing and maximizing, etc.).

Unit 5

Introduction to MS-Word: introduction, components of a word window, creating, opening and inserting files, editing a document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing of table, mail merge.

Unit 6

Introduction to Excel: introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs.

Unit 7

Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs.
Introduction of Operating System: introduction, operating system concepts, types of operating system.

Unit 8

Computer networks: introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.

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Internet and its Applications: definition, brief history, basic services (E-Mail, File Transfer Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the internet. Application of Computers in clinical settings.

Practical on fundamentals of computers –

Learning to use MS office: MS word, MS PowerPoint, MS Excel.

To install different software.

Data entry efficiency

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Human Anatomy-I Lab

1. Identification and description of all anatomical structures.
2. The learning of Anatomy is by demonstration only through dissected parts, slides, models, charts, etc.
3. Demonstration of dissected parts (upper extremity, lower extremity, thoracic & abdominal viscera, face and brain).
4. Demonstration of skeleton- articulated and disarticulated.
5. During the training more emphasis will be given on the study of bones, muscles, joints, nerve supply of the limbs and arteries of limbs.
6. Surface anatomy: -surface land mark-bony, muscular and ligamentous.
7. Surface anatomy of major nerves, arteries of the limbs.
8. Points of palpation of nerves and arteries.

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Human Physiology-I Lab

1. Examination of pulse, B.P., Respiratory rate.
2. Spirometery to measure various lung capacities & volumes, Respiratory rate, Tidal volume, IRV, IC, ERV, EC, residual volume on Spirometery.
3. Estimate of Haemoglobin, R.B.C., W.B.C., TLC, DLC, ESR count.
4. Blood indices, Blood grouping, Bleeding & Clotting time.

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Biochemistry Lab

1. Preparation of buffers
2. Collection of specimen: Urine, blood, gastric juice, ascetic fluid
3. Tests for Carbohydrates (qualitative tests).
4. Tests for amino acids and Proteinds (qualitative tests)
5. Precipitation reactions of proteins.
6. Tests for lipids.
7. Study of enzyme activity
8. Urine analysis-test for normal and abnormal constituents
9. Centrifugation : Principle types, & applications.
10. Colorimetry and spectrophotometer-Principle and demonstration.
    Estimation of blood/serum glucose, creatine, urea, cholesterol, total protein, bilirubin

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IInd Semester
Human Anatomy-II

Unit-1

Spine and thorax: Back muscles - Superficial layer, Deep muscles of back, their origin, insertion, action and nerve supply. Vertebral column – Structure & Development, Structure & Joints of vertebra, Thoracic cage, Radiographic identification of bone and joints Applied anatomy

Unit-2

Head and neck: Cranium, Facial Muscles – origin, insertion, actions, nerve supply, Tempo-mandibular Joints – structure, types of movement

Unit-3

Sensory system: Structure and function of Visual system, Auditory system Gustatory system Olfactory system Somato sensory system

Unit-4

Respiratory system- Structure of upper and lower respiratory tract Thorax: Pleural cavities & pleura Lungs and respiratory tree Heart and great vessels Diaphragm

Unit-5

Digestive system Parts of digestive system Abdominal cavity – divisions Muscles of abdominal wall Liver Pancreas Spleen Alimentary canal Gall bladder Intestine (small & large)

Unit-6

Urinary and Reproductive system Urinary system Pelvic floor, innervations Kidney, Ureter, bladder, urethra Genital system – male and female Reproductive system of male Reproductive system of female

Unit-7

Nervous system-Classification of nervous system with examples, Nerve –structure. Neurons classification. Simple reflex arc. Parts of a typical spinal nerve / Dermatome, CNS – disposition, parts and functions of Cerebrum, Cerebellum, Midbrain & brain stem, Blood supply & anatomy of brain, Spinal cord- anatomy, blood supply, nerve pathways, Pyramidal, extra pyramidal system, Thalamus, hypothalamus, Structure and features of meninges, Ventricles of brain, CSF circulation, Development of nervous system & defects, Cranial nerves – (course, distribution, functions and palsy). Sympathetic nervous system, its parts and components, Parasympathetic nervous system: Applied anatomy

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Human Physiology II

Unit-1

Aviation, Space and Deep Sea Diving Physiology- Effects of Low Oxygen Pressure on the Body, Mountain Sickness, Effects of Acceleratory Forces, Artificial Climate, Weightlessness in Space, effects of High Partial Pressure of Gases on the Body, Hyperbaric Oxygen Therapy.

Unit-2

Nerve Muscle Physiology : Muscles- classification, structure, properties, Excitation contraction coupling Motor unit, EMG, factors affecting muscle tension, Muscle tone, fatigue, exercise Nerve –structure and function of neurons, classification, properties Resting membrane potential & Action potential their ionic basis All or None phenomenon Neuromuscular transmission Ionic basis of nerve conduction; Concept of nerve injury & Wallerian degeneration Synapses Electrical events in postsynaptic neurons Inhibition & facilitation at synapses Chemical transmission of synaptic activity Principal neurotransmitters.

Unit-3

Renal System : Physiology of kidney and urine formation Glomerular filtration rate, clearance, Tubular function, Water excretion, concentration of urine-regulation of Na+, Cl-, K+ excretion Physiology of urinary bladder

Unit-4

Digestive System : Digestion & absorption of nutrients Gastrointestinal secretions & their regulation Functions of Liver & Stomach.

Unit-5

Male & female reproductive system

Male - Functions of testes, pubertal changes in males, testosterone - action & regulations of secretion. Female - Functions of ovaries and uterus, pubertal changes, menstrual cycle, estrogens and progestron - action and regulation.

Unit-6

Physiology of Exercise and Work - Neuromuscular activity human movement, physiological mechanism in movement, behavior, strength, endurance, & analysis of movement ; Circulatory and respiratory response to exercise including effects on the heart, blood circulation, body fluid changes pulmonary ventilation, gas exchange and transport, etc. ; Effects of exercise and work on other body functions ; Metabolic and environmental aspects of exercise and work-metabolism, energy requirement, efficiency of muscular work, nutritional aspects, heat and body temperature regulation

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and environmental factors ; Effects of Exercise training - endurance, fatigue and recovery ; Fitness and health - age, sex, body type, race, stress and medical aspects of exercise.

Unit 7

Spinal Cord

Integration at spinal, brain stem, cerebellar, basal ganglion levels, along with their functions Spinal cord lesions- complete transaction & hemi section of the spinal cord Autonomic nervous system :features and actions of parasympathetic & sympathetic nervous system Hypothalamus Higher functions of nervous system Special senses- eye, ear, nose, mouth.

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Basic Principles Of Biomechanics

Unit-1

Basic Concepts in Biomechanics: Kinematics and Kinetics
Types of Motion
Location of Motion
Direction of Motion
Magnitude of Motion
Definition of Forces
Force of Gravity
Reaction forces
Equilibrium
Objects in Motion
Force of friction
Concurrent force systems
Parallel force system
Work
Moment arm of force
Force components
Equilibrium of levers

Unit-2

Joint structure and Function -
Joint design
Materials used in human joints
General properties of connective tissues
Human joint design
Joint function
Joint motion
General effects of disease, injury and immobilization.

Unit-3

Muscle structure and function -
Mobility and stability functions of muscles
Elements of muscle structure
Muscle function
Effects of immobilization, injury and aging

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Unit-4

Biomechanics of the Thorax and Chest wall -
General structure and function
Rib cage and the muscles associated with the rib cage
Ventilatory motions: its coordination and integration
Developmental aspects of structure and function
Changes in normal structure and function I relation to pregnancy, scoliosis and COPD

Unit-5

The Temporomandibular Joint-
General features, structure, function and dysfunction

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Sociology

Unit-1

Introduction:

Meaning- Definition and scope of sociology.Its relation to Anthropology, Psychology, Social Psychology.Methods of Sociological investigations- Case study, social survey, questionnaire, Interview and opinion poll methods.Importance of its study with special reference to Health Care Professionals.

Unit-2

Social Factors in Health and disease situations:Meaning of social factors.Role of social factors in health and illness.Socialization:Meaning and nature of socialization.Primary, Secondary and Anticipatory socialization.Agencies of socialization.

Unit-3

Social Groups:

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

Unit-4

Family:

The family, meaning and definitions.

Functions of types of family

Changing family patterns

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

Unit-5

Community:

Rural community: Meaning and features –Health hazards of ruralities, health hazards to tribal community.

Urban community: Meaning and features- Health hazards of urbanities.

Unit-6

Culture and Health:Concept of Health.Concept of Culture.Culture and Health

Culture and Health Disorders.Social change:Meaning of social changes.

Factors of social changes.Human adaptation and social change.Social change and stress.

Social change and deviance.Social change and health programme.

The role of social planning in the improvement of health and rehabilitation.

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Social Problems of disabled: Consequences of the following social problems in relation to sickness and disability, remedies to prevent these problems.
Population explosion.Poverty and unemployment.Beggary.Juvenile delinquency
Prostitution.Alchoholism..Problems of women in employment
Geriatric problems.Problems of underprivileged.

Unit-7

Social Security:
Social security and social legislation in relation to the disabled.
Social worker:
Meaning of Social Work
The role of a Medical Social Worker.

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Introduction to Healthcare Delivery System in India

Unit-1

Introduction to healthcare delivery system
Healthcare delivery system in India at primary, secondary and tertiary care
Community participation in healthcare delivery system
Health system in developed countries.
Private Sector
National Health Mission
National Health Policy
Issues in Health Care Delivery System in India
National Health Programme- Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Programme.
Introduction to AYUSH system of medicine
Introduction to Ayurveda.
Yoga and Naturopathy
Unani
Siddha
Homeopathy
Need for integration of various system of medicine
Health scenario of India- past, present and future
Demography & Vital Statistics-
Demography – its concept
Vital events of life & its impact on demography
Significance and recording of vital statistics
Census & its impact on health policy
Epidemiology
Principles of Epidemiology
Natural History of disease

Unit-2

Methods of Epidemiological studies
Epidemiology of communicable & non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance.

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Human Anatomy-II Lab

PRACTICALS

- Identification and description of all anatomical structures.
- The learning of Anatomy is by demonstration only through dissected parts, slides, models, charts, etc.
- Demonstration of dissected parts (upper extremity, lower extremity, thoracic & abdominal viscera, face and brain).
- Demonstration of skeleton- articulated and disarticulated.
  - During the training more emphasis will be given on the study of bones, muscles, joints, nerve supply of the limbs and arteries of limbs.
  - Surface anatomy: -surface land mark-bony, muscular and ligamentous. -surface anatomy of major nerves, arteries of the limbs.

Points of palpation of nerves and arteries.

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Human Physiology-II Lab

PRACTICALS

1. NCV
2. EMG
3. Renal System
4. Digestive system
5. Male & female Reproductive system
6. Reflexes

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Basic Principles Of Biomechanics Lab

PRACTICAL shall be conducted for various joint movements and analysis of the same. Demonstration may also be given as how to analyze posture and gait.

The student shall be taught and demonstrated to analysis for activities of daily living – ADL – (like sitting to standing, throwing, lifting etc.) The student should be able to explain and demonstrate the movements occurring at the joints, the muscles involved, the movements or muscle action produced, and mention the axis and planes through which the movements occur. The demonstrations may be done on models or skeleton.

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III[rd] SEMESTER

Pathology

UNIT I

Cell injuries –

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

UNIT II

Inflammation and Repair –Acute inflammation: features, causes, vascular and cellular events. Inflammatory cells and Mediators. Chronic inflammation: Causes, Types, Classification nonspecific and granulomatous with examples.Repair, Wound healing by primary and secondary union, factors promoting and delaying the process.Healing in specific site including bone healing.

UNIT III

Immunopathology –Immune system: General concepts.Hypersensitivity: type and examples, antibody and cell mediated tissue injury with examples. . Secondary immunodeficiency including HIV infection. Auto-immune disorders: Basic concepts and classification, SLE.AIDS-Aetiology, Modes of transmission, Diagnostic procedures, handling of infected material and health education.

UNIT IV

Infectious diseases –Mycobacterial diseases: Tuberculosis, Leprosy and Syphilis.Bacterial disease: Pyogenic, Diphtheria, Gram negative infection, Bacillary dysentery.Viral diseases: Poliomyelitis, Herpes, Rabies, Measles, Rickttsia, Chlamydial infection, HIV infection.Fungal disease and opportunistic infections.Parasitic diseases: Malaria, Filaria, Amoebiasis, Kala-azar, Cysticercosis, Hydatid cyst.

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UNIT V

Circulatory Disturbances –Hyperemia/Ischemia and Haemorrhage Edema: Pathogenesis and types. Chronic venous congestion: Lung, Liver, Spleen, Systemic Pathology Thrombosis and Embolism: Formation, Fate and Effects.Infarction: Types, Common sites.Shock: Pathogenesis, types, morphologic changes.

UNIT VI

Growth Disturbances and Neoplasia Atrophy, Hypertrophy, Hyperplasia, Aplasia, Hypoplasia, Metaplasia, Malformation, agenesis, dysplasia.Precancerous lesions.Neoplasia: Definition, classification, Biological behaviour : Benign and Malignant, Carcinoma and Sarcoma.Malignant Neoplasia: Grades and Stages, Local & Distant spread.Carcinogenesis: Environmental carcinogens, chemical, viral, occupational. Heredity and cellular oncogenes and prevention of cancer.Benign & Malignant epithelial tumours Eg. Squamous papilloma, Squamous cell carcinoma, Malignant melanoma. Benign & Malignant mesenchymal tumours Eg: Fibroma, Lipoma, Neurofibroma, Fibrosarcoma, Liposarcoma, Rhabdo-myosarcoma, Teratoma.Nutritional Disorders –Protein energy malnutrition: Marasmus, Kwashiorkor, and Vitamin deficiency disorders, classification with specific examples.Genetic Disorders –Basic concepts of genetic disorders and some common examples and congenital malformation.

UNIT VII

Hematology –Constituents of blood and bone marrow, Regulation of hematopoiesis. Anemia: Classification, clinical features & lab diagnosis.Nutritional anemias: Iron deficiency anemia, Folic acid,Vit. B 12 deficiency anemia including pernicious anemia. Hemolytic Anaemias: Classification and Investigations.Hereditary hemolytic anaemias: Thalessemia, Sickle cell anemia, Spherocytosis and Enzyme deficiencies.Acquired hemolytic anaemias Alloimmune, Autoimmune Drug induced, Microangiopathic Pancytopenia - Aplastic anemia.Hemostatic disorders, Vascular and Platelet disorders & lab diagnosis. Coagulopathies –Inherited.Acquired with lab diagnosis.Leukocytic disorders: Leukocytosis, Leukopenis, Leukemoid reaction.Leukemia: Classification, clinical manifestation, pathology and Diagnosis. Multiple myeloma and

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disproteinemias.Blood transfusion; Grouping and cross matching, untoward reactions, transmissible infections including HIV & hepatitis, Blood-components & plasma-pheresis.

UNIT VIII

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

UNIT IX

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

UNIT X

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

UNIT XI

Hepato – biliary pathology.Jaundice: Types, aetio-pathogenesis and diagnosis. Hepatitis: Acute, Chronic, neonatal.Alcoholic liver disease.Cirrhosis: Postnecrotic, Alcoholic, Metabolic and Portal hypertension Liver abscesses; Pyogenic, parasitic and Amoebic. Tumours of Liver

UNIT XII

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

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UNIT XIII

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

UNIT XIV

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

UNIT XV

Neuropathology--Inflammations and Infections: TB Meningitis, Pyogenic Meningitis, viral meningitis and Brain Abscess.Tuberculosis, Cysticercosis.CNS Tumors, Astrocytoma, Neuroblastoma, Meningioma, Medulloblastoma.Dermatopathology--Skin tumors: Squamos cell carcinoma, Basal cell carcinoma, Melanoma

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Microbiology

Unit I

General Microbiology -
Definitions: infections, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic, Zoonosis, Epizootic, Attack rate.
Normal flora of the human body.
Routes of infection and spread; endogenous and exogenous infections; source at reservoir of infections.
Bacterial cell. Morphology limited to recognizing bacteria in clinical samples Shape, motility and arrangement. Structures, which are virulence, associated.
Physiology: Essentials of bacterial growth requirements.
Sterilization, disinfection and universal precautions in relation to patient care and disease prevention.
Definition of asepsis, sterilization, disinfection.
Antimicrobials: Mode of action, interpretation of susceptibility tests, resistance spectrum of activity.

Unit II

Immunology -
Basic principles of immunity immunobiology: lymphoid organs and tissues. Antigen, Antibodies, antigen and antibody reactions with relevance to pathogenesis and serological diagnosis.
Humoral immunity and its role in immunity Cell mediated immunity and its role in immunity.
Imunology of hypersensitivity, Measuring immune functions.

Unit III

Bacteriology –

To be considered under the following headings

Morphology, classification according to pathogenicity, mode of transmission, methods of prevention, collection and transport of samples for laboratory diagnosis, interpretation of laboratory reports.
Staphylococci, Streptococci and Pneumococci.
Mycobacteria: Tuberculosis, M.leprae, atypical mycobacteria, Enterobacteriaceae,
Vibrois: V. cholerae and other medically important vibrios, Campylobacters and Helicobacters, Pseudomonas.
Bacillus anthracis, Sporing and non-sporing anaerobes: Clostridia, Bacteroides and Fusobacteria.

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Unit IV

General Virology -
General properties: Basic structure and broad classification of viruses. Pathogenesis and pathology of viral infections. Immunity and prophylaxis of viral diseases. Principles of laboratory diagnosis of viral diseases. List of commonly used antiviral agents.

Unit V

Mycology -
General properties of fungi. Classification based on disease: superficial, subcutaneous, deep mycosel opportunistic infections including Mycotoxins, systemic mycoses. General principles of fungal diagnosis, Rapid diagnosis. Method of collection of samples. Antifungal agents.

Unit VI

Clinical/Applied Microbiology –
Streptococcal infections: Rheumatic fever and Rheumatic heart disease, Meningitis.
Tuberculosis,
Pyrexia of unknown origin, leprosy,
Sexually transmitted diseases, Poliomyelitis,
Hepatitis,
Acute-respiratory infections, Central nervous System infections, Urinary tract infections,
Pelvic inflammatory disease, Wound infection, Opportunistic infections, HlV infection,
Malaria, Filariasis, Zoonotic diseases.

PRACTICAL- Demonstration of Microscopes and its uses

Principles, uses and demonstration of common sterilization equipment

Demonstration of common culture media
Demonstration of motility by hanging drops method
Demonstration of Gram Stain, ZN Stain
Demonstration of Serological test: ELISA
Demonstration of Fungus

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Biomechanics And Kinesiology

Unit I

Biomechanics of the vertebral column -

General structure and function

Regional structure and function – Cervical region, thoracic region, lumbar region, sacral region

Muscles of the vertebral column

General effects of injury and aging

Unit II

Biomechanics of the peripheral joints -

The shoulder complex: Structure and components of the shoulder complex and their integrated function

The elbow complex: Structure and function of the elbow joint – humeroulnar and humeroradial articulations, superior and inferior radioulnar joints; mobility and stability of the elbow complex; the effects of immobilization and injury.

The wrist and hand complex: Structural components and functions of the wrist complex; structure of the hand complex; functional position of the wrist and hand.

The hip complex: structure and function of the hip joint; hip joint pathology- arthrosis, fracture, bony abnormalities of the femur:

The knee complex: structure and function of the knee joint – tibiofemoral joint and patellofemoral joint; effects of injury and disease.

The ankle and foot complex.: structure and function of the ankle joint, subtalar joint, talocalcaneonavicular joint, transverse tarsal joint, tarsometatarsal joints, metatarsophalangeal joints, interphalangeal joints, structure and function of the plantar arches, muscles of the ankle and foot, deviations from normal structure and function – Pes Planus and Pes Cavus

Unit III

Analysis of Posture and Gait – Static and dynamic posture, postural control, kinetics and kinematics of posture, ideal posture analysis of posture, effects of posture on age, pregnancy, occupation and recreation; general features of gait, gait initiation, kinematics and kinetics of gait, energy requirements, kinematics and kinetics of the trunk and upper extremities in relation to gait, stair case climbing and running, effects of age, gender, assistive devices, disease, muscle weakness, paralysis, asymmetries of the lower extremities, injuries and malalignments in gait;Movement Analysis : ADL activities like sitting – to standing, lifting, various grips , pinches.

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Foundation Of Exercise Therapy

Unit I

Introduction to Exercise Therapy - The aims of Exercise Therapy, The techniques of Exercise Therapy, Approach to patient's problems, Assessment of patient's condition – Measurements of Vital parameters, Starting Positions – Fundamental positions & derived Positions, Planning of Treatment

Unit II

Methods of Testing

Functional tests

Measurement of Joint range: ROM-Definition, Normal ROM for all peripheral joints & spine, Goniometer-parts, types, principles, uses, Limitations of goniometry, Techniques for measurement of ROM for all peripheral joints

Tests for neuromuscular efficiency

Electrical tests

Manual Muscle Testing: Introduction to MMT, Principles & Aims, Indications & Limitations, Techniques of MMT for group & individual: Techniques of MMT for upper limb / Techniques of MMT for lower limb / Techniques of MMT for spine.

Anthropometric Measurements: Muscle girth – biceps, triceps, forearm, quadriceps, calf
Static power Test
Dynamic power Test
Endurance test
Speed test
Tests for Co-ordination
Tests for sensation
Pulmonary Function tests
Measurement of Limb Length: true limb length, apparent limb length, segmental limb length
Measurement of the angle of Pelvic Inclination

Unit III

Relaxation

Definitions: Muscle Tone, Postural tone, Voluntary Movement, Degrees of relaxation, Pathological tension in muscle, Stress mechanics, types of stresses, Effects of stress on the body mechanism, Indications of relaxation, Methods & techniques of relaxation-Principles & uses: General, Local, Jacobson's, Mitchel's, additional methods.

Unit IV

Passive Movements

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Causes of immobility, Classification of Passive movements, Specific definitions related to passive movements, Principles of giving passive movements, Indications, contraindications, effects of uses ,Techniques of giving passive movements.

Unit V

Active Movements

Definition of strength, power & work, endurance, muscle actions.

Physiology of muscle performance: structure of skeletal muscle, chemical & mechanical events during contraction &relaxation, muscle fiber type, motor unit, force gradation.

Causes of decreased muscle performance

Physiologic adaptation to training: Strength & Power, Endurance.

Types of active movements

Unit VI

Free exercise: Classification, principles, techniques, indications, contraindications, effects and uses

Unit VII

Active Assisted Exercise: principles, techniques, indications, contraindications, effects and uses

Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses.Resisted Exercise: Definition, principles, indications, contraindications, precautions & techniques, effects and uses

Unit VIII

Types of resisted exercises: Manual and Mechanical resistance exercise, Isometric exercise, Dynamic exercise: Concentric and Eccentric, Dynamic exercise: Constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed-Chain exercise.

Unit IX

Therapeutic Massage: History and Classification of Massage Technique,

Principles, Indications and Contraindications.

Technique of Massage Manipulations.Physiological and Therapeutic Uses of Specific

Manipulations.

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Introduction To Quality And Patient Safety

Unit I

Quality assurance and management - The objective of the course is to help students understand the basic concepts of quality in health Care and develop skills to implement sustainable quality assurance program in the health system.

Concepts of Quality of Care
Quality Improvement Approaches
Standards and Norms
Quality Improvement Tools
Introduction to NABH guidelines

Unit II

Basics of emergency care and life support skills - Basic life support (BLS) is the foundation for saving lives following cardiac arrest. Fundamental aspects of BLS include immediate recognition of sudden cardiac arrest (SCA) and activation of the emergency response system, early cardiopulmonary resuscitation (CPR), and rapid defibrillation with an automated external defibrillator (AED). Initial recognition and response to heart attack and stroke are also considered part of BLS. The student is also expected to learn about basic emergency care including first aid and triage. Topics to be covered under the subject are as follows:

Vital signs and primary assessment
Basic emergency care – first aid and triage
Ventilations including use of bag-valve-masks (BVMs)
Choking, rescue breathing methods
One- and Two-rescuer CPR
Using an AED (Automated external defibrillator).
Managing an emergency including moving a patient

At the end of this topic, focus should be to teach the students to perform the maneuvers in simulation lab and to test their skills with focus on airways management and chest compressions. At the end of the foundation course, each student should be able to perform and execute/operate on the above mentioned modalities.

Unit III

Bio medical waste management and environment safety- The aim of this section will be to help prevent harm to workers, property, the environment and the general public. Topics to be covered under the subject are as follows:

Definition of Biomedical Waste
Waste minimization
BMW – Segregation, collection, transportation, treatment and disposal (including color coding)
Liquid BMW, Radioactive waste, Metals / Chemicals / Drug waste
BMW Management & methods of disinfection
Modern technology for handling BMW
Use of Personal protective equipment (PPE)
Monitoring & controlling of cross infection (Protective devices)

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Unit IV

Infection prevention and control - The objective of this section will be to provide a broad understanding of the core subject areas of infection prevention and control and to equip AHPs with the fundamental skills required to reduce the incidence of hospital acquired infections and improve health outcomes. Concepts taught should include –Evidence-based infection control principles and practices [such as sterilization, disinfection, effective hand hygiene and use of Personal protective equipment (PPE)],Prevention & control of common healthcare associated infections,Components of an effective infection control program, and Guidelines (NABH and JCI) for Hospital Infection Control

Unit V

Antibiotic Resistance-

History of Antibiotics

How Resistance Happens and Spreads

Types of resistance- Intrinsic, Acquired, Passive

Trends in Drug Resistance

Actions to Fight Resistance

Bacterial persistence

Antibiotic sensitivity

Consequences of antibiotic resistance

Antimicrobial Stewardship- Barriers and opportunities, Tools and models in hospitals

Unit VI

Disaster preparedness and management- The objective of this section will be to provide knowledge on the principles of on-site disaster management. Concepts to be taught should include-

Fundamentals of emergency management,

Psychological impact management,

Resource management,

Preparedness and risk reduction,

Key response functions (including public health, logistics and governance, recovery, rehabilitation and reconstruction), information management, incident command and institutional mechanisms.

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Biomechanics And Kinesiology Lab

PRACTICAL- shall be conducted for various joint movements and analysis of the same. Demonstration may also be given as how to analyze posture and gait. The student shall be taught and demonstrated to analysis for activities of daily living – ADL – (like sitting to standing, throwing, lifting etc.) The student should be able to explain and demonstrate the movements occurring at the joints, the muscles involved, the movements or muscle action produced, and mention the axis and planes through which the movements occur. The demonstrations may be done on models or skeleton.

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Foundation Of Exercise Therapy Lab

PRACTICAL

Different test methods

Demonstrate relaxation techniques.

Demonstrate to apply the technique of passive movements

Demonstrate various techniques of Active movements

Demonstrate massage technique application according to body parts.

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IV[rth] Semester

Pharmacology

Unit I
General Pharmacology –

Introduction, Definitions, Classification of drugs, Sources of drugs, Routes of drug administration, Distribution of drugs, Metabolism and Excretion of drugs Pharmacokinetics, Pharmacodynamics, Factors modifying drug response, Adverse effects.

Unit II
Autonomic Nervous system –

General considerations – The Sympathetic and Parasympathetic Systems, Receptors, Somatic Nervous System

Cholinergic and Anti-Cholinergic drugs, Adrenergic and Adrenergic blocking drugs, Peripheral muscle relaxants.

Unit III
Cardiovascular Pharmacology –

Drugs used in the treatment of heart failure: Digitalis, Diuretics, Vasodilators, ACE inhibitors Antihypertensive Drugs: Diuretics, Beta Blockers, Calcium Channel Blockers, ACE Inhibitors, Central Acting Alpha Agonists, Peripheral Alpha Antagonists, Direct acting Vasodilators

Antiarrhythmic Drugs

Drugs used in the treatment of vascular disease and tissue ischemia : Vascular Disease, Hemostasis Lipid-Lowering agents, Antithrombotics, Anticoagulants and Thrombolytics Ischemic Heart Disease – Nitrates, Beta-Blockers, Calcium Channel Blockers, Cerebral Ischemia Peripheral Vascular Disease.

Unit IV
Neuropharmacology –

Sedative-Hypnotic Drugs: Barbiturates, Benzodiazepines

Antianxiety Drugs: Benzodiazepines, Other Anxiolytics

Drugs Used in Treatment of Mood Disorders: Monoamine Oxidase Inhibitors, Tricyclic Antidepressants, Atypical Antidepressants, Lithium
Antipsychotic drugs

Unit V
Disorders of Movement -

Drugs used in Treatment of Parkinson 's disease

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Antiepileptic Drugs

Spasticity and Skeletal Muscle Relaxants

Unit VI

Inflammatory/Immune Diseases -

Non-narcotic Analgesics and Nonsteroidal Anti-Inflammatory Drugs: Acetaminophen, NSAIDs, Aspirin, Nonaspirin NSAIDs, drug Interactins with NSAIDs

Glucocorticoids: Pharmacological Uses of Glucocorticoids, adverse effects, Physiologic Use of Glucocorticoids

Drugs Used in Treatment of Arthritic Diseases: Rheumatoid Arthritis, Osteoarthritis, Gout

Drugs Used in the Treatment of Neuromuscular Immune/Inflammatory Diseases: Myasthenia gravis, Idiopathic Inflammatory Myopathies, systemic lupus Erythematous, Scleroderma, Demyelinating Disease

Respiratory Pharmacology: Obstructive Airway Diseases, Drugs used in Treatment of Obstructive airway Diseases, Allergic Rhinitis

Unit VII

Digestion and Metabolism -

Gastrointestinal Pharmacology: Peptic Ulcer Disease, Constipation, Diarrhea Drugs

Used in Treatment of Diabetes Mellitus: Insulin, Oral Hypoglycemic

Unit VIII

Geriatrics -

Pharmacology and the geriatric Population: Adverse effects of special concern in the Elderly, Dementia, Postural hypotension.

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Bio-Physics

Unit I
Physical principles

Structure and properties of matter -solids, liquids and gases, adhesion, surface tension, viscosity, density and elasticity.
Structure of atom, molecules, elements and compound

Electricity: Definition and types. Therapeutic uses. Basic physics of construction. Working Importance of currents in treatment.

Static Electricity: Production of electric charge. Characteristic of a charged body.

Characteristics of lines of forces. Potential energy and factors on which it depends. Potential difference and EMF.

Current Electricity: Units of Electricity: farad, Volt, Ampere, Coulomb, Watt

Condensers: Definition, principle, Types- construction and working, capacity & uses.

Magnetism: Definition. Properties of magnets. Electromagnetic induction. Transmission by contact. Magnetic field and magnetic forces. Magnetic effects of an electric field.
Conductors, Insulators, Potential difference, Resistance and intensity

Ohm's law and its application to DC and AC currents. Fuse: construction, working and application.

Transmission of electrical energy through solids, liquids, gases and vacuum.

Rectifying Devices-Thermionic valves, Semiconductors, Transistors, Amplifiers, transducer and Oscillator circuits.

Display devices and indicators-analogue and digital.

Transformer: Definition, Types, Principle, Construction, Eddy current, working uses

Chokes: Principle, Construction and working, Uses

Unit II
Effects of Current Electricity

Chemical effects-lons and electrolytes, lonisation, Production of an EMF by chemical actions.

Ionization: Principles, effects of various technique of medical ionization.

Electromagnetic Induction.

Electromagnetic spectrum.

Unit III
Electrical Supply

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Brief outline of main supply of electric current

Dangers-short circuit, electric shocks: Micro/ Macro shocks

Precaution-safety devices, earthing, fuses etc.

First aid and initial management of electric shock

Burns: electrical & chemical burns, prevention and management

Unit IV
Various agents

Thermal agents: Physical Principles of cold, Superficial and deep heat.

Ultrasound: Physical Principles of Sound

Electro- magnetic Radiation: Physical Principles and their Relevance to Physiotherapy Practice

Electric Currents: Physical Principles and their Relevance to Physiotherapy Practice.

Unit V
Section II – Therapeutic Electricity

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Electrotherapy

Unit I

Section II A - Low frequency Currents

Basic types of current

Direct Current: types, physiological &therapeutic effects.

Alternating Current

Unit II

Types of Current used in Therapeutics

Modified D.C

Faradic Current

Galvanic Current

Modified A.C

Sinusoidal Current

Diadynamic Current.

Unit III

Faradic Current: Definition, Modifications, Techniques of Application of Individual, Muscle and Group Muscle stimulation, Physiological & Therapeutic effects of Faradic Current, Precautions, Indications & Contra-Indications, Dangers.

Unit IV

Galvanic Current: Definition, Modifications, Physiological & Therapeutic effects of Galvanic Current, Indications & Contra-Indications, Dangers, Effect of interrupted galvanic current on normally innervated and denervated muscles and partially denervated muscles.

Unit V

Sinusoidal Current & Diadynamic Current in Brief.

Unit VI

HVPGS – Parameters & its uses

Unit VII

Ionization / Iontophoresis: Techniques of Application of Iontophoresis, Indications, Selection of Current, Commonly used Ions (Drugs) for pain, hyperhydrosis, would healing.

Unit VIII

Cathodal / Anodal galvanism.

Unit IX

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Micro Current & Macro Current

Unit X

Types of Electrical Stimulators

NMES- Construction component.

Neuro muscular diagnostic stimulator- construction component.

Components and working Principles

Unit XI

Principles of Application: Electrode tissue interface, Tissue Impedance, Types of Electrode, Size

Placement of Electrode – Waterbath, Unipolar, Bi-polar, Electrode coupling, Current flow in tissues, Lowering of Skin Resistance.

Nerve Muscle Physiology: Action Potential, Resting membrane potential, Propagation of Action Potential, Motor unit, synapse, Accommodation, Stimulation of Healthy Muscle, Stimulation of Denervated Muscle, Stimulation for Tissue Repair.

Unit XII

TENS: Define TENS, Types of TENS, Conventional TENS, Acupuncture TENS, Burst TENS, Brief & Intense TENS, Modulated TENS. Types of Electrodes & Placement of Electrodes, Dosage parameters, Physiological & Therapeutic effects, Indications & Contraindications.

Unit XIII

Pain: Define Pain, Theories of Pain (Outline only), Pain Gate Control theory in detail. [2 Hours]

Unit XIV

Section II B - Electro-diagnosis

FG Test

SD Curve: Methods of Plotting SD Curve, Apparatus selection, Characters of Normally innervated Muscle, Characters of Partially Denervated Muscle, Characters of Completely denervated Muscle, Chronaxie & Rheobase.

Nerve conduction velocity studies

EMG: Construction of EMG equipment.

Bio-feed back.

Unit XV

Section II C - Medium Frequency

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Interferential Therapy: Define IFT, Principle of Production of IFT, Static Interference System, Dynamic Interference system, Dosage Parameters for IFT, Electrode placement in IFT, Physiological & Therapeutic effects, Indications & Contraindications.

Russian Current

Rebox type Current

Unit XVI

Section III - Thermo & Actinotherapy (High Frequency Currents)

Electro Magnetic Spectrum.

SWD: Define short wave, Frequency & Wavelength of SWD, Principle of Production of SWD, Circuit diagram & Production of SWD, Methods of Heat Production by SWD treatment, Types of SWD Electrode, Placement & Spacing of Electrodes, Tuning, Testing of SWD Apparatus, Physiological & Therapeutic effects, Indications & Contraindications, Dangers, Dosage parameters.

Pulsed Electro Magnetic Energy: Principles, Production & Parameters of PEME, Uses of PEME.

Micro Wave Diathermy: Define Microwave, Wave length & Frequency, Production of MW, Applicators, Dosage Parameters, Physiological & Therapeutic effects, Indications & Contraindications, Dangers of MWD. [2 Hours]

Ultrasound: Define Ultrasound, Frequency, Piezo Electric effects: Direct, Reverse, Production of

US, Treatment Dosage parameters: Continuous& Pulsed mode, Intensity, US Fields: Near field, Far field, Half value distance, Attenuation, Coupling Media, Thermal effects, Non-thermal effects, Principles & Application of US: Direct contact, Water bag, Water bath, Solid sterile gel pack method for wound. Uses of US, Indications & Contraindications, Dangers of Ultrasound. Phonophoresis: Define Phonophoresis, Methods of application, commonly used drugs, Uses. Dosages of US. [8 Hours]

IRR: Define IRR,wavelength & parameters, Types of IR generators, Production of IR, Physiological & Therapeutic effects, Duration & frequency of treatment, Indication & Contraindication. [2 Hours]

UVR: Define UVR, Types of UVR, UVR generators: High pressure mercury vapour lamp, Water cooled mercury vapour lamp, Kromayer lamp, Fluorescent tube, Theraktin tunnel, PUVA apparatus. Physiological & Therapeutic effects. Sensitizers & Filters. Test dosage calculation. Calculation of E1, E2, E3, E4 doses. Indications, contraindications. Dangers. Dosages for different therapeutic effects, Distance in UVR lamp [8 Hours]

LASER: Define LASER. Types of LASER. Principles of Production. Production of LASER by various methods. Methods of application of LASER. Dosage of LASER. Physiological &

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Therapeutic effects of LASER. Safety precautions of LASER. Classifications of LASER. Energy density & power density [8 Hours]

Unit XVII

Section IV – Superficial heating Modalities

Wax Therapy: Principle of Wax Therapy application – latent Heat, Composition of Wax Bath Therapy unit, Methods of application of Wax, Physiological & Therapeutic effects, Indications & Contraindication, Dangers.

Contrast Bath: Methods of application, Therapeutic uses, Indications & Contraindications.

Moist Heat Therapy: Hydro collator packs – in brief, Methods of applications, Therapeutic uses, Indications & Contraindications.

Cyclotherm: Principles of production, Therapeutic uses, Indications & Contraindications.

Fluidotherapy: Construction, Method of application, Therapeutic uses, Indications & Contraindications.

Whirl Pool Bath: Construction, Method of Application, Therapeutic Uses, Indications & Contraindications.

Magnetic Stimulation, Principles, Therapeutic uses, Indications & contraindication.

Cryotherapy: Define- Cryotherapy, Principle- Latent heat of fusion, Physiological & Therapeutics effects, Techniques of Applications, Indications & Contraindications, Dangers, Methods of application with dosages.

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Exercise Therapy

Unit I

Specific exercise regimens

Isotonic: de Lormes, Oxford, MacQueen, Circiut weight training

Isometric: BRIME (Brief Resisted Isometric Exercise), Multiple Angle

Isometrics Isokinetic regimens

Unit II

Proprioceptive Neuromuscular Facilitation

Definitions & goals

Basic neurophysiologic principles of PNF: Muscular activity, Diagonals patterns of

movement: upper limb, lower limb

Procedure: components of PNF

Techniques of facilitation

Mobility: Contract relax, Hold relax, Rhythmic initiation

Strengthening: Slow reversals, repeated contractions, timing for emphasis, rhythmic

stabilization Stability: Alternating isometric, rhythmic stabilization

Skill: timing for emphasis, resisted progression Endurance: slow reversals, agonist reversal

Unit III

Suspension Therapy

Definition, principles, equipments & accessories, Indications & contraindications, Benefits of suspension therapy

Types of suspension therapy: axial, vertical, pendular Techniques of suspension therapy for upper limb Techniques of suspension therapy for lower limb

Unit IV

Functional Re-education

Lying to sitting: Activities on the Mat/Bed, Movement and stability at floor level; Sitting activities and gait; Lower limb and Upper limb activities.

Unit V

Aerobic Exercise

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Definition and key terms; Physiological response to aerobic exercise, Examination and evaluation of aerobic capacity – Exercise Testing, Determinants of an Exercise Program, The Exercise Program, Normal and abnormal response to acute aerobic exercise, Physiological changes that occur with training, Application of Principles of an Aerobic conditioning program for patients – types and phases of aerobic training.

Unit VI
Stretching

Definition of terms related to stretching; Tissue response towards immobilization and elongation, Determinants of stretching exercise, Effects of stretching, Inhibition and relaxation procedures, Precautions and contraindications of stretching, Techniques of stretching.

Unit VII
Manual Therapy & Peripheral Joint Mobilization

Schools of Manual Therapy, Principles, Grades, Indications and Contraindications, Effects and Uses – Maitland, Kaltenborn, Mulligan

Biomechanical basis for mobilization, Effects of joint mobilsation, Indications and contraindications, Grades of mobilization, Principles of mobilization, Techniques of mobilization for upper limb, lower limb, Precautions.

Unit VIII
Balance - Definition

Physiology of balance: contributions of sensory systems, processing sensory information, generating motor output
Components of balance (sensory, musculoskeletal, biomechanical)

Causes of impaired balance, Examination & evaluation of impaired balance, Activities for treating impaired balance: mode, posture, movement, Precautions & contraindications, TypesBalance retraining.

Unit IX
Co-ordination Exercise

Anatomy & Physiology of cerebellum with its pathways Definitions: Co-ordination, Inco-ordination

Causes for Inco-ordination, Test for co-ordination: equilibrium test, non-equilibrium test Principles of co-ordination exercise.

c. Frenkel's Exercise: uses of Frenkel's exercise, technique of Frenkel's exercise, progression, home exercise.

Unit X

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Posture

Definition, Active and Inactive Postures, Postural Mechanism, Patterns of Posture, Principles of re-education: corrective methods and techniques, Patient education.

Unit XI

Walking Aids

Types: Crutches, Canes, Frames; Principles and training with walking aids

Unit XII

Basics in Manual Therapy & Applications with Clinical reasoning

Examination of joint integrity

Contractile tissues

Non contractile tissues

Mobility - assessment of accessory movement & End feel

Assessment of articular & extra-articular soft tissue status

Myofascial assessment

Acute & Chronic muscle hold

Tightness

Pain-original & referred

Basic principles, Indications & Contra-Indications of mobilization skills for joints & soft tissues.
Maitland

Mulligan

Mckenzie

Muscle Energy Technique

Myofascial stretching

Cyriax

Neuro Dynamic Testing

Unit XIII

Hydrotherapy

Definitions, Goals and Indications, Precautions and Contraindications, Properties of water, Use of special equipment, techniques, Effects and uses, merits and demerits

Unit XIV

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Individual and Group Exercises

Advantages and Disadvantages, Organization of Group exercises, Recreational Activities and Sports

Unit XV

Introduction to Yoga

Asanas – Principles and elements;

Pranayamas – Principles, Methods and Techniques

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Environmental Science

Unit I
General

I:-Biotic and a biotic environment

II:-Adverse effects of Environment Pollution

III:-Control strategies

(B):-Water Pollution:

I-Water Quality standards for potable water

II-Impurities in water and their removal

III:Defluoridation

IV:Self purification of streams

(C):-Air pollution;

I-Source of air contaminants

II-Adverse effects on human health

III-Measures to check air pollution

IV-Greenhouse effect

V-Acid Rain

VI-Ozone depletion

Unit II
Biomedical Waste Management

I-Introduction to Bio-medical waste

II-Types of bio-medical waste

III-Collection of bio-medical waste

IV-Treatment and disposal of bio-medical waste

(B)Solid waste Management

I-Introduction to solid waste

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II-Its collection and disposal

III-Sanitary land-filling

IV-Vermin-composting

V-Hazardous waste management

Unit III
Land Pollution

I-Soil conservation

II-Land erosion

(B)Ecology

I-Busies of species

II- Biodiversity

III-Population dynamics

IV-Energy flow

V-Ecosystems

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Electrotherapy Lab

PRACTICAL-The student of Electrotherapy must be able to demonstrate the use of electrotherapy modalities applying the principles of electrotherapy with proper techniques, choice of dosage parameters and safety precautions.

Demonstrate the technique for patient evaluation – receiving the patient and positioning the patient for treatment using electrotherapy.

Collection of materials required for treatment using electrotherapy modalities and testing of the apparatus.

Demonstrate placement of electrodes for various electrotherapy modalities

Electrical stimulation for the muscles supplied by the peripheral nerves

Faradism under Pressure for UL and LL

Plotting of SD curve with chronaxie and rheobase

Demonstrate FG test

Application of Ultrasound for different regions-various methods of application

Demonstrate treatment techniques using SWD, IRR and Microwave diathermy

Demonstrate the technique of UVR exposure for various conditions – calculation of test dose

Demonstrate treatment method using IFT for various regions

Calculation of dosage and technique of application of LASER

Technique of treatment and application of Hydrocollator packs, cryotherapy, contrast bath, wax therapy

Demonstrate the treatment method using whirl pool bath

Winding up procedure after any electrotherapy treatment method.

Equipment care -

Checking of equipments

Arrangement of exercise therapy and electro therapy equipment.

Calibration of equipment

Purchase, billing, document of equipment.

Safety handling of equipments.

Research lab equipment maintenance.

Stock register, movement register maintenance

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Exercise Therapy Lab

PRACTICAL

The students of exercise therapy are to be trained in Practical Laboratory work for all the topics discussed in theory. The student must be able to evaluate and apply judiciously the different methods of exercise therapy techniques on the patients. They must be able to

Demonstrate the technique of measuring using goniometry

Demonstrate muscle strength using the principles and technique of MMT

Demonstrate the techniques for muscle strengthening based on MMT grading

Demonstrate the PNF techniques

Demonstrate exercises for training co-ordination – Frenkel's exercise

Demonstrate the techniques of massage manipulations

Demonstrate techniques for functional re-education

Assess and train for using walking aids

Demonstrate mobilization of individual joint regions

Demonstrate to use the technique of suspension therapy for mobilizing and strengthening joints and muscles

Demonstrate the techniques for muscle stretching

Assess and evaluate posture and gait

Demonstrate techniques of strengthening muscles using resisted exercises

Demonstrate techniques for measuring limb length and body circumference.

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Vth SEMESTER

Clinical Orthopedics & Traumatology

Unit I
Introduction

Introduction to orthopaedics.

Clinical examination in an Orthopedic patient.

Common investigative procedures.

Radiological and Imaging techniques in Orthopeadics.

Inflammation and repair, Soft tissue healing.

Unit II
Traumatology

Fracture: definition, types, signs and symptoms.

Fracture healing.

Complications of fractures.

Conservative and surgical approaches.

Principles of management – reduction (open/closed, immobilization etc).

Subluxation/ dislocations – definition, signs and symptoms, management (conservative and operative).

Unit III
Fractures and Dislocations of Upper Limb

Fractures of Upper Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures:

Fractures of clavicle and scapula.

Fractures of greater tuberosity and neck of humerus.

Fracture shaft of humerus.

Supracondylar fracture of humerus.

Fractures of capitulum, radial head, olecranon, coronoid, and epicondyles.

Side swipe injury of elbow.

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Both bone fractures of ulna and radius.

Fracture of forearm – monteggia, galaezzi fracture –dislocation.

Chauffer's fracture.

Colle's fracture.

Smith's fracture.

Scaphoid fracture.

Fracture of the metacarpals.

Bennett's fracture.

Fracture of the phalanges. (Proximal and middle.)

Dislocations of Upper Limb –

Anterior dislocation of shoulder – mechanism of injury, clinical feature, complications, conservative management (Kocher's and Hippocrates maneuver), surgical management (putti plat, bankart's) etc.

Recurrent dislocation of shoulder.

Posterior dislocation of shoulder – mechanism of injury, clinical features and management.
Posterior dislocation of elbow – mechanism of injury, clinical feature, complications & management.

Unit IV

Fracture of Spine

Fracture of Cervical Spine - Mechanism of injury, clinical feature, complications (quadriplegia); Management- immobilization (collar, cast, brace, traction); Management for stabilization, management of complication (bladder and bowel, quadriplegia).

Clay shoveller's fracture.

Hangman's fracture.

Fracture odontoid.

Fracture of atlas.

Fracture of Thoracic and Lumbar Regions - Mechanism of injury, clinical features, and management— conservative and surgical of common fractures around thoracic and lumbar regions.

Fracture of coccyx.

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Fracture of Rib Cage - Mechanism of injury, clinical features, management for Fracture Ribs, Fracture of sternum.

Unit V

Fractures and Dislocations of Lower Limb

Fracture of Pelvis and Lower Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures:

Fracture of pelvis.

Fracture neck of femur – classification, clinical features, complications, management - conservative and surgical.
Fractures of trochanters.

Fracture shaft femur—clinical features, mechanism of injury, complications, management-conservative and surgical.
Supracondylar fracture of femur.

Fractures of the condyles of femur.

Fracture patella.

Fractures of tibial condyles.

Both bones fracture of tibia and fibula.

Dupuytren's fracture

Maisonneuve's fracture.

Pott's fracture – mechanism of injury, management.

Bimalleolar fracture

Trimalleolar fracture

Fracture calcaneum – mechanism of injury, complications and management.

Fracture of talus.

Fracture of metatarsals—stress fractures jone's fracture.

Fracture of phalanges.

Dislocations of Lower Limb - mechanism of injury, clinical features, complications, management of the following dislocations of lower limb.

Anterior dislocation of hip.

Posterior dislocation of hip.

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Central dislocation of hip.

Dislocation of patella.

Recurrent dislocation of patella.

Unit VI

Soft Tissue Injuries - Define terms such as sprains, strains, contusion, tendinitis, rupture, tenosynovitis, tendinosis, bursitis. Mechanism of injury of each, clinical features, managements- conservative and surgical of the following soft tissue injuries:

Meniscal injuries of knee.

Cruciate injuries of knee.

Medial and lateral collateral injuries of knee.

Lateral ligament of ankle.

Wrist sprains.

Strains- quadriceps, hamstrings, calf, biceps, triceps etc.

Contusions- quadriceps, gluteal, calf, deltoid etc.

Tendon ruptures-Achilles, rotator cuff muscles, biceps, pectorals etc.

Unit VII

Hand Injuries - mechanism of injury, clinical features, and management of the following –

Crush injuries.

Flexor and extensor injuries.

Burn injuries of hand.

Unit VIII

Amputations - Definition, levels of amputation of both lower and upper limbs, indications, complications.

Unit IX

Traumatic Spinal Cord Injuries - Clinical features, complications, medical and surgical management of Paraplegia and Quadriplegia.

Unit X

Deformities - clinical features, complications, medical and surgical management of the following Congenital and Acquired deformities.

Congenital Deformities –

CTEV.

CDH.

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Torticollis.

Scoliosis.

Flat foot.

Vertical talus.

Hand anomalies- syndactyly, polydactyly and ectrodactly. Arthrogryposis multiplex congenita (amyoplasia congenita).
Limb deficiencies- Amelia and Phocomelia. Klippel feil syndrome. Osteogenesis imperfecta(fragile ossium).

Cervical rib.

Acquired Deformities –

Acquired Torticollis.

Scoliosis.

Kyphosis.

Lordosis.

Genu varum.

Genu valgum.

Genu recurvatum

Coxa vara.

Pes cavus.

Hallux rigidus.

Hallux valgus.

Hammer toe.

Metatarsalgia.

Unit XI

Disease of Bones and Joints: Causes, Clinical features, Complications, Management- medical and surgical of the following conditions:
Infective conditions: Osteomyelitis (Acute / chronic). Brodie's abscess. TB spine and major joints like shoulder, hip, knee, ankle, elbow etc.
Arthritic conditions: Pyogenic arthritis. Septic arthritis. Syphilytic infection of joints.

Bone Tumors: classification, clinical features, management - medical and surgical of

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the following tumors: Osteoma. Osteosarcoma, Osteochondroma. Enchondroma.

Ewing's sarcoma. Gaint cell tumor. Multiple myeloma. Metastatic tumors.

Perthes disease, Slipped Capital Femoral Epiphysis and Avascular Necrosis.

Metabolic Bone Diseases: Rickets. Osteomalacia, Osteopenia. Osteoporosis.

Unit XII

Inflammatory and Degenerative Conditions: causes, clinical feature, complications, deformities, radiological features, management- conservative and surgical for the following conditions: Osteoarthritis. Rheumatoid arthritis. Ankylosing spondylitis Gouty arthritis. Psoriatic arthritis. Hemophilic arthritis. Still's disease (juvenile rheumatoid arthritis). Charcot's joints. Connective Tissue Disorders- Systemic Lupus Erythematosis, Scleroderma, Dermatomyositis,

Poliomyelitis, Mixed connective tissue Disease (MCTD)

Unit XIII

Syndromes: Causes, Clinical features, complications, management- conservative and surgical of the following:

Cervico brachial syndrome. Thoracic outlet syndrome. Vertebro- basilar syndrome. Scalenus syndrome. Costo clavicular syndrome. Levator scapulae syndrome. Piriformis syndrome.

Unit XIV

Neuromuscular Disorders: Definition, causes, clinical feature, complications, management. (Multidisciplinary approach) medical and surgical of the following conditions:

Cerebral palsy.

Poliomyelitis.

Spinal Dysraphism.

Leprosy.Cervical and Lumbar Pathology: Causes, clinical feature, patho-physiology, investigations, management-Medical and surgical for the following:

Prolapsed interverbral disc (PID),

Spinal Canal Stenosis.

Spondylosis (cervical and lumbar)

Spondylolysis.

Spondylolisthesis.

Lumbago/ Lumbosacral strain.

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Sacralisation.

Lumbarisation.

Coccydynia.

Hemivertebra.

Unit XVI

Orthopedic Surgeries: Indications, Classification, Types, Principles of management of the following Surgeries:

Arthrodesis.

Arthroplasty (partial and total replacement).

Osteotomy,

External fixators.

Spinal stabilization surgeries (Harrington's, Luque's, Steffi plating) etc ,Limb re attachments.

Unit XVII

Regional Conditions: Definition, Clinical features and management of the following regional conditions

Shoulder: Periarthritic shoulder (adhesive capsulitis). Rotator cuff tendinitis. Supraspinatus Tendinitis. Infraspinatus Tendinitis. Bicipital Tendinitis. Subacromial Bursitis.

Elbow: Tennis Elbow. Golfer's Elbow. Olecranon Bursitis (student's elbow). Triceps Tendinitis.
Wrist and Hand: De Quervain's Tenosynovitis. Ganglion. Trigger Finger/ Thumb.

Mallet Finger, Carpal Tunnel Syndrome, Dupuytren's Contracture.

Pelvis and Hip: IT Band Syndrome. Piriformis Syndrome. Trochanteric Bursitis.

Knee: Osteochondritis Dissecans. Prepatellar and Suprapatellar Bursitis. Popliteal Tendinitis. Patellar Tendinitis. Chondromalacia Patella. Plica Syndrome. Fat Pad Syndrome (Hoffa's syndrome).
Ankle and Foot: Ankle Sprains. Plantar Fasciitis / Calcaneal Spur. Tarsal Tunnel

Syndrome. Achilles Tendinitis. Metatarsalgia. Morton's Neuroma.

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General Surgery

Unit I

Fluid, Electrolyte and Acid-Base disturbances – diagnosis and management ; Nutrition in the surgical patient ; Wound healing – basic process involved in wound repair, basic phases in the healing process, clinical management of wounds, factors affecting wound healing, Scars – types and treatment. Hemostasis – components, hemostatic disorders, factors affecting bleeding during surgery. Transfusion therapy in surgery – blood components, complications of transfusion ; Surgical Infections ; General Post – Operative Complications and its management.

Unit II

Reasons for Surgery; Types of anaesthesia and its affects on the patient; Types of Incisons; Clips Ligatures and Sutures; General Thoracic Procedures – Radiologic Diagnostic procedures, Endoscopy – types, Biopsy – uses and types. Overview and Drainage systems and tubes used in Surgery.

Unit III

Causes, Clinical Presentation, Diagnosis and treatment of the following Thoracic Trauma situations – Airway obstruction, Pnuemothorax, Hemothorax, Cardiac Tamponade, Tracheobronchial disruption, Aortic disruption, Diaphragmatic disruption, Esophageal disruption, Cardiac and Pulmonary Contusions.

Unit IV

Surgical Oncology – Cancer – definition, types, clinical manifestations of cancer, Staging of Cancer, surgical procedures involved in the management of cancer.

Unit V

Disorders of the Chest Wall, Lung and Mediastinum

Unit VI

Thoracic surgeries – Thoracotomy – Definition, Types of Incisions with emphasis to the site of insision, muscles cut and complications. Lung surgeries: Pnumonectomy, Lobectomy, segmentectomy – Indications, Physiological changes and Complications; Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung. Cardiac surgeries – An overview of the Cardio-Pulmonary Bypass Machine – Extracardiac Operations, Closed Heart surgery, Open Heart surgery. Transplant Surgery – Heart, Lung and Kidney – Indications, Physiological changes and Complications.

Unit VII

Diseases of the Arteries and Veins : Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases : Arteriosclerosis, Atherosclerosis, Aneurysm, Buerger's disease, Raynaud's Disease, Thrombophlebitis, Deep Vein

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Thrombosis, Pulmonary Embolism, Varicose Veins.

Unit VIII

Definition, Indication, Incision, Physiological changes and Complications following Common operations like Cholecystectomy, Colostomy, Ileostomy, Gastrectomy, Hernias, Appendicectomy Mastectomy, Neprectomy, Prostectomy.

Unit IX

Burn: Definition, Classification, Causes, Prevention, Pathological changes, Complications, Clinical Features and Management. Skin Grafts – Types, Grafting Procedures, Survival of Skin Graft ; Flaps – Types and uses of Flaps.

Unit X

ENT: Common problems of ear, otitis media, Otosclerosis, functional achonia and deafness, management facial palsy classification, medical and surgical management of lower motor neuron type of facial palsy.

Unit XI

Ophthalmology: Ophthalmologic surgical conditions, refraction's, conjunctivitis, glaucoma, corneal ulcer, iritis, cataract, retinitis, detachment of retina, defects of extra-ocular muscles-surgical management.

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Obstetrics And Gynecology

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

Describe the normal and abnormal physiological events during the puberty, labor, puerperium, post– natal stage and menopause.

Discuss the various complications during pregnancy, labour, puerperium and post – natal stage, pre and post-menopausal stage and various aspects of urogenital dysfunction and their management in brief.

Acquire the skill of clinical examination of pelvic floor

Acquire the skill of clinical examination of pregnant woman.

THEORY

Unit I
Anatomy and physiology of the female reproductive organs. Puberty dynamics

Unit II
Physiology of menstrual cycle –

ovulation cycle,

uterine cycle,

Cx cycle,

duration,

amount

Hormonal regulation of menstruation,

Unit III
Hormonal disorders of females-obesity and female hormones

Unit IV
Pregnancy

Diagnosis of pregnancy

Abortion

Physiological changes during pregnancy

Importance of antenatal care exercise

High risk pregnancy, prenatal common complications – investigation and management

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Musculoskeletal disorders during pregnancy

Multiple child birth

Normal labor

Unit V
Child birth complications, investigation and management

Unit VI
Normal puerperium, lactation and importance of post-natal exercises

Unit VII
Family planning.

Unit VIII
Medical termination of pregnancy

Unit IX
Infection of female genital tract including sexually transmitted diseases, low backache

Unit X
Prolapse of uterus and vagina

Unit XI
Principle of common gynaecological operations – hysterectomy, D&C, D&E, Pop smear

Unit XII
Menopause: Its effect on emotions and musculoskeletal system

Unit XIII
Urogenital dysfunction – pre and post-natal condition

Unit XIV
Sterility: Pathophysiology, investigations, management, Malnutrition and deficiencies in females.

Unit XV
Surgical procedures involving child birth.

Definition, Indications and Management of the following surgical procedures – pelvic repair, caesarian section, nephrectomy, Hysterosalphyngography, Dilatation and Curettage, Laproscopy, Colposopy, Hysterectomy.

Unit XVI
Carcinoma of female reproductive organs – surgical management in brief Mastectomy – Simple, radical. Hysterectomy.

Unit XVII
Incontinence – Types, Causes, Assessment and Management.

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General Medicine

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

Unit I

Infection : Effects of Infection on the body – Pathology – source and spread of infection – vaccinations – generalized infections – rashes and infection – food poisoning and gastroenteritis

– sexually transmitted diseases – HIV infections and Aids.

Unit II

Poisoning: Clinical features – general management – common agents in poisoning – pharmaceutical agents – drugs of misuse – chemical pesticides – Envenomation.

Unit III

Food and Nutrition: Assessment – Nutritional and Energy requirements; Deficiency diseases –

clinical features and treatment; Protein – Energy Malnutrition: Clinical features and treatment;Obesity and its related disorders: Causes – Complications – benefits of weight loss – management of Obesity – diet, exercise and medications.

Unit IV

Endocrine diseases: Common presenting symptoms of Endocrine disease – common classical

disease presentations, clinical features and its management; Diabetes Mellitus: Etiology and pathogenesis of diabetes – clinical manifestations of the disease – management of the disease – Complications of diabetes.

Unit V

Diseases of the blood: Examinations of blood disorders – Clinical manifestations of blood disease; Anemia – signs and symptoms – types and management ; Hemophilia - Cause – clinical features severity of disease – management – complications due to repeated hemorrhages – complications due to therapy.

Unit VI

Diseases of the digestive system : Clinical manifestations of gastrointestinal disease – Etiology,

clinical features, diagnosis, complications and treatment of the following conditions : Reflux Oesophagitis, Achlasia Cardia, Carcinoma of Oesophagus, GI bleeding, Peptic Ulcer disease, Carcinoma of Stomach, Pancreatitis, Malabsorption Syndrome, Ulcerative Colitis, Peritonitis, Infections of Alimentary Tract ; Clinical manifestations of liver diseases - Aetiology, clinical features,

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diagnosis, complications and treatment of the following conditions : Viral Hepatitis, Wilson's Disease, Alpha1-antitrypsin deficiency, Tumors of the Liver, Gall stones, Cholycystitis

Unit VII

Diseases of the Skin: Examination and clinical manifestations of skin diseases; Causes, clinical features and management of the following skin conditions: Leprosy, Psoriasis, Pigmentary Anomalies, Vasomotor disorders, Dermatitis, Coccal and Fungal Parasitic and Viral infections.

Unit VIII

Pediatrics : Problems and management of LBW infants, Perinatal problems and management, Congenital abnormalities and management, Respiratory conditions of childhood, Cerebral Palsy – causes, complications, clinical manifestations, treatment ; Spina Bifida – management and treatment, Epilepsies – types, diagnosis and treatment; Recognizing developmental delay, common causes of delay ; Orthopedic and Neuromuscular disorders in childhood, clinical features and management ; Sensory disorders – problems resulting from loss of vision and hearing ; Learning and behavioural problems – Hyperactivity, Autism, Challenging behaviours, Educational delay, The Clumsy Child.

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Health Promotion, Fitness And Wellness

SUBJECT DESCRIPTION - This course includes discussion on the theories of health and wellness, including motivational theory, locus of control, public health initiative, and psycho-Social, spiritual and cultural consideration. Health risks, screening, and assessment considering epidemiological principles are emphasized. Risk reduction strategies for primary and secondary prevention, including programs for special populations are covered.

1. Prevention practice: a holistic perspective for physiotherapy
   a. Defining Health
   b. Predictions of Health Care
   c. Comparing Holistic Medicine and Conventional Medicine d.
   Distinguishing Three Types of Prevention Practice.
   Healthy People

   Definition of healthy people

   Health education Resources

   Physiotherapist role for a healthy community.

   Key concepts of fitness
   Defining & Measuring Fitness

   b. Assessment of Stress with a Survey

   c. Visualizing Fitness

   d. Screening for Mental and Physical Fitness

   e. Body Mass Index calculations.

   Fitness training

   a. Physical Activities Readiness Questionnaire b.
   Physical Activities Pyramid

   c. Exercise Programs

   d. Evidence-Based Practice.

   Health, fitness, and wellness issues during childhood and adolescence

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Health, fitness, and wellness during adulthood

Women's health issues: focus on pregnancy:

Prevention practice for older adults

Resources to optimize health and wellness

Health protection.

Prevention practice for musculoskeletal conditions

Prevention practice for cardiopulmonary conditions

Prevention practice for neuromuscular conditions

Prevention practice for integumentary disorders

Prevention practice for individuals with developmental disabilities

Marketing health and wellness.

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VIth SEMESTER

Clinical Neurology & Neurosurgery

SUBJECT DESCRIPTION-This subject follows the basic science subjects to provide the knowledge about relevant aspects of neurology & neurosurgery. The student will have a general understanding of the diseases the therapist would encounter in their practice. The objective of this course is that after 60 hrs of lectures and discussion the student will be able to list the etiology, pathology, clinical features and treatment methods for various neurological conditions.

Unit I

Disorders of function in the context of Pathophysiology, Anatomy in Neurology and Cortical Mapping.

Unit II

Classification of neurological involvement depending on level of lesion.

Unit III

Neurological assessment: Principles of clinical diagnosis, higher mental function, assessment of brain & spinal cord function, evaluation of cranial nerves and evaluation of autonomic nervous system.

Unit IV

Investigations: principles, methods, views, normal/abnormal values/features, types of following investigative procedures- skull x-ray, CT, MRI, evoked potentials, lumbar puncture, CSF examination, EMG, NCV.

Unit V

Neuro-ophthalmology: Assessment of visual function – acuity, field, colour vision, Pupillary reflex, accommodation reflex, abnormalities of optic disc, disorders of optic nerve, tract, radiation, occipital pole, disorders of higher visual processing, disorders of pupil, disorders of eye movements, central disorders of eye movement.

Unit VI

Deafness, vertigo, and imbalance: Physiology of hearing, disorders of hearing, examination & investigations of hearing, tests of vestibular function, vertigo, peripheral vestibular disorders, central vestibular vertigo.

Unit VII

Lower cranial nerve paralysis – Etiology, clinical features, investigations, and management of following disorders - lesions in trigeminal nerve, trigeminal neuralgia, trigeminal sensory neuropathy, lesions in facial nerve, facial palsy, bell's palsy, hemi facial spasm,Glossopharangial neuralgia, lesions of Vagus nerve, lesions of spinal accessory nerve, lesions of hypoglossal nerve. Dysphagia – swallowing mechanisms, causes of dysphagia, symptoms, examination, and management of dysphagia.

Unit VIII

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Cerebro-vascular diseases: Define stroke, TIA, RIA, stroke in evolution, multi infarct dementia and Lacunar infarct. Classification of stroke – Ischemic, hemorrhagic, venous infarcts. Risk factors, cause of ischemic stroke, causes of hemorrhagic stroke. Classification of hemorrhagic stroke, classification of stroke based on symptoms, stroke syndrome, investigations, differential diagnosis, medical and surgical management.

Unit IX

Head injury: Etiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications.

Unit X

Higher cortical, neuro psychological and neurobehavioral disorders: Causes of blackouts, physiological nature of Epilepsy, classification, clinical features, investigations, medical& surgical management of following disorders – Non-epileptic attacks of childhood, Epilepsy in childhood, Seizers, and Epilepsy syndromes in adult. Classification and clinical features of Dyssomnias, Parasomnias, Dementia, Obsessive-compulsive disorders. Neural basis of consciousness, causes &investigations of Coma, criteria for diagnosis of Brain death. Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Perceptual disorders and Speech disorders.

Unit XI

Movement disorders: Definition, etiology, risk factors, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Parkinson's disease, Dystonia, Chorea, Ballism, Athedosis, Tics, Myoclonus and Wilson's disease.

Unit XII

Cerebellar and coordination disorders: Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Congenital ataxia, Friedreich's ataxia, Ataxia talengiectasia, Metabolic ataxia, Hereditary cerebellar ataxia, Tabes dorsalis and Syphilis.

Unit XIII

Spinal cord disorders: Functions of tracts, definition, etiology, risk factors, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Spinal cord injury, Compression by IVD prolapse, Spinal epidural abscess, Transverse myelitis, Viral myelitis, Syringomyelia, Spina bifida, Sub acute combined degeneration of the cord, Hereditary spastic paraplegia, Radiation myelopathy, Progressive encephalomyelitis, Conus medullaris syndrome, Bladder & bowel dysfunction, and Sarcodosis.

Unit XIV

Brain tumors and spinal tumors: Classification, clinical features, investigations, medical and surgical management.

Unit XV

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Infections of brain and spinal cord: Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Meningitis, Encephalitis, Poliomyelitis and Post-polio syndrome. Complications of systemic infections on nervous system – Septic encephalopathy, AIDS, Rheumatic fever, Brucellosis, Tetanus, and Pertussis.

Unit XVI

Motor neuron diseases: - Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications of following disorders - Amyotrophic lateral sclerosis, Spinal muscular atrophy, Hereditary bulbar palsy, Neuromyotonia and Post-irradiation lumbosacral polyradiculopathy.

Unit XVII Multiple sclerosis - Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications.

Unit XVIII

Disorders of neuromuscular junction – Etiology, classification, signs & symptoms, investigations, management, of following disorders Myasthenia gravis, Eaton-Lambert syndrome, and Botulism.

Unit XIX

Muscle diseases: Classification, investigations, imaging methods, Muscle biopsy, management of muscle diseases, genetic counselling. Classification, etiology, signs & symptoms of following disorders – Muscular dystrophy, Myotonic dystrophy, myopathy, Non-dystrophic myotonia.

Unit XX

Polyneuropathy – Classification of Polyneuropathies, Hereditary motor sensory neuropathy, hereditary sensory and Autonomic neuropathies, Amyloid neuropathy, acute idiopathic Polyneuropathies. Guillain-Barre syndrome – Causes, clinical features, management of GBS, Chronic Idiopathic Polyneuropathies, diagnosis of polyneuropathy, nerve biopsy.

Unit XXI

Focal peripheral neuropathy: Clinical diagnosis of focal neuropathy, neurotmesis, Axonotmesis, Neuropraxia. Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders – RSD, Nerve tumors, Brachial plexus palsy, Thoracic outlet syndrome, Lumbosacral plexus lesions, Phrenic & Intercostal nerve lesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy, Musculocutaneous nerve palsy, Anterior & Posterior interosseous nerve palsy, Axillary nerve palsy, Long thoracic nerve palsy, Suprascapular nerve palsy, Sciatic nerve palsy, Tibial nerve palsy, Common peroneal nerve palsy, Femoral nerve palsy, Obturator nerve palsy, Pudental nerve palsy.

Unit XXII

Paediatric neurology: Neural development, Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders - Cerebral palsy, Hydrocephalus, Arnold-chiari malformation, Basilar impression, Klippel-Feil syndrome, Achondroplacia,Cerebral malformations, Autism, Dandy walker syndrome and Down's syndrome.

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Unit XXIII

Toxic, metabolic and environmental disorders: Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders – Encephalopathy, Alcohol toxicity, Recreational drug abuse, Toxic gases & Asphyxia, Therapeutic & diagnostic agent toxicity, Metal toxicity, Pesticide poisoning, Environmental & physical insults, Pant & Fungal poisoning, Animal poisons, & Complications of organ transplantation.

Unit XXIV

Introduction, Indications and Complications of following Neuro surgeries: Craniotomy, Cranioplasty, Stereotactic surgery, Deep brain stimulation, Burr-hole, Shunting, Laminectomy, Hemilaminectomy, Rhizotomy, Microvascular decompression surgery, Endarterectomy, Embolization, Pituitary surgery, Ablative surgery - Thalamotomy and Pallidotomy, Coiling of aneurysm, Clipping of aneurysm, and Neural implantation.

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Clinical Cardiovascular And Pulmonary Conditions

SUBJECT DESCRIPTION - Following the basic science and clinical science course, this course introduces the Student in cardio-thoracic conditions which commonly cause disability.

The objective of this course is that after lectures and demonstration in addition to clinics the student will be able to demonstrate an understanding of Cardio-thoracic conditions causing disability and their management. 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 cardiovascular pathology on the functioning of the individual.

Unit I

Anatomy and Physiology a. Respiratory system

Upper respiratory tract

Lower respiratory tract – Trachea, Bronchial tree, Bronchopulmonary segments

Respiratory unit, hilum of lung.

Muscles of respiration

Pleura, intra pleural space, intra pleural pressure, surfactant

Mechanics of respiration – Chest wall movements, lung & chest wall compliance

V/Q relationship, airway resistance

Respiratory centre, Neural & chemical regulation of respiration

Lung volumes and lung capacities, Spiro meter, lung function test

Pulmonary circulation, Lung sounds, cough reflex

b. Cardiovascular systems

Chambers of heart, semi lunar and atria ventricular valves

Coronary circulation, conductive system of heart

Cardiac cycle, ECG, Heart sounds

Blood pressure, pulse, cardiac output

Unit II

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Cardio Vascular system

a. Define, etiology, pathogenesis, clinical features, complications,

b. Conservative and surgical management of the following conditions

Ischemia heart disease

Myocardial infarction

Heart failure

Cardiac arrest

Rheumatic fever

Hypertension

Infective endocarditis

Myocarditis & cardiomyopathy

Cardiovascular Disease : Examination of the Cardiovascular System Investigations : ECG, Exercise Stress Testing, Radiology ; Clinical manifestations of Cardiovascular disease ; Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases and disorders of the heart : Pericarditis, Myocarditis, Endocarditis, Rheumatic Fever – resulting in valve disorders, Ischemic Heart Disease, Coronary Valve Disease, Congenital disorders of the Heart, Cardiac Arrest ; Examination and Investigations of diseases of arteries and veins ; Hypertension : Definition, causes, classification, types, assessment, investigations and management.

Disorders of the Heart – Definition, Clinical features, diagnosis and choice of management for the following disorders : Congenital Heart diseases – Acyanotic congenital heart disease & Cyanotic congenital heart disease : Patent Ductus Arteriosus, Coarctation of Aorta, Atrial Septal Defect, Ventricular Septal Defect, Tetraology of Fallot, Transposition of Great Vessels ; Acquired Heart Disease – Mitral Stenosis & Insufficiency, Aortic Stenosis and Insufficiency, Ischemic Heart Disease – Coronary Artery Disease, Cardiac tumors.

Unit III

Respiratory System

Respiratory Disease : Examination of the Respiratory System – Investigations : Chest Radiographs, Pulmonary Function Testing, Arterial Blood Gas Analysis ; Clinical manifestations of Lung disease ; Patterns of lung disease – Chronic Obstructive Lung Disease and Restrictive Lung Disease ; Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following lung diseases : Chronic Bronchitis, Emphysema, Asthma, Bronchiectasis, Cystic Fibrosis, Upper Respiratory Tract Infections, Pneumonia, Tuberculosis, Fungal Diseases, Interstitial Lung Diseases, Diseases of the pleura, diaphragm and chest wall ; Respiratory failure – Definition, types, causes, clinical features, diagnosis and management.

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Chest wall disorders- Definition, Clinical features, diagnosis and choice of management for the following disorders – chest wall deformities, chest wall tumors, Spontaneous Pneumothorax, Pleural Effusion, Empyema Thoracis, Lung abscess, Bronchiectasis, Tuberculosis, Bronchogenic Carcinoma, Bronchial Adenomas, Metastatic tumors of the Lung, tracheal Stenosis, Congenital tracheomalacia, Neoplasms of the trachea, Lesions of the Mediastinum. Carcinoma of the female breast.

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Community Medicine

Unit I

Health and Disease: Definitions, Concepts, Dimensions and Indicators of Health, Concept of well-being, Spectrum and Determinants of Health, Concept and natural history of Disease, Concepts of disease control and prevention, Modes of Intervention, Population Medicine, The role of socio-economic and cultural environment in health and disease.

Unit II

Epidemiology, definition and scope. Principles of Epidemiology and Epidemiological methods: Components and Aims, Basic measurements, Methods, Uses of Epidemiology, Infectious disease epidemiology, Dynamics and modes of disease transmission, Host defenses and Immunizing agents, Hazards of Immunization, Disease prevention and control, Disinfection. Screening for Disease: Concept of screening, Aims and Objectives, Uses and types of screening.

Unit III

Epidemiology of communicable disease: Respiratory infections, Intestinal infections, Arthropod-borne infections, Zoonoses, Surface infections, Hospital acquired infections Epidemiology of chronic non-communicable diseases and conditions: Cardio vascular diseases:
Coronary heart disease, Hypertension, Stroke, Rheumatic heart disease, Cancer, Diabetes, 0besity, Blindness, Accidents and Injuries.

Unit IV

Public health administration- an overview of the health administration set up at Central and state levels. The national health programme-highlighting the role of social, economic and cultural factors in the implementation of the national programmes. Health problems of vulnerable groups- pregnant and lactating women, infants and pre-school children, occupational groups.

Unit V

Health programmes in India: Vector borne disease control programme, National leprosy eradication programme, National tuberculosis programme, National AIDS control programme, National programme for control of blindness, Iodine deficiency disorders (IDD) programme, Universal Immunisation programme, Reproductive and child health programme, National cancer control programme, National mental health programme. National diabetes control programme, National family welfare programme, National sanitation and water supply programme, Minimum needs programme.

Unit VI

Demography and Family Planning: Demographic cycle, Fertility, Family planning-objectives of national family planning programme and family planning methods, A general idea of advantage and disadvantages of the methods.

Unit VII

Preventive Medicine in Obstetrics, Paediatrics and Geriatrics: MCH problems, Antenatal, Intranatal and post-natal care, Care of children, Child health problems, Rights of child and National policy for children, MCH services and indicators of MCH care, Social welfare programmes for women and children, Preventive medicine and geriatrics.

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Unit VIII

Nutrition and Health: Classification of foods, Nutritional profiles of principal foods, Nutritional problems in public health, Community nutrition programmes.

Environment and Health: Components of environment, Water and air pollution and public

health: Pollution control, Disposal of waste, Medical entomology.

Unit IX

Hospital waste management: Sources of hospital waste, Health hazards, Waste management.

Disaster Management: Natural and man-made disasters, Disaster impact and response, Relief phase, Epidemiologic surveillance and disease control, Nutrition, Rehabilitation, Disaster preparedness.

Occupational Health: Occupational environment, Occupational hazards, Occupational diseases, Prevention of occupational diseases. Social security and other measures for the protection from occupational hazard accidents and diseases. Details of compensation acts.

Unit X

Mental Health: Characteristics of a mentally healthy person, Types of mental illness, Causes of mental ill health, Prevention, Mental health services, Alcohol and drug dependence. Emphasis on community aspects of mental health. Role of Physiotherapist in mental health problems such as mental retardation.

Health Education: Concepts, aims and objectives, Approaches to health education, Models of health education, Contents of health education, Principles of health education, Practice of health education.

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Biostatistics & Research Methodology

RESEARCH METHODOLOGY

Unit I

Introduction to Research methodology: Meaning of research, objectives of research, Motivation in research, Types of research & research approaches, Research methods vs methodology, Criteria for good research, Problems encountered by researchers in India.

Unit II

Research problem: Statement of research problem., Statement of purpose and objectives of research problem, Necessity of defining the problem

Unit III

Research design: Meaning of research design, Need for research design, Features for good design, Different research designs, Basic principles of research design

Unit IV

Sampling Design: Criteria for selecting sampling procedure, Implications for sample design, steps in sampling design, characteristics of good sample design, Different types of sample design

Unit V

Measurement & scaling techniques: Measurement in research- Measurement scales, sources of error in measurement, Technique of developing measurement tools, Meaning of scaling, its classification. Important scaling techniques.

Unit VI

Methods of data collection: collection of primary data, collection data through questionnaires & schedules, Difference between questionnaires & schedules.

Unit VII

Sampling fundamentals, need for sampling & some fundamental definitions, important sampling distributions.

Unit VIII

Processing & analysis of data: Processing operations, problems in processing, Types of analysis, Statistics in research, Measures of central tendency, Dispersion, Asymmetry, relationship.

Unit IX

Testing of hypothesis: What is hypothesis? Basic concepts concerning testing of hypothesis, Procedure of hypothesis testing, measuring the power of hypothesis test, Tests of hypothesis, limitations of the tests of hypothesis

Unit X

Computer technology: Introduction to Computers, computer application in research, computers & researcher.

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BIOSTATISTICS

Unit I

Introduction: Meaning, definition, characteristics of statistics., Importance of the study of statistics, Branches of statistics, Statistics and health science including physiotherapy, Parameters and Estimates, Descriptive and inferential statistics, Variables and their types, Measurement scales.

Unit II

Tabulation of Data: Basic principles of graphical representation, Types of diagrams – histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, Normal probability curve.

Unit III

Measure of Central Tendency: Need for measures of central Tendency, Definition and calculation of mean – ungrouped and grouped, Meaning, interpretation and calculation of median ungrouped and grouped., Meaning and calculation of mode, Comparison of the mean, median and mode, Guidelines for the use of various measures of central tendency.

Unit IV

Probability and Standard Distributions: Meaning of probability of standard distribution, the binominal distribution, the normal distribution, Divergence from normality – skew ness, kurtosis.

Unit V

Sampling techniques: Need for sampling - Criteria for good samples, Application of sampling in community, Procedures of sampling and sampling designs errors, Sampling variation and tests of significance.

Unit VI

Analysis of variance & covariance: Analysis of variance (ANOVA), what is ANOVA? Basic principle of ANOVA, ANOVA technique, Analysis of Co variance (ANACOVA).

Unit VII

Format of scientific documents. (Structure of protocols, formats reporting in scientific journals, systematic reviews and meta-analysis).

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Physiotherapy Law And Ethics,Professionalism And Values

Legal and ethical considerations are firmly believed to be an integral part of medical practice in planning patient care. Advances in medical sciences, growing sophistication of the modern society's legal framework, increasing awareness of human rights and changing moral principles of the community at large, now result in frequent occurrences of healthcare professionals being caught in dilemmas over aspects arising from daily practice.

Medical/ Physiotherapy ethics has developed into a well based discipline which acts as a "bridge" between theoretical bioethics and the bedside. The goal is "to improve the quality of patient care by identifying, analyzing, and attempting to resolve the ethical problems that arise in practice". Doctors are bound by, not just moral obligations, but also by laws and official regulations that form the legal framework to regulate medical practice. Hence, it is now a universal consensus that legal and ethical considerations are inherent and inseparable parts of good medical practice across the whole spectrum. Few of the important and relevant topics that need to focus on are as follows:

1. Medical ethics versus medical law - Definition - Goal - Scope

Introduction to Code of conduct

Basic principles of medical ethics – Confidentiality

Malpractice and negligence - Rational and irrational drug therapy

Autonomy and informed consent - Right of patients

Care of the terminally ill- Euthanasia

Organ transplantation

Medical diagnosis versus physiotherapy diagnosis.

Medico legal aspects of medical records – Medico legal case and type- Records and documentrelated to MLC - ownership of medical records - Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects.

Professional Indemnity insurance policy

Development of standardized protocol to avoid near miss or sentinel events

Obtaining an informed consent.

Biomedical ethical principles

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Code of ethics for physiotherapists

Ethics documents for physiotherapists

Laws affecting physiotherapy practice

The module on professionalism will deliver the concept of what it means to be a professional and how physiotherapy profession is different from a usual vocation. It also explains how relevant is professionalism in terms of healthcare system and how it affects the overall patient environment.

Professional values- Integrity, Objectivity, Professional competence and due care, Confidentiality. Core values- Accountability, Altruism, Compassion/ caring, excellence, integrity, professional duties, social responsibility.

Personal values- ethical or moral values

Attitude and behavior- professional behavior, treating people equally

Code of conduct , professional accountability and responsibility, misconduct

Differences between professions and importance of team efforts

Cultural issues in the healthcare environment

Entry level health care practitioner, direct access, autonomy in profession, practitioner of practice and evidence based practice.

The five roles of the Physiotherapist -

The Physiotherapist as Patient/Client manager a. Evaluation and diagnosis

b. Diagnosis as clinical decision making

c. Prognosis

d. Discharge planning and discontinuance of care

e. Discontinuance of care

Outcomes

Clinical decision making

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Referral relationships

Interpersonal relationships

Ethical and legal issues

Informed consent

Managed care and fidelity.

The Physiotherapist as Consultant

Physiotherapy consultation

b. Building a consulting business

c. The consulting process

d. The skills of a good consultant

e. Trust in the consultant/client relationship

f. Ethical and legal issues in consultation

g. Components of a consulting agreement.

3. The Physiotherapist as Critical Inquirer

a. History of critical inquiry

b. Evidence-based practice

c. Outcomes research

d. Whose responsibility is research?

e. Roles of the staff physiotherapist in critical inquiry f. Collaboration in clinical research

g. Ethical and legal issues in critical inquiry.

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The Physiotherapist as Administrator

a. History of physiotherapy administration

b. Contemporary physiotherapy administration

c. Patient/client management

d. First-line management

e. Midlevel managers and chief executive officers

Leadership

Ethical and legal issues.

The Physiotherapist as Educator

History of physiotherapy education
b. Contemporary educational roles of the physiotherapist c. Teaching opportunities in continuing education d. Academic teaching opportunities

e. Theories of teaching and learning in professional education f. Ethical and legal issues in physiotherapy education.

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VIIth SEMESTER

Physiotherapy In Orthopedics & Sports

Unit I

PT assessment for Orthopedic conditions - SOAP format. Subjective - history taking, informed consent, personal, past, medical and socioeconomic history, chief complaints, history of present illness. Pain assessment- intensity, character, aggravating and relieving factors, site and location. Objective- on observation - body built swelling, muscle atrophy, deformities, posture and gait. On palpation-tenderness-grades, muscle spasm, swelling-methods of swelling assessment, bony prominences, soft tissue texture and integrity, warmth and vasomotor disturbances. On examination – ROM – active and passive, resisted isometric tests, limb length-apparent, true and segmental , girth measurement, muscle length testing-tightness, contracture and flexibility, manual muscle testing, peripheral neurological examination-dermatomes, myotomes and reflexes, special tests and functional tests. Prescription of home program. Documentation of case records, and follow up.

Unit II

Fractures - types, classification, signs and symptoms, complications. Fracture healing - factors affecting fracture healing. Principles of fracture management - reduction - open and closed, immobilization - sling, cast, brace, slab, traction - manual, mechanical, skin, skeletal, lumbar and Cervical traction, external fixation, functional cast bracing. PT management in complications - early and late - shock, compartment syndrome, VIC, fat embolism, delayed and mal union, RSD, myositis ossificans, AVN, pressure sores etc. Physiotherapy assessment in fracture cases. Aims of PT management in fracture cases - short and long term goals. Principles of PT management in fractures - Guidelines for fracture treatment during period of immobilization and guidelines for treatment after immobilization period.

Unit III

Specific fractures and dislocations: PT assessment and management of upper limb fractures and dislocations. PT assessment and management of lower limb fractures and dislocations including pelvis. PT assessment and management spinal fractures.

Unit IV

Selection and application of physiotherapeutic techniques, maneuver's, modalities for preventive, curative and rehabilitative means in all conditions.

Unit V

Principles of various schools of thought in manual therapy. (Briefly Maitland and Mc kenzie).

Unit VI

Degenerative and inflammatory conditions: Definition, signs and symptoms, clinical features, path physiology, radiological features, deformities, medical, surgical management. Describe the PT assessment and management and home program for the following conditions – Osteoarthritis - emphasis mainly on knee, hip and hand, Rheumatoid Arthritis, Ankylosing spondylitis, Gout, Perthes disease, Periarthritic shoulder.

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Unit VII

Infective conditions: Definition, signs and symptoms, clinical features, pathophysiology, radiological features, medical, surgical management. Describe PT assessment and management for following conditions – Osteomyelitis – acute and chronic, Septic arthritis, pyogenic arthritis, TB spine and major joints - knee and hip.

Unit VIII

Define, review the postural abnormalities of spinal column, clinical features, deformities, medical and surgical management. Describe PT assessment and management and home program.

Unit IX

Deformities: Review in detail the causes, signs and symptoms, radiological features, medical and surgical management. Describe the PT. assessment and management of the following conditions: Congenital: CTEV, CDH, Torticollis, pes planus, pes cavus and other common deformities. Acquired: scoliosis, kyphosis, coxa vara, genu varum, valgum and recurvatum.

Unit X

Cerebral palsy: Definition, etiology, classification, clinical features, complications, deformities, medical and surgical management and home program with special emphasis on carrying techniques. PT management after surgical corrections.

Unit XI

Poliomyelitis: Definition, etiology, types, pathophysiology, clinical features, deformities, medical and surgical management. PT. assessment and management after surgical corrections and reconstructive surgeries - emphasis on tendon transfer and home program.

Unit XII

Leprosy: Definition, cause, clinical features, medical and surgical management. PT assessment, aims, and management after surgical procedures such as tendon transfer both pre and post operatively.

Unit XIII

Amputations: Definition, levels, indications, types, PT assessment, aims, management pre and post operatively. PT management with emphasis on stump care and bandaging. Pre and post prosthetic training, checking out prosthesis, complications of amputations and its management.

Unit XIV

Spinal conditions: Review the causes, signs and symptoms, investigations, radiological features, neurological signs. PT assessment, aims, and management and home program of the following conditions: Cervical spondylosis, Lumbar spondylosis, Spondylolisthesis, Spinal canal stenosis, Spondylolysis, Sacro-iliac joint dysfunction, Sacralisation, Lumbarisation, Intervertebral disc prolapse, Coccydynia, Spina bifida occulta.

Unit XV

Effects of spinal traction, types of traction, modes of application, indications for spinal traction, contraindications, precautions, limitations of traction.

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Unit XVI

Osteoporosis- causes, predisposing factors, investigations and treatment.

Unit XVII

Orthopedic surgeries: Pre and post-operative PT assessment, goals, precautions and PTmanagement of following surgeries such as : Arthrodesis, Osteotomy, Arthroplasty-partial and total - Excision arthroplasty, excision arthroplasty with implant, interpositional arthroplasty and total replacement; Tendon transplant, Soft tissue release- tenotomy, myotomy, lengthening; Arthroscopy, Spinal stabilization, Re-attachment of limbs, External fixators, Synovectomy.

Unit XVIII

Shoulder joint: Shoulder instabilities, TOS, RSD, Impingement syndrome - conservative and post-operative PT management. Total shoulder replacement and Hemi replacement. - Post operative PT management. AC joint injuries - rehabilitation. Rotator cuff tears-conservative and surgical repair. Subacromial decompression - Post operative PT management.

Unit XIX

Elbow and forearm: Excision of radial head - Post operative PT management. Total elbow arthroplasty- Post operative PT management.

Unit XX

Wrist and Hand: Total wrist arthroplasty. Repair of ruptured extensor tendons. Carpal tunnel syndrome. Flexor and extensor tendon lacerations - Post operative PT management.

Hip: Joint surgeries - hemi and total hip replacement - Post operative PT management Tendonitis and bursitis. - Management.

Unit XXI

Knee: Lateral retinacular release, chondroplasty- Post operative management. Realignment of extensor mechanism. ACL and PCL reconstruction surgeries - Post operative rehabilitation. Meniscectomy and meniscal repair - Post operative management. Plica syndrome, patellar dysfunction and Hoffa's syndrome- conservative management. TKR- rehabilitation protocol. Patellar tendon ruptures and Patellectomy- rehabilitation.

Unit XXII

Ankle and foot: Ankle instability. Ligamentous tears- Post operative management.

Introduction to Bio-Engineering; Classification of Orthoses and prostheses; Biomechanical principles of orthotic and prosthetic application; Designing of upper extremity, lower extremity and spinal orthosis, indications and check out; Designing of upper extremity and lower extremity prostheses, indications and check out; Psychological aspects of orthotic and prosthetic application; prescription and designing of footwear and modifications; Designing and construction of adaptive devises.

Unit XXIII

Sports Physiotherapy: Physical fitness. Stages of soft tissue healing. Treatment guidelines for soft tissue injuries- Acute, Sub acute and chronic stages. Repair of soft tissues- rupture of muscle, tendon and Ligamentous tears. Soft tissue injuries- prevention and rehabilitation of, Lateral ligament sprain of ankle. Rotator cuff injuries. Collateral and Cruciate injuries of knee. Meniscal injuries of knee. Supraspinatus and Bicipital tendonitis. Pre patellar and Sub-acromial bursitis. Tennis and Golfer's elbow. Hamstring strains, Quadriceps contusion, TA rupture. Dequervain's tenosynovitis. Trigger and Mallet finger. Plantar fasciitis. Wrist sprains.Applied Yoga in orthopedic conditions.

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Physiotherapy In Neurology

Unit I

Neurological Assessment: Required materials for examination, Chief complaints, History taking – Present, Past, medical, familial, personal histories, Observation, Palpation, Higher mental function – Consciousness, Orientation, Wakefulness, memory, Speech, Reading, Language, Writing, Calculations, Perception, Left right confusion, Reasoning, and Judgment, Motor Examination – Muscle power, Muscle tone, Spasticity, Flaccidity, Reflexes – Developmental reflexes, deep tendon reflexes, Superficial reflexes, Sensory examination – Superficial, Deep and Cortical sensations, Special tests – Romberg's, Kernig's sign, Brudenzki sign, Tinels's sign, Slum test, Lehermitte's sign, Bells Phenomenon, Gower's sign, Sun set sign, Battle's sign, Glabellar tap sign, etc, Balance examination, coordination examination, Gait analysis – Kinetics & Kinematics (Quantitative & Qualitative analysis), Functional Analysis, Assessment tools & Scales – Modified Ashworth scale, Berg balance scale, FIM, Barthel index, Glasgow coma scale, Mini mental state examination, Rancho Los Amigos Scale for Head injury, APGAR score, ASIA scale, Reflex Grading. Differential diagnosis.

Unit II

Neuro physiological Techniques – Concepts, Principles, Techniques, Effects of following Neurophysiological techniques: NDT, PNF, Vojta therapy, Rood's Sensory motor Approach, Sensory Integration Approach, Brunnstorm movement therapy, Motor relearning program, Contemporary task oriented approach, Muscle re-education approach and Constraint induced movement therapy.

Unit III

Paediatric Neurology: Paediatric Examination, Developmental milestones, developmental reflexes, Neuro developmental screening tests. Evaluation & Management - History, Observation, Palpation, Milestone Examination, developmental reflex Examination, Higher mental function, Cranial nerve examination, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches & Modalities in Risk babies, Minimum brain damage, Developmental disorders,Cerebral palsy, Autism, Down's Syndrome, Hydrocephalus, Chorea, Spina bifida, and syringomyelia.

Unit IV

Evaluation and Management of Brain and Spinal Cord Disorders : History, Observation, Palpation, Higher mental function, Cranial nerve examination, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches& Modalities in Cerebro vascular Accident, Meningitis, Encephalitis, Head Injury, Brain Tumors, Perceptual disorders, Amyotrophic lateral sclerosis, and Multiple sclerosis.

Unit V

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Evaluation and Management of Cerebellar, Spinal Cord and Muscle Disorders : History, Observation, Palpation, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches&Modalities in Ataxia, Sensory Ataxia, Parkinson's disease, Muscular dystrophy (DMD),Myasthenia Gravis, Eaton-Lambert Syndrome, Spinal tumors, Spinal cord injury, Transverse myelitis, Bladder & Bowel Dysfunction, Spinal muscular atrophies, Poliomyelitis, Post-Polio Syndrome.

Unit VI

Evaluation and Management of Peripheral Nerve Injuries and Disorders : History, Observation, Palpation, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches& Modalities in Hereditary motor sensory neuropathy, Guillain-Barre syndrome, Brachial plexus palsy, Thoracic outlet syndrome, Lumbosacral plexus lesions, Phrenic & intercostals nerve lesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy, Musculocutaneous nerve palsy, Anterior & Posterior interosseous nerve palsy, Axillary nerve palsy, Long thoracic nerve palsy, Suprascapular nerve palsy, sciatic nerve palsy, Tibial nerve palsy, Common peroneal nerve palsy, Femoral nerve palsy, Obturator nerve palsy, and Pudental nerve palsy.

Unit VII

Assessment and management of Neurological gaits: Quantitative and Qualitative (Kinetic & Kinematics) analysis, List of Problems, short & Long Term goals, Management of following Neurological Gaits - Hemiplegic gait, Parkinson gait, High step gait, Hyperkinetic gait, Hypokinetic gait, Waddling gait, Scissoring gait, Spastic gait, Choreaform Gait, Diplegic Gait, and Myopathic Gait.
Pre and post-surgical assessment and treatment following conditions - Spinal disc herniation, Spinal stenosis, Spinal cord trauma, Head trauma, Brain tumors, Tumors of the spine, Spinal cord and peripheral nerves, Cerebral aneurysms, Subarachnoid hemorrhages, epilepsy, Parkinson's disease, Chorea, Hemiballism, Psychiatric disorders, Malformations of the nervous system, Carotid artery stenosis , Arteriovenous malformations, and Spina bifida.
Applied Yoga in Neurological conditions.

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Diagnostic Imaging For Physiotherapist

SUBJECT DESCRIPTION- This course covers the study of common diagnostic and therapeutic imaging tests. At the end of the course students will be aware of the indications and implications of commonly used diagnostic imaging tests as they pertain to patient's management. The course will cover that how X-Ray, CT, MRI, Ultrasound and Other Medical Images are created and how they help the health professionals to save lives.

Unit I

IMAGE INTERPRETATION a.

a.History

b. A New Kind of Ray

c. How a Medical Image Helps

d. What Imaging Studies Reveal

e. Radiography(x-rays)

f.Fluoroscopy

g.Computed Tomography (CT)

h.Magnetic Resonance Imaging (MRI)

i.Ultrasound

j.Endoscopy.

Unit II

RADIOGRAPHY AND MAMMOGRAPHY

a.Equipment components

b. Procedures for Radiography & Mammography

c. Benefits versus Risks and Costs

d. Indications and contraindications.

Unit III

FLUOROSCOPY

a. What is Fluoroscopy?

b. Equipment used for fluoroscopy

c. Indications and Contra indications

d. How it helps in diagnosis

Unit IV

COMPUTED TOMOGRAPHY (CT)

a. What is Computed Tomography?

b. Equipment used for Computed Tomography

c. Indications and Contra indications

d. How it helps in diagnosis

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e. The Findings in Computed Tomography

f. Benefits versus Risks and Costs.

Unit V

MAGNETIC RESONANCE IMAGING (MRI)

a. What is MRI?

b. Equipment used for MRI

c. Indications and Contra indications

d. How it helps in diagnosis

e. The Findings in MRI

f. Benefits versus Risks and Costs

g. Functional MRI.

Unit VI

ULTRASOUND

a. What is Ultrasound?

b. Equipment used for Ultrasound

c. Indications and Contra indications

d. How it helps in diagnosis

e. The Findings in Ultrasound

f. Benefits versus Risks and Costs.

Unit VII

ENDOSCOPY

a. What is Endoscopy?

b. Equipment used for Endoscopy

c. Indications and Contra indications

d. How it helps in diagnosis

Unit VIII

NUCLEAR MEDICINE

a. What is Nuclear Medicine?

b. Equipment used for Nuclear Medicine

c. Indications and Contra indications

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Human Psychiatry

Unit I

Classifications,
Causes,
Clinical manifestations
and treatment methods used in Psychiatry.

Unit II

Modalities of psychiatric treatment,
Psychiatric illness and physiotherapy,
Brief description of Etio-pathogenesis, manifestations, and management of psychiatric illnesses -.

Unit III

Anxiety
neurosis,
Depression,
Obsessive compulsive neurosis,
Psychosis,

Unit IV

Maniac-depressive psychosis,
Post-traumatic stress disorder,
Psychosomatic reactions:
Stress and Health, theories of Stress – Illness.
Etio-pathogenesis, manifestations, and management of psychiatric illness

Unit V

Drug dependence and alcoholism,Somatoform and Dissociate Disorders – conversion reactions, Somatization, Dissociate Amnesia, and Dissociate Fugue,

Unit VI

Personality disorders

Unit VII

Child psychiatry - manifestations, and management of childhood disorders -attention deficit syndrome and behavioral disorders.

Unit VIII

Geriatric psychiatry.

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Principles Of Management

The course is intended to provide a knowledge about the basic principles of Management.

Unit I

Introduction to management

Unit II
Strategic Management

Unit III
Foundations of Planning

Unit IV
Planning Tools and Techniques

Unit V
Decision Making, conflict and stress management

Unit VI
Managing Change and Innovation

Unit VII
Understanding Groups and Teams

Unit VIII
Leadership

Unit IX
Time Management

Unit X
Cost and efficiency

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Physiotherapy In Orthopedics & Sports Lab

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

Bedside case presentations and case discussions

Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.

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Physiotherapy In Neurology Lab

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

Bedside case presentations and case discussions

Lab sessions consisting of evaluation and assessment methods on student models, treatment technique sand practice sessions.

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VIIIth SEMESTER

Physiotherapy In Cardio Vascular Pulmonary And Intensive Care

SUBJECT DESCRIPTION - The subject is designed to provide knowledge in assessing and planning physiotherapy interventions for various General, Medical and Surgical conditions. The student must be able to reassess the patient as necessary, to monitor the patient in regard to treatment, to monitor the patient's vital signs, student must know emergency drugs indication and contra-indication, care in intensive care unit (ICU) and to provide appropriate interventions to the patient.

THEORY -

Unit I
Anatomical and Physiological differences between the Adult and Pediatric lung.

Unit II
Bedside assessment of the patient-Adult & Pediatric.

Unit III
Investigations and tests – Exercise tolerance Testing – Cardiac & Pulmonary, Radiographs, PFT, ABG, ECG, Hematological and Biochemical Tests.

Unit IV
Physiotherapy techniques to increase lung volume – controlled mobilization, positioning, breathing exercises, Neurophysiological Facilitation of Respiration, Mechanical aids - Incentive Spirometry, CPAP,IPPB.

Unit V
Physiotherapy techniques to decrease the work of breathing – Measures to optimize the balance between energy supply and demand, positioning, Breathing re-education – Breathing control techniques, mechanical aids – IPPB, CPAP, BiPAP.

Unit VI
Physiotherapy techniques to clear secretions – Hydration, Humidification & Nebulisation, Mobilisation and Breathing exercises, Postural Drainage, Manual techniques – Percussion, Vibration and Shaking, Rib Springing, ACBT, Autogenic Drainage, Mechanical Aids – PEP, Flutter, IPPB, Facilitation of Cough and Huff, Nasopharyngeal Suctioning.

Unit VII
Drug therapy – Drugs to prevent and treat inflammation, Drugs to treat Bronchospasm, Drugs to treat Breathlessness, Drugs to help sputum clearance, Drugs to inhibit coughing, Drugs to improve ventilation, Drugs to reduce pulmonary hypertension, Drug delivery doses, Inhalers and Nebulisers.

Unit VIII

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Neonatal and Pediatric Physiotherapy – Chest physiotherapy for children, The neonatal unit, Modifications of chest physiotherapy for specific neonatal disorders, Emergencies in the neonatal unit.

Unit IX

Physiotherapy in Obstructive lung conditions.
Physiotherapy in Restrictive lung conditions.
Management of breathlessness.
Pulmonary Rehabilitation.
Physiotherapy following Lung surgeries
Respiratory failure – Oxygen Therapy and Mechanical Ventilation.

Unit X

Introduction to ICU : ICU monitoring –Apparatus, Airways and Tubes used in the ICU - Physiotherapy in the ICU – Common conditions in the ICU – Tetanus, Head Injury, Lung Disease, Pulmonary Oedema, Multiple Organ Failure, Neuromuscular Disease, Smoke Inhalation, Poisoning, Aspiration, Near Drowning, ARDS, Shock; Dealing with an Emergency Situation in the ICU.

Unit XI

Physiotherapy management following cardiac surgeries.
Cardiac Rehabilitation.
Physiotherapy management following PVD.

Unit XII

Abdominal Surgeries - Management of Pulmonary Restorative Dysfunction following surgical procedures on Abdomen and Thorax.

Unit XIII

Management of Amputations following Diabetes, PVD - Prosthesis in amputations of lower limbs following ulcers and gangrenes.

Unit XIV

Home program and education of family members in patient care.
Treatment, Response to exercise and Implications of Physiotherapy in the following disease conditions: Hypertension, Diabetes, Renal Failure and Obesity.

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Physiotherapy In General Medicine & General Surgery

SUBJECT DESCRIPTION -At the end of the course the candidate will be able to:

Identify discuss and analyze cardiovascular and pulmonary dysfunctions based on pathophysiological principles and arrive at appropriate functional diagnosis.
Acquire knowledge of rationals of basic investigative approaches in the medical system and surgical intervention, regimes in general surgeries (special emphasis on abdominal surgeries)

Execute effective physiotherapeutic measures (with appropriate clinical reasoning) and exercise, conditioning in general medical and surgical conditions.

Acquire knowledge of the overview of patient's care in the I.C.U. for bronchial hygiene and continuous monitoring of the patient in I.C.U.

Select strategies for cure, care and prevention, adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work and in community.
Acquire the knowledge of evaluation and physiotherapeutic treatment for obstetric and gynecological conditions

Acquire the knowledge of various conditions where physiotherapy plays a vital role in the rehabilitation (psychiatry, dermatology, geriatric and ENT conditions)

Evaluate, grade and treat non healing wounds.

THEORY

Unit I
Physiotherapy in mother and child care – ante and post-natal management, early intervention and stimulation therapy in child care (movement therapy)

Unit II
Geriatrics – handling of old patients and their problems.

Unit III
Complication common to all operations

Unit IV
Abdominal incisions.

Unit V
Physiotherapy in pre and post-operative stages.

Unit VI
Operations on upper G.I.T.- oesophagus, stomach, duodenum

Unit VII

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Operations on large and small intestine – Appendisectomy, cholecystectomy, partial colectomy, ileostomy, hernia and herniotomy, hernioraphy, hernioplasty.

Unit VIII

Physiotherapy in dentistry

Unit IX

Burns and its treatment – physiotherapy in burns, skin grafts, and reconstructive surgeries.

Unit X

Management of wound ulcers- Care of ulcers and wounds - Care of surgical scars-U.V.R and other electro therapeutics for healing of wounds, prevention of Hyper-granulated Scars Keloids, Electrotherapeutics measures for relief of pain during mobilization of scars tissues.

Physiotherapy intervention in the management of Medical, Surgical and Radiation Oncology Cases.

Unit XI

Physiotherapy in dermatology -Documentation of assessment, treatment and follow up skin conditions. U.V.R therapy in various skin conditions; Vitiligo; Hair loss; Pigmentation; Infected wounds ulcers. Faradic foot bath for Hyperhydrosis. Massage maneuvers for cosmetic

Unit XII

purpose of skin; use of specific oil as medium; Care of anesthetic hand and foot; Evaluation, planning and management of leprosy-prescription, fitting and training with prosthetic and orthotic devices.

Unit XIII

ENT – sinusitis, non-suppurative and chronic suppurative otitis media, osteosclerosis, labrynthitis, mastoidectomy, chronic rhinitis, laryngectomy, pharyngeo – laryngectomy, facial palsy.

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Community Physiotherapy

SUBJECT DESCRIPTION - The subject serves to integrate the knowledge gained by the students in community medicine and other areas with skills to apply these in clinical situations of health and disease and its prevention. The objective of the course is that after the specified hours of lectures and demonstrations the student will be able to identify rehabilitation methods to prevent disabilities and dysfunctions due to various disease conditions and plan and set treatment goals and apply the skills gained in rehabilitating and restoring functions.

Unit I

Rehabilitation: Definition, Types.

Unit II

Community: Definition of Community, Multiplicity of Communities, The Community based approach, Community Entry strategies, CBR and Community development, Community initiated versus community oriented programme, Community participation and mobilization.

Unit III

Introduction to Community Based Rehabilitation: Definition, Historical review, Concept of CBR, Need for CBR, Difference between Institution based and Community based Rehabilitation, Objectives of CBR, Scope of CBR, Members of CBR team, Models of CBR.

Unit IV

Principles of Community based Rehabilitation. W.H.O.`s policies-about rural health care-concept of primary /tertiary health centers-district hospitals etc-Role of P.T.-Principles of a team work of Medical person/P.T./O.T. audiologist/speech therapist /P.&O./vocational guide in C.B.R. of physically handicapped person , Agencies involved in rehabilitation of physical handicapped - Legislation for physically handicapped. Concept of multipurpose health worker. Role of family members in the rehabilitation of a physically handicapped.

Unit V

Planning and management of CBR Programmes, CBR Programmed planning and management, Ownership and Governance, Decentralization and CBR, Management of CBR,Programmed sustainability, Communication and Coordination, Community participation, mobilization and awareness, CBR programme influence on promoting and developing public policies.

Unit VI

Disability: Definition of Impairment, Handicap and Disability, Difference between impairment, handicap and disability, Causes of disability, Types of disability, Prevention of disability, Disability in developed countries, Disability in developing countries. Disability Surveys: Demography. Screening: Early detection of disabilities and developmental disorders, Prevention of disabilities- Types and levels.

Unit VII

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Disability Evaluation: Introduction, What, Why and How to evaluate, Quantitative versus Qualitative data, Uses of evaluation findings.

Unit VIII

Role of Government in CBR: Laws, Policies, Programmes, Human Rights Policy, Present rehabilitation services, Legal aspects of rehabilitation.

Unit IX

Role of Social work in CBR: Definition of social work, Methods of social work, History of social work, Role of social worker in rehabilitation.
Role of voluntary Organizations in CBR: Charitable Organizations, Voluntary health agencies

Unit X

National level and International NGO's, Multilateral and Bilateral agencies. International Health Organizations: WHO, UNICEF, UNDP, UNFPA, FAO, ILO, World bank, USAID, SIDA, DANIDA, Rockfeller, Ford foundation, CARE, RED CROSS.

Unit XI

National District Level Rehabilitation Programme: Primary rehabilitation unit, Regional training center, District rehabilitation center, Primary Health center, Village rehabilitation worker, Anganwadi worker

Unit XII

Role of Physiotherapy in CBR: Screening for disabilities, Prescribing exercise programme, Prescribing and devising low cost locally available assisstive aids, Modifications physical and architectural barriers for disabled, Disability prevention, Strategies to improve ADL, Rehabilitation programmes for various neuro-musculoskeletal and cardiothoracic disabilities.

Unit XIII

Screening and rehabilitation of paediatric disorders in the community: Early detection of high risk babies, Maternal nutrition and education, Rehabilitation of Cerebral Palsy, Polio, Downs Syndrome, Muscular Dystrophies etc., Prevention and rehabilitation of mental retardation and Behavioural disorders, Immunization programmes, Early intervention in high risk babies, Genetic counselling.

UnitXIV

Extension services and mobile units: Introduction, Need, Camp approach.
Vocational training in rehabilitation: Introduction, Need, Vocational evaluation, Vocational rehabilitation services.

Unit XIV

Geriatrics- Physiology of Aging /degenerative changes-Musculoskeletal /Neuromotor /cardio – respiratory-/Metabolic, Endocrine, Cognitive, Immune systems. Role of Physio Therapy in Hospital based care, Half-way homes, Residential homes, Meals on wheels etc. Home for the aged, Institution based Geriatric Rehabilitation. Few conditions:- Alzheimer's disease, Dementia, Parkinson's Disease, Incontinence, Iatrogenic drug reactions, etc. Ethics of Geriatric Rehabilitation.

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Unit XV

Industrial Health & Ergonomics [10 hours] - Occupational Hazards in the industrial area -- Accidents due to Physical agents-e.g.-Heat/cold, light, noise, Vibration, U.V. radiation, Ionizing radiation,

Chemical agents-Inhalation, local action, ingestion,

Mechanical hazards-overuse/fatigue injuries due to ergonomic alteration & ergonomic evaluation of work place-mechanical stresses per hierarchy –
sedentary table work –executives, clerk,

inappropriate seating arrangement- vehicle drivers

constant standing- watchman- Defense forces, surgeons,

Over-exertion in laborers,-common accidents –Role of P.T.-Stress management.

Psychological hazards- e.g.-executives, monotonicity & dissatisfaction in job, anxiety of work completion with quality, Role of P.T. in Industrial setup & Stress management-relaxation modes.

Biological Hazards

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Clinical Reasoning And Evidence Based Physiotherapy Practice

Unit I
Introduction to Evidence Based Practice: Definitions, Evidence Based Practice,

Unit II
Concepts of Evidence based Physiotherapy: Awareness, Consultation, Judgement, and Creativity

Unit III
Development of Evidence based knowledge, The Individual Professional, Professionals within a discipline, and Professionals across disciplines

Unit IV
Evidence Based Practitioner: The Reflective Practitioner, The E Model, Using the E Model

Unit V
Finding the Evidence: Measuring outcomes in Evidence Based Practice, Measuring Health Outcomes, Measuring clinical outcomes, Inferential statistics and Causation

Unit VI
Searching for the Evidence: Asking Questions, Identifying different sources of evidence, Electronic Bibliographic databases and World Wide Web, Conducting a literature search. Step by-step search for evidence

Unit VII
Assessing the Evidence: Evaluating the evidence; Levels of evidence in research using quantitative methods, Levels of evidence classification system, Outcome Measurement, Biostatistics, The critical review of research using qualitative methods

Unit VIII
Systematically reviewing the evidence: Stages of systematic reviews, Meta-analysis, The Cochrane collaboration

Unit IX
Economic evaluation of the evidence: Types of economic evaluation, conducting economic evaluation, critically reviewing economic evaluation, locating economic evaluation in the literature

Using the evidence: Building evidence in practice; Critically Appraised Topics (CATs), CAT format, Using CATs, Drawbacks of CATs

Unit X
Practice guidelines, algorithms, and clinical pathways: Recent trends in health care, Clinical Practice Guidelines (CPG), Algorithms, Clinical pathways, Legal implications in clinical pathways and CPG, Comparison of CPGs, Algorithms and Clinical Pathways

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Unit XI

Communicating evidence to clients, managers and funders: Effectively communicating evidence, Evidence based communication in the face of uncertainty; Evidence based communication opportunities in everyday practice

Unit XII

Research dissemination and transfer of knowledge: Models of research transfer, Concrete research transfer strategies, Evidence based policy

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Administration And Teaching Skills

Unit I
Introduction:

Branches of administration, Nature and scope of administration, How to be an effective administrator, Planning hospital administration as part of a balanced health care program.
Principles of hospital administration and its applications to physiotherapy.

Planning and organization: Planning cycle, Principles of organizational charts, Resource and quality management, planning change -innovation

Financial issues including budget and income generation

Hospital administration: Organization, Staffing, Information, Communication, Coordination, Cost of services, Monitoring and evaluation.

Organization of physiotherapy department: Planning, Space, Manpower, Other basic resources.

Organizing meetings, committees, and negotiations

Personnel management: Personnel performance appraisal system, Quality care delivery from the staff.

Unit II
Aims of physiotherapy education

Concepts of teaching and learning

Curriculum development

Principles and methods of academic and clinical teaching

Measurement and evaluation

Guidance and counseling

Faculty development program

Administration in clinical setting

Use of A-V aids in teaching

Taxonomy of education

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Physiotherapy In Cardio Vascular Pulmonary And Intensive Care Lab

PRACTICAL:

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

Bedside case presentations and case discussions

Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.

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SYLLABUS
FOR
BACHELOR OF PHYSIOTHERAPY
(POST REVISION)
(2020-21)

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REVISED SYLLABUS

COURSE: BACHELOR IN PHYSIOTHERAPY (BPT)

DURATION: 04 YEARS

SEMESTERS: IST TO VIIITH

FACULTY OF PARAMEDICAL SCIENCES

BAREILLY INTERNATIONAL UNIVERSITY, BAREILLY

(Session -2020-2021)

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Summary of Syllabus

As per the need and welfare for the students, the lengthy syllabus of few subject of the course BPT is proposed to be reformed and even distribution of subject content among the Semesters with effect from academic session 2020-21 as given below:

1. In the syllabus of Third Semester under the subject "Pathology" is being divided into two parts i.e. "General Pathology" in Semester – 3rd and "Systemic Pathology" in Semester - 4th , accordingly syllabus is modified as mentioned on Page no. 15 and 25 of the revised syllabus of BPT. The same is being mentioned in the "Organization of program" under Clause 7.e and "Evaluation Scheme" as Clause 8.c .
2. The subject "Biophysics" of 4th Semester from the old syllabus of BPT is proposed to transfer from Semester-4th to Semester -3rd , the same being mentioned on Page no. 16 of revised syllabus of BPT and in the "Organization of program" under Clause 7.e and "Evaluation Scheme" as Clause 8.c.
3. In the syllabus of 4th Semester under the subject "Electrotherapy" is being divided into two parts i.e. "Electrotherapy-I" in Semester – 3rd and "Electrotherapy-II" in Semester - 4th , accordingly syllabus is modified and placed on Page no. 17 and 30 of the revised syllabus of BPT. The same is being mentioned in the "Organization of program" under Clause 7.e and "Evaluation Scheme" as Clause 8.c .
4. The existing Subject namely "Foundation of Exercise Therapy" in 3rd Semester is described with the addition of two units i.e. "Walking aids and Suspension Therapy" from Subject "Exercise Therapy" of 4th Semester.
5. In the syllabus of 6th Semester under the subject "Clinical Neurology & Neurosurgery" is being divided into two parts i.e. "Clinical Neurology & Neurosurgery-I" in Semester – 5th and "Clinical Neurology & Neurosurgery-II" in Semester-6th , accordingly syllabus is modified as mentioned on Page no. 36 and 47 of the revised syllabus of BPT. The same is being mentioned in the "Organization of program" under Clause 7.e and "Evaluation Scheme" as Clause 8.c .
6. In the syllabus of 5th Semester under the subject "Clinical Orthopedic & Traumatology" is being divided into two parts i.e. "Clinical Orthopedic & Traumatology-I" in Semester – 5th and "Clinical Orthopedic & Traumatology –II" in Semester-6th , accordingly

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syllabus is modified as mentioned on Page no. 38 and 49 of the revised syllabus of BPT. The same is being mentioned in the "Organization of program" under Clause 7.e and "Evaluation Scheme" as Clause 8.c .

7. From Syllabus of Subject "Clinical Cardiovascular and Pulmonary condition" of 6th Semester, some of the topics or the content will not be the part of the Existing syllabus with effect from academic session 2020-21. The topics are Chest Wall Tumors, Spontaneous Pneumothorax, Pleural Effusion, Bronchogenic Carcinoma, Bronchial Adenomas, Metastatic Tumors of Lung, tracheal Stenosis, Congenital tracheomalacia, Neoplasm of the trachea, Lesions of the Mediastinum, Carcinoma of the female breast.
8. In existing syllabus of Subject "Community Physiotherapy" of 8th Semester some topics proposed to removed like Half way Homes, Residential Homes, Meals on Wheels, Home for aged with effect from academic session 2020-21.

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I[st] Semester

Human Anatomy I

Unit 1

Introduction to Anatomy, terms and terminology. Regions of Body, Cavities and systems. Surface anatomy – musculo-skeletal, vascular, cardiopulmonary system, General Embryology. Applied anatomy.

Unit 2

Musculoskeletal system.

Connective tissue & its modification, tendons, membranes, special connective tissue. Bone structure, blood supply, growth, ossification, and classification. Muscle classification, structure and functional aspect. Joints – classification, structures of joints, movements, range, limiting factors, stability, blood supply, nerve supply, dislocations and applied anatomy.

Unit 3

Upper extremity: Bony architecture Joints – structure, range of movement Muscles – origin, insertion, actions, nerve supply Major nerves – course, branches and implications of nerve injuries Development of limb bones, muscles and anomalies. Radiographic identification of bone and joints, Applied anatomy

Unit 4

Lower Extremity: Bony architecture Joints – structure, range of movement Muscles – origin, insertion, actions, nerve supply Major nerves – course, branches and implications of nerve injuries, Development of limb bones, muscles and anomalies, Radiographic identification of bone and joints, Applied anatomy

Unit 5

Cardiovascular system and Circulatory system – major arteries and veins of the body, structure of blood vessels, Heart structure, positions, chambers, valves, internal & external features, Blood supply to heart Conductive system of heart.

Unit 6

Endocrine system - Pituitary gland, Pineal gland, Thyroid gland, Parathyroid gland

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Human Physiology-I

Unit 1

General Physiology

Cell: morphology, Structure and function of cell organelles Structure of cell membrane Transport across cell membrane Intercellular communication Homeostasis

Unit 2

Blood

Introduction-composition & function of blood W.B.C., R.B.C., Platelets formation & functions, Immunity Plasma: composition, formation & functions, Plasma Proteins:-types & functions

Blood Groups- types , significance, determination Hemoglobin Haemostasis Lymph-composition, formation, circulation &functions

Unit 3

Cardiovascular system

Conducting system-components, impulse conduction Heart valves Cardiac cycle- definition, phases of cardiac cycle Cardiac output- definition, normal value, determinants. Stroke volume and its regulation Heart rate and its regulation Arterial pulse, Blood pressure-definition, normal values, factors affecting blood pressure Shock-definition, classification, causes and features

Basic idea of ECG Cardiovascular changes during exercise

Unit 4

Respiratory System: Mechanics of respiration Lung volumes and capacities Pulmonary circulation, transport of respiratory gases Factors affecting respiration Regulation of respiration-neural regulation, voluntary control and chemical regulation Hypoxia, Hypercapnoea, Hypocapnoea Artificial respiration Disorders of respiration- dyspnoea, orthopnoea, hyperpnoea, hyperventilation, apnoea, tachypnoea Respiratory changes during exercise.

Unit 5

Nervous system : Introduction, central and peripheral nervous system, functions of nervous system Reflexes- monosynaptic, polysynaptic, superficial, deep &withdrawal reflex Sense organ, receptors, electrical & chemical events in receptors Sensory pathways for touch, temperature, pain, proprioception & others Control of tone & posture: Motor mechanism: motor cortex, motor pathway: the descending tracts pyramidal & extra pyramidal tracts-origin, course, termination & functions. UMN & LMN paralysis.

Unit 6

Endocrinology : Physiology of the endocrine glands – Pituitary, Pineal Body, Thyroid, Parathyroid, Adrenal, Gonads, Thymus, Pancreas. Hormones secreted by these glands, their classifications and functions.

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Biochemistry

Unit 1

Nutrition: Introduction, Composition of food, RDA, BMR, SDA, caloric requirement and Importance of nutrition Calorific values, Respiratory quotient, Physical activities (Energy expenditure), Role of carbohydrates, lipids and proteins in diet.Balanced diet and nutritional disorders.

Unit 2

Carbohydrates: Definition, classification, chemistry with examples, Structures, composition, sources, properties and functions of Monosaccharides, Disaccharides, Oligosaccharides and Polysaccharides. Glycosaminoglycan (mucopolysaccharides) metabolism (Glycogenesis, Glycogenolysis, Gluconeogenesis, Cori cycle), T.C.A cycle, glycolysis.

Unit 3

Lipids: Definition, classifications and general functions. Essential fatty acids and their importance, Metabolism- Oxidation of fatty acids, metabolism, oxidation of fatty acids, lipoproteins, Phospholipids, Cholesterol, lipolysis, lipogenesis, ketosis and ketone bodies metabolism.

Unit 4

Amino Acids; Definition, classification, essential and non essential aminoacids, metabolism (fate of ammonia) and urea cycle. Biological important pepetides, functions of proteins and amino acids.Enzymes : Definition, classification with examples, cofactors, Factors affecting enzyme action, isoenzyme and co-enzyme, Clinical importance of enzymes.

Unit 5

Biochemistry of connective tissue; Introduction, various connective tissue proteins: collagen, glycoproteins and proteoglycans, elastin- structure and associated disorders.

Vitamins: Definition, classification and functions, deficiency disorders, sources, RDA, digestion ,absorption, transport and toxicity of individual vitamins.

Unit 6

Clinical Biochemistry --; Relevance of blood and urine levels of Glucose, Urea, Uric acid, Calcium, Phosphates, Liver function tests, Renal function tests. Creatinine, pH and Bicarbonate. Lipid Profile-Tri -Glyceride, Cholesterol/HDL/LDL/ALDL Etc; Protein & Aggression, Glycosuria.

Nucleic acid:Function of DNA and RNA, chemistry, structure of DNA((Watson and Crick model),. Structure and functions of tRNA, rRNA, mRNA. Nucleotides and nucleosides.

Unit 7

Muscle Contraction - Contractile elements in muscle. Energy for muscle contraction

Biochemical harmones- Definition, Classification,Receptors, signal transduction, second messengers. Mechanism of Hormone action, effect of Insulin, Glucagon, Catecholamines, Thyroxine, Mineralocortocoids and Glucocorticoids. Diabetes mellitus: definition, types & causes.

Unit 8

Biochemical organization of Human Cell - Introduction, cell structure, Cell membrane structure and functions, Types of Absorption of mechanism, organelles and their functions, Cytoskeleton Minerals metabolism- definition, sources, RDA, digestion, absorption, transport, excretion, functions and disorders- Calcium, Phosphate, Iron Magnesium, Fluoride, Selenium, Molybdenum, Copper.Phosphate, Calcium and Iron in detail.

Unit 9

Acid base balance: Acid, base and buffers, Ph, Buffer System of The Body,Biocarbonate buffer system. Role of Lungs and kidneys in acid base balance, acid base imbalance. Water balance-Body water and its distribution, Regulation of water balance-Role of ADH and Thirst centre. Electrolyte Balance- Osmolarity, Role of Aldosterone, Renin-Angiotensin System and ANF.

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General & Clinical Psychology

Unit 1

Introduction to Psychology.Schools: Structuralism, functionalism, behaviorism, Psychoanalysis. Methods: Introspection, observation, inventory and experimental method. Branches: pure psychology and applied psychology.Psychology and physiotherapy. Social psychology Leadership: Different types of leaders. Different theoretical approaches to leadership. Attitude: development of attitude. Change of attitude.

Unit 2

Growth and Development. Life span: Different stages of development (Infancy, childhood, adolescence, adulthood, middle age, old age).Heredity and environment: role of heredity and environment in physical and psychological development, "Nature v/s Nurture controversy".

Unit 3

Sensation, attention and perception: Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense. Attention: Types of attention, Determinants of attention (subjective determinants and objective determinants). Perception: Gestalt principles of organization of perception (principle of figure ground and principles of grouping), factors influencing perception (past experience and context). Illusion and hallucination: different types.

Unit 4

Motivation, Motivation cycle (need, drive, incentive, reward).
Classification of motives.Abraham Maslow's theory of need hierarchy
Frustration and conflict.Frustration: sources of frustration.Conflict: types of conflict. Management of frustration and conflict

Unit 5

Emotions.Three levels of analysis of emotion (physiological level, subjective state, and overt behavior).Theories of emotion.Stress and management of stress.
Intelligence.Theories of intelligence.Distribution of intelligence.Assessment of intelligence.
Thinking.Reasoning: deductive and inductive reasoning.Problem solving: rules in problem solving (algorithm and heuristic).Creative thinking: steps in creative thinking, traits of creative people.

Unit 6

Learning.Factors effecting learning.Theories of learning: trial and error learning, classical conditioning, Operant conditioning,insight learning, social learning theory.The effective ways to learn: Massed/Spaced, Whole/Part, Recitation/Reading, Serial/Free recall, Incidental/Intentional learning, Knowledge of results, association, organization, and mnemonic methods.

Personality-Approaches to personality: type & trait, behavioristic, psychoanalytic and humanistic approach.Personality assessment: observation, situational test, questionnaire, rating scale, interview, and projective techniques.

Defense Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting out.

Unit 7

Clinical psychology – Models of training, abnormal behavior assessment, clinical judgement, psychotherapy, self-management methods, physiotherapist patient interaction, aggression, self-imaging, stress management, assertive training, Group therapy, Body awareness, Pediatric, child and geriatric clinical psychology.

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English, Communication and Soft Skills

Unit 1

Basic Language Skills: Grammar and Usage.

Business Communication Skills. With focus on speaking - Conversations, discussions, dialogues, short presentations, pronunciation.

Unit 2

Teaching the different methods of writing like letters, E-mails, report, case study, collecting the patient data etc. Basic compositions, journals, with a focus on paragraph form and organization.

Basic concepts & principles of good communication

Unit 3

Special characteristics of health communication

Types & process of communication – verbal, non-verbal and written communication. Upward, downward and lateral communication.

Therapeutic communication: empathy versus sympathy.

Unit 4

Communication methods for teaching and learning.

Communication methods for patient education.

Barriers of communication & how to overcome.

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Basic Computers and Information Science

Unit 1

Introduction to computer: Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages.

Unit 2

Input output devices: Input devices(keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision-input devices), output devices(monitors, pointers, plotters, screen image projector, voice response systems).

Unit 3

Processor and memory: The Central Processing Unit (CPU), main memory.
Storage Devices: Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass storage devices.

Unit 4

Introduction of windows: History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, closing, moving, resizing, minimizing and maximizing, etc.).

Unit 5

Introduction to MS-Word: introduction, components of a word window, creating, opening and inserting files, editing a document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing of table, mail merge.

Unit 6

Introduction to Excel: introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs.

Unit 7

Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs.
Introduction of Operating System: introduction, operating system concepts, types of operating system.

Unit 8

Computer networks: introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.
Internet and its Applications: definition, brief history, basic services (E-Mail, File Transfer Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the internet. Application of Computers in clinical settings.

Practical on fundamentals of computers –

Learning to use MS office: MS word, MS PowerPoint, MS Excel.
To install different software.
Data entry efficiency

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Human Anatomy-I Lab

1. Identification and description of all anatomical structures.
2. The learning of Anatomy is by demonstration only through dissected parts, slides, models, charts, etc.
3. Demonstration of dissected parts (upper extremity, lower extremity, thoracic & abdominal viscera, face and brain).
4. Demonstration of skeleton- articulated and disarticulated.
5. During the training more emphasis will be given on the study of bones, muscles, joints, nerve supply of the limbs and arteries of limbs.
6. Surface anatomy: -surface land mark-bony, muscular and ligamentous.
7. Surface anatomy of major nerves, arteries of the limbs.
8. Points of palpation of nerves and arteries.

Human Physiology-I Lab

1. Examination of pulse, B.P., Respiratory rate.
2. Spirometery to measure various lung capacities & volumes, Respiratory rate, Tidal volume, IRV, IC, ERV, EC, residual volume on Spirometery.
3. Estimate of Haemoglobin, R.B.C., W.B.C., TLC, DLC, ESR count.
4. Blood indices, Blood grouping, Bleeding & Clotting time.

Biochemistry Lab

1. Preparation of buffers
2. Collection of specimen: Urine, blood, gastric juice, ascetic fluid
3. Tests for Carbohydrates (qualitative tests).
4. Tests for amino acids and Proteinds (qualitative tests)
5. Precipitation reactions of proteins.
6. Tests for lipids.
7. Study of enzyme activity
8. Urine analysis-test for normal and abnormal constituents
9. Centrifugation : Principle types, & applications.
10. Colorimetry and spectrophotometer-Principle and demonstration.
11. Estimation of blood/serum glucose, creatine, urea, cholesterol, total protein, bilirubin

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II[nd] Semester
Human Anatomy-II

Unit-1

Spine and thorax: Back muscles - Superficial layer, Deep muscles of back, their origin, insertion, action and nerve supply. Vertebral column – Structure & Development, Structure & Joints of vertebra, Thoracic cage, Radiographic identification of bone and joints Applied anatomy

Unit-2

Head and neck: Cranium, Facial Muscles – origin, insertion, actions, nerve supply, Tempo-mandibular Joints – structure, types of movement

Unit-3

Sensory system: Structure and function of Visual system, Auditory system Gustatory system Olfactory system Somato sensory system

Unit-4

Respiratory system- Structure of upper and lower respiratory tract Thorax: Pleural cavities & pleura Lungs and respiratory tree Heart and great vessels Diaphragm

Unit-5

Digestive system Parts of digestive system Abdominal cavity – divisions Muscles of abdominal wall Liver Pancreas Spleen Alimentary canal Gall bladder Intestine (small & large)

Unit-6

Urinary and Reproductive system Urinary system Pelvic floor, innervations Kidney, Ureter, bladder, urethra Genital system – male and female Reproductive system of male Reproductive system of female

Unit-7

Nervous system-Classification of nervous system with examples, Nerve –structure. Neurons classification. Simple reflex arc. Parts of a typical spinal nerve / Dermatome, CNS – disposition, parts and functions of Cerebrum, Cerebellum, Midbrain & brain stem, Blood supply & anatomy of brain, Spinal cord- anatomy, blood supply, nerve pathways, Pyramidal, extra pyramidal system, Thalamus, hypothalamus, Structure and features of meninges, Ventricles of brain, CSF circulation, Development of nervous system & defects, Cranial nerves – (course, distribution, functions and palsy). Sympathetic nervous system, its parts and components, Parasympathetic nervous system: Applied anatomy

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Human Physiology II

Unit-1

Aviation, Space and Deep Sea Diving Physiology- Effects of Low Oxygen Pressure on the Body, Mountain Sickness, Effects of Acceleratory Forces, Artificial Climate, Weightlessness in Space, effects of High Partial Pressure of Gases on the Body, Hyperbaric Oxygen Therapy.

Unit-2

Nerve Muscle Physiology : Muscles- classification, structure, properties, Excitation contraction coupling Motor unit, EMG, factors affecting muscle tension, Muscle tone, fatigue, exercise Nerve –structure and function of neurons, classification, properties Resting membrane potential & Action potential their ionic basis All or None phenomenon Neuromuscular transmission Ionic basis of nerve conduction; Concept of nerve injury & Wallerian degeneration Synapses Electrical events in postsynaptic neurons Inhibition & facilitation at synapses Chemical transmission of synaptic activity Principal neurotransmitters.

Unit-3

Renal System : Physiology of kidney and urine formation Glomerular filtration rate, clearance, Tubular function, Water excretion, concentration of urine-regulation of Na+, Cl-, K+ excretion Physiology of urinary bladder

Unit-4

Digestive System : Digestion & absorption of nutrients Gastrointestinal secretions & their regulation Functions of Liver & Stomach.

Unit-5

Male & female reproductive system

Male - Functions of testes, pubertal changes in males, testosterone - action & regulations of secretion. Female - Functions of ovaries and uterus, pubertal changes, menstrual cycle, estrogens and progestron - action and regulation.

Unit-6

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

Unit 7

Spinal Cord

Integration at spinal, brain stem, cerebellar, basal ganglion levels, along with their functions Spinal cord lesions- complete transaction & hemi section of the spinal cord Autonomic nervous system :features and actions of parasympathetic & sympathetic nervous system Hypothalamus Higher functions of nervous system Special senses- eye, ear, nose, mouth.

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Basic Principles Of Biomechanics

Unit-1

Basic Concepts in Biomechanics: Kinematics and Kinetics
Types of Motion
Location of Motion
Direction of Motion
Magnitude of Motion
Definition of Forces
Force of Gravity
Reaction forces
Equilibrium
Objects in Motion
Force of friction
Concurrent force systems
Parallel force system
Work
Moment arm of force
Force components
Equilibrium of levers

Unit-2

Joint structure and Function -
Joint design
Materials used in human joints
General properties of connective tissues
Human joint design
Joint function
Joint motion
General effects of disease, injury and immobilization.

Unit-3

Muscle structure and function -
Mobility and stability functions of muscles
Elements of muscle structure
Muscle function
Effects of immobilization, injury and aging

Unit-4

Biomechanics of the Thorax and Chest wall -
General structure and function
Rib cage and the muscles associated with the rib cage
Ventilatory motions: its coordination and integration
Developmental aspects of structure and function
Changes in normal structure and function I relation to pregnancy, scoliosis and COPD

Unit-5

The Temporomandibular Joint-
General features, structure, function and dysfunction

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Sociology

Unit-1

Introduction:

Meaning- Definition and scope of sociology.Its relation to Anthropology, Psychology, Social Psychology.Methods of Sociological investigations- Case study, social survey, questionnaire, Interview and opinion poll methods.Importance of its study with special reference to Health Care Professionals.

Unit-2

Social Factors in Health and disease situations:Meaning of social factors.Role of social factors in health and illness.Socialization:Meaning and nature of socialization.Primary, Secondary and Anticipatory socialization.Agencies of socialization.

Unit-3

Social Groups:

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

Unit-4

Family:

The family, meaning and definitions.

Functions of types of family

Changing family patterns

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

Unit-5

Community:

Rural community: Meaning and features –Health hazards of ruralities, health hazards to tribal community.

Urban community: Meaning and features- Health hazards of urbanities.

Unit-6

Culture and Health:Concept of Health.Concept of Culture.Culture and Health

Culture and Health Disorders.Social change:Meaning of social changes.

Factors of social changes.Human adaptation and social change.Social change and stress.

Social change and deviance.Social change and health programme.

The role of social planning in the improvement of health and rehabilitation.

Social Problems of disabled: Consequences of the following social problems in relation to sickness and disability, remedies to prevent these problems.

Population explosion.Poverty and unemployment.Beggary.Juvenile delinquency

Prostitution.Alchoholism..Problems of women in employment

Geriatric problems.Problems of underprivileged.

Unit-7

Social Security:

Social security and social legislation in relation to the disabled.

Social worker:

Meaning of Social Work

The role of a Medical Social Worker.

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Introduction to Healthcare Delivery System in India

Unit-1

Introduction to healthcare delivery system
Healthcare delivery system in India at primary, secondary and tertiary care
Community participation in healthcare delivery system
Health system in developed countries.
Private Sector
National Health Mission
National Health Policy
Issues in Health Care Delivery System in India
National Health Programme- Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Programme.
Introduction to AYUSH system of medicine
Introduction to Ayurveda.
Yoga and Naturopathy
Unani
Siddha
Homeopathy
Need for integration of various system of medicine
Health scenario of India- past, present and future
Demography & Vital Statistics-
Demography – its concept
Vital events of life & its impact on demography
Significance and recording of vital statistics
Census & its impact on health policy
Epidemiology
Principles of Epidemiology
Natural History of disease

Unit-2

Methods of Epidemiological studies
Epidemiology of communicable & non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance.

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Human Anatomy-II Lab

PRACTICALS

- Identification and description of all anatomical structures.
- The learning of Anatomy is by demonstration only through dissected parts, slides, models, charts, etc.
- Demonstration of dissected parts (upper extremity, lower extremity, thoracic & abdominal viscera, face and brain).
- Demonstration of skeleton- articulated and disarticulated.
  - During the training more emphasis will be given on the study of bones, muscles, joints, nerve supply of the limbs and arteries of limbs.
  - Surface anatomy: -surface land mark-bony, muscular and ligamentous. -surface anatomy of major nerves, arteries of the limbs.
  - Points of palpation of nerves and arteries.

Human Physiology-II Lab

PRACTICALS

1. NCV
2. EMG
3. Renal System
4. Digestive system
5. Male & female Reproductive system
6. Reflexes

Basic Principles Of Biomechanics Lab

PRACTICAL shall be conducted for various joint movements and analysis of the same. Demonstration may also be given as how to analyze posture and gait.

The student shall be taught and demonstrated to analysis for activities of daily living – ADL – (like sitting to standing, throwing, lifting etc.) The student should be able to explain and demonstrate the movements occurring at the joints, the muscles involved, the movements or muscle action produced, and mention the axis and planes through which the movements occur. The demonstrations may be done on models or skeleton.

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III[rd] SEMESTER

General Pathology

UNIT I

Cell injuries –

Reversible cell injury: Types, Sequential changes, Cellular swellings, vacuolation, Hyaline changes, Irreversible cell injury: Types of Necrosis & Gangrene.Difference between Reversible&Irreversible cell injury. Pathologic calcification: Dystrophic and Metastatic. Intracellular Accumulations - Fatty changes. Amyloidosis - Classification, Pathogenesis, Pathology including special stains.

UNIT II

Inflammation and Repair –Acute inflammation: features, causes, vascular and cellular events. Inflammatory cells and Mediators. Chronic inflammation: Causes, Types, Classification nonspecific and granulomatous with examples.Repair, Wound healing by primary and secondary union, factors promoting and delaying the process.Healing in specific site including bone healing.

UNIT III

Hypersensitivity: type and examples. HIV infection. AIDS-Aetiology, Modes of transmission, Diagnostic procedures, handling of infected material and health education.

UNIT IV

Infectious diseases –Mycobacterial diseases: Tuberculosis,Syphilis.Viral diseases: Poliomyelitis, Herpes. Opportunistic infections. Parasitic diseases: Malaria, Filaria, Amoebiasis, Kala-azar,Hydatid cyst.

UNIT V

Circulatory Disturbances –Hyperemia/Ischemia and Haemorrhage. Edema: Pathogenesis and types. Chronic venous congestion: Lung, Liver, Spleen, Systemic Pathology Thrombosis and Embolism: Formation, Fate and Effects.Infarction: Types, Common sites.Shock: Pathogenesis, types, morphologic changes.

UNIT VI

Growth Disturbances and Neoplasia:Definition, classification. Malignant Neoplasia:Local & Distant spread.Atrophy, Hypertrophy, Hyperplasia, Metaplasia. Benign and Malignant tumor. Carcinogenesis: Environmental carcinogens, chemical, viral, occupational. Benign & Malignant epithelial tumours Eg. Squamous cell carcinoma, Benign & Malignant mesenchymal tumours Eg: Fibroma, Lipoma, Neurofibroma.Nutritional Disorders –Protein energy malnutrition. Vitamin deficiency disorders, classification with specific examples. Genetic Disorders –Turner Syndrome, Down Syndrome, Klinefelter Syndrome

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Bio-Physics

Unit I

Physical principles

Structure and properties of matter -solids, liquids and gases, adhesion, surface tension, viscosity, density and elasticity.

Structure of atom, molecules, elements and compound

Electricity: Definition and types. Therapeutic uses. Basic physics of construction. Working Importance of currents in treatment.

Static Electricity: Production of electric charge. Characteristic of a charged body.

Characteristics of lines of forces. Potential energy and factors on which it depends. Potential difference and EMF.

Current Electricity: Units of Electricity: farad, Volt, Ampere, Coulomb, Watt

Condensers: Definition, principle, Types- construction and working, capacity & uses.

Magnetism: Definition. Properties of magnets. Electromagnetic induction. Transmission by contact. Magnetic field and magnetic forces. Magnetic effects of an electric field.

Conductors, Insulators, Potential difference, Resistance and intensity

Ohm's law and its application to DC and AC currents. Fuse: construction, working and application.

Transmission of electrical energy through solids, liquids, gases and vacuum.

Rectifying Devices-Thermionic valves, Semiconductors, Transistors, Amplifiers, transducer and Oscillator circuits.

Display devices and indicators-analogue and digital.

Transformer: Definition, Types, Principle, Construction, Eddy current, working uses

Chokes: Principle, Construction and working, Uses

Unit II

Effects of Current Electricity

Chemical effects-Ions and electrolytes, Ionisation, Production of an EMF by chemical actions.

Ionization: Principles, effects of various technique of medical ionization.

Electromagnetic Induction.

Electromagnetic spectrum.

Unit III

Electrical Supply

Brief outline of main supply of electric current

Dangers-short circuit, electric shocks: Micro/ Macro shocks

Precaution-safety devices, earthing, fuses etc.

First aid and initial management of electric shock

Burns: electrical & chemical burns, prevention and management

Unit IV

Various agents

Thermal agents: Physical Principles of cold, Superficial and deep heat.

Ultrasound: Physical Principles of Sound

Electro- magnetic Radiation: Physical Principles and their Relevance to Physiotherapy Practice

Electric Currents: Physical Principles and their Relevance to Physiotherapy Practice.

Unit V

Section II – Therapeutic Electricity

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Electrotherapy -I

Unit I

Section I - Low frequency Currents

Basic types of current

Direct Current: types, physiological &therapeutic effects.

Alternating Current

Unit II

Types of Current used in Therapeutics

Modified D.C

Faradic Current

Galvanic Current

Modified A.C

Sinusoidal Current

Diadynamic Current.

Unit III

Faradic Current: Definition, Modifications, Techniques of Application of Individual, Muscle and Group Muscle stimulation, Physiological & Therapeutic effects of Faradic Current, Precautions, Indications & Contra-Indications, Dangers.

Unit IV

Galvanic Current: Definition, Modifications, Physiological & Therapeutic effects of Galvanic Current, Indications & Contra-Indications, Dangers, Effect of interrupted galvanic current on normally innervated and denervated muscles and partially denervated muscles.

Unit V

Sinusoidal Current & Diadynamic Current in Brief.

Unit VI

HVPGS – Parameters & its uses

Unit VII

Ionization / Iontophoresis: Techniques of Application of Iontophoresis, Indications, Selection of Current, Commonly used Ions (Drugs) for pain, hyperhydrosis, would healing.

Unit VIII

Cathodal / Anodal galvanism.

Unit IX

Micro Current & Macro Current

Unit X

Types of Electrical Stimulators

NMES- Construction component.

Neuro muscular diagnostic stimulator- construction component.

Components and working Principles

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Unit XI

Principles of Application: Electrode tissue interface, Tissue Impedance, Types of Electrode, Size Placement of Electrode – Waterbath, Unipolar, Bi-polar, Electrode coupling, Current flow in tissues, Lowering of Skin Resistance.

Nerve Muscle Physiology: Action Potential, Resting membrane potential, Propagation of Action Potential, Motor unit, synapse, Accommodation, Stimulation of Healthy Muscle, Stimulation of Denervated Muscle, Stimulation for Tissue Repair.

Unit XII

TENS: Define TENS, Types of TENS, Conventional TENS, Acupuncture TENS, Burst TENS, Brief & Intense TENS, Modulated TENS. Types of Electrodes & Placement of Electrodes, Dosage parameters, Physiological & Therapeutic effects, Indications & Contraindications.

Unit XIII

Pain: Define Pain, Theories of Pain (Outline only), Pain Gate Control theory in detail. [2 Hours]

Unit XIV

Section II - Electro-diagnosis

FG Test

SD Curve: Methods of Plotting SD Curve, Apparatus selection, Characters of Normally innervated Muscle, Characters of Partially Denervated Muscle, Characters of Completely denervated Muscle, Chronaxie & Rheobase.

Nerve conduction velocity studies

EMG: Construction of EMG equipment.

Bio-feed back.

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Biomechanics And Kinesiology

Unit I

Biomechanics of the vertebral column -
General structure and function
Regional structure and function – Cervical region, thoracic region, lumbar region, sacral region
Muscles of the vertebral column
General effects of injury and aging

Unit II

Biomechanics of the peripheral joints -
The shoulder complex: Structure and components of the shoulder complex and their integrated function
The elbow complex: Structure and function of the elbow joint – humeroulnar and humeroradial articulations, superior and inferior radioulnar joints; mobility and stability of the elbow complex; the effects of immobilization and injury.
The wrist and hand complex: Structural components and functions of the wrist complex; structure of the hand complex; functional position of the wrist and hand.
The hip complex: structure and function of the hip joint; hip joint pathology- arthrosis, fracture, bony abnormalities of the femur:
The knee complex: structure and function of the knee joint – tibiofemoral joint and patellofemoral joint; effects of injury and disease.
The ankle and foot complex.: structure and function of the ankle joint, subtalar joint, talocalcaneonavicular joint, transverse tarsal joint, tarsometatarsal joints, metatarsophalangeal joints, interphalangeal joints, structure and function of the plantar arches, muscles of the ankle and foot, deviations from normal structure and function – Pes Planus and Pes Cavus

Unit III

Analysis of Posture and Gait – Static and dynamic posture, postural control, kinetics and kinematics of posture, ideal posture analysis of posture, effects of posture on age, pregnancy, occupation and recreation; general features of gait, gait initiation, kinematics and kinetics of gait, energy requirements, kinematics and kinetics of the trunk and upper extremities in relation to gait, stair case climbing and running, effects of age, gender, assistive devices, disease, muscle weakness, paralysis, asymmetries of the lower extremities, injuries and malalignments in gait;Movement Analysis : ADL activities like sitting – to standing, lifting, various grips , pinches.

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Foundation Of Exercise Therapy [REVISED]

Unit I

Introduction to Exercise Therapy - The aims of Exercise Therapy, The techniques of Exercise Therapy, Approach to patient's problems, Assessment of patient's condition – Measurements of Vital parameters, Starting Positions – Fundamental positions & derived Positions, Planning of Treatment

Unit II

Methods of Testing
Functional tests
Measurement of Joint range: ROM-Definition, Normal ROM for all peripheral joints & spine, Goniometer-parts, types, principles, uses, Limitations of goniometry, Techniques for measurement of ROM for all peripheral joints,
Tests for neuromuscular efficiency
Electrical tests
Manual Muscle Testing: Introduction to MMT, Principles & Aims, Indications & Limitations, Techniques of MMT for group & individual: Techniques of MMT for upper limb / Techniques of MMT for lower limb / Techniques of MMT for spine.
Anthropometric Measurements: Muscle girth – biceps, triceps, forearm, quadriceps, calf
Static power Test, Dynamic power Test, Endurance test' Speed test, Tests for Co-ordination
Tests for sensation, Pulmonary Function tests, Measurement of Limb Length: true limb length, apparent limb length, segmental limb length, Measurement of the angle of Pelvic Inclination

Unit III

Relaxation
Definitions: Muscle Tone, Postural tone, Voluntary Movement, Degrees of relaxation, Pathological tension in muscle, Stress mechanics, types of stresses, Effects of stress on the body mechanism, Indications of relaxation, Methods & techniques of relaxation-Principles & uses: General, Local, Jacobson's, Mitchel's, additional methods.

Unit IV

Passive Movements
Causes of immobility, Classification of Passive movements, Specific definitions related to passive movements, Principles of giving passive movements, Indications, contraindications, effects of uses ,Techniques of giving passive movements.

Unit V

Active Movements
Definition of strength, power & work, endurance, muscle actions.
Physiology of muscle performance: structure of skeletal muscle, chemical & mechanical events during contraction &relaxation, muscle fiber type, motor unit, force gradation.
Causes of decreased muscle performance
Physiologic adaptation to training: Strength & Power, Endurance. Types of active movements

Unit VI

Free exercise: Classification, principles, techniques, indications, contraindications, effects and uses

Unit VII

Active Assisted Exercise: principles, techniques, indications, contraindications, effects and uses
Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses.Resisted Exercise: Definition, principles, indications, contraindications, precautions & techniques, effects and uses

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Unit VIII

Types of resisted exercises: Manual and Mechanical resistance exercise, Isometric exercise, Dynamic exercise: Concentric and Eccentric, Dynamic exercise: Constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed-Chain exercise.

Unit IX

Therapeutic Massage: History and Classification of Massage Technique,
Principles, Indications and Contraindications.
Technique of Massage Manipulations.Physiological and Therapeutic Uses of Specific Manipulations.

Unit X

Suspension Therapy
Definition, principles, equipments & accessories, Indications & contraindications, Benefits of suspension therapy
Types of suspension therapy: axial, vertical, pendular Techniques of suspension therapy for upper limb Techniques of suspension therapy for lower limb

Unit XI

Walking Aids
Types: Crutches, Canes, Frames; Principles and training with walking aids

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Introduction To Quality And Patient Safety

Unit I

Quality assurance and management - The objective of the course is to help students understand the basic concepts of quality in health Care and develop skills to implement sustainable quality assurance program in the health system.

Concepts of Quality of Care
Quality Improvement Approaches
Standards and Norms
Quality Improvement Tools
Introduction to NABH guidelines

Unit II

Basics of emergency care and life support skills - Basic life support (BLS) is the foundation for saving lives following cardiac arrest. Fundamental aspects of BLS include immediate recognition of sudden cardiac arrest (SCA) and activation of the emergency response system, early cardiopulmonary resuscitation (CPR), and rapid defibrillation with an automated external defibrillator (AED). Initial recognition and response to heart attack and stroke are also considered part of BLS. The student is also expected to learn about basic emergency care including first aid and triage. Topics to be covered under the subject are as follows:

Vital signs and primary assessment
Basic emergency care – first aid and triage
Ventilations including use of bag-valve-masks (BVMs)
Choking, rescue breathing methods
One- and Two-rescuer CPR
Using an AED (Automated external defibrillator).
Managing an emergency including moving a patient

At the end of this topic, focus should be to teach the students to perform the maneuvers in simulation lab and to test their skills with focus on airways management and chest compressions. At the end of the foundation course, each student should be able to perform and execute/operate on the above mentioned modalities.

Unit III

Bio medical waste management and environment safety- The aim of this section will be to help prevent harm to workers, property, the environment and the general public. Topics to be covered under the subject are as follows:

Definition of Biomedical Waste
Waste minimization
BMW – Segregation, collection, transportation, treatment and disposal (including color coding)
Liquid BMW, Radioactive waste, Metals / Chemicals / Drug waste
BMW Management & methods of disinfection
Modern technology for handling BMW
Use of Personal protective equipment (PPE)
Monitoring & controlling of cross infection (Protective devices)

Unit IV

Infection prevention and control - The objective of this section will be to provide a broad understanding of the core subject areas of infection prevention and control and to equip AHPs with the fundamental skills required to reduce the incidence of hospital acquired infections and improve health outcomes. Concepts taught should include –Evidence-based infection control

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principles and practices [such as sterilization, disinfection, effective hand hygiene and use of Personal protective equipment (PPE)],Prevention & control of common healthcare associated infections,Components of an effective infection control program, and Guidelines (NABH and JCI) for Hospital Infection Control

Unit V

Antibiotic Resistance-
History of Antibiotics
How Resistance Happens and Spreads
Types of resistance- Intrinsic, Acquired, Passive
Trends in Drug Resistance
Actions to Fight Resistance
Bacterial persistence
Antibiotic sensitivity
Consequences of antibiotic resistance
Antimicrobial Stewardship- Barriers and opportunities, Tools and models in hospitals

Unit VI

Disaster preparedness and management- The objective of this section will be to provide knowledge on the principles of on-site disaster management. Concepts to be taught should include-
Fundamentals of emergency management,
Psychological impact management,
Resource management,
Preparedness and risk reduction,
Key response functions (including public health, logistics and governance, recovery, rehabilitation and reconstruction), information management, incident command and institutional mechanisms.

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Biomechanics And Kinesiology Lab

PRACTICAL- shall be conducted for various joint movements and analysis of the same. Demonstration may also be given as how to analyze posture and gait. The student shall be taught and demonstrated to analysis for activities of daily living – ADL – (like sitting to standing, throwing, lifting etc.) The student should be able to explain and demonstrate the movements occurring at the joints, the muscles involved, the movements or muscle action produced, and mention the axis and planes through which the movements occur. The demonstrations may be done on models or skeleton.

Electrotherapy Lab

PRACTICAL-The student of Electrotherapy must be able to demonstrate the use of electrotherapy modalities applying the principles of electrotherapy with proper techniques, choice of dosage parameters and safety precautions.

Demonstrate the technique for patient evaluation – receiving the patient and positioning the patient for treatment using electrotherapy.

Collection of materials required for treatment using electrotherapy modalities and testing of the apparatus.

Demonstrate placement of electrodes for various electrotherapy modalities

Electrical stimulation for the muscles supplied by the peripheral nerves

Faradism under Pressure for UL and LL

Plotting of SD curve with chronaxie and rheobase

Demonstrate FG test

Foundation Of Exercise Therapy Lab

PRACTICAL

Different test methods

Demonstrate relaxation techniques.

Demonstrate to apply the technique of passive movements

Demonstrate various techniques of Active movements

Demonstrate massage technique application according to body parts.

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IVth Semester
Systemic Pathology

UNIT I

Hematology –Constituents of blood and bone marrow. Anemia: Classification, clinical features & lab diagnosis.Nutritional anemias: Iron deficiency anemia, Folic acid,Vit. B 12 deficiency anemia. Hemolytic Anaemias: Classification and Investigations.Hereditary hemolytic anaemias: Thalessemia, Sickle cell anemia. Acquired hemolytic anaemia: Autoimmune Drug induced,Pancytopenia - Aplastic anemia.Coagulopathies –Inherited.Acquired with lab diagnosis.Leukocytic disorders: Leukocytosis, Leukopenis causes. Leukemia: Classification, clinical manifestation, pathology and Diagnosis. Multiple myeloma. Blood transfusion; Grouping and cross matching, Blood-components.

UNIT II

Respiratory System--Pneumonia, Bronchitis, Bronchiectasis, Asthma,Carcinoma of lungs, Occupational lung diseases

UNIT III

Cardiovascular Pathology--Congenital Heart disease: Atrial septal defect, Ventricular septal defect, Fallot's tetralogy, Patent ductus arteriosus.Rheumatic Heart disease.Vascular diseases:Atherosclerosis. Ischemic heart Disease: Myocardial infarction.

UNIT IV

Alimentary tract:Oral Pathology:leukoplakia, Carcinoma, oral cavity diseases and tumour of salivary gland(pleomorphic,adenoma,Warthin's) & tumours of esophagus. Stomach: Gastritis, Ulcer & Tumours. Pancreatitis&Tumours of Pancreas

UNIT V

Hepato – biliary pathology.Jaundice: Types, aetio-pathogenesis and diagnosis. Hepatitis: Acute, Chronic. Alcoholic liver disease.Cirrhosis. Portal hypertension Liver abscesses. Tumours of Liver

UNIT VI

Lymphatic System-Cholecystitis, Cholelithiasis, Short note on Carcinoma. Lymphadenitis - Granulomatous. Causes of Lymph Node enlargements. Primary Tumours - Hodgkin's and Non hodgkin's LymphomaS. Causes of Splenic Enlargements.

UNIT VII

Musculoskeletal System---Osteomyelitis, acute, chronic,Metabolic diseases;Osteomalacia, osteoporosis. Paget's disease. Arthritis. Osteoarthritis, Gout,

UNIT VIII

Endocrine pathology--Diabetes Mellitus: Types, Pathogenesis, Pathology, Laboratory diagnosis. Iodine deficiency goiter, autoimmune Thyroiditis. Hashimoto's thyroiditis.Tumours of Thyroid: Carcinoma: Papillary, Follicular, Medullary, Anaplastic.

UNIT IX

Neuropathology- TB Meningitis, Pyogenic Meningitis, viral meningitis. Cysticercosis.CNS Tumors; Astrocytoma, Neuroblastoma, Meningioma.

Dermatopathology--Skin tumors:, Basal cell carcinoma, Melanoma

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Pharmacology

Unit I

General Pharmacology –

Introduction, Definitions, Classification of drugs, Sources of drugs, Routes of drug administration, Distribution of drugs, Metabolism and Excretion of drugs Pharmacokinetics, Pharmacodynamics, Factors modifying drug response, Adverse effects.

Unit II

Autonomic Nervous system –

General considerations – The Sympathetic and Parasympathetic Systems, Receptors, Somatic Nervous System

Cholinergic and Anti-Cholinergic drugs, Adrenergic and Adrenergic blocking drugs, Peripheral muscle relaxants.

Unit III

Cardiovascular Pharmacology –

Drugs used in the treatment of heart failure: Digitalis, Diuretics, Vasodilators, ACE inhibitors Antihypertensive Drugs: Diuretics, Beta Blockers, Calcium Channel Blockers, ACE Inhibitors, Central Acting Alpha Agonists, Peripheral Alpha Antagonists, Direct acting Vasodilators Antiarrhythmic Drugs.

Drugs used in the treatment of vascular disease and tissue ischemia : Vascular Disease, Hemostasis Lipid-Lowering agents, Antithrombotics, Anticoagulants and Thrombolytics Ischemic Heart Disease – Nitrates, Beta-Blockers, Calcium Channel Blockers, Cerebral Ischemia Peripheral Vascular Disease.

Unit IV

Neuropharmacology –

Sedative-Hypnotic Drugs: Barbiturates, Benzodiazepines

Antianxiety Drugs: Benzodiazepines, Other Anxiolytics

Drugs Used in Treatment of Mood Disorders: Monoamine Oxidase Inhibitors, Tricyclic Antidepressants, Atypical Antidepressants, Lithium

Antipsychotic drugs

Unit V

Disorders of Movement -

Drugs used in Treatment of Parkinson 's disease

Antiepileptic Drugs

Spasticity and Skeletal Muscle Relaxants

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Unit VI

Inflammatory/Immune Diseases -

Non-narcotic Analgesics and Nonsteroidal Anti-Inflammatory Drugs: Acetaminophen, NSAIDs, Aspirin, Nonaspirin NSAIDs, drug Interactins with NSAIDs

Glucocorticoids: Pharmacological Uses of Glucocorticoids, adverse effects, Physiologic Use of Glucocorticoids

Drugs Used in Treatment of Arthritic Diseases: Rheumatoid Arthritis, Osteoarthritis, Gout

Drugs Used in the Treatment of Neuromuscular Immune/Inflammatory Diseases: Myasthenia gravis, Idiopathic Inflammatory Myopathies, systemic lupus Erythematous, Scleroderma, Demyelinating Disease

Respiratory Pharmacology: Obstructive Airway Diseases, Drugs used in Treatment of Obstructive airway Diseases, Allergic Rhinitis

Unit VII

Digestion and Metabolism -

Gastrointestinal Pharmacology: Peptic Ulcer Disease, Constipation, Diarrhea Drugs Used in Treatment of Diabetes Mellitus: Insulin, Oral Hypoglycemic

Unit VIII

Geriatrics -

Pharmacology and the geriatric Population: Adverse effects of special concern in the Elderly, Dementia, Postural hypotension.

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Microbiology

Unit I

General Microbiology -
Definitions: infections, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic, Zoonosis, Epizootic, Attack rate.
Normal flora of the human body.
Routes of infection and spread; endogenous and exogenous infections; source at reservoir of infections.
Bacterial cell. Morphology limited to recognizing bacteria in clinical samples Shape, motility and arrangement. Structures, which are virulence, associated.
Physiology: Essentials of bacterial growth requirements.
Sterilization, disinfection and universal precautions in relation to patient care and disease prevention. Definition of asepsis, sterilization, disinfection.
Antimicrobials: Mode of action, interpretation of susceptibility tests, resistance spectrum of activity.

Unit II

Immunology -
Basic principles of immunity immunobiology: lymphoid organs and tissues. Antigen, Antibodies, antigen and antibody reactions with relevance to pathogenesis and serological diagnosis.
Humoral immunity and its role in immunity Cell mediated immunity and its role in immunity.
Imunology of hypersensitivity, Measuring immune functions.

Unit III

Bacteriology –
To be considered under the following headings
Morphology, classification according to pathogenicity, mode of transmission, methods of prevention, collection and transport of samples for laboratory diagnosis, interpretation of laboratory reports.
Staphylococci, Streptococci and Pneumococci.
Mycobacteria: Tuberculosis, M.leprae, atypical mycobacteria, Enterobacteriaceae,
Vibrois: V. cholerae and other medically important vibrios, Campylobacters and Helicobacters, Pseudomonas.
Bacillus anthracis, Sporing and non-sporing anaerobes: Clostridia, Bacteroides and Fusobacteria.

Unit IV

General Virology -
General properties: Basic structure and broad classification of viruses. Pathogenesis and pathology of viral infections. Immunity and prophylaxis of viral diseases. Principles of laboratory diagnosis of viral diseases. List of commonly used antiviral agents.

Unit V

Mycology -
General properties of fungi. Classification based on disease: superficial, subcutaneous, deep mycosel opportunistic infections including Mycotoxins, systemic mycoses. General principles of fungal diagnosis, Rapid diagnosis. Method of collection of samples. Antifungal agents.

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Unit VI

Clinical/Applied Microbiology –

Streptococcal infections: Rheumatic fever and Rheumatic heart disease, Meningitis. Tuberculosis,

Pyrexia of unknown origin, leprosy,

Sexually transmitted diseases, Poliomyelitis,

Hepatitis,

Acute-respiratory infections, Central nervous System infections, Urinary tract infections, Pelvic inflammatory disease, Wound infection, Opportunistic infections, HIV infection, Malaria, Filariasis, Zoonotic diseases.

PRACTICAL- Demonstration of Microscopes and its uses

Principles, uses and demonstration of common sterilization equipment

Demonstration of common culture media

Demonstration of motility by hanging drops method

Demonstration of Gram Stain, ZN Stain

Demonstration of Serological test: ELISA

Demonstration of Fungus

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Electrotherapy-II

Unit I

Section I - Medium Frequency

Interferential Therapy: Define IFT, Principle of Production of IFT, Static Interference System, Dynamic Interference system, Dosage Parameters for IFT, Electrode placement in IFT, Physiological & Therapeutic effects, Indications & Contraindications.

Russian Current

Rebox type Current

Section II - Thermo & Actinotherapy (High Frequency Currents)

Unit II

Electro Magnetic Spectrum.

SWD: Define short wave, Frequency & Wavelength of SWD, Principle of Production of SWD, Circuit diagram & Production of SWD, Methods of Heat Production by SWD treatment, Types of SWD Electrode, Placement & Spacing of Electrodes, Tuning, Testing of SWD Apparatus, Physiological & Therapeutic effects, Indications & Contraindications, Dangers, Dosage parameters.

Pulsed Electro Magnetic Energy: Principles, Production & Parameters of PEME, Uses of PEME.

Micro Wave Diathermy: Define Microwave, Wave length & Frequency, Production of MW, Applicators, Dosage Parameters, Physiological & Therapeutic effects, Indications & Contraindications, Dangers of MWD. [2 Hours]

Unit III

Ultrasound: Define Ultrasound, Frequency, Piezo Electric effects: Direct, Reverse, Production of US, Treatment Dosage parameters: Continuous& Pulsed mode, Intensity, US Fields: Near field, Far field, Half value distance, Attenuation, Coupling Media, Thermal effects, Non-thermal effects, Principles & Application of US: Direct contact, Water bag, Water bath, Solid sterile gel pack method for wound. Uses of US, Indications & Contraindications, Dangers of Ultrasound. Phonophoresis: Define Phonophoresis, Methods of application, commonly used drugs, Uses. Dosages of US. [8 Hours]

Unit IV

IRR: Define IRR,wavelength & parameters, Types of IR generators, Production of IR, Physiological & Therapeutic effects, Duration & frequency of treatment, Indication & Contraindication. [2 Hours]

UVR: Define UVR, Types of UVR, UVR generators: High pressure mercury vapour lamp, Water cooled mercury vapour lamp, Kromayer lamp, Fluorescent tube, Theraktin tunnel, PUVA apparatus. Physiological & Therapeutic effects. Sensitizers & Filters. Test dosage calculation. Calculation of E1, E2, E3, E4 doses. Indications, contraindications. Dangers. Dosages for different therapeutic effects, Distance in UVR lamp [8 Hours]

Unit V

LASER: Define LASER. Types of LASER. Principles of Production. Production of LASER by various methods. Methods of application of LASER. Dosage of LASER. Physiological & Therapeutic effects of LASER. Safety precautions of LASER. Classifications of LASER. Energy density & power density [8 Hours]

Section III – Superficial heating Modalities

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Unit VI

Wax Therapy: Principle of Wax Therapy application – latent Heat, Composition of Wax Bath Therapy unit, Methods of application of Wax, Physiological & Therapeutic effects, Indications & Contraindication, Dangers.

Contrast Bath: Methods of application, Therapeutic uses, Indications & Contraindications.

Moist Heat Therapy: Hydro collator packs – in brief, Methods of applications, Therapeutic uses, Indications & Contraindications.

Unit VII

Cyclotherm: Principles of production, Therapeutic uses, Indications & Contraindications.

Fluidotherapy: Construction, Method of application, Therapeutic uses, Indications & Contraindications.

Unit VIII

Whirl Pool Bath: Construction, Method of Application, Therapeutic Uses, Indications & Contraindications.

Magnetic Stimulation, Principles, Therapeutic uses, Indications & contraindication.

Cryotherapy: Define- Cryotherapy, Principle- Latent heat of fusion, Physiological & Therapeutics effects, Techniques of Applications, Indications & Contraindications, Dangers, Methods of application with dosages.

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Exercise Therapy

Unit I

Specific exercise regimens
Isotonic: de Lormes, Oxford, MacQueen, Circiut weight training
Isometric: BRIME (Brief Resisted Isometric Exercise), Multiple Angle
Isometrics Isokinetic regimens

Unit II

Proprioceptive Neuromuscular Facilitation
Definitions & goals
Basic neurophysiologic principles of PNF: Muscular activity, Diagonals patterns of movement: upper limb, lower limb, Procedure: components of PNF, Techniques of facilitation, Mobility: Contract relax, Hold relax, Rhythmic initiation, Strengthening: Slow reversals, repeated contractions, timing for emphasis, rhythmic stabilization Stability: Alternating isometric, rhythmic stabilization, Skill: timing for emphasis, resisted progression Endurance: slow reversals, agonist reversal

Unit III

Functional Re-education
Lying to sitting: Activities on the Mat/Bed, Movement and stability at floor level; Sitting activities and gait; Lower limb and Upper limb activities.

Unit IV

Aerobic Exercise
Definition and key terms; Physiological response to aerobic exercise, Examination and evaluation of aerobic capacity – Exercise Testing, Determinants of an Exercise Program, The Exercise Program, Normal and abnormal response to acute aerobic exercise, Physiological changes that occur with training, Application of Principles of an Aerobic conditioning program for patients – types and phases of aerobic training.

Unit V

Stretching
Definition of terms related to stretching; Tissue response towards immobilization and elongation, Determinants of stretching exercise, Effects of stretching, Inhibition and relaxation procedures, Precautions and contraindications of stretching, Techniques of stretching.

Unit VI

Manual Therapy & Peripheral Joint Mobilization
Schools of Manual Therapy, Principles, Grades, Indications and Contraindications, Effects and Uses – Maitland, Kaltenborn, Mulligan Biomechanical basis for mobilization, Effects of joint mobilsation, Indications and contraindications, Grades of mobilization, Principles of mobilization, Techniques of mobilization for upper limb, lower limb, Precautions.

Unit VII

Balance - Definition
Physiology of balance: contributions of sensory systems, processing sensory information, generating motor output
Components of balance (sensory, musculoskeletal, biomechanical)
Causes of impaired balance, Examination & evaluation of impaired balance, Activities for treating impaired balance: mode, posture, movement, Precautions & contraindications, TypesBalance retraining.

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Unit VIII

Co-ordination Exercise

Anatomy & Physiology of cerebellum with its pathways Definitions: Co-ordination, Inco-ordination

Causes for Inco-ordination, Test for co-ordination: equilibrium test, non-equilibrium test Principles of co-ordination exercise.

Frenkel's Exercise: uses of Frenkel's exercise, technique of Frenkel's exercise, progression, home exercise.

Unit IX

Posture

Definition, Active and Inactive Postures, Postural Mechanism, Patterns of Posture, Principles of re-education: corrective methods and techniques, Patient education.

Unit X

Basics in Manual Therapy & Applications with Clinical reasoning, Examination of joint integrity Contractile tissues, Non contractile tissues, Mobility - assessment of accessory movement & End feel, Assessment of articular & extra-articular soft tissue status, Myofascial assessment, Acute & Chronic muscle hold, Tightness, Pain-original & referred, Basic principles, Indications & Contra-Indications of mobilization skills for joints & soft tissues.

Maitland, Mulligan, Mckenzie, Muscle Energy Technique, Myofascial stretching, Cyriax, Neuro Dynamic Testing

Unit XI

Hydrotherapy Definitions, Goals and Indications, Precautions and Contraindications, Properties of water, Use of special equipment, techniques, Effects and uses, merits and demerits

Individual and Group Exercises

Advantages and Disadvantages, Organization of Group exercises, Recreational Activities and Sports

Introduction to Yoga, Asanas – Principles and elements; Pranayamas – Principles, Methods and Techniques

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Environmental Science

Unit I
General

I:-Biotic and a biotic environment
II:-Adverse effects of Environment Pollution
III:-Control strategies
(B):-Water Pollution:
I-Water Quality standards for potable water
II-Impurities in water and their removal
III:Defluoridation
IV:Self purification of streams
(C):-Air pollution;
I-Source of air contaminants
II-Adverse effects on human health
III-Measures to check air pollution
IV-Greenhouse effect
V-Acid Rain
VI-Ozone depletion
Unit II
Biomedical Waste Management
I-Introduction to Bio-medical waste
II-Types of bio-medical waste
III-Collection of bio-medical waste
IV-Treatment and disposal of bio-medical waste
(B)Solid waste Management
I-Introduction to solid waste
II-Its collection and disposal
III-Sanitary land-filling
IV-Vermin-composting
V-Hazardous waste management
Unit III
Land Pollution
I-Soil conservation
II-Land erosion
(B)Ecology
I-Busies of species
II- Biodiversity
III-Population dynamics
IV-Energy flow
V-Ecosystems

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Electrotherapy Lab

PRACTICAL-The student of Electrotherapy must be able to demonstrate the use of electrotherapy modalities applying the principles of electrotherapy with proper techniques, choice of dosage parameters and safety precautions.
Demonstrate the technique for patient evaluation – receiving the patient and positioning the patient for treatment using electrotherapy.
Collection of materials required for treatment using electrotherapy modalities and testing of the apparatus.
Demonstrate placement of electrodes for various electrotherapy modalities
Application of Ultrasound for different regions-various methods of application
Demonstrate treatment techniques using SWD, IRR and Microwave diathermy
Demonstrate the technique of UVR exposure for various conditions – calculation of test dose
Demonstrate treatment method using IFT for various regions
Calculation of dosage and technique of application of LASER
Technique of treatment and application of Hydrocollator packs, cryotherapy, contrast bath, wax therapy
Demonstrate the treatment method using whirl pool bath
Winding up procedure after any electrotherapy treatment method.

Equipment care -

Checking of equipments
Arrangement of exercise therapy and electro therapy equipment.
Calibration of equipment
Purchase, billing, document of equipment.
Safety handling of equipments.
Research lab equipment maintenance.
Stock register, movement register maintenance

Exercise Therapy Lab

PRACTICAL

The students of exercise therapy are to be trained in Practical Laboratory work for all the topics discussed in theory. The student must be able to evaluate and apply judiciously the different methods of exercise therapy techniques on the patients. They must be able to
Demonstrate the technique of measuring using goniometry
Demonstrate muscle strength using the principles and technique of MMT
Demonstrate the techniques for muscle strengthening based on MMT grading
Demonstrate the PNF techniques
Demonstrate exercises for training co-ordination – Frenkel's exercise
Demonstrate the techniques of massage manipulations
Demonstrate techniques for functional re-education
Assess and train for using walking aids
Demonstrate mobilization of individual joint regions
Demonstrate to use the technique of suspension therapy for mobilizing and strengthening joints and muscles
Demonstrate the techniques for muscle stretching
Assess and evaluate posture and gait
Demonstrate techniques of strengthening muscles using resisted exercises
Demonstrate techniques for measuring limb length and body circumference.

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Vth SEMESTER

Clinical Neurology & Neurosurgery -I

SUBJECT DESCRIPTION-This subject follows the basic science subjects to provide the knowledge about relevant aspects of neurology & neurosurgery. The student will have a general understanding of the diseases the therapist would encounter in their practice. The objective of this course is that after 60 hrs of lectures and discussion the student will be able to list the etiology, pathology, clinical features and treatment methods for various neurological conditions.

Unit I
Disorders of function in the context of Pathophysiology, Anatomy in Neurology and Cortical Mapping.

Unit II
Classification of neurological involvement depending on level of lesion.

Unit III
Neurological assessment: Principles of clinical diagnosis, higher mental function, assessment of brain & spinal cord function, evaluation of cranial nerves and evaluation of autonomic nervous system.

Unit IV
Investigations: principles, methods, views, normal/abnormal values/features, types of following investigative procedures- skull x-ray, CT, MRI, evoked potentials, lumbar puncture, CSF examination, EMG, NCV.

Unit V
Neuro-ophthalmology: Assessment of visual function – acuity, field, colour vision, Pupillary reflex, accommodation reflex, abnormalities of optic disc, disorders of optic nerve, tract, radiation, occipital pole, disorders of higher visual processing, disorders of pupil, disorders of eye movements, central disorders of eye movement.

Unit VI
Deafness, vertigo, and imbalance: Physiology of hearing, disorders of hearing, examination & investigations of hearing, tests of vestibular function, vertigo, peripheral vestibular disorders, central vestibular vertigo.

Unit VII
Lower cranial nerve paralysis – Etiology, clinical features, investigations, and management of following disorders - lesions in trigeminal nerve, trigeminal neuralgia, trigeminal sensory neuropathy, lesions in facial nerve, facial palsy, bell's palsy, hemi facial spasm,Glossopharangial neuralgia, lesions of Vagus nerve, lesions of spinal accessory nerve, lesions of hypoglossal nerve. Dysphagia – swallowing mechanisms, causes of dysphagia, symptoms, examination, and management of dysphagia.

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Unit VIII

Cerebro-vascular diseases: Define stroke, TIA, RIA, stroke in evolution, multi infarct dementia and Lacunar infarct. Classification of stroke – Ischemic, hemorrhagic, venous infarcts. Risk factors, cause of ischemic stroke, causes of hemorrhagic stroke. Classification of hemorrhagic stroke, classification of stroke based on symptoms, stroke syndrome, investigations, differential diagnosis, medical and surgical management.

Unit IX

Head injury: Etiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications.

Unit X

Higher cortical, neuro psychological and neurobehavioral disorders: Physiological nature of Epilepsy, classification, clinical features, investigations, medical& surgical management of following disorders – Non-epileptic attacks of childhood, Epilepsy in childhood, Seizers, and Epilepsy syndromes in adult. Classification and clinical features of Dyssomnias, Parasomnias, Dementia. Neural basis of consciousness, causes &investigations of Coma, criteria for diagnosis of Brain death. Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Perceptual disorders and Speech disorders.

Unit XI

Movement disorders: Definition, etiology, risk factors, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Parkinson's disease, Dystonia, Chorea, Ballism, Athedosis, Tics, Myoclonus and Wilson's disease.

Unit XII

Cerebellar and coordination disorders: Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Congenital ataxia, Friedreich's ataxia, Ataxia talengiectasia, Metabolic ataxia, Hereditary cerebellar ataxia, Tabes dorsalis and Syphilis.

Unit XIII

Spinal cord disorders: Functions of tracts, definition, etiology, risk factors, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Spinal cord injury, Compression by IVD prolapse, Spinal epidural abscess, Transverse myelitis, Viral myelitis, Syringomyelia, Spina bifida, Hereditary spastic paraplegia, Bladder & bowel dysfunction.

Unit XIV

Brain tumors and spinal tumors: Classification, clinical features, investigations, medical and surgical management.

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Clinical Orthopedics & Traumatology –I

Unit I

Introduction

Introduction to orthopaedics.

Clinical examination in an Orthopedic patient.

Common investigative procedures.

Radiological and Imaging techniques in Orthopeadics.

Inflammation and repair, Soft tissue healing.

Unit II

Traumatology

Fracture: definition, types, signs and symptoms.

Fracture healing.

Complications of fractures.

Conservative and surgical approaches.

Principles of management – reduction (open/closed, immobilization etc).

Subluxation/ dislocations – definition, signs and symptoms, management (conservative and operative).

Unit III

Fractures and Dislocations of Upper Limb

Fractures of Upper Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures:

Fractures of clavicle and scapula.

Fractures of greater tuberosity and neck of humerus.

Fracture shaft of humerus.

Supracondylar fracture of humerus.

Fractures of capitulum, radial head, olecranon, coronoid, and epicondyles.

Side swipe injury of elbow.

Both bone fractures of ulna and radius.

Fracture of forearm – monteggia, galaezzi fracture –dislocation.

Chauffer's fracture.

Colle's fracture.

Smith's fracture.

Scaphoid fracture.

Fracture of the metacarpals.

Bennett's fracture.

Fracture of the phalanges. (Proximal and middle.)

Dislocations of Upper Limb –

Anterior dislocation of shoulder – mechanism of injury, clinical feature, complications, conservative management (Kocher's and Hippocrates maneuver), surgical management (putti plat, bankart's) etc.

Recurrent dislocation of shoulder.

Posterior dislocation of shoulder – mechanism of injury, clinical features and management.

Posterior dislocation of elbow – mechanism of injury, clinical feature, complications & management.

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Unit IV

Fracture of Spine

Fracture of Cervical Spine - Mechanism of injury, clinical feature, complications (quadriplegia); Management- immobilization (collar, cast, brace, traction); Management for stabilization, management of complication (bladder and bowel, quadriplegia).

Clay shoveller's fracture, Hangman's fracture, Fracture odontoid, Fracture of atlas.

Fracture of Thoracic and Lumbar Regions - Mechanism of injury, clinical features, and management— conservative and surgical of common fractures around thoracic and lumbar regions.

Fracture of coccyx.

Fracture of Rib Cage - Mechanism of injury, clinical features, management for Fracture Ribs, Fracture of sternum.

Unit V

Fractures and Dislocations of Lower Limb

Fracture of Pelvis and Lower Limb - causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following fractures:

Fracture of pelvis.

Fracture neck of femur – classification, clinical features, complications, management - conservative and surgical.

Fractures of trochanters.

Fracture shaft femur—clinical features, mechanism of injury, complications, management-conservative and surgical.

Supracondylar fracture of femur, Fractures of the condyles of femur, Fracture patella, Fractures of tibial condyles.

Both bones fracture of tibia and fibula.

Dupuytren's fracture, Maisonneuve's fracture, Pott's fracture – mechanism of injury, management.

Bimalleolar fracture, Trimalleolar fracture, Fracture calcaneum – mechanism of injury, complications and management, Fracture of talus, Fracture of metatarsals—stress fractures jone's fracture, Fracture of phalanges.

Dislocations of Lower Limb - mechanism of injury, clinical features, complications, management of the following dislocations of lower limb.

Anterior dislocation of hip, Posterior dislocation of hip, Central dislocation of hip, Dislocation of patella, Recurrent dislocation of patella.

Unit VI

Soft Tissue Injuries - Define terms such as sprains, strains, contusion, tendinitis, rupture, tenosynovitis, tendinosis, bursitis. Mechanism of injury of each, clinical features, managements-conservative and surgical of the following soft tissue injuries:

Meniscal injuries of knee, Cruciate injuries of knee, Medial and lateral collateral injuries of knee, Lateral ligament of ankle.

Wrist sprains.

Strains- quadriceps, hamstrings, calf, biceps, triceps etc.

Contusions- quadriceps, gluteal, calf, deltoid etc.

Tendon ruptures-Achilles, rotator cuff muscles, biceps, pectorals etc.

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Unit VII

Hand Injuries - mechanism of injury, clinical features, and management of the following – Crush injuries, Flexor and extensor injuries, Burn injuries of hand.

Unit VIII

Amputations - Definition, levels of amputation of both lower and upper limbs, indications, complications.

Unit IX

Traumatic Spinal Cord Injuries - Clinical features, complications, medical and surgical management of Paraplegia and Quadriplegia.

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General Surgery

Unit I

Fluid, Electrolyte and Acid-Base disturbances – diagnosis and management ; Nutrition in the surgical patient ; Wound healing – basic process involved in wound repair, basic phases in the healing process, clinical management of wounds, factors affecting wound healing, Scars – types and treatment. Hemostasis – components, hemostatic disorders, factors affecting bleeding during surgery. Transfusion therapy in surgery – blood components, complications of transfusion ; Surgical Infections ; General Post – Operative Complications and its management.

Unit II

Reasons for Surgery; Types of anaesthesia and its affects on the patient; Types of Incisons; Clips Ligatures and Sutures; General Thoracic Procedures – Radiologic Diagnostic procedures, Endoscopy – types, Biopsy – uses and types. Overview and Drainage systems and tubes used in Surgery.

Unit III

Causes, Clinical Presentation, Diagnosis and treatment of the following Thoracic Trauma situations – Airway obstruction, Pnuemothorax, Hemothorax, Cardiac Tamponade, Tracheobronchial disruption, Aortic disruption, Diaphragmatic disruption, Esophageal disruption, Cardiac and Pulmonary Contusions.

Unit IV

Surgical Oncology – Cancer – definition, types, clinical manifestations of cancer, Staging of Cancer, surgical procedures involved in the management of cancer.

Unit V

Disorders of the Chest Wall, Lung and Mediastinum

Unit VI

Thoracic surgeries – Thoracotomy – Definition, Types of Incisions with emphasis to the site of insision, muscles cut and complications. Lung surgeries: Pnumonectomy, Lobectomy, segmentectomy – Indications, Physiological changes and Complications; Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung. Cardiac surgeries – An overview of the Cardio-Pulmonary Bypass Machine – Extracardiac Operations, Closed Heart surgery, Open Heart surgery. Transplant Surgery – Heart, Lung and Kidney – Indications, Physiological changes and Complications.

Unit VII

Diseases of the Arteries and Veins : Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases :
Arteriosclerosis,Atherosclerosis, Aneurysm, Buerger's disease, Raynaud's Disease, Thrombophlebitis, Deep Vein Thrombosis, Pulmonary Embolism, Varicose Veins.

Unit VIII

Definition, Indication, Incision, Physiological changes and Complications following Common operations like Cholecystectomy, Colostomy, Ileostomy, Gastrectomy, Hernias, Appendicectomy Mastectomy, Neprectomy, Prostectomy.

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Unit IX

Burn: Definition, Classification, Causes, Prevention, Pathological changes, Complications, Clinical Features and Management. Skin Grafts – Types, Grafting Procedures, Survival of Skin Graft ; Flaps – Types and uses of Flaps.

Unit X

ENT: Common problems of ear, otitis media, Otosclerosis, functional achonia and deafness, management facial palsy classification, medical and surgical management of lower motor neuron type of facial palsy.

Unit XI

Ophthalmology: Ophthalmologic surgical conditions, refraction's, conjunctivitis, glaucoma, corneal ulcer, iritis, cataract, retinitis, detachment of retina, defects of extra-ocular muscles-surgical management.

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Obstetrics And Gynecology

At the end of the course the candidate will be able to:
Describe the normal and abnormal physiological events during the puberty, labor, puerperium, post– natal stage and menopause.
Discuss the various complications during pregnancy, labour, puerperium and post – natal stage, pre and post-menopausal stage and various aspects of urogenital dysfunction and their management in brief.
Acquire the skill of clinical examination of pelvic floor
Acquire the skill of clinical examination of pregnant woman.

Unit I
Anatomy and physiology of the female reproductive organs. Puberty dynamics

Unit II
Physiology of menstrual cycle –
ovulation cycle, uterine cycle, Cx cycle, duration, amount. Hormonal regulation of menstruation,

Unit III
Hormonal disorders of females-obesity and female hormones

Unit IV
Pregnancy, Diagnosis of pregnancy, Abortion, Physiological changes during pregnancy
Importance of antenatal care exercise, High risk pregnancy, prenatal common complications – investigation and management, Musculoskeletal disorders during pregnancy, Multiple child birth
Normal labor.

Unit V
Child birth complications, investigation and management

Unit VI
Normal puerperium, lactation and importance of post-natal exercises

Unit VII
Family planning.

Unit VIII
Medical termination of pregnancy

Unit IX
Infection of female genital tract including sexually transmitted diseases, low backache

Unit X
Prolapse of uterus and vagina

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Unit XI
Principle of common gynaecological operations – hysterectomy, D&C, D&E, Pop smear

Unit XII
Menopause: Its effect on emotions and musculoskeletal system

Unit XIII
Urogenital dysfunction – pre and post-natal condition

Unit XIV
Sterility: Pathophysiology, investigations, management, Malnutrition and deficiencies in females.

Unit XV
Surgical procedures involving child birth.

Definition, Indications and Management of the following surgical procedures – pelvic repair, caesarian section, nephrectomy, Hysterosalphyngography, Dilatation and Curettage, Laproscopy, Colposopy, Hysterectomy.

Unit XVI
Carcinoma of female reproductive organs – surgical management in brief Mastectomy – Simple, radical. Hysterectomy.

Unit XVII
Incontinence – Types, Causes, Assessment and Management.

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General Medicine

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

Unit I

Infection : Effects of Infection on the body – Pathology – source and spread of infection – vaccinations – generalized infections – rashes and infection – food poisoning and gastroenteritis sexually transmitted diseases – HIV infections and Aids.

Unit II

Poisoning: Clinical features – general management – common agents in poisoning – pharmaceutical agents – drugs of misuse – chemical pesticides – Envenomation.

Unit III

Food and Nutrition: Assessment – Nutritional and Energy requirements; Deficiency diseases – clinical features and treatment; Protein – Energy Malnutrition: Clinical features and treatment;Obesity and its related disorders: Causes – Complications – benefits of weight loss – management of Obesity – diet, exercise and medications.

Unit IV

Endocrine diseases: Common presenting symptoms of Endocrine disease – common classical disease presentations, clinical features and its management; Diabetes Mellitus: Etiology and pathogenesis of diabetes – clinical manifestations of the disease – management of the disease – Complications of diabetes.

Unit V

Diseases of the blood: Examinations of blood disorders – Clinical manifestations of blood disease; Anemia – signs and symptoms – types and management ; Hemophilia - Cause – clinical features severity of disease – management – complications due to repeated hemorrhages – complications due to therapy.

Unit VI

Diseases of the digestive system : Clinical manifestations of gastrointestinal disease – Etiology, clinical features, diagnosis, complications and treatment of the following conditions : Reflux Oesophagitis, Achlasia Cardia, Carcinoma of Oesophagus, GI bleeding, Peptic Ulcer disease, Carcinoma of Stomach, Pancreatitis, Malabsorption Syndrome, Ulcerative Colitis, Peritonitis, Infections of Alimentary Tract ; Clinical manifestations of liver diseases - Aetiology, clinical features, diagnosis, complications and treatment of the following conditions : Viral Hepatitis, Wilson's Disease, Alpha1-antitrypsin deficiency, Tumors of the Liver, Gall stones, Cholycystitis

Unit VII

Diseases of the Skin: Examination and clinical manifestations of skin diseases; Causes, clinical features and management of the following skin conditions: Leprosy, Psoriasis, Pigmentary Anomalies, Vasomotor disorders, Dermatitis, Coccal and Fungal Parasitic and Viral infections.

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Unit VIII

Pediatrics : Problems and management of LBW infants, Perinatal problems and management, Congenital abnormalities and management, Respiratory conditions of childhood, Cerebral Palsy - causes, complications, clinical manifestations, treatment ; Spina Bifida – management and treatment, Epilepsies – types, diagnosis and treatment; Recognizing developmental delay, common causes of delay ; Orthopedic and Neuromuscular disorders in childhood, clinical features and management ; Sensory disorders – problems resulting from loss of vision and hearing ; Learning and behavioural problems – Hyperactivity, Autism, Challenging behaviours, Educational delay, The Clumsy Child.

Health Promotion, Fitness And Wellness

SUBJECT DESCRIPTION - This course includes discussion on the theories of health and wellness, including motivational theory, locus of control, public health initiative, and psycho-Social, spiritual and cultural consideration. Health risks, screening, and assessment considering epidemiological principles are emphasized. Risk reduction strategies for primary and secondary prevention, including programs for special populations are covered.

1. Prevention practice: a holistic perspective for physiotherapy

a. Defining Health

b. Predictions of Health Care

c. Comparing Holistic Medicine and Conventional Medicine

d. Distinguishing Three Types of Prevention Practice.

Healthy People - Definition of healthy people, Health education Resources, Physiotherapist role for a healthy community.

Key concepts of fitness - Defining & Measuring Fitness

Assessment of Stress with a Survey, Visualizing Fitness, Screening for Mental and Physical Fitness, Body Mass Index calculations.

Fitness training

Physical Activities Readiness Questionnaire , Physical Activities Pyramid, Exercise Programs, Evidence-Based Practice.

Health, fitness, and wellness issues during childhood and adolescence

Health, fitness, and wellness during adulthood

Women's health issues: focus on pregnancy:

Prevention practice for older adults

Resources to optimize health and wellness

Health protection.

Prevention practice for musculoskeletal conditions

Prevention practice for cardiopulmonary conditions

Prevention practice for neuromuscular conditions

Prevention practice for integumentary disorders

Prevention practice for individuals with developmental disabilities

Marketing health and wellness.

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VIth SEMESTER

Clinical Neurology & Neurosurgery -II

Unit I

Infections of brain and spinal cord: Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Meningitis, Encephalitis, Poliomyelitis and Post-polio syndrome. Complications of systemic infections on nervous system – Rheumatic fever, Tetanus, and Pertussis

Unit II

Motor neuron diseases: - Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications of following disorders - Amyotrophic lateral sclerosis, Spinal muscular atrophy, Hereditary bulbar palsy.

Unit III

Multiple sclerosis - Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, and complications.

Unit IV

Disorders of neuromuscular junction – Etiology, classification, signs & symptoms, investigations, management, of following disorders Myasthenia gravis.

Unit V

Muscle diseases: Classification, investigations, imaging methods, Muscle biopsy, management of muscle diseases, genetic counselling. Classification, etiology, signs & symptoms of following disorders – Muscular dystrophy, Myotonic dystrophy.

Unit VI

Polyneuropathy – Classification of Polyneuropathies, Hereditary motor sensory neuropathy, hereditary sensory and Autonomic neuropathies, Amyloid neuropathy, acute idiopathic Polyneuropathies. Guillain-Barre syndrome – Causes, clinical features, management of GBS.

Unit VII

Focal peripheral neuropathy: Clinical diagnosis of focal neuropathy, neurotmesis, Axonotmesis, Neuropraxia. Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders – RSD, Brachial plexus palsy, Phrenic & Intercostal nerve lesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy, Musculocutaneous nerve palsy, Anterior & Posterior interosseous nerve palsy, Axillary nerve palsy, Long thoracic nerve palsy, Suprascapular nerve palsy, Sciatic nerve palsy, Tibial nerve palsy, Common peroneal nerve palsy, Femoral nerve palsy, Obturator nerve palsy, Pudental nerve palsy.

Unit VIII

Paediatric neurology: Neural development, Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders - Cerebral palsy, Hydrocephalus, Klippel-Feil syndrome, Achondroplacia, Autism, Dandy walker syndrome and Down's syndrome.

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Unit IX

Toxic, metabolic and environmental disorders: Etiology, risk factors, classification, neurological signs & symptoms, investigations, management, of following disorders – Encephalopathy, Alcohol toxicity, Recreational drug abuse, Toxic gases & Asphyxia, Therapeutic & diagnostic agent toxicity, Metal toxicity, Pesticide poisoning, Environmental & physical insults, Pant & Fungal poisoning, Animal poisons, & Complications of organ transplantation.

Unit X

Introduction, Indications and Complications of following Neuro surgeries: Craniotomy, Cranioplasty, Stereotactic surgery, Deep brain stimulation, Shunting, Laminectomy, Rhizotomy, Microvascular decompression surgery, Ablative surgery - Thalamotomy and Pallidotomy.

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Clinical Orthopedics & Traumatology -II

Unit I

Deformities - clinical features, complications, medical and surgical management of the following Congenital and Acquired deformities.
Congenital Deformities – CTEV, CDH, Torticollis, Scoliosis, Flat foot, Vertical talus.
Hand anomalies- syndactyly, polydactyly and ectrodactly. Arthrogryposis multiplex congenita (amyoplasia congenita).
Limb deficiencies- Amelia and Phocomelia. Klippel feil syndrome. Osteogenesis imperfecta(fragile ossium).
Cervical rib.
Acquired Deformities –
Acquired Torticollis.
Scoliosis.
Kyphosis.
Lordosis.
Genu varum.
Genu valgum.
Genu recurvatum
Coxa vara.
Pes cavus.
Hallux rigidus.
Hallux valgus.
Hammer toe.
Metatarsalgia.

Unit II

Disease of Bones and Joints: Causes, Clinical features, Complications, Management- medical and surgical of the following conditions:
Infective conditions: Osteomyelitis (Acute / chronic). Brodie's abscess. TB spine and major joints like shoulder, hip, knee, ankle, elbow etc.
Arthritic conditions: Pyogenic arthritis. Septic arthritis. Syphilytic infection of joints.
Bone Tumors: classification, clinical features, management - medical and surgical of the following tumors: Osteoma. Osteosarcoma, Osteochondroma. Enchondroma. Ewing's sarcoma. Gaint cell tumor. Multiple myeloma. Metastatic tumors.
Perthes disease, Slipped Capital Femoral Epiphysis and Avascular Necrosis.
Metabolic Bone Diseases: Rickets. Osteomalacia, Osteopenia. Osteoporosis.

Unit III

Inflammatory and Degenerative Conditions: causes, clinical feature, complications, deformities, radiological features, management- conservative and surgical for the following conditions:
Osteoarthritis. Rheumatoid arthritis. Ankylosing spondylitis Gouty arthritis. Psoriatic arthritis. Hemophilic arthritis. Still's disease (juvenile rheumatoid arthritis). Charcot's joints.
Connective Tissue Disorders- Systemic Lupus Erythematosis, Scleroderma, Dermatomyositis, Poliomyelitis, Mixed connective tissue Disease (MCTD)

Unit IV

Syndromes: Causes, Clinical features, complications, management- conservative and surgical of the following:
Cervico brachial syndrome. Thoracic outlet syndrome. Vertebro- basilar syndrome. Scalenus syndrome. Costo clavicular syndrome. Levator scapulae syndrome. Piriformis syndrome.

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Unit V

Neuromuscular Disorders: Definition, causes, clinical feature, complications, management. (Multidisciplinary approach) medical and surgical of the following conditions:
Cerebral palsy.
Poliomyelitis.
Spinal Dysraphism.
Leprosy.Cervical and Lumbar Pathology: Causes, clinical feature, patho-physiology, investigations, management-Medical and surgical for the following:
Prolapsed interverbral disc (PID),
Spinal Canal Stenosis.
Spondylosis (cervical and lumbar)
Spondylolysis.
Spondylolisthesis.
Lumbago/ Lumbosacral strain.
Sacralisation.
Lumbarisation.
Coccydynia.
Hemivertebra.

Unit VI

Orthopedic Surgeries: Indications, Classification, Types, Principles of management of the following Surgeries:
Arthrodesis.
Arthroplasty (partial and total replacement).
Osteotomy,
External fixators.
Spinal stabilization surgeries (Harrington's, Luque's, Steffi plating) etc ,Limb re attachments.

Unit VII

Regional Conditions: Definition, Clinical features and management of the following regional conditions
Shoulder: Periarthritic shoulder (adhesive capsulitis). Rotator cuff tendinitis. Supraspinatus Tendinitis. Infraspinatus Tendinitis. Bicipital Tendinitis. Subacromial Bursitis.
Elbow: Tennis Elbow. Golfer's Elbow. Olecranon Bursitis (student's elbow). Triceps Tendinitis.
Wrist and Hand: De Quervain's Tenosynovitis. Ganglion. Trigger Finger/ Thumb.
Mallet Finger, Carpal Tunnel Syndrome, Dupuytren's Contracture.
Pelvis and Hip: IT Band Syndrome. Piriformis Syndrome. Trochanteric Bursitis.
Knee: Osteochondritis Dissecans. Prepatellar and Suprapatellar Bursitis. Popliteal Tendinitis. Patellar Tendinitis. Chondromalacia Patella. Plica Syndrome. Fat Pad Syndrome (Hoffa's syndrome).
Ankle and Foot: Ankle Sprains. Plantar Fasciitis / Calcaneal Spur. Tarsal Tunnel Syndrome. Achilles Tendinitis. Metatarsalgia. Morton's Neuroma.

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Clinical Cardiovascular And Pulmonary Conditions

SUBJECT DESCRIPTION - Following the basic science and clinical science course, this course introduces the Student in cardio-thoracic conditions which commonly cause disability.
The objective of this course is that after lectures and demonstration in addition to clinics the student will be able to demonstrate an understanding of Cardio-thoracic conditions causing disability and their management. 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 cardiovascular pathology on the functioning of the individual.

Unit I

Anatomy and Physiology a. Respiratory system
Upper respiratory tract
Lower respiratory tract – Trachea, Bronchial tree, Bronchopulmonary segments
Respiratory unit, hilum of lung.
Muscles of respiration
Pleura, intra pleural space, intra pleural pressure, surfactant
Mechanics of respiration – Chest wall movements, lung & chest wall compliance
V/Q relationship, airway resistance
Respiratory centre, Neural & chemical regulation of respiration
Lung volumes and lung capacities, Spiro meter, lung function test
Pulmonary circulation, Lung sounds, cough reflex
b. Cardiovascular systems
Chambers of heart, semi lunar and atria ventricular valves
Coronary circulation, conductive system of heart
Cardiac cycle, ECG, Heart sounds
Blood pressure, pulse, cardiac output

Unit II

Cardio Vascular system
a. Define, etiology, pathogenesis, clinical features, complications,
b. Conservative and surgical management of the following conditions
Ischemia heart disease
Myocardial infarction
Heart failure
Cardiac arrest
Rheumatic fever
Hypertension
Infective endocarditis
Myocarditis & cardiomyopathy
Cardiovascular Disease : Examination of the Cardiovascular System Investigations : ECG, Exercise Stress Testing, Radiology ; Clinical manifestations of Cardiovascular disease ; Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following diseases and disorders of the heart : Pericarditis, Myocarditis, Endocarditis, Rheumatic Fever – resulting in valve disorders, Ischemic Heart Disease, Coronary Valve Disease, Congenital disorders of the Heart, Cardiac Arrest ; Examination and Investigations of diseases of arteries and veins ; Hypertension : Definition, causes, classification, types, assessment, investigations and management.

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Unit III

Respiratory System

Respiratory Disease : Examination of the Respiratory System – Investigations : Chest Radiographs, Pulmonary Function Testing, Arterial Blood Gas Analysis ; Clinical manifestations of Lung disease ; Patterns of lung disease – Chronic Obstructive Lung Disease and Restrictive Lung Disease ; Definition, Etiology, Clinical features, signs and symptoms, complications, management and treatment of following lung diseases : Chronic Bronchitis, Emphysema, Asthma, Bronchiectasis, Cystic Fibrosis, Upper Respiratory Tract Infections, Pneumonia, Tuberculosis, Diseases of the pleura, diaphragm and chest wall ; Respiratory failure – Definition, types, causes, clinical features, diagnosis and management.

Chest wall disorders- Definition, Clinical features, diagnosis and choice of management for the following disorders – chest wall deformities, Pleural Effusion, Empyema Thoracis, Lung abscess, Bronchiectasis, Tuberculosis.

Community Medicine

Unit I

Health and Disease: Definitions, Concepts, Dimensions and Indicators of Health, Concept of well-being, Spectrum and Determinants of Health, Concept and natural history of Disease, Concepts of disease control and prevention, Modes of Intervention, Population Medicine, The role of socio-economic and cultural environment in health and disease.

Unit II

Epidemiology, definition and scope. Principles of Epidemiology and Epidemiological methods: Components and Aims, Basic measurements, Methods, Uses of Epidemiology, Infectious disease epidemiology, Dynamics and modes of disease transmission, Host defenses and Immunizing agents, Hazards of Immunization, Disease prevention and control, Disinfection. Screening for Disease: Concept of screening, Aims and Objectives, Uses and types of screening.

Unit III

Epidemiology of communicable disease: Respiratory infections, Intestinal infections, Arthropod-borne infections, Zoonoses, Surface infections, Hospital acquired infections Epidemiology of chronic non-communicable diseases and conditions: Cardio vascular diseases:

Coronary heart disease, Hypertension, Stroke, Rheumatic heart disease, Cancer, Diabetes, 0besity, Blindness, Accidents and Injuries.

Unit IV

Public health administration- an overview of the health administration set up at Central and state levels. The national health programme-highlighting the role of social, economic and cultural factors in the implementation of the national programmes. Health problems of vulnerable groups-pregnant and lactating women, infants and pre-school children, occupational groups.

Unit V

Health programmes in India: Vector borne disease control programme, National leprosy eradication programme, National tuberculosis programme, National AIDS control programme, National programme for control of blindness, Iodine deficiency disorders (IDD) programme, Universal Immunisation programme, Reproductive and child health programme, National cancer control programme, National mental health programme. National diabetes control programme, National family welfare programme, National sanitation and water supply programme, Minimum needs programme.

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Unit VI

Demography and Family Planning: Demographic cycle, Fertility, Family planning-objectives of national family planning programme and family planning methods, A general idea of advantage and disadvantages of the methods.

Unit VII

Preventive Medicine in Obstetrics, Paediatrics and Geriatrics: MCH problems, Antenatal, Intranatal and post-natal care, Care of children, Child health problems, Rights of child and National policy for children, MCH services and indicators of MCH care, Social welfare programmes for women and children, Preventive medicine and geriatrics.

Unit VIII

Nutrition and Health: Classification of foods, Nutritional profiles of principal foods, Nutritional problems in public health, Community nutrition programmes.

Environment and Health: Components of environment, Water and air pollution and public health: Pollution control, Disposal of waste, Medical entomology.

Unit IX

Hospital waste management: Sources of hospital waste, Health hazards, Waste management.

Disaster Management: Natural and man-made disasters, Disaster impact and response, Relief phase, Epidemiologic surveillance and disease control, Nutrition, Rehabilitation, Disaster preparedness.

Occupational Health: Occupational environment, Occupational hazards, Occupational diseases, Prevention of occupational diseases. Social security and other measures for the protection from occupational hazard accidents and diseases. Details of compensation acts.

Unit X

Mental Health: Characteristics of a mentally healthy person, Types of mental illness, Causes of mental ill health, Prevention, Mental health services, Alcohol and drug dependence. Emphasis on community aspects of mental health. Role of Physiotherapist in mental health problems such as mental retardation.

Health Education: Concepts, aims and objectives, Approaches to health education, Models of health education, Contents of health education, Principles of health education, Practice of health education.

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Biostatistics & Research Methodology

RESEARCH METHODOLOGY

Unit I

Introduction to Research methodology: Meaning of research, objectives of research, Motivation in research, Types of research & research approaches, Research methods vs methodology, Criteria for good research, Problems encountered by researchers in India.

Unit II

Research problem: Statement of research problem., Statement of purpose and objectives of research problem, Necessity of defining the problem

Unit III

Research design: Meaning of research design, Need for research design, Features for good design, Different research designs, Basic principles of research design

Unit IV

Sampling Design: Criteria for selecting sampling procedure, Implications for sample design, steps in sampling design, characteristics of good sample design, Different types of sample design

Unit V

Measurement & scaling techniques: Measurement in research- Measurement scales, sources of error in measurement, Technique of developing measurement tools, Meaning of scaling, its classification. Important scaling techniques.

Unit VI

Methods of data collection: collection of primary data, collection data through questionnaires & schedules, Difference between questionnaires & schedules.

Unit VII

Sampling fundamentals, need for sampling & some fundamental definitions, important sampling distributions.

Unit VIII

Processing & analysis of data: Processing operations, problems in processing, Types of analysis, Statistics in research, Measures of central tendency, Dispersion, Asymmetry, relationship.

Unit IX

Testing of hypothesis: What is hypothesis? Basic concepts concerning testing of hypothesis, Procedure of hypothesis testing, measuring the power of hypothesis test, Tests of hypothesis, limitations of the tests of hypothesis

Unit X

Computer technology: Introduction to Computers, computer application in research, computers & researcher.

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BIOSTATISTICS

Unit I

Introduction: Meaning, definition, characteristics of statistics., Importance of the study of statistics, Branches of statistics, Statistics and health science including physiotherapy, Parameters and Estimates, Descriptive and inferential statistics, Variables and their types, Measurement scales.

Unit II

Tabulation of Data: Basic principles of graphical representation, Types of diagrams – histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, Normal probability curve.

Unit III

Measure of Central Tendency: Need for measures of central Tendency, Definition and calculation of mean – ungrouped and grouped, Meaning, interpretation and calculation of median ungrouped and grouped., Meaning and calculation of mode, Comparison of the mean, median and mode, Guidelines for the use of various measures of central tendency.

Unit IV

Probability and Standard Distributions: Meaning of probability of standard distribution, the binominal distribution, the normal distribution, Divergence from normality – skew ness, kurtosis.

Unit V

Sampling techniques: Need for sampling - Criteria for good samples, Application of sampling in community, Procedures of sampling and sampling designs errors, Sampling variation and tests of significance.

Unit VI

Analysis of variance & covariance: Analysis of variance (ANOVA), what is ANOVA? Basic principle of ANOVA, ANOVA technique, Analysis of Co variance (ANACOVA).

Unit VII

Format of scientific documents. (Structure of protocols, formats reporting in scientific journals, systematic reviews and meta-analysis).

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Physiotherapy Laws And Ethics, Professionalism And Values

Legal and ethical considerations are firmly believed to be an integral part of medical practice in planning patient care. Advances in medical sciences, growing sophistication of the modern society's legal framework, increasing awareness of human rights and changing moral principles of the community at large, now result in frequent occurrences of healthcare professionals being caught in dilemmas over aspects arising from daily practice.

Medical/ Physiotherapy ethics has developed into a well based discipline which acts as a "bridge" between theoretical bioethics and the bedside. The goal is "to improve the quality of patient care by identifying, analyzing, and attempting to resolve the ethical problems that arise in practice". Doctors are bound by, not just moral obligations, but also by laws and official regulations that form the legal framework to regulate medical practice. Hence, it is now a universal consensus that legal and ethical considerations are inherent and inseparable parts of good medical practice across the whole spectrum. Few of the important and relevant topics that need to focus on are as follows:

1. Medical ethics versus medical law - Definition - Goal - Scope
Introduction to Code of conduct
Basic principles of medical ethics – Confidentiality
Malpractice and negligence - Rational and irrational drug therapy
Autonomy and informed consent - Right of patients
Care of the terminally ill- Euthanasia
Organ transplantation
Medical diagnosis versus physiotherapy diagnosis.
Medico legal aspects of medical records – Medico legal case and type- Records and documentrelated to MLC - ownership of medical records - Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - other various aspects.
Professional Indemnity insurance policy
Development of standardized protocol to avoid near miss or sentinel events

Obtaining an informed consent.
Biomedical ethical principles
Code of ethics for physiotherapists
Ethics documents for physiotherapists
Laws affecting physiotherapy practice

The module on professionalism will deliver the concept of what it means to be a professional and how physiotherapy profession is different from a usual vocation. It also explains how relevant is professionalism in terms of healthcare system and how it affects the overall patient environment.

Professional values- Integrity, Objectivity, Professional competence and due care, Confidentiality.
Core values- Accountability, Altruism, Compassion/ caring, excellence, integrity, professional duties, social responsibility.
Personal values- ethical or moral values
Attitude and behavior- professional behavior, treating people equally
Code of conduct , professional accountability and responsibility, misconduct
Differences between professions and importance of team efforts
Cultural issues in the healthcare environment
Entry level health care practitioner, direct access, autonomy in profession, practitioner of practice and evidence based practice.

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The five roles of the Physiotherapist -

The Physiotherapist as Patient/Client manager a. Evaluation and diagnosis
b. Diagnosis as clinical decision making
c. Prognosis
d. Discharge planning and discontinuance of care
e. Discontinuance of care
Outcomes
Clinical decision making
Referral relationships
Interpersonal relationships
Ethical and legal issues
Informed consent
Managed care and fidelity.
The Physiotherapist as Consultant
Physiotherapy consultation
b. Building a consulting business
c. The consulting process
d. The skills of a good consultant
e. Trust in the consultant/client relationship
f. Ethical and legal issues in consultation
g. Components of a consulting agreement.
3. The Physiotherapist as Critical Inquirer
a. History of critical inquiry
b. Evidence-based practice
c. Outcomes research
d. Whose responsibility is research?
e. Roles of the staff physiotherapist in critical inquiry f. Collaboration in clinical research
g. Ethical and legal issues in critical inquiry.

The Physiotherapist as Administrator
a. History of physiotherapy administration
b. Contemporary physiotherapy administration
c. Patient/client management
d. First-line management
e. Midlevel managers and chief executive officers
Leadership
Ethical and legal issues.
The Physiotherapist as Educator
History of physiotherapy education
b. Contemporary educational roles of the physiotherapist c. Teaching opportunities in continuing education d. Academic teaching opportunities
e. Theories of teaching and learning in professional education f. Ethical and legal issues in physiotherapy education.

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VIIth SEMESTER

Physiotherapy In Orthopedics & Sports -I

Unit I

PT assessment for Orthopedic conditions - SOAP format. Subjective - history taking, informed consent, personal, past, medical and socioeconomic history, chief complaints, history of present illness. Pain assessment- intensity, character, aggravating and relieving factors, site and location. Objective- on observation - body built swelling, muscle atrophy, deformities, posture and gait. On palpation- tenderness-grades, muscle spasm, swelling-methods of swelling assessment, bony prominences, soft tissue texture and integrity, warmth and vasomotor disturbances. On examination – ROM – active and passive, resisted isometric tests, limb length-apparent, true and segmental , girth measurement, muscle length testing-tightness, contracture and flexibility, manual muscle testing, peripheral neurological examination-dermatomes, myotomes and reflexes, special tests and functional tests. Prescription of home program. Documentation of case records, and follow up.

Unit II

Fractures - types, classification, signs and symptoms, complications. Fracture healing - factors affecting fracture healing. Principles of fracture management - reduction - open and closed, immobilization - sling, cast, brace, slab, traction - manual, mechanical, skin, skeletal, lumbar and Cervical traction, external fixation, functional cast bracing. PT management in complications - early and late - shock, compartment syndrome, VIC, fat embolism, delayed and mal union, RSD, myositis ossificans, AVN, pressure sores etc. Physiotherapy assessment in fracture cases. Aims of PT management in fracture cases - short and long term goals. Principles of PT management in fractures - Guidelines for fracture treatment during period of immobilization and guidelines for treatment after immobilization period.

Unit III

Specific fractures and dislocations: PT assessment and management of upper limb fractures and dislocations. PT assessment and management of lower limb fractures and dislocations including pelvis. PT assessment and management spinal fractures.

Unit IV

Selection and application of physiotherapeutic techniques, maneuver's, modalities for preventive, curative and rehabilitative means in all conditions.

Unit V

Principles of various schools of thought in manual therapy. (Briefly Maitland and Mc kenzie).

Unit VI

Degenerative and inflammatory conditions: Definition, signs and symptoms, clinical features, path physiology, radiological features, deformities, medical, surgical management. Describe the PT assessment and management and home program for the following conditions – Osteoarthritis - emphasis mainly on knee, hip and hand, Rheumatoid Arthritis, Ankylosing spondylitis, Gout, Perthes disease, Periarthritic shoulder.

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Unit VII

Infective conditions: Definition, signs and symptoms, clinical features, pathophysiology, radiological features, medical, surgical management. Describe PT assessment and management for following conditions – Osteomyelitis – acute and chronic, Septic arthritis, pyogenic arthritis, TB spine and major joints - knee and hip.

Unit VIII

Define, review the postural abnormalities of spinal column, clinical features, deformities, medical and surgical management. Describe PT assessment and management and home program.

Unit IX

Deformities: Review in detail the causes, signs and symptoms, radiological features, medical and surgical management. Describe the PT. assessment and management of the following conditions: Congenital: CTEV, CDH, Torticollis, pes planus, pes cavus and other common deformities. Acquired: scoliosis, kyphosis, coxa vara, genu varum, valgum and recurvatum.

Unit X

Cerebral palsy: Definition, etiology, classification, clinical features, complications, deformities, medical and surgical management and home program with special emphasis on carrying techniques. PT management after surgical corrections.

Unit XI

Poliomyelitis: Definition, etiology, types, pathophysiology, clinical features, deformities, medical and surgical management. PT. assessment and management after surgical corrections and reconstructive surgeries - emphasis on tendon transfer and home program.

Unit XII

Leprosy: Definition, cause, clinical features, medical and surgical management. PT assessment, aims, and management after surgical procedures such as tendon transfer both pre and post operatively.

Unit XIII

Spinal conditions: Review the causes, signs and symptoms, investigations, radiological features, neurological signs. PT assessment, aims, and management and home program of the following conditions: Cervical spondylosis, Lumbar spondylosis, Spondylolisthesis, Spinal canal stenosis, Spondylolysis, Sacro-iliac joint dysfunction, Sacralisation, Lumbarisation, Intervertebral disc prolapse, Coccydynia, Spina bifida occulta.

Unit XIV

Effects of spinal traction, types of traction, modes of application, indications for spinal traction, contraindications, precautions, limitations of traction.

Unit XV

Osteoporosis- causes, predisposing factors, investigations and treatment.

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Physiotherapy In Neurology

Unit I

Neurological Assessment: Required materials for examination, Chief complaints, History taking – Present, Past, medical, familial, personal histories, Observation, Palpation, Higher mental function – Consciousness, Orientation, Wakefulness, memory, Speech, Reading, Language, Writing, Calculations, Perception, Left right confusion, Reasoning, and Judgment, Motor Examination – Muscle power, Muscle tone, Spasticity, Flaccidity, Reflexes – Developmental reflexes, deep tendon reflexes, Superficial reflexes, Sensory examination – Superficial, Deep and Cortical sensations, Special tests – Romberg's, Kernig's sign, Brudenzki sign, Tinels's sign, Slum test, Lehermitte's sign, Bells Phenomenon, Gower's sign, Sun set sign, Battle's sign, Glabellar tap sign, etc, Balance examination, coordination examination, Gait analysis – Kinetics & Kinematics (Quantitative & Qualitative analysis), Functional Analysis, Assessment tools & Scales – Modified Ashworth scale, Berg balance scale, FIM, Barthel index, Glasgow coma scale, Mini mental state examination, Rancho Los Amigos Scale for Head injury, APGAR score, ASIA scale, Reflex Grading. Differential diagnosis.

Unit II

Neuro physiological Techniques – Concepts, Principles, Techniques, Effects of following Neurophysiological techniques: NDT, PNF, Vojta therapy, Rood's Sensory motor Approach, Sensory Integration Approach, Brunnstorm movement therapy, Motor relearning program, Contemporary task oriented approach, Muscle re-education approach and Constraint induced movement therapy.

Unit III

Paediatric Neurology: Paediatric Examination, Developmental milestones, developmental reflexes, Neuro developmental screening tests. Evaluation & Management - History, Observation, Palpation, Milestone Examination, developmental reflex Examination, Higher mental function, Cranial nerve examination, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches & Modalities in Risk babies, Minimum brain damage, Developmental disorders,Cerebral palsy, Autism, Down's Syndrome, Hydrocephalus, Chorea, Spina bifida, and syringomyelia.

Unit IV

Evaluation and Management of Brain and Spinal Cord Disorders : History, Observation, Palpation, Higher mental function, Cranial nerve examination, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches& Modalities in Cerebro vascular Accident, Meningitis, Encephalitis, Head Injury, Brain Tumors, Perceptual disorders, Amyotrophic lateral sclerosis, and Multiple sclerosis.

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Unit V

Evaluation and Management of Cerebellar, Spinal Cord and Muscle Disorders : History, Observation, Palpation, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches&Modalities in Ataxia, Sensory Ataxia, Parkinson's disease, Muscular dystrophy (DMD),Myasthenia Gravis, Eaton-Lambert Syndrome, Spinal tumors, Spinal cord injury, Transverse myelitis, Bladder & Bowel Dysfunction, Spinal muscular atrophies, Poliomyelitis, Post-Polio Syndrome.

Unit VI

Evaluation and Management of Peripheral Nerve Injuries and Disorders : History, Observation, Palpation, Motor & Sensory examination, Reflex testing, differential Diagnosis, Balance & Coordination examination, Gait analysis, Functional analysis, List of Problems & Complications, short & Long Term goals, Management of systemic complications, Management of Mechanical Complications, Use of various Neurophysiological approaches& Modalities in Hereditary motor sensory neuropathy, Guillain-Barre syndrome, Brachial plexus palsy, Thoracic outlet syndrome, Lumbosacral plexus lesions, Phrenic & intercostals nerve lesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy, Musculocutaneous nerve palsy, Anterior & Posterior interosseous nerve palsy, Axillary nerve palsy, Long thoracic nerve palsy, Suprascapular nerve palsy, sciatic nerve palsy, Tibial nerve palsy, Common peroneal nerve palsy, Femoral nerve palsy, Obturator nerve palsy, and Pudental nerve palsy.

Unit VII

Assessment and management of Neurological gaits: Quantitative and Qualitative (Kinetic & Kinematics) analysis, List of Problems, short & Long Term goals, Management of following Neurological Gaits - Hemiplegic gait, Parkinson gait, High step gait, Hyperkinetic gait, Hypokinetic gait, Waddling gait, Scissoring gait, Spastic gait, Choreaform Gait, Diplegic Gait, and Myopathic Gait.

Pre and post-surgical assessment and treatment following conditions - Spinal disc herniation, Spinal stenosis, Spinal cord trauma, Head trauma, Brain tumors, Tumors of the spine, Spinal cord and peripheral nerves, Cerebral aneurysms, Subarachnoid hemorrhages, epilepsy, Parkinson's disease, Chorea, Hemiballism, Psychiatric disorders, Malformations of the nervous system, Carotid artery stenosis , Arteriovenous malformations, and Spina bifida.

Applied Yoga in Neurological conditions.

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Physiotherapy in General Medicine

Unit I
Physiotherapy in dentistry

Unit II
Burns and its treatment – physiotherapy in burns, skin grafts, and reconstructive surgeries.

Unit III
Management of wound ulcers- Care of ulcers and wounds - Care of surgical scars-U.V.R and other electro therapeutics for healing of wounds, prevention of Hyper-granulated Scars Keloids, Electrotherapeutics measures for relief of pain during mobilization of scars tissues.
Physiotherapy intervention in the management of Medical, Surgical and Radiation Oncology Cases.

Unit IV
Physiotherapy in dermatology -Documentation of assessment, treatment and follow up skin conditions. U.V.R therapy in various skin conditions; Vitiligo; Hair loss; Pigmentation; Infected wounds ulcers. Faradic foot bath for Hyperhydrosis. Massage maneuvers for cosmetic

Unit V
Purpose of skin; use of specific oil as medium; Care of anesthetic hand and foot; Evaluation, planning and management of leprosy-prescription, fitting and training with prosthetic and orthotic devices.

Unit VI
ENT – sinusitis, non-suppurative and chronic suppurative otitis media, osteosclerosis, labrynthitis, mastoidectomy, chronic rhinitis, laryngectomy, pharyngeo – laryngectomy, facial palsy.

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Diagnostic Imaging For Physiotherapist

SUBJECT DESCRIPTION- This course covers the study of common diagnostic and therapeutic imaging tests. At the end of the course students will be aware of the indications and implications of commonly used diagnostic imaging tests as they pertain to patient's management. The course will cover that how X-Ray, CT, MRI, Ultrasound and Other Medical Images are created and how they help the health professionals to save lives.

Unit I

IMAGE INTERPRETATION a. a. History
b. A New Kind of Ray
c. How a Medical Image Helps
d. What Imaging Studies Reveal
e. Radiography(x-rays)
f.Fluoroscopy
g.Computed Tomography (CT)
h.Magnetic Resonance Imaging (MRI)
i.Ultrasound
j.Endoscopy.

Unit II

RADIOGRAPHY AND MAMMOGRAPHY
a.Equipment components
b. Procedures for Radiography & Mammography
c. Benefits versus Risks and Costs
d. Indications and contraindications.

Unit III

FLUOROSCOPY
a. What is Fluoroscopy?
b. Equipment used for fluoroscopy
c. Indications and Contra indications
d. How it helps in diagnosis

Unit IV

COMPUTED TOMOGRAPHY (CT)
a. What is Computed Tomography?
b. Equipment used for Computed Tomography
c. Indications and Contra indications
d. How it helps in diagnosis
e. The Findings in Computed Tomography
f. Benefits versus Risks and Costs.

Unit V

MAGNETIC RESONANCE IMAGING (MRI)
a. What is MRI?
b. Equipment used for MRI
c. Indications and Contra indications
d. How it helps in diagnosis

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e. The Findings in MRI
f. Benefits versus Risks and Costs
g. Functional MRI.

Unit VI
ULTRASOUND
a. What is Ultrasound?
b. Equipment used for Ultrasound
c. Indications and Contra indications
d. How it helps in diagnosis
e. The Findings in Ultrasound
f. Benefits versus Risks and Costs.

Unit VII
ENDOSCOPY
a. What is Endoscopy?
b. Equipment used for Endoscopy
c. Indications and Contra indications
d. How it helps in diagnosis

Unit VIII
NUCLEAR MEDICINE
a. What is Nuclear Medicine?
b. Equipment used for Nuclear Medicine
c. Indications and Contra indications

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Human Psychiatry

Unit I
Classifications,
Causes,
Clinical manifestations
and treatment methods used in Psychiatry.

Unit II
Modalities of psychiatric treatment,
Psychiatric illness and physiotherapy,
Brief description of Etio-pathogenesis, manifestations, and management of psychiatric illnesses -.

Unit III
Anxiety
neurosis,
Depression,
Obsessive compulsive neurosis,
Psychosis,

Unit IV
Maniac-depressive psychosis,
Post-traumatic stress disorder,
Psychosomatic reactions:
Stress and Health, theories of Stress – Illness.
Etio-pathogenesis, manifestations, and management of psychiatric illness

Unit V
Drug dependence and alcoholism,Somatoform and Dissociate Disorders – conversion reactions, Somatization, Dissociate Amnesia, and Dissociate Fugue,

Unit VI
Personality disorders

Unit VII
Child psychiatry - manifestations, and management of childhood disorders -attention deficit syndrome and behavioral disorders.

Unit VIII
Geriatric psychiatry.

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Principles Of Management

The course is intended to provide a knowledge about the basic principles of Management.

Unit I
Introduction to management

Unit II
Strategic Management

Unit III
Foundations of Planning

Unit IV
Planning Tools and Techniques

Unit V
Decision Making, conflict and stress management

Unit VI
Managing Change and Innovation

Unit VII
Understanding Groups and Teams

Unit VIII
Leadership

Unit IX
Time Management

Unit X
Cost and efficiency

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Physiotherapy In Orthopedics & Sports Lab

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

Physiotherapy In Neurology Lab

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

Bedside case presentations and case discussions
Lab sessions consisting of evaluation and assessment methods on student models, treatment technique sand practice sessions.

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VIII[th] SEMESTER

Physiotherapy in Orthopedics & Sports - II

Unit I

Orthopedic surgeries: Pre and post-operative PT assessment, goals, precautions and PTmanagement of following surgeries such as : Arthrodesis, Osteotomy, Arthroplasty-partial and total - Excision arthroplasty, excision arthroplasty with implant, interpositional arthroplasty and total replacement; Tendon transplant, Soft tissue release- tenotomy, myotomy, lengthening; Arthroscopy, Spinal stabilization, Re-attachment of limbs, External fixators, Synovectomy.

Unit II

Shoulder joint: Shoulder instabilities, TOS, RSD, Impingement syndrome - conservative and post-operative PT management. Total shoulder replacement and Hemi replacement. - Post operative PT management. AC joint injuries - rehabilitation. Rotator cuff tears-conservative and surgical repair. Subacromial decompression - Post operative PT management.

Unit III

Elbow and forearm: Excision of radial head - Post operative PT management. Total elbow arthroplasty- Post operative PT management.

Unit IV

Wrist and Hand: Total wrist arthroplasty. Repair of ruptured extensor tendons. Carpal tunnel syndrome. Flexor and extensor tendon lacerations - Post operative PT management.

Hip: Joint surgeries - hemi and total hip replacement - Post operative PT management Tendonitis and bursitis. - Management.

Unit V

Knee: Lateral retinacular release, chondroplasty- Post operative management. Realignment of extensor mechanism. ACL and PCL reconstruction surgeries - Post operative rehabilitation. Meniscectomy and meniscal repair - Post operative management. Plica syndrome, patellar dysfunction and Hoffa's syndrome- conservative management. TKR- rehabilitation protocol. Patellar tendon ruptures and Patellectomy- rehabilitation.

Unit VI

Ankle and foot: Ankle instability. Ligamentous tears- Post operative management.

Introduction to Bio-Engineering; Classification of Orthoses and prostheses; Biomechanical principles of orthotic and prosthetic application; Designing of upper extremity, lower extremity and spinal orthosis, indications and check out; Designing of upper extremity and lower extremity prostheses, indications and check out; Psychological aspects of orthotic and prosthetic application; prescription and designing of footwear and modifications; Designing and construction of adaptive devises.

Unit VII

Amputations: Definition, levels, indications, types, PT assessment, aims, management pre and post operatively. PT management with emphasis on stump care and bandaging. Pre and post prosthetic training, checking out prosthesis, complications of amputations and its management.

Unit VII

Sports Physiotherapy: Physical fitness. Stages of soft tissue healing. Treatment guidelines for soft tissue injuries- Acute, Sub acute and chronic stages. Repair of soft tissues- rupture of muscle, tendon and Ligamentous tears. Soft tissue injuries- prevention and rehabilitation of, Lateral ligament sprain of ankle. Rotator cuff injuries. Collateral and Cruciate injuries of knee. Meniscal injuries of knee. Supraspinatus and Bicipital tendonitis. Pre patellar and Sub-acromial bursitis. Tennis and Golfer's elbow. Hamstring strains, Quadriceps contusion, TA rupture. Dequervain's tenosynovitis. Trigger and Mallet finger. Plantar fasciitis. Wrist sprains.Applied Yoga in orthopedic conditions.

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Physiotherapy In Cardio Vascular Pulmonary And Intensive Care

SUBJECT DESCRIPTION - The subject is designed to provide knowledge in assessing and planning physiotherapy interventions for various General, Medical and Surgical conditions. The student must be able to reassess the patient as necessary, to monitor the patient in regard to treatment, to monitor the patient's vital signs, student must know emergency drugs indication and contra-indication, care in intensive care unit (ICU) and to provide appropriate interventions to the patient.

THEORY -

Unit I
Anatomical and Physiological differences between the Adult and Pediatric lung.

Unit II
Bedside assessment of the patient-Adult & Pediatric.

Unit III
Investigations and tests – Exercise tolerance Testing – Cardiac & Pulmonary, Radiographs, PFT, ABG, ECG, Hematological and Biochemical Tests.

Unit IV
Physiotherapy techniques to increase lung volume – controlled mobilization, positioning, breathing exercises, Neurophysiological Facilitation of Respiration, Mechanical aids-Incentive Spirometry, CPAP,IPPB.

Unit V
Physiotherapy techniques to decrease the work of breathing – Measures to optimize the balance between energy supply and demand, positioning, Breathing re-education – Breathing control techniques, mechanical aids – IPPB, CPAP, BiPAP.

Unit VI
Physiotherapy techniques to clear secretions – Hydration, Humidification & Nebulisation, Mobilisation and Breathing exercises, Postural Drainage, Manual techniques – Percussion, Vibration and Shaking, Rib Springing, ACBT, Autogenic Drainage, Mechanical Aids – PEP, Flutter, IPPB, Facilitation of Cough and Huff, Nasopharyngeal Suctioning.

Unit VII
Drug therapy – Drugs to prevent and treat inflammation, Drugs to treat Bronchospasm, Drugs to treat Breathlessness, Drugs to help sputum clearance, Drugs to inhibit coughing, Drugs to improve ventilation, Drugs to reduce pulmonary hypertension, Drug delivery doses, Inhalers and Nebulisers.

Unit VIII
Neonatal and Pediatric Physiotherapy – Chest physiotherapy for children, The neonatal unit, Modifications of chest physiotherapy for specific neonatal disorders, Emergencies in the neonatal unit.

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Unit IX

Physiotherapy in Obstructive lung conditions.
Physiotherapy in Restrictive lung conditions.
Management of breathlessness.
Pulmonary Rehabilitation.
Physiotherapy following Lung surgeries
Respiratory failure – Oxygen Therapy and Mechanical Ventilation.

Unit X

Introduction to ICU : ICU monitoring –Apparatus, Airways and Tubes used in the ICU - Physiotherapy in the ICU – Common conditions in the ICU – Tetanus, Head Injury, Lung Disease, Pulmonary Oedema, Multiple Organ Failure, Neuromuscular Disease, Smoke Inhalation, Poisoning, Aspiration, Near Drowning, ARDS, Shock; Dealing with an Emergency Situation in the ICU.

Unit XI

Physiotherapy management following cardiac surgeries.
Cardiac Rehabilitation.
Physiotherapy management following PVD.

Unit XII

Abdominal Surgeries - Management of Pulmonary Restorative Dysfunction following surgical procedures on Abdomen and Thorax.

Unit XIII

Management of Amputations following Diabetes, PVD - Prosthesis in amputations of lower limbs following ulcers and gangrenes.

Unit XIV

Home program and education of family members in patient care.
Treatment, Response to exercise and Implications of Physiotherapy in the following disease conditions: Hypertension, Diabetes, Renal Failure and Obesity.

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Physiotherapy In General Surgery

SUBJECT DESCRIPTION -At the end of the course the candidate will be able to:

Identify discuss and analyze cardiovascular and pulmonary dysfunctions based on pathophysiological principles and arrive at appropriate functional diagnosis.
Acquire knowledge of rationals of basic investigative approaches in the medical system and surgical intervention, regimes in general surgeries (special emphasis on abdominal surgeries)
Execute effective physiotherapeutic measures (with appropriate clinical reasoning) and exercise, conditioning in general medical and surgical conditions.
Acquire knowledge of the overview of patient's care in the I.C.U. for bronchial hygiene and continuous monitoring of the patient in I.C.U.
Select strategies for cure, care and prevention, adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work and in community.
Acquire the knowledge of evaluation and physiotherapeutic treatment for obstetric and gynecological conditions
Acquire the knowledge of various conditions where physiotherapy plays a vital role in the rehabilitation (psychiatry, dermatology, geriatric and ENT conditions)
Evaluate, grade and treat non healing wounds.

THEORY

Unit I
Physiotherapy in mother and child care – ante and post-natal management, early intervention and stimulation therapy in child care (movement therapy)

Unit II
Geriatrics – handling of old patients and their problems.

Unit III
Complication common to all operations

Unit IV
Abdominal incisions.

Unit V
Physiotherapy in pre and post-operative stages.

Unit VI
Operations on upper G.I.T.- oesophagus, stomach, duodenum

Unit VII
Operations on large and small intestine – Appendisectomy, cholecystectomy, partial colectomy, ileostomy, hernia and herniotomy, hernioraphy, hernioplasty.

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Community Physiotherapy

SUBJECT DESCRIPTION - The subject serves to integrate the knowledge gained by the students in community medicine and other areas with skills to apply these in clinical situations of health and disease and its prevention. The objective of the course is that after the specified hours of lectures and demonstrations the student will be able to identify rehabilitation methods to prevent disabilities and dysfunctions due to various disease conditions and plan and set treatment goals and apply the skills gained in rehabilitating and restoring functions.

Unit I

Rehabilitation: Definition, Types.

Unit II

Community: Definition of Community, Multiplicity of Communities, The Community based approach, Community Entry strategies, CBR and Community development, Community initiated versus community oriented programme, Community participation and mobilization.

Unit III

Introduction to Community Based Rehabilitation: Definition, Historical review, Concept of CBR, Need for CBR, Difference between Institution based and Community based Rehabilitation, Objectives of CBR, Scope of CBR, Members of CBR team, Models of CBR.

Unit IV

Principles of Community based Rehabilitation. W.H.O.`s policies-about rural health care-concept of primary /tertiary health centers-district hospitals etc-Role of P.T.-Principles of a team work of Medical person/P.T./O.T. audiologist/speech therapist /P.&O./vocational guide in C.B.R. of physically handicapped person , Agencies involved in rehabilitation of physical handicapped - Legislation for physically handicapped. Concept of multipurpose health worker. Role of family members in the rehabilitation of a physically handicapped.

Unit V

Planning and management of CBR Programmes, CBR Programmed planning and management, Ownership and Governance, Decentralization and CBR, Management of CBR,Programmed sustainability, Communication and Coordination, Community participation, mobilization and awareness, CBR programme influence on promoting and developing public policies.

Unit VI

Disability: Definition of Impairment, Handicap and Disability, Difference between impairment, handicap and disability, Causes of disability, Types of disability, Prevention of disability, Disability in developed countries, Disability in developing countries. Disability Surveys: Demography. Screening: Early detection of disabilities and developmental disorders, Prevention of disabilities- Types and levels.

Unit VII

Disability Evaluation: Introduction, What, Why and How to evaluate, Quantitative versus Qualitative data, Uses of evaluation findings.

Unit VIII

Role of Government in CBR: Laws, Policies, Programmes, Human Rights Policy, Present rehabilitation services, Legal aspects of rehabilitation.

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Unit IX

Role of Social work in CBR: Definition of social work, Methods of social work, History of social work, Role of social worker in rehabilitation.
Role of voluntary Organizations in CBR: Charitable Organizations, Voluntary health agencies

Unit X

National level and International NGO's, Multilateral and Bilateral agencies. International Health Organizations: WHO, UNICEF, UNDP, UNFPA, FAO, ILO, World bank, USAID, SIDA, DANIDA, Rockfeller, Ford foundation, CARE, RED CROSS.

Unit XI

National District Level Rehabilitation Programme: Primary rehabilitation unit, Regional training center, District rehabilitation center, Primary Health center, Village rehabilitation worker, Anganwadi worker

Unit XII

Role of Physiotherapy in CBR: Screening for disabilities, Prescribing exercise programme, Prescribing and devising low cost locally available assisstive aids, Modifications physical and architectural barriers for disabled, Disability prevention, Strategies to improve ADL, Rehabilitation programmes for various neuro-musculoskeletal and cardiothoracic disabilities.

Unit XIII

Screening and rehabilitation of paediatric disorders in the community: Early detection of high risk babies, Maternal nutrition and education, Rehabilitation of Cerebral Palsy, Polio, Downs Syndrome, Muscular Dystrophies etc., Prevention and rehabilitation of mental retardation and Behavioural disorders, Immunization programmes, Early intervention in high risk babies, Genetic counselling.

Unit XIV

Extension services and mobile units: Introduction, Need, Camp approach.
Vocational training in rehabilitation: Introduction, Need, Vocational evaluation, Vocational rehabilitation services.

Unit XV

Geriatrics- Physiology of Aging /degenerative changes-Musculoskeletal /Neuromotor /cardio – respiratory-/Metabolic, Endocrine, Cognitive, Immune systems. Role of Physio Therapy in Hospital based care. Institution based Geriatric Rehabilitation. Few conditions:- Alzheimer's disease, Dementia, Parkinson's Disease, Incontinence, Iatrogenic drug reactions, etc. Ethics of Geriatric Rehabilitation.

Unit XVI

Mechanical hazards-overuse/fatigue injuries due to ergonomic alteration & ergonomic evaluation of work place-mechanical stresses per hierarchy –
sedentary table work –executives, clerk,
inappropriate seating arrangement- vehicle drivers
constant standing- watchman- Defense forces, surgeons,
Over-exertion in laborers,-common accidents –Role of P.T.-Stress management.
Psychological hazards- e.g.-executives, monotonicity & dissatisfaction in job, anxiety of work completion with quality, Role of P.T. in Industrial setup & Stress management-relaxation modes.
Biological Hazards

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Clinical Reasoning And Evidence Based Physiotherapy Practice

Unit I

Introduction to Evidence Based Practice: Definitions, Evidence Based Practice,

Unit II

Concepts of Evidence based Physiotherapy: Awareness, Consultation, Judgement, and Creativity

Unit III

Development of Evidence based knowledge, The Individual Professional, Professionals within a discipline, and Professionals across disciplines

Unit IV

Evidence Based Practitioner: The Reflective Practitioner, The E Model, Using the E Model

Unit V

Finding the Evidence: Measuring outcomes in Evidence Based Practice, Measuring Health Outcomes, Measuring clinical outcomes, Inferential statistics and Causation

Unit VI

Searching for the Evidence: Asking Questions, Identifying different sources of evidence, Electronic Bibliographic databases and World Wide Web, Conducting a literature search. Step by-step search for evidence

Unit VII

Assessing the Evidence: Evaluating the evidence; Levels of evidence in research using quantitative methods, Levels of evidence classification system, Outcome Measurement, Biostatistics, The critical review of research using qualitative methods

Unit VIII

Systematically reviewing the evidence: Stages of systematic reviews, Meta-analysis, The Cochrane collaboration

Unit IX

Economic evaluation of the evidence: Types of economic evaluation, conducting economic evaluation, critically reviewing economic evaluation, locating economic evaluation in the literature

Using the evidence: Building evidence in practice; Critically Appraised Topics (CATs), CAT format, Using CATs, Drawbacks of CATs

Unit X

Practice guidelines, algorithms, and clinical pathways: Recent trends in health care, Clinical Practice Guidelines (CPG), Algorithms, Clinical pathways, Legal implications in clinical pathways and CPG, Comparison of CPGs, Algorithms and Clinical Pathways

Unit XI

Communicating evidence to clients, managers and funders: Effectively communicating evidence, Evidence based communication in the face of uncertainty; Evidence based communication opportunities in everyday practice

Unit XII

Research dissemination and transfer of knowledge: Models of research transfer, Concrete research transfer strategies, Evidence based policy

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Administration And Teaching Skills

Unit I

Introduction:

Branches of administration, Nature and scope of administration, How to be an effective administrator, Planning hospital administration as part of a balanced health care program.

Principles of hospital administration and its applications to physiotherapy.

Planning and organization: Planning cycle, Principles of organizational charts, Resource and quality management, planning change -innovation

Financial issues including budget and income generation

Hospital administration: Organization, Staffing, Information, Communication, Coordination, Cost of services, Monitoring and evaluation.

Organization of physiotherapy department: Planning, Space, Manpower, Other basic resources.

Organizing meetings, committees, and negotiations

Personnel management: Personnel performance appraisal system, Quality care delivery from the staff.

Unit II

Aims of physiotherapy education

Concepts of teaching and learning

Curriculum development

Principles and methods of academic and clinical teaching

Measurement and evaluation

Guidance and counseling

Faculty development program

Administration in clinical setting

Use of A-V aids in teaching

Taxonomy of education

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Physiotherapy In Cardio Vascular Pulmonary And Intensive Care Lab

PRACTICAL:

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

Physiotherapy In Orthopedics & Sports Lab

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

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