MANAV BHARTI UNIVERSITY

SYLLABUS

NOTE: ***Syllabus of Diploma Surgical Assistant (DSA), Diploma in Operation Theatre Assistant (DOTA), Diploma in Anesthesia Assistant (DAA), Diploma Patient Care Assistant (DPCA) & Diploma in Ward Assistant (DWA), Diploma in ICCU Assistant*(DICCUA), Diploma in Dialysis Technology** (DDT), EEG Technician*** (EEGT), Diploma in Child Care, Oldage care & Disabled Care****, have same subjects and contents as that of 1st Year and 2nd Year of BSc. OT & Ward Techniques.***

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CONTENTS

1. BSc OT & Ward Techniques : 4 year
2. ICCUA (Diploma in Intensive Cardiac Care Unit Assistant) : 2 year
3. BSc Patient care Assistant 4 Years
4. BSc ICCU Asst
5. Diploma Dialysis Technology 2 years
6. Diploma Surgical Assistant 2 year
7. Diploma Patient Care Assistant 2 year
8. Diploma Anaesthesia Assistant 2 year
9. BSc. Anaesthesia Assistant 3 year
10. Diploma Operation Theatre Assistant (DOTA) 2 Years
11. Diploma in Cath Lab Technician 2 year
12. Diploma in Ward Assistant
13. BSc in Surgical Assistant
14. Diploma in EEG Technician
15. Diploma in physiotherapy
16. B.PT.
17. M.Pharm
18. Diploma in Yoga Teacher Training
19. Diploma in Art & Craft
20. B.Lib
21. Diploma in Industrial Fire Safety Protection
22. Diploma in Veternary & Livestock Development Assistant
23. Diploma in Ayrvedic Pharmacy (DAP)
24. Diploma in Disaster Management
25. Diploma in Yoga
26. Diploma in First –Aid And CPR
27. Diploma in Dialysis Technician
28. Bachelor of Naturopathy & Yogic Science

29. Diploma in Veterinary & Livestock Development Assistant (VLDA)
30. Diploma in Beauty Care & Hair Dressing
31. Diploma in Child Care, Old Age care & Disabled Care 1 year
32. Diploma in Sex Education
33. Diploma in Psyco Counselling
34. Continuing Medical Education Programms (CMS)
35. Eligibility: MBBS, BAMS, BUMS, BHMS, DHMS
    - Certificate in gyane and obstratics
    - Certificate in skin diseases
    - Certificate in venereal diseases
    - Certificate in geriatric medicine
    - Certificate course in ultrasonography
    - Certificate course in substance abose conselling
36. Diploma in panchkarma : Eligibillity : BAMS, MBBS, BPT, BUMS, DHMS, BHMS : 1 year diploma

MANAV BHARTI UNIVERSITY SYLLABUS

1. BSc OT & Ward Techniques : 4 year

Eligibility : 10+2 (in any stream)

Lateral Entry : Any candidate who has passed 2 year OT or Ward Diploma or Surgical Diploma or Patient Care Diploma would get lateral entry into 5th Semester or 3rd Year. But the candidate who has done diploma of OT or Surgical Assistant or Ward Diploma or Patient Care Diploma from any reputed institute will get lateral entry into 2nd year or 3rd Semester of BSc OT and Ward Techniques. Last year is 1 year interne ship in any clinical or hospital. But the candidate would be examined by university for practical viva in 7th as well as 8th Semester. Though there will be no theory paper in last year.

1st Semester of BSc OT & Ward Techniques :

There would be nine sections: 1. Anatomy 2. Pathology 3. Haematology 4. First-Aid, Nursing Care & Midwifery 5. Microbiology, Bacteriology and Parasitology 6. Radiography 7. Surgery 8. E.C.G. 9. Bio-chemistry

These sections are condensed into three theory papers:

Paper I : would consist of three sections : A section : Anatomy and Physiology : B Section : Bio-chemistry :C Section : Haemaotology (300 Marks)

Paper II : ECG, Radiography and Surgery in Three respective sections (300 Marks)

Paper III : Section A : Pathology : Section B: Microbiology : Section C : First-Aid, Midwifery & Nursing Care (300 Marks)

- Internal Assessment would be of 1000 marks in each semester.
- Practical would also be of 1000 marks
- Total Marks would be 2900 marks
- In each paper one has to secure 50% marks each

3. 2nd Semester of BSc OT & Ward Techniques : There would be nine sections: 1. Anatomy 2. Pathology 3. Haematology 4. First-Aid, Nursing Care & Midwifery 5. Microbiology, Bacteriology and Parasitology 6. Radiography 7. Surgery 8. E.C.G. 9. Bio-chemistry

These sections are condensed into three theory papers:

Paper I : would consist of three sections: A section: Anatomy and Physiology: B Section: Bio- chemistry: C Section: Haemaotology (300 Marks)

Paper II : ECG, Radiography and Surgery in Three respective sections (300 Marks)

Paper III: Section A: Pathology: Section B: Microbiology: Section C: First-Aid, Midwifery & Nursing Care (300 Marks)

- Internal Assessment would be of 1000 marks in each semester.
- Practical would also be of 1000 marks
- Total Marks would be 2900 marks
- In each paper one has to secure 50% marks each

- **Subject of first semester and second semester are same but topics are different similarly subject of 3rd and 4th semester are same but topics are different**
- **In 3rd Year to both semesters have common subjects**
- We have taken all universities syllabus as well as practically utility of subjects involved and difficulties faced by students in later half of there career. For example : People assisting the surgeon do not know abc of haemaotology and biochemistry and any operation surgical once can not be done without knowing certain routine tests like : CTBT, Hb, TLC, DLC, Fasting Blood Sugar, So, we have including with the guidance of experts haemaotology, biochemistry into our course curriculum.

FIRST YEAR SYLLABUS

Syllabus of Anatomy & Physiology, Bio-chemistry and Hemaotology :

Section – A : Anatomy & Physiology : Structure and functions (100 Marks)

1. Cell, Tissue, Basic of Embryology
2. Anatomical nomenclature
3. Skelton System
4. Digestive System
5. Respiratory System
6. Excretory system
7. Endocrine system
8. Reproductive System both M/F
9. Five sense organs
10. Joints
11. Nervous System
12. Cardiovascular System
13. Lymphatic System

Note : *Faculty should plan in such a way that for the convince of students half of the syllabus of first year should come in first semester and another half should come in second semester.*

Section B : Biochemistry : (100 Marks)

Chemistry of Carbohydrates, chemistry of lipids, chemistry of Amino Acids and Proteins, Hemoglobin, Enzymes, Biological Oxidation , Metabolism of carbohydrates, Metabolism of lipids, Metabolism of proteins, Nucleic acid, chemistry and Metabolism, vitamin, Acid Base Balance, Water and Mineral Metabolism Detoxification, Nutrition, Organ function test, Hormones, protein biosynthesis, instruments and elementary colorimetry, proteins estimation, estimation of Blood urea; serum creatinine and serum uric acid, clinical enzymology, liver function tests, estimation of blood sugar and cholesterol, serum electrolytes and ions.

Students should know basic biochemical tests of various biological specimens along with their principles. **For example:** Urine for sugar, Urine for bile salts and urine for albumin, specific gravity and simple volume and

weight measurements. Before elaboration student should know basics of matter, various states of matter and detailed account of atom, molecule and ion.

Section C : Haemaotology **(100 Marks)**

Role of following tests in surgery : 1. Hb 2. TLC 3. DLC 4. Clotting Time 5. Bleeding Time 6. ESR 7. Reticulocyte count 8. erythropoiesis 9. leucopoiesis 10. PCV (name of methods, procedures, reagents and precautions) 11. Blood Trasfusion reactions 12. Blood grouping 13. PPF 14. Anemias 15. Haemorrhagic disorders 16. Blood banking 17. Bone Marrow Smears 18. Leukaemia 19. Role of centrifuge

Paper II : ECG, RADIOGRAPHY AND SURGERY IN THREE RESPECTIVE SECTIONS

SECTION A : ECG : **(100 Marks)**

Definition of ECG, Scope, Various models of ECG machine, standardization, calibration, types of ECG papers, PQRST wave, Eithoven triangle, unipolar leads, bipolar leads, ethics in ECG, Nervous conduction system, Pacemaker, AV bundle, bundle of HIS, Purkinje Fibers, arrythmias, speed of ECG, numericals of ECG, stylus of ECG, Diagram of ECG Machine, LBBB, RBBB, CCF, various diseases of heart, role of adrenaline injection, sphygmomanometer, stethoscope

SECTION B : RADIOGRAPHY : **(100 Marks)**

1. Properties of X-rays, effects of X-rays, applications of X-rays
2. Role of Radiography in operation theatre or surgeries, latent image, dark room, role of safe light, various views of skiagrams, type of fractures, surface anatomy of vital organs, construction of transformer, eddy currents or losses, photographic film, types of films, contrast media and their classification, reactions of contrast media, side effect of radiation, manual and automatic process.

SECTION C: SURGERY **(100 Marks)**

1. Shock, burns and haemorrhage, fractures and their management
2. Cellulites, Eryseplias
3. Hernias, Appendicitis, uterus surgical operation, various surgical instruments
4. Various surgical positions, renal stones, gall bladder stones
5. Asepsis involved in operation theatre
6. Sterilization in detail
7. Ulcer, sinus and fistula
8. Cleft lip and cleft palate
9. Types of wounds
10. History taking
11. Common anesthetic drugs, posology, side effects, indications and contraindications,

Paper III: Section A: Pathology: Section B: Microbiology: Section C: First-Aid, Midwifery & Nursing Care

SECTION A: PATHOLOGY: (100 MARKS)

1. Definition and scope of pathology
2. Cause, prognosis, sequaelae
3. Inflammation and various mediators
4. Neoplasm, Benign and Malignant
5. De generation, Types
6. Necrosis and gangrene
7. Edema and its types, Disturbance of calcium Pigment and Purine Metabolism, Disorders of growth, Tumours.
8. Special Pathology: Kidney, Cardio Vascular System, Respiratory System, Gastro Intestinal Tract, Liver Reticule, Endothelial System.
9. Histopathology: Histopathology Techniques cytology, some specialized techniques & Procedures of tissue processing, Museum techniques Auto Techniques.

SECTION B: MICROBIOLOGY: (100 MARKS)

Protozoa-classification, malarial parasite, leishmania amoeba, Giardia, Trichomonas.

Helminthology I. – Nematodes – classification, Entrobius Vermicularis, Trichuris, Trichura, Ascaris Lumbricoides, Hook warm, stronglylodies, ster coralis, filarial, dracunculus medinensis, trichinela spiralis.

Heiminthology II. – Cestodes – classification, Taenia, saginata and sodium, sodium II, echinococcus Granulosus, Hymenolepis Nna, Introduction to Microbiology, The microscope, Examination of specimens for microbiological investigations, sterilization and Disinfection, Identification of Bacteria and preparation of culture media, principles of microbiological Diagnosis, Bacteriological-Diagnosis of syphilis and clostridia, various – common Biochemical tests and Reactions General Bacteriology – Immunology, Immunity Hypersensitivity, Cultivation of Bacteria, Sterilization special Bacteriology – Virology – definition classification, diseases, DNA, RNA, Virus, Cultivation, Miscelaneous, Serology.

Mycology First year

Definition, Diseases etc.

SECTION C: FIRST-AID, MIDWIFERY & NURSING CARE (100 MARKS)

Basics of First aid and midwifery and nursing care of patients in day to day practice. Mostly books of Saint John Ambulance division for all these three her sufficient to cater the need of understanding these subjects.

The Nurse, The Sickroom, Bed making, The Patient's Toilet, observation of the sic, infection, Surgical Techniques, Diet, Medicines, special conditions and treatments, Bandaging, fur then observations, immunity and infectious diseases, care of the Aged and the long term Patient, special drugs – their control and administration, preparation of the patient for operation and the after care, special treatments, shock and blood transfusion, Nursing in special diseases, last offices, the hospital service, preparation for special treatments,

child birth and its management, Radiation sickness, general – principles, Anatomy and physiology, first aid kit, Haemorrhage, transport of injured patient, foreign-body, unconsciousness, poisoning, Gas poisoning, Bites and stings, wounds, Accidents, Bandages, factures, Distolcations, Burns and scalds, Respiration and Asphyxia, clamities, positions, oral-therapy, Nursing, Emergency child birth, blood-donation, war, AIDS, Common sicknesses, Thermal and cold effects, Action plans.

1. **PRACTICAL OF 1ST YEAR** **(200 Marks)**

Anatomy & Physiology
Identification of bones
Identification of models
Understanding of animated anatomy over projector
Making of charts of various systems
Transparencies

2. PRACTICAL OF BIOCHEMISTRY **(25 Marks)**

Urine for sugar and proteins
Understanding for calorimetry
Fasting blood sugar test
Understanding for biochemistry animations

3. PRACTICAL OF FIRST AID **(75 Marks)**

Application of POP and its cutting
Various types of bandages
Various types of emergency management
CPR

4. PRACTICAL OF MICROBIOLOGY **(100 Marks)**

Identification of culture media
Identification of antiseptic and disinfectants
Identification of microorganism
Identification worms

5. PRACTICAL OF PATHOLOGY **(25 Marks)**

1. Identification of inflammation
2. Identification of healing and repair
3. Type of fracture

6. PRACTICAL OF SURGERY **(500 Marks)**

1. Identification of surgical instruments and various equipments
2. Various types of sutures and their application

3. Waterbed
4. Catheter insertion
5. IV Drip
6. IM Injection
7. IV Injection
8. S/C Injection
9. Recording of B.P., Pulse , R. R.
10. Input / Output Chart
11. Recording of temperature
12. Common drugs used in practice
13. Enema
14. Various positionings
15. Dissection

7. PRACTICAL OF RADIOGRAPHY **(25 Marks)**

1. Transformer
2. Points of interest in various developed films

8. PRACTICAL OF ECG **(25 Marks)**

1. Application of leads and their proper color identification
2. Calculation of heart rate from ECG paper

9. PRACTICAL OF HAEMAOTOLOGY **(25 Marks)**

1. Routine haematological tests

TOTAL PRACTICAL MARKS : 1000

AGGREGATE PASSING MARKS : 500

SYLLABUS OF BSC OT & WARD TECHNIQUES

2ND YEAR

Subject : 1 : Advanced Anatomy, Physiology

Various systems should be discussed in more elaborative manner.

Subject : 2. : Medicine, Surgery, Recap

Section A : Medicine : Medicine – scope, The Art of Diagnosis, fevers, Dyspo-noea, Courgh and expectoration, Haemoptysis, cyanosis, chest pain, murmurs in the Heart, Palpitations, Blood pressure, Oedema and Ascites, Abdominal pain, Dysphagia, costiation, Diarrhoea and vomiting, Bleeding upper GI Tract, Bleeding lower G.I. Tract, Enlarged Lympth Glands, Enlargement of liver and spleen, Anaemia, Jaundice, common Neurological conditions, Headache, Convulsions, Vertigo, Syncope and fainting fit, unconscious patient, muscle and joint pains, common Metabolic and Endocrine Disorders, Suppression of Urine, Urinary Tract Bleeding, pain and discoloration of extremities, Abnormal bleeding, gain in weight, loss in weight, impotence and sterility Amenorrhoea. Abdominal-lumps, subcutaneous- Nodules, skin conditions, psychiatric symptoms in Medical practice, poisoning and drugs overdose, Approach to the problems of the aged, Normal values of common, laboratory investigations, pneumonic, History taking.

Section : B : Surgery : Skin and subcutaneous tissue, ulcer, sinus and fistula (including pilondial sinus) Mouth, Tongue, And lips, cleft lip and cheft palate, spina bifida, salivary glands, swellings of the jaw, swelling in the neck, cervical lymph node enlargement, Aneurysm, Varicose, vein and venous ulcer, Rayand's syndrome, Buerger's Diseases, Thoracic outlet syndrome sand cervical RIB. Certain Disorders of the Breast, Umlicus and Abdominal wall, Ulcers of the leg, swoolen leg, hernia, tests, epididymis and scrotum, filariasis in surgery, penis, ganglion and bursae, fractures and orthopaedics, Penumonics, history taking.

Subject : 3 : Health and Hygiene, Pharmacology, Ethics/ Juris

Simple Basics to be taught as per Paramedical, Medical Profession in second year health & hygiene (SPM) simple basic chapters including national & international programmes should be discussed.

(Pharmacology)

(Primary) Essential/Drugs : Drugs used for Alimentary System, Cardiovascular System, Central-Nervous System, Musculo-skeletal Disorders, Harmones Genito-Urinary System, Infections and infestations, Nutritions, Respiratory system, Ear, nose and – orpharynx, eye, Allergic Disorders, skin, metabolism – carcino-chemotheraeutic drugs, immunasuppressants gout, poisoning and metabolic dysfunction, durg-dependence, Surgical-Anaesthetics, Surgical antibacterial, Mucolytic proteolytic and other Enzymes, plasma expanders, Diagnostic agents, Dressings and Appliance, Pneumonics.

Juris

Basic chapters of juris and ethics, Drug and Cosmetic Act, Magic Act, Medical Council Act, MTP

Subject : 4 : Introductory Biology, Anesthesia / drugs, surgical equipments and machinery.

Introductory Biology

Living World

Biology & Its Branches; relationships with other sciences; scientific methods in Biology; historical breakthroughs; scope of biology and career options; role of Biology in dispelling myths and misbelieves; characters of living organisms, (elementary idea of metabolism, transfer of energy at molecular level, open and closed systems, omoeostasis, growth and reproduction, adaptation, survival, death). Origin and evolution of life - theories of evolution; evidence of evolution; sources of variations (mutation, recombination, genetic drift, migration, natural selection); concept of species; specification and isolation (geographical and reproductive); origin of species.

Unit II

Diversity of Life

Variety of living organisms, Systematic; need, history and types of classification (artificial, natural, polygenetic); biosystematics; binomial nomenclature; Two kingdom system, Five kingdom System, their merits and demerits, status of bacteria and virus; botanical gardens and herbia; zoological parks and museums.

Unit III

Cell and Cell Division

Cell as a basic unit of life - discovery of cell, cell theory, cell as a self - contained unit; procaryotic and eukaryotic cell; unicellular and multicellular organisms; tools and techniques (compound microscope, electron microscope and cell fractionation); Ultrastructure of prokaryoytic and eukaryotic cell - cell wall, cell membrane - unit membrane concept (flauid mosaic model); membrane transport; cellular movement (exocytosis, endocytosis); cell organelles and their functions - nucleus, mitochondria, plastids, endoplamasic reticulum, Gogli complex, lysosomes, lysosomes, microtubules, centriole, vacuole, cytoskeleton, cilia and flagella, ribosomes. Molecules of cell; inorganic and organic materials - water, salt, mineral ions, carbohydrates, lipids, amino acids, proteins, nucleotides, nycleic acids (DNA and RNA); Enzymes (Properties, chemical nature and mechanism of action); vitamins, hormones and
steroids.

Unit IV

Genetics

Continuity of life - heredity, variation; mendel's laws of inheritance, chromosomal basis of inheritance; other patterns of inheritance - incomplete dominance, multiple allelism, quantitative inheritance. Chromosomes - bacterial cell and eukaryotic cell; parallelism between genes and chromosomes; genome, linkage and crossing over; gene mapping; recombination; sex chromosomes; sex determination; sex linked inheritance; mutation and chromosomal aberrations; Human genetics - methods of study, genetic disorders. DNA as a genetic material - its structure and repliaction; structure of RNA and its role in protein synthesis; Gene expression - transcription and translation in prokaryotes and eukaryotes; regulation of gene expression, induction and repression - housekeeping genes;
nuclear basis of differentiation and development; oncoenes. Basics of Recombinant DNA technolgy; cloning; gene bank; DNA fingerprinting; genomics - principles and applications, transgenic plants, animals and microbes.

Unit V

Morphology of Plants and Animals

Morphology - root, stem and leaf, their sturucture and modification; Inflorescence, flower, fruit, seed and their types;Description of Poaceae, Liliaceae, Fabaceae, Solanaceae, Brassicaceae and Asteraceae. Morphology of animals - salient features of earthworm, cockroach and rat; tissue systems, structure and function of tissues - epithelial, connective, muscular and nervious.

Practical

1. Study of parts of Compound Microsope
2. Study of mitosis in onion root tip and animal cell (grasshopper)
3. Study of meiosis in onion flower buds, and testis iof grasshopper.
4. Study of cyclosis in leaf cell of Hydrilla, or Tradescantia and in Paramoecium.
5. Study of cell wall components (cellulose, lignin, suberin and mucilage).
6. Study of mitochondria by staining with a Janus Green.
7. Study of specimens and their identification with reason - Bacteria, Oscillator, Spirogyra, Rhizopus, mushroom/bracket fungi, yeast, liverwort, moss, fern, Pinus, one monocotyledon, one dicotyledon and lichens.
8. Study of characters of specimens and identification with reason - Amoeba, Hydra, Liver - Fluke, Ascaris, Leech, Earthworm, Prawn, Silk moth honey bee, snail, Starfish, Dogfish, Rohu, Frog, Lizards, Pigeon/ any other bird and rabbit/ any other mammal.
9. Study of squamous epithelium, muscle fibres, nerve cells and mammalian blood film through temporary/permanent slides.
10. Study of external morphology of earthworm, cockroach, from and rat through models.

Surgical Equipment and Machinery

CHAPTER 1: Armamentarium: Cox and storing in O.T, Sterlization and disinfections

CHAPTER 2: GENERAL SURGICAL PRINCIPLES AND INSTRUMENTS The surgical patient, operation room technique .

CHAPTER 3 : INSTRUMENTS USED FOR PREPAIRING SURGICAL: Cheatles forceps,rampely,s sponge holding forceps mayo’s towel chip,esmach’s bandage, Simple tourniquet, pneumatic tourniquet

CHAPTER 4 : INCISION MAKING METHOD AND INSTRUMENTS : Bard parker knife handle, major abdominal incision, artery forceps and their types instruments used in homeostasis, Kocher’s forceps, electric cautery.

CHAPTER 5: RETRACTORS: Single hook retractors , Czerny’s retractor, s, nerve hook retractors, Morris retractors, deaver’s, retractors.

CHAPTER 6 : WOUND MANAGEMENT Seissors and its types sucking material and techniques, disinfectants and irritants, dressing procedures ,different types of bandages, surgical needle & needle holders, various types of suture material

PRACTICAL : Identification & Demonstration of working of the equipment and viva voce as per theory syllabus.

Anesthesia / drugs

Anesthesia Equipment

1 Boyle’s Machine & it’s functioning

2 Boyle’s vaporizer

3 Magill's breathing circuit, Bains breathing circuit, pediatrics anesthesia circuit

4 Gas cylinders and flow meters

5 Carbon dioxide absorption contester

6 Suction apparatus-foot operated, electrically operated

7 Ambubag laryngoscope hndotracheatubes

8 Catheters,face masks, venti mask

Drugs

1 General Principles – Pharmacological classification of drugs. Route of drug administration, precautions in administration, principles of drug toxicity, prevention and treatment of poisoning adverse drug reaction

2 Sedatives & Hypnoties-Barbutrates morphine and others

3 Important groups of drugs, N Saids, ibuprofen, aspirin, antimicrobial agents anti allergy drugs , anti diuretics

4 Pre-anesthetic mediation

5 Local Anesthetic agents

6 Spinal Anesthetic agents

7 General Anesthetic agents

PRACTICAL: Identification & demonstration of the working of equipments & viva voce as per theory syllabus

- **Internal Assessment will be of 1000 marks in each semester.**
- **Practical would be of 1000 marks in each semester.**

2nd Year Practical: 50 various diseases patient histories.

3RD YEAR OF BSC OT & WARD TECHNIQUES

1. COMMUNICATION SKILLS

UNIT I

Essentials of Grammar:

- Parts of Speech
- Punctuation
- **Vocabulary Building**
- Phonetics

UNIT II

Office Management:

- Types of Correspondence
- Receipt and Dispatch of Mail
- Filing Systems
- Classification of Mail.
- Role & Function of Correspondence
- MIS
- Managing Computer

UNIT III

Letter & Resume Writing:

- Types of Letters-Formal / Informal
- Importance and Function
- Drafting the Applications
- Elements of Structure
- Preparing the Resume
- Do's & Don'ts of Resume
- Helpful Hints

UNIT IV

Presentation Skills:

- Importance of Presentation Skills
- Capturing Data
- Voice & Picture Integration
- Guidelines to make Presentation Interesting
- Body Language
- Voice Modulation
- Audience Awareness
- Presentation Plan
- Visual Aids
- Forms of Layout
- Styles of Presentation.

UNIT V

Interview Preparation:

- Types of Interview
- Preparing for the Interviews
- Attending the Interview
- Interview Process
- Employers Expectations
- General Etiquette
- Dressing Sense
- Postures & Gestures

UNIT VI

Group Discussion & Presentation:

- Definition
- Process
- Guidelines
- Helpful Expressions
- Evaluation

(Note: Every student shall be given 15 minutes. of presentation time & 45 minutes of discussion on his/ her presentation.)

2. COMPUTER SKILLS

Hardware & Software	: CPU, RAM, SSD, Operating Systems, System Softwares, Applications Software. Inside Computers, Computer Systems.
Input-Output devices	: Monitor, Keyboard, Mouse, System Unit, Printer,Scanner.
Storage devices	: Floppy Disk, Hard Disk, Cartridge Tape, CD-ROM
Printers	: Dot-Matrix, Inkject, Laserjet, Colour printers, High Speed Printer, Label Printer, Plotters

3. **OBSTETRICS & GYNERACOLOGY**

OBSTETRICS : Pregnancy, normal delivery, Forceps Delivery, episiotomy, caesarian delivery, Twin pregnancy birth control methods, Medical termination of pregnancy.
GYNAECOLOGY : Anatomy of female sex organs ,gynecological examination and diagonosis, diseases of vulva, diseases of vagina, S.T.D in female, disorders of menstruation. Prolapsed uterus, Fibromyomas of uterus, endometriosis, various ovarian tumors, gynae examination instruments speculum & dialators, instruments of common gynecological and obstetrics procedures or surgery.
PRACTICAL : Identification of Instrument and viva voce as per theory syllabus.

4. EYE & E.N.T.

EYE
CHAPTER 1: INSTURMENTS USED FOR EXAMINATION OF EYE,
DESMASEL,S EYE LID : retractor, ophthalmic loop, ophthalmoscope and anatomy of eye.
CHAPTER 2 : Clinical methods in ophthalmology ,history taking ,ocular examination & diagnostic test, snell's formulae, tonometry, direct opthoalmoscopy.
CHAPTER 3 : Various eye diseases ,diseases of conjunctiva, trachoma, diseases of cornea, ulcerative keratitis, scleritis, diseases of lens, cataract glaucoma, retinal detachment, intraocular lens implementation for cataract.
ENT
CHAPTER 1: EAR: Anatomy of the ear, diseases of middle ear, Ramasay hunt syndrome, ear of mastoid surgery, parotid surgery & trauma to face, tumors of external car, auricle, middle ear, and rehabilitation of hearing impaired.
CHAPTER 2 : NOSE: Anatomy of nose, nasal septum & its diseases ,acute & chronic rhinits, nasal polyps,epistaxis,fracture of nasal septum,
CHAPTER 3 : THROAT: Anatomy of throat, diseases of larynx, tracheotomy:- types, steps of operation, post operative care.
CHAPTER 4 : Instruments used in operation in Ear, Nose & Throat.
PRACTICAL : Demonstration the use of medical equipment and viva voce as per theory syllabus.

- **Internal Assessment will be of 1000 marks in each semester.**
- **Practical would be of 1000 marks in each semester.**
- **Total marks of theory & practical : 2400**
- **3rd Year Practical: 50 various diseases patient histories.**

4TH YEAR OF BSC OT & WARD TECHNIQUES

There will be no theory paper but the students will be examined after each semester for clinical practice in clinic or hospital for Viva.

Total Marks: 2000 (including Internal Assessment Marks)

MANAV BHARTI UNIVERSITY

SYLLABUS

DICCUA (DIPLOMA IN INTENSIVE CARDIAC CARE UNIT ASSISTANT)

Course Description
This course focuses on advanced concepts of critical care related to multi-organ/system function and dysfunction. Nursing care relating to physiology, assessment, pathophysiology, system failure, and clinical management of the cardiovascular system, pulmonary system, renal system, and endocrine system are addressed. Core concepts of complex pathophysiology, current treatment modalities, and advanced nursing roles are integrated in discussions of providing care to critically ill patients.

Course Objectives
At the conclusion of this course the student will be able to:

1. Summarize normal function and structure of the cardiovascular, pulmonary, renal and endocrine system.
2. Identify appropriate nursing assessment and management for patients with complex cardiovascular, pulmonary, renal, and endocrine alterations.
3. Describe the major pathophysiology underlying common complex disorders of the cardiovascular, pulmonary, renal, and endocrine systems.
4. Describe indications for and associated nursing interventions for patients undergoing diagnostic procedures of the cardiovascular, pulmonary, renal, and endocrine system.
5. Summarize clinical indications and nursing management of hemodynamic monitoring and other specialized equipment used in the care of critically ill patients.
6. Analyze data obtained through specialized assessment equipment and laboratory tests used to evaluate the cardiovascular, pulmonary, renal, and endocrine systems in critically ill patients.
7. Evaluate current evidence for practice in caring for patients with complex alterations of the cardiovascular, pulmonary, renal, and endocrine systems.

Prerequisites: NURS 5103 Advanced Pathophysiology

Additional subject in 1st Semester of ICCU Assistant

Topic : Critical Care Medicine

I. Cardiovascular System

a. Anatomy and Physiology of the Cardiovascular System
b. Cardiovascular Assessment
c. Coronary Artery Disease
    i. Acute Coronary Syndrome
    ii. Myocardial infarction
    iii. Congestive heart failure
d. Cardiomyopathy
e. Aortic Aneurysms
f. Peripheral Arterial Disease
g. Cardiovascular Interventions
    i. Cardiac pacing
    ii. Intra Aortic Balloon Pump
h. Advanced Concepts of Nursing Management of Patients with Cardiovascular Disorders

2ND SEMESTER : ADDITIONAL SUBJECT OF ICCU ASSISTANT

Topic : Critical Care Medicine

II. Pulmonary System

a. Anatomy and Physiology of the Respiratory System
b. Respiratory Assessment
c. Chronic Obstructive Pulmonary Disease
d. Adult Respiratory Distress Syndrome
e. Pulmonary Embolus
f. Pnuemothorax
g. Pnuemonia
h. Pulmonary Therapies
    i. Oxygen therapy
    ii. Chest tubes
    iii. Mechanical ventilation
i. Advanced Concepts of Nursing Management

3RD SEMESTER : ADDITIONAL SUBJECT OF ICCU ASSISTANT

Topic : Critical Care Medicine

III. Renal System

a. Anatomy and Physiology of the Renal System
b. Renal Assessment
c. Renal Failure
d. Renal Therapies
    i. Hemo-dialysis
    ii. Peritoneal dialysis
    iii. Continuous renal replacement therapies
e. Advanced Concepts of Nursing Management

4th Semester : additional Subject of ICCU Assistant

Topic : Critical Care Medicine

I. Endocrine System

a. Diabetic Ketoacidosis
b. Hyperglycemic Hypersomolar Nonketotic Syndrome
c. Diabetes Insipidus
d. Syndrome of Inappropriate Antidiueritc Hormone

II. Advanced Nursing Roles in Critical Care

a. Clinical Nurse Specialist
b. Nurse Practitioner
c. Nurse Educator
d. Professional Roles

DIPLOMA IN EEG TECHNICIAN

ADDITIONAL SUBJECTS :

1. Neuroanatomy

2 Neurophysiology

FIRST SEMESTER ADDITIONAL SUBJECT NEUROANATOMY EEG TECH

1. THE CRANIAL NERVES AND THE CIRCLE OF WILLIS
2. EXTERNAL FEATURES OF THE BRAIN
3. VENTRICULAR SYSTEM AND CORONAL SECTIONS

SECOND SEMESTER ADDITIONAL SUBJECT NEUROANATOMY EEG TECH

4. GENERAL ANATOMY OF THE SPINAL CORD AND BRAIN STEM
5. SOMESTHETIC SENSATION
6. SOMATIC AND VISCERAL SENSORY SYSTEMS OF THE HEAD
7. THE VISUAL SYSTEM

THIRD SEMESTER ADDITIONAL SUBJECT NEUROANATOMY EEG TECH

8. THE VESTIBULAR SYSTEM
9. THE AUDITORY SYSTEM
10. THE CORTICOSPINAL TRACT AND THE INTERNAL CAPSULE
11. THE CEREBELLUM

4TH SEMESTER ADDITIONAL SUBJECT NEUROANATOMY EEG TECH

12. THE BASAL GANGLIA
13. THE HYPOTHALAMUS
14. OLFACTION AND THE LIMBIC SYSTEM

Contents of lectures:

1ST SEMESTER : NEUROPHYSIOLOGY

ADDIDTIONAL SUBJECT OF EEG TECHNICIAN

Lecture one: Definition and objective of neurophysiology. Approaches being used in the studies of neurophysiology.

Lecture two: Basic knowledge of cellular neurophysiology, 1) organelles and their functions in neurons and glia cells, 2) cell membrane and cytoskeleton, and 3) axon and dendrites.

Lecture three: Physiology of cell membrane, 1) membrane potentials, and 2) cellular excitability.

Lecture four: Signal encoding in neurons (soma), 1) the frequency of action potentials, 2) diversity of neuronal firing, and 3) the fundamental role of neuronal encoding.

2ND SEMESTER : NEUROPHYSIOLOGY

ADDIDTIONAL SUBJECT OF EEG TECHNICIAN

Lecture five: Physiology of dendrites and axons, 1) dendrite integration, 2) the generation and propagation of action potentials. Neurogenesis (neuronal stem cells and progenitor cells).

Lecture six: Synapse physiology, 1) synaptic transmission, 2) transmitter release, 3) receptor responsiveness, 4) the role of synapses in transmitting the patterned action potentials and 5) synaptogenesis.

Lecture seven: The plasticity of neurons and synapses.

3RD SEMESTER : NEUROPHYSIOLOGY

ADDIDTIONAL SUBJECT OF EEG TECHNICIAN

Lecture eight: Physiology of glia cells, 1) classification, 2) functions and 3) potential functions.

Lecture nine: Neural network constituted from neurons and synapses; and the diversity of neurons and synapses.

Lecture ten: Function I of the central nervous system ----- sensation.

Lectures eleven: Function II of the central nervous system ----- specialized sensation (e.g., vision)

4TH SEMESTER : NEUROPHYSIOLOGY

ADDIDTIONAL SUBJECT OF EEG TECHNICIAN

Lecture twelve: Function III of the central nervous system ----- motor control

Lecture thirteen: Function of the central nervous system ----- learning/memory and cognition.

Lecture fourteen: Guidance for the writing of review.

Lecture fifteen: Final exam.

Following Practical of EEG should be spread over two years including four semesters as decided by faculty members

The trainee has achieved the following goals. (All must be completed for Level 1 Training)
Understand the physiological basis of EEG potentials and waveforms □
Understand the technology of EEG recording □
Have watched EEG electrode placement and an EEG being recorded □
Have attended reporting sessions in EEG □
Seen examples of normal and abnormal EEG material in the syllabus □
Aware of the ontogeny of EEG between infancy and adulthood □
Attended the ANZAN EEG course □
Able to interpret an EEG report in the clinical context □
Aware of the role and limitation of EEG in clinical neurology □
Level 2 training
In addition to those in Level 1, the trainee has achieved the following goals.
Able to read and interpret EEG studies in Adolescents and Adults □
Able to read and interpret EEG studies in Infants and Children □
Able to independently identify the EEG phenomena in the syllabus □
Able to report EEG studies and interpret findings in clinical context □
Correctly localise focal epileptiform and slow wave activity □
Interpret and report ambulatory EEG □
Able to interpret and report on Evoked Potential studies □
Supervise EEG technicians □
Contribute to the training of EEG technicians □
Able to supervise an EEG service for a private practice/district hospital □
Level 3 training
In addition to those in Level 1 and 2, the trainee has achieved the following goals.
Able to teach Level 1 Neurology trainees;
-The ontogeny of EEG between infancy and adulthood □
-Demonstrate examples of normal and abnormal EEG from syllabus □
Able to supervise training of EEG technicians in clinical aspects of EEG □
Able to interpret and report diagnostic Video EEG Studies □
Able to supervise an EEG service for a academic/teaching hospital □
Optional Level 3
Interpret and report EEG studies in Neonates □

Training in intensive care monitoring
Use of VEEG in the assessment of patients for epilepsy surgery

Diploma in Dialysis Technology (DDT)
1st Semester
Additional Subject :
1. Nephrology
1. STRUCTURE OF KIDNEY:

Anatomy of human kidney

2. OUTLINE OF KIDNEY PHYSIOLOGY

Renal circulation
Glomerular Filtration
Tubular reabsorption
Tubular Secretion
Mechanism of urinary concentration.

3. WATER AND ELECTROLYTE BALANCES:

Role of Kidney in water and electrolyte balances
Acid base disturbance and the kidney.

4. RENAL FUNCTION TESTS:

Tests for renal function

5. RENAL RADIOGRAPHY

X-rays, Imaging Techniques, Scans.
6. SYMPTOMATOLOGY OF RENAL DISORDERS:

7. TECHNIQUES OF EXAMINATION IN NEPHROLOGY:

2nd Semester
Additional Subject :
1. Nephrology

8. TROPICAL NEPHROLOGY

9. Dialytic Methods of Treatment:

Principles and mechanisms (i) Haemodialysis (ii) Peritoneal dialysis

10. ACUTE NEPHRITIC SYNDROME
11. NEPHROTIC SYNDROME
12. CHRONIC GLOMERULONEPHRITIS:
13. ACUTE RENAL FAILURE:
14. CHRONIC RENAL FAILURE

3rd Semester

Additional Subject :

1. Nephrology

15. URINARY TRACT INFECTION

16. HYPERTENSION AND KIDNEY

17. SYSTEMIC DISEASES AND KIDNEY

18. DIABETES AND KIDNEY

19. KIDNEY AND STONE DISEASES

20. OBSTRUCTIVE NEPHROPATHY

21. RENAL TUBULAR DISORDERS

4th Semester

Additional Subject :

1. Nephrology

22. THE KIDNEY IN PREGNANCY

23. INHERITED DISORDERS OF KIDNEY

24. TUMOURS OF THE KIDNEY AND KIDNEY COMPLICATIONS ASSOCIATED WITH OTHER MALIGNANCIES.

25. DRUGS AND KIDNEY

26. TRANSPLANTATION OF THE KIDNEY

27. DIETS IN KIDNEY DISEASES

28. RECENT ADVANCES IN NEPHROLOGY

29. PRACTICAL PROCEDURES IN THE DIAGNOSIS AND THE MANAGEMENT
    for example : Dialysis techniques

BSC ICCU ASSISTANT (DURATION 3 YEARS)

1st & 2nd Year of BSC ICCU Assistant have the same syllabus as that of Diploma ICCU Assistant

3rd Year entirely of one year internship in ICCU Unit

BSC ANESTHESIA ASSISTANT (DURATION 3 YEARS)

3rd Year of BSc Anesthesia Assistant as one year internship training.

1st & 2nd Year of BSC Anesthesia Assistant have same course curriculum as that of Diploma Anesthesia Assistant.

Syllabus of additional subjects Anesthesia that to be taught in a all the forth semesters of diploma and 1st & 2nd Year of BSc Anesthesia Assistant.

TOPIC : ANESTHESIA ADDITIONAL SUBJECT

1ST SEMESTER OF ANESTHESIA ASSISTANT

Hypnotics
Tranquillizers
Stages in Anesthesia
Classification of local anesthetic
Classification of general anesthetic

2ND SEMESTER OF ANESTHESIA ASSISTANT

Anesthesia and liver diseases
Anesthesia and renal diseases
Anesthesia for ENT surgery

3RD SEMESTER OF ANESTHESIA ASSISTANT

Anesthesia in endocrine disorders
Child Anesthesia
Old Age Anesthesia
Neurosurgery and Anesthesia

4TH SEMESTER OF ANESTHESIA ASSISTANT

OBS Anesthesia
Anesthesia for Cardio vascular diseases
Anesthesia respiratory diseases
Anesthesia of nutritional disorders
Intravenous Anesthetics

NOTE : *This additional subjects is compulsory in each semester of diploma and BSc in Anesthesia Technology except final year alongwith others subjects already mentioned under syllabus of BSc OT & Ward Assistant.*

DIPLOMA PATIENT CARE ASSISTANT (DPCA) DURATION 2 YEARS

All the four semesters has same syllabus as that of 1st and 2nd Year of BSc. OT & Ward Techniques. But special emphasis should be done over patient and Nursing Care.

BSC IN PATIENT CARE ASSISTANT DURATION 4 YEARS

All the 8th semesters have same syllabus as that of 1st, 2nd and 3rd and 4th years of BSc. OT & Ward Techniques. But special emphasis should be done over patient and Nursing care.

BSC IN SURGICAL ASSISTANT DURATION 4 YEARS

All the 8th semesters have same syllabus as that of 1st, 2nd and 3rd and 4th years of BSc. OT & Ward Techniques. But special emphasis should be done over patient and Nursing care in surgical wards and operation theatre.

DIPLOMA IN SURGICAL ASSISTANT DURATION 2 YEARS

Diploma holder should work in all the three departments under surgeon i.e. OPD, Ward & OT as a assistant all the four semesters have same subjects and course contents as that of 1st & 2nd year of BSc. OT & Ward Technique.

DIPLOMA IN WARD ASSISTANT DURATION 2 YEARS

Syllabus of DWA has same course contents as that of DSA in all the semesters. But area is restricted to ward only.

DIPLOMA IN CATH LAB TECHNICIAN DURATION 2 YEARS

(1) Applied Anatomy, Physiology and Biochem of Cardio- vascular system. 10

(2) Cardio-vascular pharmacology. 10

(3) Elector cardiography- Electrophysiology, Einthevenrnis law 10

a. Introduction to ECG Reading normal and Abnormal ECG.

(4) Cardio pulmonary resuscitation 02

(5) Electricity- Power Supply system, Ohm's Law CRT. TUBE multi meter. 05

(6) Electro med, equipment standards and safety 05

(a) ECG Maintenance of minimum re4pairs

(7) Applied aspects of Ultra sound/ Doppler principles and practice. 05

(8) Defibrillator- indication, operation and indications and Precautions. 05

(9) Arrhythmia's conduction/abnormalities, pacemaker 05

(10) Stress ECG principles, methods of recording and observation. 03

(11) Holter Recording- principles, methods of recording and observations. 03

(12) Introduction to cardiac catheterization. 05

(II) CARDIACV CATHETERIZATION:

1. Introduction 1Hrs.

Normal Physiology 2Hrs.

Vascular Resistance 2Hrs.

Vascular Heart disease.

(1) Stennotic Lesions 2Hrs.

(2) Regurgitate Lesions. 2Hrs.

5. Congenital Heart Disease

(1) Acyanotic obstructive & Left to Right Shunt 4Hrs.

(2) Cyanotic CHD 3Hrs.

6. Cardiac Output – 2 hrs.

7. L.V. Function assessment – 1hrs.

8. Coronary Graft Angio – 4 hrs.

9. Coronary Graft Angio – 2 hrs.

10. Oxygen consumption calculation – 2hrs.

11. Exercise and Cath – 2hrs.

12. PTCA (Percutan Transmural coronary Angiography) – 6 hrs.

13. Valvuloplasty

(i) Mitral Valvuloplasty.

(ii) Aortic Valvuloplasty.

(iii) Pulmonary Valvuloplasty.

14. IABP (Intra Aortic Balloon pump) – 2 hrs.

15. CPR – 2 hrs.

16. Pressure recording – 3hrs.

17. Care of the patient following cardiac catheterization – ` 2 hrs.

18. Post – Angioplaty care post valvuloplasty cares – 2 hrs.

19. Pre-cath evaluation with check lists – 1hrs.

20. Pre PTCA evaluation with check lists – 1 hrs.

21. Pre – Valvulo plasty evaluation check lists – 1 hrs.

22. Emergency cardiac cath and coronary angiogram – 2 hrs.

23. Permanent Pace Maker implantation after care – 1 hrs.

24. Radiology

Single plain

Bi- plain.

DSA.

angulations.

25. Film developing/processing – 2 hrs.

VI. ELECTRICITY AND ELECTROSTATICS:

(a) Simple electron theory of conduction's.

(b) Resistance.

(c) The Joule. the watt.

(d) Properties of electric charge.

(e) Capacitor.

(f) Electronic potential/potential difference (PD).

(g) Types of AC/DC.

(h) Basic of Ac/Circuits.

3. Magnetism/Electro-magnetism/Electromagnetic induction:

(a) Magnetic poles/Fields/ flux and in flux density.

(b) Magnetic field due to a straight and circular coil wire.

(c) The AC transforme.

VII. COMPUTER SCIENCES:

(c) FUNDAMENTALS:

Evolution of computers, contributions of eminent scientists of the field of computers, field.

Concepts of computer hardware, input/output devices, central processing unit, main memory, secondary memory etc. **(Page 649)**

Definition of instructions, programmes software.

Software spectrum system software, business orient applications, R & D type research S/W, real time software etc.

Languages – Machine languages, assembly languages, natural languages.

Significance of Grammar in computer languages.

(d) LOGIC DIAGRAMS:

(i) Flow charts – symbols and their significance.

(ii) Variables –simple variables array variables.

(D) BASIC LANGUAGES:

4. Input/output commends, assignment, if then, if then R Statements, for Next statement, GOTO, on GOTO STOP interactions, swapping, ascending and descending order also arrays DIM command.

Data Types : Integer, Real double precision

files: Data fields, records, data files, program file sequential files, random files etc.

5. (I) Basic aspects with special emphasis on applied aspects as related to medicine, electricity, sound, pressure, properties of solids and liquids and magnetism.

(IV) Biomechanics.

(V) Electronics – Basic principles with special reference to applied aspects as related to medicine. **6.** Basic aspects of computers and computer language. The lecture courses should cover all aspects of computers so as to enable the candidate to do simple programming

(VII) SPECIFIC TO THIS SPECIALITY:

(iv) Instrumentation and their circuits as related to the speciality. The candidate should be given training to enable him to identify the defect if any instrument goes out of order and to rectify the simple defects.

(v) The candidate should be trained in all the techniqued in the concerned specialty. He should be able to do the procedure independently and know the normal and abnormal pattern of the tests.

(vi) The candidate should be taught basic aspects of anatomy, physiology of the concerned specialty account of disease states related to various test procedures to be taught.

(IX) LIST OF PRACTICALS:

14. ECG Recording pediatrics/Adult Patient.

15. Operations, calibrations and servicing of ECG.

16. Recording of Holter/Stress ECG.

17. ECG Monitoring of Patients in ICCU.

18. Ambulatory B.P. Monitoring.

19. Operations of 2-D Echo/M.Mode Doppler and CFM system and its maintenance.

20. Operation of TEE and its maintenance.

22. Operation of blood oxymeter, ventilator and ABG Machine.

23. Operation of Tagarno and its maintenance.

24. ICCU Monitoring.

25. Control of film processing and developing.

26. Other practical in assisting in temporary Pace-Maker and Permanent Pace-Maker etc.

NOTE: ***Syllabus of Diploma Surgical Assistant (DSA), Diploma in Operation Theatre Assistant (DOTA), Diploma in Anesthesia Assistant (DAA), Diploma Patient Care Assistant (DPCA) & Diploma in Ward Assistant (DWA), Diploma in ICCU Assistant*(DICCUA), Diploma in Dialysis Technology** (DDT), EEG Technician*** (EEGT), have same subjects and contents as that of 1st Year and 2nd Year of BSc. OT & Ward Techniques.***

** Students of **Diploma in ICCU Assistant* (DICCUA)** has to clear critical care medicine additional subject i.e. in each semester.*

*** Students of **Diploma in Dialysis Technology** (DDT)** has to clear additional subject nephrology in each semester.*

**** Students of **EEG Technician*** (EEGT)** has to clear additional subject of neurology in each semester.*

3. BACHELOR OF PHYSIOTHERAPY (B.P. T.)

- **AIM OF THE COURSE:** The course aims at imparting in depth both the theoretical knowledge as well as the skills in Physiotherapeutic System of Medicine.

OBJECTIVES OF COURSE: During the comprehensive academic programme the basic and clinical Science· are integrated to;

2.1 Develop knowledge, skills and attitude necessary for competent health education, diagnosis, prevention, treatment, recovery & rehabilitation of patients from trauma and disease.
2.2 Focus on development of clinical and research aptitude.
2.3 Train them to practice the profession of Physiotherapy in a competent and ethical manner towards those who need such service with autonomy, quality care, assurance & humanitarian approach with compassion.

3. ELIGIBILITY FOR ADMISSION

3.1 Candidates must have passed 10+2, or Pre-University or Equivalent with Physics, Chemistry, Biology and English as the main subjects.
3.2 Minimum marks for eligibility in 10+2 subjects in aggregate should be 50%.

The Candidate must have completed 17 years of age on 31st December year of admission.

DURATION OF THE COURSE: The duration of the Bachelor of' Physiotherapy Course shall be four & half year including compulsory internship of six months.

5. Candidate will be admitted to B.P.T course strictly on merit, as decided by the competent authority.

MEDIUM OF INSTRUCTION: English shall be the medium of instruction for all the subjects of study and the examination of B.P.T. course.

7. ATTENDANCE: A candidate is required to attend at least 75 percent of the total classes conducted in a year in all subjects prescribed for the year, separately, in theory and practical to become eligible to appear for the university examination in the first attempt. The Principal / HOD should notify at their college the attendance details at the end of each term without fall, under Intimation to the University.

INTERNAL ASSESSMENT: It shall be based on evaluation of periodic tests of assignment, clinical presentations etc. Regular periodic examination should be conducted through out the course. Although the question of number of examination is left to the colleges, there should be a minimum of at least three (3) sessional examinations during I, II, III and final year. The average of best two examination marks should be sent to the University before the University examination as per notification. Proper record, which forms the basis of the Internal Assessment, should be maintained for all students and should be available for scrutiny. Principal / HOD should display the marks of periodical tests on the student notice board.

SCHEDULE OF EXAMINATION: There will be two examination in the year, i) annual examination and ii) a Supplementary Examination to be conducted as per notification issued by the University from time to time. First, Second, Third and Final Examinations of Bachelor of Physiotherapy course shall be held at the end of 1st , 2nd , 3rd and 4th years respectively. The examination for all the subjects shall be conducted by the University.

10. CRITERIA FOR PASSING: A candidate is declared passed in an examination in a subject, if he/she secures 50% of marks in theory and 50% in practical separately. For passing in theory, a candidate has to secure a minimum of 50% marks in the University conducted written examination, and 50% aggregate i.e. marks scored in the university conducted written examination and internal assessment (theory) added together and for a passing in practical, a candidate has to secure a minimum of 50% of marks in University conducted practical examination and 50% in aggregate, i.e. marks scored in University conducted practical examination and internal assessment (practical) added together.

11. DECLARATION OF CLASS:

A successful candidate obtaining 75% and more marks in the Grand Total Aggregate in the First attempt shall be declared to have passed these subjects with distinction. A successful candidate obtaining 60% and more but less than 75% of the marks in the Grand Total Aggregate in the first attempt shall be declared to have passed these subjects with First Class. A candidate securing 50% and more but less than 60% of the marks in the grand total in aggregate in the first attempt shall be declared Second Class and candidate who passes in more than one attempt will be placed in Pass Class irrespective of the percentage of marks secured. 11.2 Ranks shall be declared on the basis of the aggregate marks obtained by a candidate in the university subjects of the course. Only those candidates who have passed all subjects in all examination including the University examination in the first attempt shall be eligible for the award of rank.

Ranks shall be declared on the basis of the aggregate marks obtained by a candidate in the University subjects of the course. Only those candidates who have passed all the subjects in all examinations including the University examination in the first attempt shall be eligible for the award of rank.

CARRY OVER

First year: A candidate who has failed in 1st year is permitted to carry any three of the seven subjects and shall have to pass these subjects before appearing for the second year examination.

Second year: A candidate who has failed in 2nd year is permitted to carry any five of the ten subjectsand shall have to pass these subjects before appearing for the third year examination.

12.*3* ***Third year***: A candidate who has failed in 3rd year is permitted to carry· any five of the nine subjects and shall have to pass these subjects before appearing for the fourth year examination.

o ***Internship:*** There shall be six months of compulsory rotatory Internship after the final examination, for candidates declared passed the final examination in all subjects. No candidate shall be awarded degree certificate without successfully completing six months of Internship.

A deficiency in the required number of lecturers, clinical and practical may be condoned by the Principal up to the extent of 5 percent under special circumstances.

Notwithstanding the integrated nature of this course which is spread over more than one Academic Year, the ordinance in force at the time a student joins the course shall held good only for the examination held during or at the end of the academic year and nothing in this ordinance shall be deemed to debar the University from amending the Ordinance and the amended ordinance, if any, shall apply to all the students, whether old or new.

In case of any dispute in the interpretation of rules & regulations, interpretation of the same by the Vice-Chancellor shall be final.

BPT COURSE STRUCTURE

HOURS DISTRIBUTION

FIRST YEAR			
PAPER NO.	***SUBJECT***	***THEORY***	***PRACTICALS***
PAPER-1	ANATOMY	100	100
PAPER-2	PHYSOLOGY	100	50
PAPER-3	ENGLISH	50	NA
PAPER-4	PSYCHOLOGY	50	NA
PAPER-5	PREVENTIVE SOCIAL MEDICINE & SOCIOLOGY	100	NA
PAPER-6	INTRODUCTION TO PHYSIOTHERAPY	100	50
PAPER-7	BASIC NURSING	NA	50
	Total= 750		
	SECOND YEAR		
PAPER-8	KINESIOLOGY & BIOMECHANICS	100	NA
PAPER-9	ELECTROTHERAPY	100	100
PAPER-10	EXERCISE THERAPY	100	100
PAPER-11	REHABILITATION, PROSTHETICS & ORTHOTICS	100	50
PAPER-12	PATHOLOGY & MICROBIOLOGY	100	50
PAPER-13	PHARMACOLOGY	100	NA
PAPER-14	GENERAL MEDICINE	100	50
PAPER-15	ORTHOPEDICS & SPORTS MEDICINE	100	50
PAPER-16	GENERAL SURGERY & PLASTIC SURGERY	100	50
PAPER-17	RADIOLOGY	NA	50
	Total= 1400		
	THIRD YEAR		
PAPER-18	CLINICAL ASSESSMENT & PHYSICAL DIAGNOSIS	100	100
PAPER-19	MANUAL THERAPY	100	100
PAPER-20	BIOSTATISTICS & RESEARCH METHODOLOGY	100	NA
PAPER-21	NEUROLOGY & NEURO SURGERY	100	50
PAPER-22	CARDIORESPIRATORY DISEASE & THORACIC SURGERY	100	50
PAPER-23	PAEDIATRICS	NA	50
PAPER-24	GYNAECOLOGY & OBSTETRICS	50	50
PAPER-25	PSYCHIATRY	50	NA
PAPER-26	DERMATOLOGY	NA	50
	CLINICAL TRAINING		
	Total= 1O50		
	FINAL YEAR		
PAPER-27	CARDIOPULMONARY PHYSIOTHERAPY	100	100
PAPER-28	NEUROLOGICAL PHYSIOTHERAPY	100	100
PAPER-29	ORTHOPAEDIC PHYSIOTHERAPY	100	100
PAPER-30	SPORTS PHYSIOTHERAPY	100	100

PAPER-31	GENERAL PHYSIOTHERAPY	100	50
PAPER-32	ETHICS, ADMINISTRATION AND COMPUTER APPLICATION	100	NA
PAPER-33	PHYSIOTHERAPY PROJECT		50
	CLINICAL TRAINING		

Total = 1100

BPT COURSE MARKS DISTRIBUTION

First BPT Examination

Paper	***Subject***	***Theory***	***Practical-Viva***	***Viva***	***Total***
Paper-1	Anatomy	80+20*	80+20*	NA	200
Paper-2	Physiology	80+20*	80+20*	NA	200
Paper-3	Biochemistry	40+10*	40+10*	NA	100
Paper-4	Psychology	40+10*	NA	NA	50
Paper-5	Preventive Social Medicine & Sociology	40+10* + 40+10*	NA	NA	100
Paper-6	Introduction to Physiotherapy	80+20*	80+20*	NA	200
Paper-7	Basic Nursing	NA	40+10*	NA	50

**Internal Assessment Marks*

Second BPT Examination

Paper	***Subject***	***Theory***	***Practical-Viva***	***Viva***	***Total***
Paper-8	Kinesiology & Biomechanics	80+20*	80+20*	NA	200
Paper-9	Electrotherapy	80+20*	80+20*	NA	200
Paper-10	Exercise Therapy	80+20*	80+20*	NA	200
Paper-11	Rehabilitation, Prosthetics & Orthotics	80+20*	80+20*	NA	200
Paper-12	Pathology & Microbiology	40+10* + 40+10*	NA	40+10* + 40+10*	200
Paper-13	Pharmacology	40+10*	NA	40+10*	100
Paper-14	General Medicine	80+20*	NA	40+10*	150
Paper-15	Orthopedics	80+20*	NA	40+10*	150
Paper-16	General Surgery & Plastic Surgery	80+20*	NA	40+10*	150
Paper-17	Radiology	NA	NA	40+10*	50

**Internal Assessment Marks*

Third BPT Examination

Paper	***Subject***	***Theory***	***Practical- Viva***	***Viva***	***Total***
Paper-18	Clinical Assessment & Physical Diagnosis	80+20*	80+20*	NA	200
Paper-19	Manual Therapy	80+20*	80+20*	NA	200
Paper-20	Biostatistics & Research Methodology	80+20*	NA	NA	100
Paper-21	Neurology & Neuro Surgery	80+20*	NA	40+10*	150

Paper-22	Cardiorespiratory Disease & Thoracic Surgery	80+20*	NA	40+10*	150
Paper-23	Paediatrics	40+10*	NA	40+10*	100
Paper-24	Gynecology & Obstetrics	40+10*	NA	40+10*	100
Paper-25	Psychiatry	40+10*	NA	40+10*	100
Paper-26	Ophthalmology	NA	NA	40+10*	50
Paper-27	ENT	NA	NA	40+10*	50
Paper-28	Dermatology	NA	NA	40+10*	50

**Internal Assessment Marks*
Fourth BPT Examination

Paper	***Subject***	***Theory***	***Practical-Viva***	***Viva***	***Internal Evaluation***	***Total***
Paper-29	Cardiopulmonary Physiotherapy	80+20*	80+20*	NA	NA	200
Paper-30	Neurological Physiotherapy	80+20*	80+20*	NA	NA	200
Paper-31	Orthopedic Physiotherapy	80+20*	80+20*	NA	NA	200
Paper-32	Sports Physiotherapy	80+20*	80+20*	NA	NA	200
Paper-33	General Physiotherapy	80+20*	40+10*	NA	NA	150
Paper-34	Community Physiotherapy	80+20*	40+10*	NA	NA	150
Paper-35	Ethics, Administration and Computer Application	80+20*	NA	NA	NA	100
Paper-36	Physiotherapy Project #	NA	NA	50	50*	100

**Internal Assessment Marks*

Compulsory Physiotherapy Project: To develop analytical, research aptitude, learn about diseases existing in society treatable with comprehensive physiotherapy & rehabilitation.

BPT FIRST YEAR

PAPER-1 ANATOMY

Course Description: This course involves a detailed study of the microscopic, macroscopic and surface anatomy of the various systems of the body with a particular emphasis on the musculoskeletal, neurological and cardiopulmonary systems.

Course Objectives: The student should be able to describe the structure and function of the various system of the body with an emphasis on musculoskeletal, neurological and cardiopulmonary systems as they relate to Physiotherapy.

1. Cells & Tissues

a) Anatomical Nomenclature

b) Structure Of Cell, Reproduction Of Cells.

c) Tissues: Epithelial, Connective, Muscle & Nervous

2. Embryology & Development
a) Early Human Development

b) Development of Individual Systems: Respiratory, gastro-intestinal, Urinary and Vascular System.
c) Prenatal Growth in Form And Size
d) Neonatal Anatomy and Growth

3. Skin
a) Types of Skin, Epidermis, Dermis, Nerves, Blood Vessels, age related Changes, Repair
b) Appendages of Skin: Pilo sebaceous Unit, Nail Unit.

4. Skeletal System

a) Morphology of Human Skeleton: The Skeleton in Life, Shape and Proportions of Bone, Functions of Bone and Skeleton, mechanical Properties of Bone, Growth of Individual Bones
b) Skeletal Connective Tissues: Structure of Cartilage, Bone as a Tissue, Microscopic Structure and Organization of Bone, Blood Vessels and Nerves of Bone

c) Types of Joints:d) Axial Skeleton: Vertebral Column, Ribs, Sternum, Skull.

e) Appendicular Skeleton: upper limb, Lower Limb.

5. Muscle

a) Types of Muscle, Attachments of Skeletal Muscle

b) Form and Function in Skeletal Muscle: Form and Fibre Architecture, Functional Implications of Form.

c) Muscle and Movement.

d) Muscles and Fasciae of Head, Neck, Trunk, Upper Limb, Lower Limb

6. Nervous System

a) Regional Organization of Central Nervous System: Spinal Cord, Rhombencephalon, Mesencephalon, Diencephalon, Telencephalon, Basal Nucleii, Fluid Compartments and Fluid Balance in the CNS.
b) Peripheral Nervous System: Cranial Nerves, Spinal Nerves, and Autonomic Nervous System Peripheral Apparatus of Special Senses: Gustatory, Olfactory, Peripheral Visual, Accessory Visual, Auditory, Vestibular.

7. Hemolymphoid and Cardiovascular System
a) Haemal Cells and tissue, Haemopoiesis, Lymphoid Cells And Tissues.
b) Blood Vessels, Thoracic Cavity and Heart.
c) Arterial System, Venous System, Lymphatic.

8. Respiratory System
Nose and Paranasal Sinuses, Larynx, trachea. Bronchi, Lungs, Pleura, Mediastinum

9. Alimentary System
Oral Cavity, Abdomen, Oesophagus to Anus

10. Urinary and Reproductive System

a) Kidneys, Ureter, Bladder, Urethra.

b) Reproductive organs of Male and Female.

11. Endocrine System Pituitary Gland, Pineal Gland, Thyroid Gland, Parathyroid Gland, Chromaffin System, Diffuse Neuroendocrine System, Adrenal Gland, Paraganglion, Para-aortic Bodies, Tympanic Bodies, Coccygeal Body.

ANATOMY PRACTICAL

Course Description: This course involves a detailed study of the microscopic, macroscopic and surface anatomy of the various systems of the body with a particular emphasis on the musculoskeletal, neurological and cardiopulmonary systems. Students will be instructed using dissected cadavers and organ specimens
Course Objectives: The student should be able to recognize various specimens and describe the structure and function of the various systems of the body with an emphasis on the musculoskeletal, neurological and cardiopulmonary systems as they relate to Physiotherapy.

1. Surface Anatomy: Identification and Description of surface land marks on Human Specimen
2. Muscles, Bones Ligaments, Joints of head, face, trunk, lower and upper extremities on a dissected human specimen.

3. Gross And Microscopic Anatomy of the Central and Peripheral Nervous System.

4. Gross anatomy of Respiratory, Digestive Endocrine, Urinary and Reproductive Systems on a dissected human body.

Recommended Books

1. Human Anatomy-By Snell

2. Anatomy By Chaurasia-All 3 Volumes
3. Kinesiology By Katherine Wells
4. Neuro-Anatomy By Inderbir Singh
5. Gray`s Anatomy

PAPER-2 PHYSIOLOGY

Course Description: This course involves a detailed study of the physiology of the various systems of the body at a microscopic and macroscopic level, with a particular emphasis on the musculoskeletal, neurological and cardiopulmonary systems

Course Objectives: The student should be able to describe the structure and function of the various system of the body with an emphasis on musculoskeletal, neurological and cardiopulmonary systems as they relate to Physiotherapy.

1. Functional Systems of Cell

a) Cell and its Function

b) Extra-Cellular Fluid, Intra-Cellular Fluid.

c) Functional Systems of Cell, DNA, RNA.

d) Control of Genetic Function and Biochemical Activity in Cells.

e) Cell Differentiation, Cancer.

2. Membrane Physiologies, Nerve and Muscle

a) Transport of Substances Through the Cell Membrane: diffusion, Active Transport.

b) Membrane Potentials and Action Potentials: Resting Membrane Potential of Nerves, Nerve Action Potential, Propagation of AP, Signal Transmission in Nerve Trunks.

c) Contraction of Skeletal Muscle: Molecular Mechanics of Muscle Contraction, Energetics of Muscle Contraction, Characteristics of Whole Muscle Contraction, N-M Junction, Muscle AP, Excitation-Contraction Coupling.

d) Contraction and Excitation of Smooth Muscles.

e) Hormonal Control of Smooth Muscle Contraction.

3. Heart and Circulation

a) Cardiac Muscle, Cardiac Cycle, Regulation of Heart Pumping, Cardiac Failure.

b) Rhythmical Excitation of the Heart: Specialized Excitatory and Conductive System of the Heart, Control of Excitation and Conduction in the Heart.

c) Normal ECG, Methods of Recording, ECG Leads.

d) Heart Sounds

e) Basic Theory of Circulatory Function, Interrelationships among Pressure, Flow and Resistance, Vascular Dispensability, Arterial Pressure Pulsation, Veins and their Function, Lymphatic system, Microcirculation, Capillary System, Exchange of Nutrients and Other Substances, Interstitial Fluid, Local Control of Blood Flow, Humoral and Nervous Regulation of Circulation, Cardiac Output, Venous Return Arterial Pressure and their Regulation.

f) Muscle Blood Flow and cardiac Output During Exercise, Coronary Circulation.

g) Circulatory Shock.

h) RBC, Anemia, Polycythemia, WBC, Resistance of Body to Infection, Blood Groups.
i) Hemostasis and Blood Coagulation

4. Kidney and Body Fluids

a) Body Fluid Compartments: ECF, ICF, Intersitial Fluids and Edema.

b) Urine Formation By the Kidneys: Nephron, Glomerular Filtration, Renal Blood Flow, Tubular Reabsorption.
c) Regulation of ECF Osmolarity and Sodium Concentration
d) Integration of Renal Mechanisms for Control of Blood Volume and ECF Volume.

e) Renal Regulation of Potassium, Calcium, Phosphate and Magnesium, Regulation of Acid- Base Balance.
f) Diuretics

5. Respiration
a) Mechanics of Pulmonary Ventilation, Pulmonary Volumes and Capacities, Alveolar Ventilation, Functions of the
Respiratory Passageways
b) Pulmonary Circulation, Pulmonary Edema, pleural Fluid
c) Physical Principles of Gas Exchange, Transport of Oxygen and carbon dioxide in the Blood and Body Fluids
d) Regulation of Respiration.
e) Respiratory Dysfunction.

6. 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.

7. Nervous System
a) Sensory Receptors, Neuronal Circuits for Processing Information.
b) Somatic sensations: Touch, Position, Pain, Thermal, Headache.
c) Special Senses
d) Motor Functions of the Spinal Cord: Cord Reflexes, Spinal cord Transection, Spinal Shock.
e) Cortical and Brain Stem Control of Motor Function: The Motor Cortex, Corticospinal Tract, Vestibular Sensations and Maintenance of Equilibrium.
f) Cerebellum, Basal Ganglia, Motor Control: Integration of the Many parts of the total Motor Control System.
g) Intellectual Functions of the Brain, Learning and Memory.
h) Behavioral and Motivational Mechanisms of the Brain: The Limbic System, Hypothalamus.
i) States of Brain Activity: Sleep, Brain waves, Epilepsy, Psychoses

j) Autonomic Nervous System
k) Cerebral Blood Flow, CSF and Brain Metabolism.

8. Gastrointestinal System
a) Motility, Nervous Control, Blood Circulation
b) Propulsion and Mixing of Food
c) Secretory Functions
d) Digestion and Absorption.

9. Endocrinology and Reproduction
a) Hormone Secretion, Transport and Clearance from Blood
b) Hormones: Pituitary, Thyroid, Adrenocortical, Insulin, Parathyroid, Reproductive.
c) Puberty, Menarche, Menopause
d) Pregnancy and Lactation
e) Fetal and Neonatal Physiology: Special Functional Problems of Neonate, Prematurity.

10. Physiology of Exercise and Work
a) Neuromuscular activity human movement, physiological mechanism in movement, behavior, strength, endurance, & analysis of movement.
b) Circulatory and respiratory response to exercise including effects on the heart, blood circulation, body

fluid changes pulmonary ventilation, gas exchange and transport, etc.
c) Effects of exercise and work on other body functions.
d) Metabolic and environmental aspects of exercise and work-metabolism, energy requirement, efficiency of muscular work, nutritional aspects, heat and body temperature regulation and environmental factors.
e) Effects of Exercise training - endurance, fatigue and recovery.
f) Fitness and health - age, sex, body type, race, stress and medical aspects of exercise.

PHYSIOLOGY PRACTICAL

Course Description: This course involves a detailed study of the physiology of the various systems of the body by demonstration and performance of practicals with a particular emphasis on the musculoskeletal, neurological and cardiopulmonary systems

Course Objectives: The student should be able to describe the structure and function of the various system of the body with an emphasis on musculoskeletal, neurological and cardiopulmonary systems as they relate to Physiotherapy.

1. Identification of blood cells and differential counts
2. W.B.C. count
3. R.B.C. count
4. Hemoglobin percentage and color index
5. E.S.R. and Blood group
6. Bleeding time and clotting time
7. Respiratory efficiency tests
8. Artificial respiration and C.P.R.
9. Pulse rate, Heart rate and measurement of Blood Pressure
10. Respiratory rate and Auscultation
11. Normal E.C.G.
12. Reflexes- Superficial and Deep
13. Sensations
14. Tests for functions of Cerebrum
15. Tests for functions of Cerebellum

Recommended Books

1. Course In Medical Physiology—Vol-I & II-By Dr Chatterjeee
2. Medical Physiology By Dr. Bijlani
3. Text Book Of Medical Physiology-Guyton
4. Manual of Practical Physiology- A.K.Jain

PAPER-3 BIOCHEMISTRY

Course Description: This course involves a study of the metabolism of carbohydrates, proteins, fats, minerals, vitamins and essential enzymes. The role of these in the functioning of the human body will be discussed.

Course Objectives: At the end of the course, the student should be able to describe normal functions of different components of food, enzymes, describe in details biochemical aspects of muscle contraction, and describe in brief the biochemical basis of some common lab tests.

1. Cell Biology
a) Membrane, Structure & Function;
b) Junction Of Intracellular Organelle In Brief

2. Carbohydrates
a) Chemistry-Definition, Classification With Examples
b) Functions Of Carbohydrates With Mucopolysaccharides
c) Reducing Properties Of Sugars Of Clinical & Diagnostic Importance (Eg.Benedict's Test , Banfood`s Test Etc)
d) Metabolism-Digestion & Absorption Of Carbohydrates, glycolysis, Aerobic, Anaerobic, Energetics & Regulation ;
e) Kreb`s Cycle-Its Energetics & Regulation- Role Of T.C.A. Cycle;
f) Glycogenesis, Glycogenolysis & Their Regulation-Role Of Liver In Muscle Glycogen
g) Glyconeogenesis-Significance Of H.M.P. Shunt
h) Hormonal Regulation of Blood Sugar Levels-Important Metabolic Disorders of Glycogen, Lactose Intolerance,
Diabetes Mellitus.

3. Proteins
a) Chemistry-Definition-Function-Classification Of Amino Acids-Protein Structure-Effect Of Temperature On Proteins-
Denaturation-Coagulation ;Isoelectric Ph & Its Importance
b) Metabolism-Digestion & Absorption- Decarboxylation- De-Amination- Transmethylation-Transamination & Their
Importance-Detoxification Of Ammonia Including Urea Cycle ;
c) Special Products Of Amino Acid-E.G. Phenylalnine Glycine ,Methionine[No Biosynthesis] ;
d) Neuro-Transmitters No Bio-Synthesis]

4. Lipids
a) Chemistry-Definition-Classification-[Including Fatty Acids With Examples]-Function -
b) Metabolism-Digestion & Absorption Of Lipids-B-Oxidation-Of Saturated Fatty Acids & Its Energetics & Regulation Of
Fat Metabolism In Adipose Tissue-Ketone Bodies Formation & Utilization—Cholesterol & Its Importance[No
Biosynthesis Needed]-Classification, Sources & Function Of Lipoproteins-Lipoproteinemia Atherosclerosis
c) Fate Of Acetyl-Coenzyme A
d) Cholesterol Biosynthesis
e) Ketogenesis
f) Fatty Acids Biosynthesis
g) Neuro -Transmitters
h) T.C.A.
i) Fate Of Glycerol In Gluconeogenesis, Energy (Glycolysis), Tri-Glycerides,
j) Phospholipid Synthesis,

5. Nuclic Acids
D.N.A., R.N.A.-Definition-Structure & Function-Types-Genetic Code-Catabolism Of Purine –Gout

6. Enzymes
a) Definition-Co-Enzymes-Classification-Factors Affecting-;
b) General Metabolism Of Enzymes [In Brief] ;
c) Inhibition & Types Of Inhibitors ;
d) Iso-Enzymes ;
e) Clinical & Therapeutic Use Of Enzymes

7. Vitamins
a) Water & Fat Soluble-Definition-Classification ;

b) Individual Vitamins-Sources-Co-Enzyme Forms- Function-Reaction Related To Metabolism Covered ;
c) RDA, Absorption-& Transport-Deficiency & Toxicity
d) Biological Oxidation
e) Oxidative Phosphorylation & ETC In Brief

8. Minerals
a) Phosphate, Calcium, & Iron [In Details];
b) Magnesium, Flouride, Zink, Copper, Selenium Molybdenum, Iodine-Sources, RDA, Absorption,-Transport-Excretion
Function & Disorder

9. Acid- Base Balance,Water & Electrolyte
a) Body Water, Ph-Osmolarity Extra & Intra Cellular Fluid-;
b) Buffers-Ph, Buffer System In Blood-
c) Role Of Kidneys & Lungs In Acid-Base Balance
d) Water- Electrolyte Balance Imbalance-Dehydration

10. Hormones
a) Definition-Classification-Mechanism & Action
b) Second Messenger (Ca, Camp, Inositol Phosphate,
c) Metabolic Effects Of Insulin, Glucagon, Catecholamines, Thyroxine
d) Mineralo-Corticoids,Gluco Corticoids

11. Muscle Contraction
a) Contractile Elements;
b) Biochemical Events During Contraction;
c) Energy Metabolism In Skeletal & Cardiac Muscle

12. Connective Tissue
Biochemistry Of Connective Tissue-Collagen –Glyco-Protein –Proteoglycans

13. Nutrition
a) Importance Of Nutrition-Calorimetry-Energy Value-Calorimeter-Respiratory Quotient & Its Significance
b) Basal Metabolic Rate-Definition-Normal Values-Factors Affecting BMR;
c) Energy Requirement-With-Age/Sex/ Thermogenesis/-Specific Dynamic Action Of Food,-Energy Expenditure For Various Activities
d) Composition Of Food, Balanced Diet Dietary Recommendations Nutritional Supplementation-Nutritional Value Of Carbohydrates/Proteins/Fats & Fibers,
e) Nitrogen Balance & Its Significance-Protein Energy Malnutrition-Kwashiorkor & Marasmus

14. Clinical Biochemistry
a) Liver Function Test & Renal Function Test ;
b) Relevance Of Blood Levels Of Glucose, Urea, Ca-Phosphate-& Uric Acid;
c) Enzymes-Amylase, CPK, LDH,Isoenzymes
d) Lipid Profile-Tri -Glyceride, Cholesterol/HDL/LDL/ALDL Etc;
e) Protein & Aggression, Glycosuria
f) Introduction to genetics
g) Medical bio-chemistry

BIOCHEMISTRY PRACTICAL PRACTICALSA. QUALITATIVE

Qualitative analysis of carbohydrates
Reaction of protein
Abnormal constituents of urine
Milk analysis

B. QUANTITATIVE

Verification of Beer's and Lambert's law
Estimation of Blood glucose
Estimation of Blood urea
Estimation of Blood protein
Estimation of Blood creatinine
Estimation of Blood uric acid
Estimation of Blood calcium
Estimation of Blood bilirubin

DEMONSTRATION

Electrophoresis
Chromatography

Recommended Books

1. Fundamentals of Biochemistry-by Dr. Deb Jyoti Das,
2. Biochemistry-by-Dr Satyanarayan
3. Textbook of Medical Biochemistry –Chatterje and Shinde

PAPER-4 PSYCHOLOGY

Course Description: This course involves a description of some common psychological parameters especially as they relate to physiotherapeutic practice

Course Objectives: The student will be able to apply some general psychological principles when dealing with patients.

Definition, application and methods in psychology.

Biology of Behavior.

Sensory processes and perception.

Principles of learning: Classical and Instrumental Conditioning, Cognitive learning.

Memory: Theories, long and short – term memories, forgetting, amnesia.

Thinking and Language: Concepts, thinking process, problem- solving and decision making, creative thinking and language communication.

Motivation: Theories, Biological and Social motives, frustration and conflict of motives, motives to know and be effective.

Emotion and Stress: Expression and perception of emotions, physiology and application of emotion.

Social perceptions, influences, and relationships.

Attitudes; Nature and measurement of attitudes, Attitude theories, Factors in attitude change, Behavior and attitudes

Development – A Lifespan Perspective (infancy, childhood, adolescence, adult, old age)

Communication

Counseling

Brief description of Psychological assessment and testing.

Personality: Defining and thinking about personality, Theories and issues and controversies and research

Abnormal Psychology.

Therapy for Psychological distress.

Anxiety disorders

Personality disorders

Recommended Books

1. Introduction to Psychology- Morgan and King

PAPER-5 PREVENTIVE SOCIAL MEDICINE & SOCIOLOGY

PREVENTIVE SOCIAL MEDICINE

Communicable diseases

Non-communicable diseases

Family planning

Health programmes in India

Mental health

Genetics and health

Occupational health

Preventive medicine in obstetrics, paediatrics and geriatrics

Nutrition and health

Environment and health

Hospital waste management

Communication for health

Health planning and management

SOCIOLOGY

Course Description: This course will introduce students to the basic sociological to concepts, principles and social process. Social institutions and the various social factors affecting the family in rural and urban communities will be studied.

Course Objectives: The student will be able to demonstrate and understanding of the role of socio cultural factors on health and disease as relates to Physiotherapy.

1. Introduction: Definitions of sociology, sociology as a science of society, uses of the study of sociology, application of knowledge of sociology in Physiotherapy.

2. Sociology and Health: Social factors affecting health status, social consciousness and perception of illness, social consciousness and meaning of illness, decision making in taking treatment. Institutions of health, their role in the improvement of the health of the people.

3. Socialization: Meaning of socialization, influence of social factor on personality, socialization in hospitals, socialization in the rehabilitation of patients.

4. Social Groups: Concept of social groups, influence of formal and informal groups on health and sickness, the role of primary groups and secondary groups in the hospitals and rehabilitation settings.
5. Family: Influence of family on human personality, discussion of chares in the functions of a family on the individual's health, family and nutrition, the effects of sickness on family, and psychosomatic disease.
6. Community: Concept of community, role of rural and urban communities in public health, role of community in determining beliefs, practices and home remedies in treatment.
7. Culture: Components of culture, impact of culture on human behaviour, cultural meaning of sickness, response of sickness and choice of treatment (role of culture as social consciousness in moulding the perception of reality), culture induced symptoms and disease, subculture of medical workers.
8. Caste System: Features of the modern caste system and its trends.

9. Social Change: Meaning of social change, factors of social change, human adaptation and social change, social change and stress, social change and deviance, social change and health programs, the role of social planning in the improvement of health and in rehabilitation.

10. Social Control: Meaning of social control, role of norms, folkways, customs, morals, religion law and other means of social control in the regulation of human behaviour, social deviance and disease.
11. Roles: Role taking and making , concepts of role , multiple roles , role set, role conflicts , role loss and transition , roles and health.

12. Organization: Goals and functions, organization as systems, organizational impact -individual, family, community, social structure, power and control in organizations, feminist perspectives on organizations.
13. Sex, gender and feminism: Social construction of sex and gender, sex / gender roles, feminist critiques of sociology.

14. Work: Work, culture and work, theories of work, unemployment, women and work.

15. Leisure: Conceptual and methodological

16. Social Problems of the Disabled

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

19. Social Worker

Recommended Books

3. Introduction to Sociology- Vidya Bhushan
1. The Structure of Sociological Theory- Turner
2. Perspectives in Sociology- Cuff, Shaerock

PAPER-6 INTRODUCTION TO PHYSIOTHERAPY

BIO-PHYSICS

Course Description: This course involves a study of the basic physical principles as they relate to the application of electrotherapeutic modalities.

Course Objectives: The student should be able to explain the physical rationale for the use of physical agent modalities.

1. Physical principles
a) Structure and properties of matter -solids, liquids and gases, adhesion, surface tension, viscosity, density and elasticity.
b) Structure of atom, molecules, elements and compound
c) Electricity: Definition and types. Therapeutic uses. Basic physics of construction. Working Importance of currents in treatment.
d) 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.
e) Current Electricity: Units of Electricity: farad, Volt, Ampere, Coulomb, Watt
f) Condensers: Definition, principle, Types: construction and working, capacity and uses.
g) Alternating current.
h) Magnetism: Definition. Properties of magnets. Electromagnetic induction. Transmission by contact. Magnetic field and
magnetic forces. Magnetic effects of an electric field.
i) Conductors, Insulators, Potential difference, Resistance and intensity
j) Ohm's law and its application to DC and AC currents. Fuse: construction, working and application.
k) Transmission of electrical energy through solids, liquids, gases and vacuum.
l) Rectifying Devices-Thermionic valves, Semiconductors, Transistors, Amplifiers, transducer and Oscillator circuits.
m) Display devices and indicators-analogue and digital.
n) Transformer: Definition, Types, Principle, Construction, Eddy current, Working uses
o) Chokes: Principle, Construction and working, Uses

2. Effects of Current Electricity
a) Chemical effects-lons and electrolytes, lonisation, Production of an EMF by chemical actions.
b) Electromagnetic Induction.
c) Electromagnetic spectrum.

3. Electrical Supply
a) Brief outline of main supply of electric current
b) Dangers-short circuit, electric shocks.

c) Precaution-safety devices, earthing, fuses etc.
d) First aid and initial management of electric shock

4. Various agents
a) Thermal agents: Physical Principles of cold, Superficial and deep heat.
b) Ultrasound: Physical Principles of Sound
c) Electro magnetic Radiation: Physical Principles and their Relevance to Physiotherapy Practice
d) Electric Currents: Physical Principles and their Relevance to Physiotherapy Practice.

5. Circuit diagrams
a) SWD
b) US
c) MWD
d) LASER.

FUNDAMENTALS OF EXERCISE THERAPY

Course Description: This course involves a study of the basic physical principles as they relate to the application of Exercise Therapy.

Course Objectives: The student should be able to explain the physical rationale for the use of physical agent modalities. The student should be able to explain the physical rationale for the selection of appropriate exercises. This course will enable the student to understand the basic mechanics and their application in Physiotherapy in restoration of the physical bodily function.

1. Mechanical Basis of Movement
2. Force and force Systems, Motion and its Laws, Levers, Angle of Pull, Pulleys and its types, Pendulum, Friction, Work, Energy and Power, Friction, Stress and Strain.
3. Skeletal Basis of Movement
4. Planes and Axes, Joints and their Classification, Classification of Movement, Degrees of Freedom, Bones and their Classification.
5. Musculoskeletal Basis of Movement
6. Structure of Muscle and its Classification, Muscle Tension, Muscle Fibre, Group Action of Muscles, Torque &angle of pull
7. Gravity: Effects, Centre of gravity, Line of Gravity and their Alterations, Role in Human Body and Movement.
8. Equilibrium: Effects, Supporting Base, Role in Human Movement.
9. Simple Machines: Levers and their Functions and classification, Pulleys and their Functions and classification, Inclined Planes and their Functions and classification.
10. Elasticity: Definition, Stress, Strain, Hooke's Law. Springs. Properties of springs, springs in series and parallel.
11. Principles of Hydrotherapy: Hydrostatics and Hydrodynamics, Archimedes’s principles, Properties of water, properties of liquids, pressure, Buoyancy, laws of floatation, Apparent loss in weight, factors determining up thrust, Effects of buoyancy on movements performed in water, Movement of force, further effects of apparent loss of weight, Equilibrium of a floating body, movement of water, Inertia, Movement of objects in water.
12. Fundamental and Derived Positions
13. Traction:Principles

FUNDAMENTALS OF PHYSIOTHERAPY PRACTICAL

Course Description: This course involves a demonstration of some basic physical principles as they relate to the application of electrotherapeutic modalities and the basic physical principles as they relate to the application exercise therapy.

Course Objectives: The student should be able to explain the physical rationale for the use of physical agent modalities and the physical rationale for the use of exercise therapy

1. Clinical observation
2. Mechanical Principles applied in Physiotherapy like force, Torque, Centre of Gravity, etc.
3. Demonstration of different types of levers in the human body.
4. Demonstration of different types of pulleys and strings used in Physiotherapy.
5. Demonstration of Archimedes' Principle of floatation and Bernoulli's Theorem in Hydrotherapy.
6. Demonstration of axial and pendular suspension.

Recommended Books

1. Practical Exercise Therapy- Hollis and Cook
2. Principles of Exercise Therapy- Dina Gardiner
3. Clayton's Electrotherapy
4. Physical Principles Explained-Low and Reed

PAPER-7 BASIC NURSING

Basic Nursing

What is Nursing?

Nursing Principles

Inter Personal relationship

Bandaging: Basic turns, Bandaging extremities: Triangular bandages and their application

Environment safety

Bed making

Prone, lateral dorsal, dorsal recumbent, Fowler's position

Comfort measures, Aid to rest and sleeps.

Lifting patients up in the bed: Transferring from bed to wheel chair.

Transferring from bed to stretcher.

Providing for patients Elimination.

Giving and taking Bedpan, Urinal: Observation of stools, Unine Observation of sputum

Understand use and case of catheters

Enema giving

Methods of giving nourishment

Feeding Tube freeding Drips Transfusions.

Care of rubber goods

Observation, Reporting and Recording Temperature, Respiration and pulse simple Aseptic Techniques Sterilization and Disinfection.

Surgical Dressing

Parental Administer of Medicine

Emergencies

Proceedings during shock

Snake & Animal Bites

Transtic Injuries

Electric shocks

Cardio-Pulmonary Resisucation

First Aid
Syllabus as for certificate of Red Cross Society of St. John's Ambulance Brigade.

BOOK RECOMMENDED:

Principles of Nursing by Sister A. Nancy

First aid (Book by Jhon's Ambulance Brigade)

Medica1 Emergencies

BPT SECOND YEAR

Paper-8 BIOMECHANICS & KINESIOLOGY

Course Description: This course involves a description of biomechanical principles

Course Objectives: The student will be able to tailor an effective treatment programme using biomechanical principles

1. Mechanics
a) Introduction to mechanics including motion, forces, parallel forces system vectors.
b) Newton's Law of motion, concurrent force system-composition forces, muscle action line etc.
c) Centre of Gravity, line of gravity, stability and equilibrium, law of inertia.
d) Levers, torque, mechanical advantage.
e) Moment arm and anatomic pulleys.

2. Joint Structure and Function.
a) Basic principles of joint design and a human joint.
b) Tissues present in human joint including dense fibrous tissue, bone, cartilage and connective tissue.
c) Classification of joints.
d) Joint function, Kinematics chains and range of motion.
e) General effects of injury and disease
f) Recall anatomy and study the biomechanics of the spine, shoulder girdle, joints of the upper extremity, pelvic girdle and the joints of the lower extremity.

3. Muscle Structure and Function
a) Mobility and stability functions of muscle
b) Elements of muscles structure and its properties.
c) Factors affecting muscle tension.
d) Types of muscle contraction and muscles work.
e) Classification of muscles and their functions.
f) Group action of muscles, co-ordinated movement.

4. Postures and Gait
a) Posture: Definition, factors responsible for posture, relationship of gravity on posture Postural in balance: factors responsible for in balance in static and dynamic positions including ergonomics.
b) Description of normal gait, determinants of gait, spatio temporal features, and analysis
c) Gait division: Types, causative factors and analysis.

5. Regional Structure and Function
a) The vertebral column
b) Shoulder complex
c) Elbow complex
d) Wrist and Hand complex
e) Hip complex
f) Knee complex
g) Ankle and Foot complex.

Recommended Books:
1. Joint Structure and Function- Norkin
2. Biomechanics of Human Motion- Leveau

PAPER-9 ELECTROTHERAPY

Course description: This course involves a detailed study of production, physiological effects, application techniques, effects, indications, contra-indications, precautions, operational skills of equipment, patient preparation of physical agent modalities used in Physiotherapy.

Course Objectives: Student should be able to operate all physical agent modalities safely and effectively.

1. Low Frequency Currents
a) Introduction to AC, DC and Modified Currents
b) Production of DC, physiological and therapeutic effects of constant currents
c) Iontophoresis
d) Modified Direct Current-various pulses, duration and frequency and their effect on Nerve and. Muscle tissue. Production of interrupted and surged current & their effects.
e) Transcutaneous Electric Nerve Stimulation (TENS)
i) Types of low frequency, pulse widths, frequencies & intensities used as TENS applications.

ii) Theories of pain relief by TENS
iii) Principle of clinical application effects & uses indications, contraindications, precautions, and operational skills of equipment & patient preparation.

2. Medium Frequency Currents: Interferential therapy (IFT)

3. Electrical Reactions and Electro-diagnostic tests
a) Electrical Stimuli and Electrical Properties of Nerve and muscle tissue.
b) Types of lesion and development of reaction of degeneration
c) Faradic - Intermittent direct current test.
d) S.D. Curve and its interpretation.
e) Chronaxie, Rheobase & pulse ratio
f) EMG, NCV tests

4. Actinotherapy
a) Infra Red Rays (IRR)-wavelength, frequency, types & sources of IRR generation, technique of irradiation, physiological and therapeutic effects.
b) Ultra-Violet Rays (UVR): Physics: Electric arc, process of ionisation, and transmission of current through gases; types of lamps. Construction of lamps: High pressure Hg vapor lamps, Kromayer lamp, Tridymite formation, Cooling, Spectrum - Hg vapor lamps (in brief), Fluorescent tube for UV production, PUV A apparatus, Care of lamp. Physiological and Therapeutic effects - in detail. Photosensitization in brief. Indication, Contra - indications and dangers. Technique of application: Test dose, local treatment, general irradiation, treatment.Conditions (common) in which above treatment given. Sensitisers (in brief) Filters.Comparison between l. R. and U.V. Erythema- Development, appearance, and duration. Wavelength. Penetration. Pigmentation. Tolerance.

5. Thermal Agents
a) Superficial heat - paraffin wax bath, moist heat, electrical heating pads, mode of heat Transfer
b) Cryotherapy
c) Deep heating modalities:
I. Short Wave Diathermy
II. Long wave Diathermy
III. Microwave Diathermy
IV. Ultrasound
Properties, principle of production, construction of apparatus with diagram, methods of application, physiological and therapeutic effects, technique of application, testing of machine, preparation of patient, types of electrodes, position and size of Electrodes, therapeutic dosage, dangers, precautions, Indications and contra indications for these modalities.

6 .Therapeutic Light in Physiotherapy
LASER: Define laser and briefly outline its therapeutic indications, contra - indications, efficacy, and precautions advisable.
7. Biofeedback: Introduction, principles, therapeutic effects, indications, contra-indications and techniques of treatment
8. Advanced electrotherapy: Computerization in electrotherapy, programming parameters, appropriate selection of parameters and combination therapy.

ELECTROTHERAPY PRACTICAL

Course description: This course involves a detailed study of production, physiological effects, application techniques, effects, indications, contra-indications, precautions, operational skills of equipment, patient preparation of physical agent modalities used in Physiotherapy.

Course Objectives: Student should be able to operate all physical agent modalities safely and effectively.

1. Basic operation of electric supply to the equipment and safety device.
2. Sensory and motor stimulation of nerves and muscles by various types of low frequency currents on self.
3. Locate and stimulate different motor points region wise, including the upper and lower limb, trunk & face.
4. Therapeutic application different low frequency currents faradic foot bath, faradism under pressure, iontophorsis.
5. Reaction of degeneration of nerves. Plot strength duration curves. Chronaxie and Rheobase.
6. Hydrocollator unit, its operation and therapeutic application of Hot packs-regionwise.
7. Various types of infrared lamps and their application to body regionwise.
8. Paraffin wax bath unit, its operation and different method of application- regionwise.
9. Different types of Ultra violet units, their operation, assessment of test dose and application of UVR - regionwise.
10. TENS Stimulator, its operation and application - regionwise.
11. Short wave diathermy unit, its operation and different methods of application - regionwise.
12. Microwave diathermy unit, its operation and different methods of application - regionwise.
13. Ultrasound unit, its operation and methods of application - regionwise.
14. LASER unit, its operation and methods of application - regionwise.
15. Various forms of therapeutic cold application region wise including ice, cold packs, vapocoolant sprays, etc.
16. Intermittent pneumatic therapy unit its operation and different methods of application - regionwise.

Recommended Books

1. Clayton's Electrotherapy
2. Clinical Electrotherapy- Nelson and Currier
3. Electrotherapy Explained- Low and Reed

PAPER-10 EXERCISE AND MANUAL THERAPY

Course description: This course involves a detailed study of physiological effects, application techniques, effects, indications, and contraindications, precautions for exercises used in Physiotherapy.

Course Objectives: Student should be able to explain the rationale for the prescription of safe and effective exercises.

1. Mechanics: Define the following terms and describe the principles involved with suitable examples.
a) Force: Composition of force, Parallelogram of forces. Equilibrium: Stable, unstable, neutral. Forces applied to the body
b) Gravity: Centre of gravity, Line of gravity. Levers: 1st order, 2nd order, 3rd order, Their examples in the human body and their practical applications in physiotherapy.
c) Levers. Pulleys: Fixed, Movable.
d) Springs: Series and Parallel. Tension. Elasticity: Hooke's law.
e) Axis: Sagittal, Frontal, Transverse, Vertical. Planes: Sagittal, Frontal, Horizontal.
f) Definition of: Speed, velocity.
g) Work, Energy, power, Acceleration, Momentum, Friction and Inertia.

2. Muscle Action
Muscle work: Isotonic (concentric, eccentric), Isometric (static). Group action: Agonists (prime movers). Antagonists, synergists, Fixators. Angle of muscle pull, Mechanical efficiency of the muscles.

3. Pelvic Tilt

Normal pelvic tilts, alterations from normal, anterior tilt (forward) posterior tilt (backward), Lateral tilt. Muscles responsible for alterations and pelvic rotation. Identification of normal pelvic tilt, pelvic rotation and altered tilts and their corrective measures.

4. Starting Positions

Positions, their muscle work, effects and uses. Specify the importance and derived positions for each one: standing, kneeling, sitting, lying, and hanging.

5. Movements

a) Anatomic movements: Flexion, Extension, Abduction, Inversion, Eversion, Supination, Pronation, Internal rotations, External rotations, Gross flexion, Gross extension, Trunk side flexion.
b) Surface Anatomy of the individual joints.
c) Rhythm of movement. Timing of movement. Duration of movement.
d) Classification of Movement: Active, passive, Effects of exercise: Physiological effects, Therapeutic effects. Indications and contra - indications of the following and demonstrate the technique for each: Active movements: Voluntary (free, active assisted, assisted resisted, resisted), Involuntary (associated reflex, peristaltic, visceral, cardiac). Passive movements: Relaxed passive, mobilizing passive (forced P.M. manipulations, serial manipulations). Passive stretching.

6. Passive Movements

Passive stretching of following muscles/ muscle groups and describe the indications, contra -indications, physiological effects, advantages and disadvantages of each. Upper limb: pectoralis major, biceps brachi, triceps brachi, and long flexors of the fingers.
Lower limb: rectus femoris, iliotibial band (tensor fascia lata), gastro - soleus, hamstrings, hip abductors, iliopsoas. Neck:
Sternocleidomastoid.

7. Active Movements

Types, techniques, indication and contraindications, physiological effects, advantages and disadvantages and demonstrate three progressive resisted exercises in progression for the following muscle groups: Shoulder abductors, shoulder forward flexors, Triceps Brachi, Hip abductors, Hip flexors, Quadriceps femoris, Abdominal Muscles, Back extensors. Home programme for strengthening neck muscles and back extensors

8. Progressive Resisted Exercises

Advantages and disadvantages and demonstrate the techniques of the following types of PRE's: Fractional system, Mac queens set system, Mac Queen's power system. Delorme's boot, Dumbbells, Sand bags in pulleys, powder board and suspension therapy.

9. Muscle Grading:

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

10. Re- Education Of Muscles

a) Re-Education Of Muscles: Techniques, Spatial Summation, Temporal Summation.
b) Re-Education Techniques And Facilitating Methods On Various Groups Of Muscles. Progressive Exercises In Strengthening Using Various Application: (According To Their Muscle Power) Grade 1-Grade IV.

11. Joint Mobility

Joint ranges (outer range, middle range, innerrange). Individual joint structures, joint movements

(anatomic, accessory). Causes of joint range limitations, prevention of joint stiffness. Positioninq (physioloqical resting position) of joints and teaching home programme.

12. Goniometry
a) Normal range of various joints, Description of goniometer, range of measuring systems (180 foot trunk and head), Techniques of goniometry. Demonstrate measuring of individual joint range using goniometer.
b) Demonstrate measurement of limb girth (using measuring tape): arm, forearm, thigh

13. Crutch Walking
Components of a crutch, classifications of crutches, characters of a good crutch, preparing a patient for crutch walking, crutch walking muscles, Measurement of crutches (axillary piece, hand piece). Crutch stance, crutch palsy. Types of crutch walking (4 point, 3 point, 3 point) (non - weight bearing and partial weight bearing), modified 3 point (paraplegic and shuffling gait, swing to and swing through. Crutch measurement (sitting standing and lying positions) and various types of crutch walking (even ground stairs and ramps).

14. Relaxation
Relaxation, Muscle fatigue, Muscle spasm, General causes, signs, symptoms of tension (mental and physical). Factors
contributing to fatigue. Types of relaxation (local and general), indications for relaxation, and techniques of relaxation (local and general).

15. Posture
a) Posture (static and dynamic). Definition of good posture, Muscles responsible for good posture.
b) Postural mechanisms
c) Definition of abnormal posture (Kyphosis, Scoliosis, Lordosis, Kypho - scoliosis, kypholordosis).
d) Assessment of posture (inspection, measurement - length of legs, width of pelvis, plumb line. ROM of trunk in flexion,
extension, side flexion and rotation). Postural correction by: strengthening of muscles, mobilisation of trunk, Relaxation, Active correction of the deformities. Passive correction (traction) postural awareness, abdominal and back extensor.
e) Outline principles in bracing of the trunk and surgical correction. Identification of abnormal posture, and postural corrective measures.

16. Gait
a) Gait and centre of gravity of the human body.
b) Muscles responsible for normal gait, six determinants of gait (pelvic rotation, pelvic tilt, hip flexion, lateral displacement of pelvis knee flexion in stance phase, normal foot pattern during walking).
c) Walking cycle: Stance (heel strike, foot flat, midstance, and push off), Swing (acceleration, mid swing and deceleration).
d) Following pathological gaits: Gluteus medius Gait, Gluteus maximus gait, Hip flexor weakness gait, Quadriceps weakness gait; Foot drop gait, hemiplegics gait, Ataxic waddling gait, equinus gait, calcaneus's gait, Equinovarus gait.
e) Skills in identifying pathological gait and proper gait training.

17. Co - Ordination
Balance (static and dynamic). Mechanism of neuromuscular co-ordination. ln coordination : Lower motor neuron lesions, uppermotor neuron lesions (spasticity), Cerebellar lesions, Loss of kinesthetic sense (tabes dorsalis, syringomyelia, leprosy), imbalance due to muscular disease. Re- education of balance. Re-education co-ordination: Frenkels Exercises, proprioceptive neuromuscular facilitation (PNF) techniques. Re-education techniques of balance and coordination.

18. SUSPENSION THERAPY
Basic physics of simple pendulum and pendular movement. Type of suspension: Pendular, Axial, Eccentric fixation (anterior, posterior, medial and lateral). Indications and technique for each type of suspension. Axial and eccentric fixat ion for mobilizing, strengthening and re - education of various muscles and joints.

19. HYDROTHERAPY
Hydrostatic pressure, upward thrust of water, buoyancy. To list the indications and contra-indications for hydrotherapy. Dress codes for patients and therapists, and necessary hydrotherapy equipment. Construction of hydrotherapy tank: Design, Construction, safety features, cleaning the pool, water heating systems, Hygiene of patient and pool.

20. BED REST COMPLICATIONS:
Complications of patients on prolonged bed rest. Maintenance exercises for patients on prolonged bed rest.

21. Massage
a) History of massage. Mechanical points to be considered. Points to be considered while giving massage. Manipulations. The time of day for treatment. The comfort and support of the patient (draping and positioning). Position of operator (therapists stance)
b) Using body weight, Contact and continuity, Techniques, indications, and contra indications. Physiological effects of massage on various system of body: Excretory system, Circulatory system, Muscular system, Nervous system and Metabolic system
c) Various manipulation techniques used in massage.
d) Stroking manipulation: Effleurage, stroking. Pressure manipulations: Kneading: Squeezing, stationary, circular ironing
(reinforced kneading), Finger kneading, petrissage (picking up, wringing, rolling), Frictions. Percussion manipulation:
Tapotement, hacking, clapping, Beating and pounding. Shaking manipulations: Vibration, shaking, Technique, effects, uses and contra indications of the following manipulations: Stroking manipulations. Pressure manipulations. Percussion manipulations Shaking manipulations. Massage for upper limb, Scapular region, Shoulder joint, Upper arm, Elbow joint, Forearm, Wrist, Hand. Massage for lower Iimb: Thigh, Knee joint, Leg, Foot (including ankle joints and toes). Massage for back: Neck and upper Middle and lower back. Gluteal region, arm and leg Massage for the face

23. Therapeutic Gymnasium
i) Set-up of gymnasium & its importance
ii) Various equipment in the gymnasium
iii) Operational skills, effects, & uses of each equipment

24. Functional re-education-general therapeutic techniques to re-educate ADL function.

25. Special Techniques
a) Introduction to special mobilization & manipulation techniques, effects indications, effects, indications & contraindications.
b) Conceptual framework, principle of proprioceptive neuromuscular facilitation (PNF) techniques, including indications,
therapeutic effects and precautions.
c) Review normal breathing mechanism, types, techniques, indications, contraindications, therapeutic effects & precautions of breathing exercises.
d) Postural Drainage
e) Mat exercises

26. Basic principles of General fitness-warming up exercises, aerobics – cool down exercises

EXERCISE THERAPY PRACTICAL

Course description: This course involves a detailed study of physiological effects, application techniques, effects, indications, and contraindications, precautions for exercises used in Physiotherapy.

Course Objectives: Student should be able to explain the rationale for the prescription of safe and effective exercises.

1. Soft tissue manipulative techniques regionwise-upper limb, lower limb, neck, back and face.
2. Measurement of ROM of joints-upper limb, lower limb and trunk.
3. To practice the grading of muscle strength regionwise upper limb and lower limb and trunk.
4. Position of joints, muscle work, and stability of various fundamental and derived positions.
5. Different types of muscle contraction, muscle work, group action of muscles and coordinated movement
6. Various types of suspension therapy and its applications on various part of body-regionwise.
7. Local and general relaxation techniques.
8. Structure and functions along with application of various equipment in a gymnasium.
9. Assessment & evaluative procedures, including motor, sensory, neuromotor coordination, vital capacity, limb length & higher
functions.
10. Various techniques of mobilization of joints regionwise.
11. Various techniques of progressive strengthening exercises of muscles regionwise.
12. Use of various ambulation aids in gait training.
13. Evaluate ADLs and practice various training techniques.
14. Mat exercises.
15. Normal and abnormal posture & practice various corrective techniques.
16. Equilibrium/balance & practice various to improve balance.
17. Structure and functions of hydrotherapy equipment and their applications.
18. Various traction techniques, including manual, mechanical & electrical procedures.
19. Various group exercise therapies.
20. Breathing Exercises
21. Postural Drainage
28. Basic Yogic postures: Padahastasana /Padangusthanasana, Trikonasana, Utkatasana, Padmasana, Siddhasana,/Sukhasana,
Bhujangasana, Ardha- Salabhasana, Paschimottanasana, Savasana,Dhanurasana, Ardha Halasana, Yogamudrasana, Uttanasana,
Virasana, Vajrasana, Setu Bandhasana, Gomukhasana, Pavan-Muktasana, Halasana, Sarvangasana, Naukasana,
29. Warm up exercises, aerobics – cool down exercises
22. Introduction to manual therapy techniques such as Maitland's, Cyriax, Mulligan's, Tensigrity, etc

Recommended Books

1. Principles Of Exercise Therapy–Dena Gardiner
2. Massage, Manipulation & Traction---Sydney Litch
3. Massage- Holly
4. Suspension Therapy In Rehabilitation—Margaret Hollis
5. Hydrotherapy - Duffield
6. Measurement Of Physical Function - Cynthia Norkins
7. Therapeutic Exercise—Carolyn Kisner

Paper-11 Rehabilitation Prosthetics and Orthotics

Unit-I: Introduction to rehabilitation

Concept of Rehabilitation, principals & role of physiotherapist.

Present Rehabilitation services including reservation & legislation for rehabilitation of disabled.

Team concept & role of different professionals in Rehabilitation.

Vocational & social Rehabilitation.

Unit-II: Disability & Rehabilitation.

Definition of Impairment, disability & handicap, their causes & role of physiotherapy.

Disability evaluation.

Activities of daily living.

Physical rehabilitation of Disabled or Handicapped.

Principals of communication impairment including speech production, communication disorders, aphasia 7 its management principals of speech therapy.

Unit-III: Community Based Rehabilitation.

Definition, aims, objectives, approach of CBR , organization & administration of CBP projects.

Unit-IV: Orthotics

Definition Principles, Usage, checkups, indicates contradiction

Paper-12 PATHOLOGY & MICROBIOLOGY

(Pathology: 70%; Microbiology: 30%)

Course Description: This course involve a detailed study of the various systems of the body at a microscopic and macroscopic level, with a particular emphasis on the musculoskeletal, neurological and cardiopulmonary systems

Course Objectives: The student should be able to describe the structure and function of the various system of the body with an emphasis on musculoskeletal, neurological and cardiopulmonary systems as it relates to its applications in Physiotherapy

PATHOLOGY

1. Introduction to Pathology

a) Definitions

b) Branches

c) Pathology as a Science

d) Correlation Between Pathology and Physiotherapy

2. Cell Injury, Death and Adaptation

a) Definitions and Causes

b) Mechanisms

c) Morphology of Cell Injury
d) Apoptosis
e) Cellular Adaptations to Growth and Injury
3. Acute and Chronic Inflammation
a) General Features of Inflammation
b) Vascular Changes and Cellular Events-Acute Inflammation.
c) Chemical Mediators of Inflammation.
d) Definitions, Causes and Histological Features-Chronic Inflammation.
4. Tissue and Cell Repair
a) Normal Cell Growth
b) Repair by Connective tissue
c) Wound Healing
d) Fracture Healing
e) Pathological Aspects of repair
5. Hemodynamic Disorders
Edema, Hyperemia and Congestion, Hemorrhage, Hemostasis and Thrombosis, Embolism, Infarction, Shock.
6. Disorders of Immune System
a) Cells of the Immune System
b) Immune Mechanisms of Tissue Injury
c) Autoimmune Disease: Mechanism, RA, SLE, Myasthenia Gravis.
d) Immunodeficiency Diseases: Differences Between Primary and Secondary, AIDS.
7. Neoplasms
a) Definitions and Nomenclature.
b) Characteristics.
c) Carcinogenesis, Carcinogenic agents,.
d) Biology of Tumor Growth, Tumor Immunity.
8. Environmental Disorders
a) Injury by Chemical Agents
b) Injury by Physical Agents
9. Infectious Diseases
a) Categories of Infectious Agents
b) Host barriers to Infection
c) Immune Evasion by Microbes
10. Nutritional Disorders
a) Nutritional Deficiencies
b) Obesity
c) Diet and Systemic Disease
11. Vascular System
a) Vascular Wall Cells and their Response to Injury
b) Arterial Diseases: Arteriosclerosis, Hypertension and Hypertensive Vascular disease, Buerger's disease, Aneurysm.
c) Venous Disease: Varicose Veins, Phlebothrombosis, And Thrombophlebitis.
d) Lymphatic Diseases: Lymphangitis, Lymphoedema.
12. Cardiac System
a) Principles of Cardiac Dysfunction
b) Types of Heart Disease: Ischemic Heart Disease, Hypertensive Heart Disease, Valvular Heart Disease, Myocardial Heart
Disease, pericardial Heart Disease, Congenital Heart Disease.
13. Hematopoietic and Lymphoid System
Anemia, Polycythemia, Leukopenia, Leukemia, Deficiencies of factor VIII and IX, Splenomegaly.
14. Respiratory System
Atelectasis, obstructive Lung disease, Restrictive Lung Disease, Vascular Lung Diseases, Pulmonary

Infections: Pneumonia,
Tuberculosis, Lung Abscess, Pleural Disorders: Pneumothorax, Hemothorax.
15. Gastrointestinal System
Gastritis, Gastric Ulcerations, Ischemic Bowel Disease, Appendicitis, GI Tract Infections, Crohn's Disease, Jaundice, hepatic
Failure, Cirrhosis, Hepatitis, Cholelithiasis, Cholecystitis, Diabetes Mellitus, Pancreatits.
16. Urinary and Reproductive System
a) Nephritis, Kidney Stones.
b) Male Genital Tract: Specific Inflammation.
c) Female Genital Tract: Pelvic Inflammatory Disease, Menopause and Post Menopausal Changes, Endometritis, Carcinoma
of the Mammary Glands.
17. Endocrine System
Hyperpituitarism, Hypopituitarism, Hyperthyroidism, Hypothyroidism.
18. Musculoskeletal System
Osteoporosis, Osteomyelitis, Osteoarthritis, Gout, Osteoma, Osteosarcoma, Chondroma, Chondrosarcoma,
Osteochondrosarcoma, Muscular Dystrophy.
19. Integumentary System
Psoriasis, SLE, Acne Vulgaris.
20. Nervous System
Hydrocephalus, Meningitis, Hematoma, Multiple Sclerosis, Alzheimer's Disease, Parkinsonism, G.B. Syndrome.

PRACTICALS

Demonstration of slides
Anaemia
Leukaemia
Acute inflammation
Chornic inflammation
Tuberculosis of lymphnode
Leprosy
Squamouscell" carcinoma
Osteoclastoma
Specimen Dcmonstration

BOOK REFERENCES:

Pathology : Robbins

Aids of Pathology : Dixson

Boyd's Text Book of Pathology : Boyd

Text Book of Pathology : N. C. Dey

MICRO BIOLOGY

General Bacteriology

1.Introduction, Historical background, Classification of microorganisms.
2.Morphology of Bacteria
3.Staining of bacteria.
4.Sterilization
5.Cultivation and culture media

2. Systemic Bacteriology

Gram-positive Cocci-Streptococci Staphylococci and Pneumococci

Gram-negative cocci-Gono. & Meningo cocci.

Gram negative bacilli - Typhoid, Cholera Dysentery

Gram positive bacilli

Aerobic - Diphtheria, Tuberculosis, Leprocy

Anaerobic - Tetanus, Gas Gangrene, Botulism.

3.Immunology

Immunity, Anatigens, Antibodies, Antigen and Antibody Reactions Agglutination. Precipitation Hypersensitivity reactions:

4.General Virology

a) Poliomyelities
b) Rabies
c) Demonstration of tests in
Diagnosis of AIDS
Diagnosis of Hepatitis
Diagnosis of Syphilis

5. Parasitology

Malaria
Amoebiasis
Roundworm & Hookworm

6. Mycology

Candidiasis, Ringworm, Scabies

PRACTICALS

Demonstration of collection of clinical specimens and cultivation of samples.

Demonstration of cultures

Demonstration of H.D. & Simple Grams and Ziehl Neelsens staining

Demonstration of Sterilization techniques

Demonstration of Serogical tests.

Demonstration of Diagnostic tests of AIDS, Hepatitis. Syphilis.

Demonstration of Fungi.

Demonstration of Hypersensitivity tests

BOOK REFERENCES:

1. Microbiology Rajesh Bhalani

Text Book of Microbiology : Rajesh Bhatia

Text Book of Parasitology Bhatia

Paper-13 PHARMACOLOGY

Course Description: This course involves the principles involved in using common drugs,

Course Objectives: The student should be able to explain the indication, Contra indication and side effects of commonly used drugs

1. General pharmacology

a. Definitions and Routes of Drug Administration

b. Pharmacokinetics:

c. Transportation across membranes, Absorption, Distribution, Biotransformation, Excretion, Kinetics of elimination

d. Pharmacodynamics:

e. Principles and Mechanisms of Drug Action, Combined effects of drugs , Drug dosage , Factors modifying Drug Action .

f. Adverse Drug Effects

2. Systemic Pharmacology

a. Drugs acting on Central Nervous System: Anaesthetics, alcohols, alkaloids, narcotics, neuroleptics

b. Hypnotics, anticonvulsants,

c. Sedatives, stimulants, antianxiety, etc

d. Drugs acting on peripheral nervous system: Skeletal muscle relaxants

e. Local anaesthetics

f. Drugs acting on the Autonomic Nervous System: Cholinergic &

g. Anticholinergic drugs ,

h. Adrenergic & Antiadrenergic drugs.

i. Drugs acting on cardiac vascular system.

j. Drugs acting on the respiratory system

k. Drugs acting on the Kidney.

l. Drugs affecting Blood and Blood formation

m. Gastrointestinal Drugs

n. Antimicrobial Drugs

o. Drugs acting on Skin and Mucous membrane

p. Antiseptics, Disinfectants, and Ectoparasiticides

q. Chelating agents

r. Chemotherapeutic agents.

s. Hormones and drugs affecting endocrine functions

t. Vitamins

u. Metabolic and other inorganic compounds.

v. Immunologic agents.

w. Diagnostic agents.
x.Respiratory System
y. Geriatrics

Recommended Books

1. Essential of Medical Pharmacology- K. D. Tripathi
2. Pharmacology in Rehabilitations- Ciccone

Paper-14 GENERAL MEDICINES

Course Description: This course involves the management of general medical, cardiopulmonary, skin, psychiatric conditions and common emergencies requiring medical care. Identification and description of the relevant instruments used for investigation and practice for management of general medical, cardiopulmonary, skin and psychiatric conditions will also be discussed.

Course Objectives: The student should be able to describe the management of general medical, cardiopulmonary, skin and psychiatric conditions with a special emphasis on conditions involving physiotherapy management. The student should be able to understand the importance of first aid and explain the rules of first aid, identify and give first aid in common emergencies, describe the types of wounds, haemorrhages, shock and respiratory emergencies, acquire knowledge about ambulances service and their functions in relation t o emergencies. The student should be able to describe the assessment of general medical, cardiopulmonary, skin and psychiatric conditions with a special emphasis on conditions involving physiotherapy management.

I. GENERAL MEDICINE

1. Genetic, Immunological, Environmental, Climatic Factors in Disease.
2. Diseases due to Infection
3. Major Manifestations of Infection, Principles of Management, Diseases due to : Viruses, Chlamydiae, Rickettsiae, Bacteria, Spirochaetes, Fungi, Protozoa, helminthes, Arthropods, STD.
4. Diseases of the alimentary tract and pancreas
5. Diseases of the teeth, stomach and duodenum, large and small intestine and pancreas
6. Gastro-intestinal haemorrhage
7. Inflammatory Bowel Disease.
8. Diseases of the Liver and Biliary System
9. Jaundice, portal hypertension, ascites, renal failure , hepatic encephalopathy fulminant hepatic failure , acute and chronic parenchymal disease , tumors of the liver, liver transplantation , gall stones , cholecystitis
10. Nutritional factors in disease
11. Disturbances in water, electrolyte and acid – base balance.
12. Physiology of water and electrolytes, major manifestations of electrolyte and acid – base disorders , hypernatremia , hyponatremia , hyperkalaemia , hypokalaemia , sodium and water excess , calcium , phosphate and magnesium disorders , metabolic acidosis and alkalosis , respiratory acidosis and alkalosis mixed acid – base disorders.
13. Diseases of Kidney and Genito- urinary system
14. Acute glomerulonephritis syndrome, nephrotic syndrome, recurrent haematuria, renal failure, glomerular diseases , infections if the kidney and urinary tract , obstruction of the urinary tract , urinary tract calculi and nephrocalcinosis , congenital abnormalities of the kidney , drug – induced kidney disorders and tumors.
15. Diseases of the endocrinal system and metabolic
16. Hypothalamus, pituitary, thyroid, parathyroid, adrenal diseases

17. Sexual disorders
18. Diabetes Mellitus
19. Diseases of the Blood.
20. Disorders of the erythrocytes & leucocytes,
21. Blood transfusion, haemostasis
22. Disorders of the venous thrombosis
23. Oncology
24. Clinical presentation and principles of management
25. Principles of Geriatric Medicine.
26. Demography of aging, normal old age
27. Atypical presentation of disease
28. Acute confusion, urinary incontinence, immobility, falls.
29. Acute poisoning
30. Assessment of severity, general principles, general features and management and prevention.

II. CARDIAC DISEASE

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

III. PULMONARY DISEASE

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

IV. SKIN

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

V. PSYCHIATRY

1. Brief description of epidemiology and etiological factors.
2. Classification of psychiatric disorders.
3. Clinical interview (MSE)
4. Brief description of psychological and physical treatments used.
5. Brief description of clinical syndromes (organic psychiatric disorders, substance abuse, schizophrenia, affective disorders, neurotic, stress related and somatoform disorders, eating disorders, sleeping isorders, sexual dysfunction, puerperal mantal disorders personality disorders, factitious disorders)
6. Psychiatric problems in a general hospital, community psychiatry, legal aspects of psychiatry.

Recommended Books

Principles and Practice of Medicine by Davidson

Paper-15 ORTHOPAEDICS & SPORTS MEDICINE

Course Description: This course introduces and enables the student to understand orthopaedic conditions which commonly cause disability and their medical and surgical management.

Course objectives: The student will demonstrate an understanding of orthopaedic conditions which commonly cause disability and their medical and surgical management.

1. Traumatology: Definition, Classification, Clinical Features, Differential Diagnosis, Investigations, Medical and Surgical Management of the Following

A. General Principles, outline the following

I. Types of Fractures including patterns. Open and closed fractures and fracture dislocations.

II. Differences between dislocation subluxation.

III. General & Local signs & symptoms

IV. Principles of management-Conservative and Surgical.

V. Prevention and treatment of complications including fracture disease, Volkmann's ischaemic contracture, Sudeck's Atrophy, Carpal Tunnel syndrome. Myositis ossificans, and shoulder-hand syndrome.

VI. f .Functional Bracing

VII. Soft Tissue Injuries

B. Upper Limb Trauma

I. Enumerate major long bone fractures and joint injuries.

II. Enumerate the major soft tissue Injuries.

III. Describe their clinical features. Principles of management and complications.

C. Lower Limb Trauma

I. Enumerate major long bone fractures and joint injuries.

II. Enumerate major spinal fractures and joint injuries.

III. Enumerate the major soft tissue Injuries.

IV. Describe their clinical features. Principles of management and complications

V. Enumerate the major soft tissue Injuries.

VI. Describe their clinical features. Principles of management and complications

D. Spinal Trauma

E. Polytrauma

I. Nerve Injuries

II. Vascular Injuries

3. Amputations

I. Classify amputations. List indication for surgery.

II. Outline pre-operative, operative and prosthetic management.

III. Outline prevention and treatment of complications.

4. General Orthopedics

A. Congenital Deformities: Outline the clinical features and management of CTEV, CDH, Flat foot, vertical talus, limb deficiency (radial club hand and femoral, tibial and fibular deficiencies meningomyelocoele, Arthrogryposis multiplex congenita and Osteogenesis imperfecta, Congenital Torticollis, Spina Bifida, Sprengel's Shoulder, etc.

B. Developmental Disorders of Bone: Outline the Clinical Features and Management of Cartilage Dysplasia And Bony Dysplasia.

C. nfections of Bones and Joints: Outline the Clinical Features, Pathogenesis, Investigations, Differential Diagnosis and Management of Osteomyelitis, Pyogenic Arthritis, Septic Arthritis, etc.

D. Tuberculosis of Bones and Joints: Outline the Clinical Features, Pathogenesis, Investigations, Differential Diagnosis and Management of spine, Hip, Knee, SI Joint, Poncet's Tuberculous Rheumatism, Tubercular Osteomyelitis, etc.

5. Regional Orthopedics: Outline the Definition, Classification, Clinical Features, Pathogenesis, Investigations, Differential Diagnosis,

Complications and Management of the following conditions:

A. Shoulder; Tendinitis, Peri Arthritis, Rotator Cuff Injury, Deltoid Fibrosis, Adhesive Capsulitis, Frozen Shoulder, etc.

B. Elbow: Tennis Elbow, Golfer's Elbow, Recurrent Slipping of Ulnar Nerve, Pulled Elbow, etc.
C. Wrist and Hand: Ganglion, DeQuervain's Disease, Trigger Thumb and Finger, Carpal Tunnel Syndrome, Dupuytren's Contracture, etc.
D. Spine: Cervical: Brachial Neuralgia, Brachial Plexus Injury, Thoracic Inlet Syndromes, Torticollis, Cervical Spondylitis, PID, etc. Thoracic and Lumbar Spine: Deformities of the spine, Spondylolisthesis, Lumbosacral Strain, Lumbar Canal stenosis, Spondyliti s, PID, etc
E. Hip: Coxa Vara, Slipped Upper Femoral Epiphysis, AVN, etc.
F. Knee: Deformities, Quadriceps Fibrosis, Recurrent Dislocation of the Patella, Osgood Schlatter's Disease, Loose Bodies, Anterior Knee Pain, Chondromalacia Patellae, etc.
G. Foot and Ankle: ainful Heel, Plantar Fascitis, Posterior Heel Pain, Deformities, Forefoot pain, metatarsalgia, Tarsal Tunnel Syndrome, etc
H. Peripheral Nerve Injuries: Outline the clinical features and management, including reconstructive surgery of, Radial, median and ulnar nerve lesions, Sciatic and lateral popliteal lesions, Brachial Plexus injuries including Erb's, Klumpke's and crutch palsy.

6. Special Surgical Techniques

A. General Principles and Applications of the Following:
B. Arthrodesis and Arthroplasty
C. Tendon Transfer
D. Muscle Lengthening
E. Tenotomy
F. Tendon repair
G. Osteotomy
H. Nerve Suturing
I. Discectomy
J. Spinal Fusion
K. Laminectomy
L. Soft Tissue Release

7. Common Sports Injuries

Recommended Books

1. Outline of Fractures- Adams
2. Outline of Orthopedics- Adams
3. Turek
4. Campbell

Paper-16 GENERAL SURGERY & PLASTIC SURGERY

Course Description: This course involves the management of general surgical, eye, ENT, cardiopulmonary, gynaecological and obstetrical conditions. Identification and description of the instruments used for investigation and practice for management of general surgical, eye, ENT, cardiopulmonary, gynaecological and obstetrical conditions will be discussed.
Course Objectives: The student should be able to describe the management of general surgical, eye, ENT, cardiopulmonary, gynaecological and obstetrical conditions with a special emphasis on conditions involving physiotherapy management. The student should be able to describe the assessment of general surgical, eye, ENT, cardiopulmonary, gynaecological and obstetrical conditions with a special emphasis on conditions involving physiotherapy management.

Introduction:

Description of events frequently accompanying General Anesthesia. Blood transfusion and Physiological response of the body. Wounds, Scars, Ulcers, Boils, Carbuncles etc. Principles of Pre and Post Operative Physical examination Investigations Surgical Post operative complications and their examination

Surgery: lncisions, Complications and management of following Nephroctomy, Appendicectomy, Herniorrhaphy Mastectomy, Thyroidectomy, Colostomy, Adrenalectomy Cystectomy, Hysterectomy,

Prostatectomy, Cholecystectomy Nesostomy, Incisional Hernia and its prevention Lectures on the familiarity of various instruments used in surgical procedures and their demonstration.

BOOK REFERENCES:

Baily & Love Short Practice of Surgery - by Rains & Ritelife

Surgery by Nan

General Surgical Operations by R.M. Kirk and R.C.N. Willamson.

PLASTIC SURGERY

Burns; Causes. Classification, medical Management and precautions in the acute stage. Complications of burns and their management.

Plastic Surgery:

a) Principles of plastic surgery Post-operative management, and Complications.
b) Cineplasty
c) Principles of cosmetic surgery
d) Skin Grafting
e) Surgery of hand with emphasis on the management of traumatic and leprosy hand.
f) Burns and plastics surgery management.

Paper-17 RADIOLOGY

(Both in Normal and Pathological conditions)

Radiology of bones spine and joints.

Radiology of chest including heart.

Study of Computerised Axial Tomograpy of spine, bones and joints.

Study of Magnetic Resonance Image Diagnosis

Study of Ultrasound in soft tissue, Muscle, and Ligaments Diagnosis (Lecture Demonstration only).

SYLLABUS FOR THIRD YEAR

Paper-18 Clinical Assessment & Physical Diagnosis

Objective

To understand the basic skill and logical reasoning of assessment and planning the treatment of the patient.
Unit-I:Assessment Demographic Data, History taking, observation, Examination, Investigation, Differential Diagnosis, Problem Test, Formulation of log term & short term goals, treatment planning, home advice,

follow-up.
Unit-II:Orthopedic & Sport Assessment Detailed regional orthopedic assessment & evaluation with emphasis on special tests head & face, cervical spine, TMJ, shoulder, Elbow, Forearm, wrist, Head, Thoracies spine, lumber spine, pelvis, hip, knee, foot, and complex.
Unit-III: Neurological Assessment Neurological assessment and evaluation with emphasis on surface testing, sensory & motor examination, higher mental functions, cranial nerve testing, balance & coordination, functional evaluation etc.
Unit-IV: Cardiopulmonary Assessment Detailed cardiopulmonary assessment & evaluation with emphasis on chest symmetry & expansion, exercise testing methodology, percussion, investigations, (That is x-rays, PFT, ABG) dyspnea etc.
Unit-V: Electro Diagnosis Electromyography, NCV, Instrumentation, and technique. H- reflex, F response, Blink reflex, FG Test, SD curve.

Paper-19 PHYSIOTHERAPY III - (Manual Therapy)

Objective

To understand & apply the basic biomechanical and exercise therapy principle in manual treatment of the patients.

Definition
Local effects of Massage
Types of Massage
Physiological effects.
Therapeutic application Techniques

Tissue Mobilization

Definition and description,
Therapeutic Techniques
Physiological Effects
Kneading
Picking
Skin Rolling
Clapping
Friction
Tapping
Effleurage
Stroking
Petrissage
Hacking
Concepts, Technique, procedure and skills of Mannual Mrdicine
Mackenzie,
Mulligan.
Maitland and
Kaltenbora
Assessment of the Tissue Pathology
Therapeutic Application for
Pain management
Join Mobilization.

Paper -20: Biostatistics and Research Methodology

Objective
To understand the step of research process and research method.
To develop the skills of critical thinking and selection of research strategy.

Unit- I: Introduction:

Introduction to Biostatistics, types of variables and scales of measurement, measures of central tendency and dispersion, rate, ratio, proportion, incidence and prevalence.
Unit-II: Sampling
Methods of sampling, Randomization, Sampling and non-sampling errors and methods of minimizing these errors.
Unit-III: Basic probability distribution and sampling distributions:
Concept of probability and probability distribution. Normal, Binomial distribution, Standard error and confidence intervals, Skewness and kurtosis.
Unit-IV: Tests of Significance:
Basic of Testing of hypothesis-Null and alternate hypothesis, type I and type II errors, level of significance and power of te test, p value.
Parametric test, non-parametric test, correlation and regression.

Research Methodology

Unit-I: Research in Physiotherapy

Introduction, Definition, Types of research, aims and objective of research, methodology, analysis and report writing.

Unit-II: Concepts of Measurement

Reliability, validity, direct and indirect measurement variables.

Unit-III: Research Design

Types of design- clinical trails, surveys, observations, exploratory, case study, case reports etc.

Unit-IV: Clinical Research

Hypothesis, formulation writing research work, collection, interpretation, presentation of data.

Paper-21 NEUROLOGY AND NEUROSURGERY

Objective
To know the clinical manifestation of neurological disorders and their medical management.
Basic New physiology
Motor (Pyramidal Extra pyramidal & Cerebellar)
SENSORY
Reflexes, Bladder and Bowel control.
Principle of clinical examination, Diagnosis, Differential diagnosis and prognosis of neurological disorders.
Salient Clinical feature & Management of common Neurological disorders.
Cerebral Palsy
Stroke
Neuro-infections
Meningitis

Encephalitis
Poliomyelitis
Neurosyphilis.

Movement disorders (Parkins onism, Dystonia, chorea Tremors.and Writer's Cramps) Cerebellar ataxia, Fredreick alaxia etc.

e) Motor Neurone Disease
f) Dementia .
g) Diseases of Spinal cord
i) Compressive (Spondylotic Tumors)
ii) Non-Compressive
h) Peripheral Neuropathies
i) G.B. Syndrome
ii) Non-compressive
iii) Diabetic Neuropathy

i) Muscle Disorders
i) Dystrophies
ii) Polymyositis
iii) Myaesthenia Gravis

NEUROSURGERY

THEORY

Neurophysiology: . Review in brief the neurophysiological basis of Tone and Disorder of Tone and Posture Bladder control, Muscle contraction. Movement and pain. Brief clinical features and surgical management of the following neurological disorders.

1. Congenital and Childhood disorders
   a) Hydrocephalus
   b) Spina bifida
2. Trauma-Broad localisation. First Aid and management of sequelae of Head injury and spinal cord injury.
3. Diseases of the Spinal cord.
   a) Syringomyelia
   b) Craniovertebral junction anomalies
   c) Cervical and lumber disc disease
   d) Tumors

Spinal arachnoiditis

4. Peripheral Nerve Disorders
   a) Peripheral nerve injuries : Localisation and Management
   b) Entrapment neuropathies
5. Intracranial tumours : Broad classification, Signs and Symptoms.
6. Pre-Operative assessment and indications and contraindications for Neurosurgery.
7. Management of pain. Electrical Stimulation of brain and spinal cord.

PRACTICAL

Clinical assessment of neurological function by
1. Basic history taking to determine whether the brain, spinal cord peripheral nerve is involved.

2. Assessment of higher mental function such as Orientation, Memory, Attention, Speech and Language.
3. Assessment of Cranial nerves
4. Assessment of Motor System
5. Assessment of Tone Spasticity Rigidity and Hypotonia
6. Assessment of Sensory function, Touch, Pain and Position
7. Assessment of cerebral function
8. Assessment .of Higher cotical function - Apraxia etc.
9. Assessment of Gait abnormalities.

BOOK REFERENCES:

Davidson's Principles and Practice of medicine

Brains Clinical Neurology

Medicine and Neurology By Golewala

Surgery By Nan

Bailey and Love - Short Practice of Surgery

Paper-22 Cardiopulmonary Disease & Thoracic Surgery

Objective

To know the clinical manifestations cardiac and thoracic diseases and their management.

A) Brief idea of Anatomy and physiology of Cardio-respiratory system
B) Outline Aetiopathogenesis of Cardio-respiratory disorders, Investigations. Diagnosis, Differential diagnosis and principles of management.
C) Cardio Vascular System
i) Cardiac failure - Definition, Causes, Symptoms and Signs and Brief management of cardiac failure.
ii) Rheumatic Fever-Definition, Causes. Symptoms and Signs and' Brief description of aetiology, Clinical features, Complications and Treatment.
iii) Congenital Heart Diseases: Classification and brief outline of diseases like ASD, VSD, PDA. Fallot's Tetralogy with complication.
iv) Infective Endocarditis - Brief aetiopathogenesis, Clinical features, Diagnosis and treatment.
v) Brief description of Deep Vein Thrombosis and Pulmonary embolisms.
vi) Vascular Disease Atherosclerosis Burgers disease, Phlebitis etc.

Respiratory System:

1. Chronic Bronchitis and Emphysema, Definition, Clinical features, . Investigation Complication and Treatment.
2. Bronchial Asthma Definition, Aetiopathogenesis, Clinical features, Diagnosis and Treatment.
3. Pneumonia- Definition, classification Clinical features complications & Treatment.
4. Tuberculosis Aetiopathogenesis Clinical tests of pulmonary Tuberculosis, Diagnosis. Complication and Treatment.
5. Lung Abscess and Bronchiactesis Defionion Clinical features.
6. Chest wall deformities Describe various Deformities of chest wall and effect and pulmonary diseases associated with it.

7. Occupational Lung disease, Clinical features, diagnosis & Treatment.
8. Respiratory failure Classification, Causes and Treatment.

Cardio thoracic Surgery

1. Introduction:
Types of incision, Pre and Postoperative Assessment. Management and complications of Cardio thoracic Surgery and their management.
2. Cardiac Surgery
3. Outline indications: Contra-indications, site of incision, Pre and Post . Operative Valvotomy and Valve Replacement Open Hear Surgery Cardiac By Pass Surgery. Surgery on Percardium Operations in Congenital disorders Heart Transplantation Pacemaker Coronary Angioplasty Baloon Angioplasty and Vascular Surgery (Outline surgery) of artery and veins)
4. Thoracic Surgery:
i) Outline clinical features and management of the following Fracture of ribs. Flail chest stove in chest, Pneuinothorex, Haermothorax, Lung Contusion and Laceration and Injury to vessels and Brunches.
ii) Outline Indications, Contraindication : Site of incision, Pre and post operative management and complications of following Loberctomy, Pneumonectomy, Segmentectomy
iii) Outline clinical features and management of Carcinoma: of lung
iv) Describe in dentail the following procedures
Management of endotracheal tubes, Tracheal suction, Weaning the patient from Ventilator Exrubation and Post extrubation care.
v) Describe! the principles of cardio pulmonary resusecitation cardiac massage, Artificial respiration Defbrillators and their use.

BOOK REFERENCES

Davidson's Principles and Practice of medicine

Harrison's internal medicine

General Surgient Operations by Kirk/ Williamson

Surgery by Nan

Bailys and Love-Short Practice of surgery.

Paper-23: Paediatrics

Objective
To understand the Paediatric patients and their special needs in relation to physical therapy.

Growth and development of child.

Nutrition

Immunization programs

Common Paediatric disease

Club foot

Scoliosis

Congenital Deformaties.

Osteogenesis lmperfecta (01)

Genetic Disorders

Duchenne Muscular Dystrophy (DMD)

Spina Bifida Occulta. Meaning aceles, Meaningomy eiocele

Chromosomal Disorders Downs syndrome

Environmentally Related Disorders

Cerebral Paisy (CP) Zost Polio Paralysis

Observe children for their individual strengths and abilities.

Knowledge of normal development, movement patterns and transitions, abnormal movements

Development of the Disability

Planning of prevention, early identification, and evaluation. Diagnosis, treatment and rehabilitation.

Impairment disability and handicap acknowledge their inter relationship and impact one another.

BOOK REFERENCES:

1. Nelson Text Book of Paediatric - Behraman & Verghan

Papwer-24 GYNAECOLOGY AND OBSTETRICS

1. History taking
2. Terminologies used..
3. Classification of Diseases.
4. Birth control.
5. Reproduction.
6. Placenta and placental membranes.
7. Foetus.
8. Physiological changes during pregnancy.
9. Endocrinology in relation to reproduction.
10. Foetus – in - utero.
11. Foetal skull and maternal pelvis.
12. Antenatal care.
13. Antenatal assessment of foetal well - being.
14. Normal labour, normal puerperium.
15. Complications of pregnancy and labour.
16. Special considerations (previous history of C- section, Rh. –, elderly primigravida, grand multipara, bad obstetric history, obesity.)

17. Term, newborn infant, low birth weight baby.
18. Diseases of the fetus and newborn.
19. Pharmacotherapeutics, induction of labour, operative obstetrics.
20. Special topics (foetal distress, intrapartum foetal monitoring, shock in obstetrics, acute renal failure, blood coagulation disorders,
high – risk pregnancy, immunology in obstetrics)
21. Aids to diagnosis in obstetrics.
22. Pelvic inflammatory disease
23. Abortions and ectopic pregnancy.
24. Dysfunctional uterine bleeding defunction, causes, differential diagnosis, management.
25. Genital malignancies, cervix, uterus, vagina.

BOOK REFERENCES:

Gynaecology and Obstetrics in Health care of a woman by Seymoul L, Romney Mary Jane Gray. J.A Merrill.

Shaw's Text Book Gynaecology.

Jeffcoat's Principles of Gynaecology.

Paper-25: PSYCHIATRY

Objective

To understand the implications of psychological disorders on disability.

Brief History of Psychiatry

Rationale of Psychotherapeutics

Causes of mental disturbances

Symptoms of Mental illness

Levels of consciousness

General appearances and behavior

Emotions and thoughts

Perception and intellectual functions.

Anxiety Disorders, Depression, Obsessive Compulsive Neurosis, Hysteria, Phobia.

Stress related disorders

Schezophrenia

Psychosis Manie depressive Paranoid, Involuntary

Organic Brain Syndromes, Toxic, Metabolic, Cerebro-Vascular.

Head Injury. Drug induced

Drug dependence and alcoholism

Psychosomatic illness

Mental retardation

Childhood disorders, Hyper and hypokinetic children

Assessment and methods of Treatment

Drug therapy ECT, Psychotherapy Behavior therapy. Biofeedback, and counseling.

Geriatric Psychiatry

BOOK REFERENCES:

Noves Modem clinical Psychiany

Text Book of Psychiatry by Henderson and Gellispie

Short book of Psychiatry by Ridge

An Introduction to Psychiatry by Peter

Rehabilitation in Pavechiatry by Home

Asychiatric Clinical skills by George U. Bells Leon Warnon and Ellen M. Denial.

Paper-26 OPHTHALMOLOGY

Objective
To understand the diseases of Ophthalmology.

Ophthalmology

Aetiology

Symptomatology and treatment of visual defects

Emphasis etc.

Errors of refraction

Squint

Conjunctivities

Trachoma

Corneal ulcers

Iritis

Cataract

Retimitis

Detachment of cornea and Glaucoma

Lecture and demonstration regarding the familiarly of the instruments used in Ophthalmology

EYE

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

BOOK REFERENCES.

1. Modern Trends in Opthalmology - Arnold Sorsby

Paper-27 ENT

Objective

To know the diseases and management of ENT.

1. Brief description of anatomy and physiology, peripheral receptors & central neural pathways of auditory and Vestibular system.
2. Audiology and acoustics.
3. Brief description of assessment of hearing.
4. Hearing loss.
5. Assessment of Vestibular functions.
6. Disorders of Vestibular system.
7. Diseases of the external and middle ear.
8. Otosclerosis.
9. Facial nerve and its disorders.
10. Brief description of Meniere's disease, acoustic neuroma, ot
11. algia , tinnitus.
12. Tumors of external ear, middle ear, and mastoid.

NOSE AND PARANASAL SINUSES

1. Brief description of anatomy and physiology.
2. Classification of diseases and disorders
3. Rhinitis (acute, chronic, allergic, other forms of non – allergic rhinitis)
4. Trauma to the face.
5. Sinusitis.

THROAT

1. Brief description of diseases of the oral cavity, salivary glands, pharynx, larynx, trachea,
2. Esophagus.

3. Brief description of the techniques used.
4. Brief description of clinical examination.
5. Indications and types of operative surgery.
6. Instrumentation

BOOK REFERENCES.

E.N.T. for General Practitioners.

Paper-28 Dermatology

Objective

To understand the skin diseases and their manifestations.

Structure and functions of normal skin primary and secondary lesions.

Scable and pediculosis.

Fungal infection of skin Dermatophylosis, Pityriasis Versicolor, Candidiasis.

Bacterial infection of skin-Impedigo, Boil.

Viral infection of skin-Herpes.

Eczema, Dermatitis, Allergies.

Acne, Alopacea, Vitiligo, Lecoderma.

Common skin infection.

Psoriasis.

Leprosy – Aetiopathogenesis clinical feature and treatment.

Sexually transmitted diseases, -Syphilis, Gonohrea, HIV etc.

12. Brief description & prevention (Lecture Demonstration only)

BPT 302 NEUROLOGY, NEUROSURGERY

Course Description: This course introduces and enables the student to understand neurological conditions which commonly cause
disability and their medical and surgical management.

Course objectives: The student will demonstrate an understanding of neurological conditions which commonly cause disability and their
medical and surgical management.

1. NEUROANATOMY: Review the basic anatomy of the brain and spinal cord including: Blood supply of the brain and spinal cord,
anatomy of the visual pathway, connections of the cerebellum, and extra pyramidal system, relationship of the spinal nerves to
the spinal cord segments, Long tracts of the spinal cord, the brachial and lumbar plexuses, and cranial nerves.
2. NEUROPHYSIOLOGY: Review in brief the Neurophysiologic basis of tone and disorders of tone and

posture, bladder control,
muscle contraction and movement and pain.
3. Approach to symptoms and signs: 1. The neurologic history and examination 2. Dizziness 3. Approach to symptoms and sign 4.
Paresthesias 5. Pain 6. Headaches 7. Weakness (UMN vs LMN, NM junction, myopathy) 8. Movement disorders 9. Gait and
balance disorders 10. Fatigue 11. Memory and praxis complaints 12. Speech disorders 13. Language disorders 14. Syncope vs
seizure 15. Encephalophathy, coma, herniation, and brain death 16. Neurological eponyms
4. Diagnostic Testing: 1. Lumbar puncture and cerebrospinal fluid evaluation 2. EMG and NCV 3. Electroencephalography 4.
Evoked Potentials 5. Nerve and muscle biopsy 6. Autonomic testing 7. MRI 8. CT 9. MRA and cerebral angiography 10.
Molecular genetic testing 11. Neuropsychological testing
5. Neurovascular disorders: 1. Localization in neurovascular disease 2. Transient ischemic attacks 3. Stroke 4. Primary
intracerebral hemorrhage 5. Subarachnoid hemorrhage and saccular aneurysms 6. Arterovenous malformations 7. Spinal cord
stroke 8. Stroke in younger adults 9. Cerebral venous thrombosis
6. Movement disorders: 1. Parkinson?s disease 2. Parkinson?s plus syndromes 2. Dystonia 3.Wilson's disease 8. Ataxias
7. Multiple sclerosis and other demyelinating diseases: 1. Multiple sclerosis 2. Acute disseminated encephalomyelitis
8. Epilepsy: 1. Etiology and manifestations 2. Childhood disorders (include febrile) 3. Adult seizure disorders 4. Medical treatment
5.Status epilepticus 6. Surgical treatment
9. Neuro-oncology: 1. Epidemiology and pathophysiology 2. Clinical presentations of Gliomas and Meningiomas 3.Spinal cord
tumors 9. Metastatic tumors
10. Cranial neuropathies: 1.Tinnitus 2.Vertigo (peripheral vs central) 3.Benign positional vertigo 4.Bell's palsy 5. Disorders of cranial
nerve IX and X 10. Disorders of cranial nerves XI and XII
11. Trauma : 1. Mild head injury and the postconcussion syndrome 2. Moderate and severe head injury 3. Subdural and epidural
hemotomas 4. Cranial neuropathies 5. Neurorehabilitation of brain injuries 6. Post-traumatic movement disorders 7. Spinal
cord injury 8. Whiplash injuries 9. Reflex sympathetic dystrophy and causalgia 10. Mountain sickness 11. Decompression
sickness 12. Lightning and electrical injuries
12. Neuromuscular disorders: 1. Myasthenia gravis and myasthenic syndromes 2. ALS 3. Spinal muscular atrophies
13. Peripheral neuropathies: 1. Manifestations of peripheral neuropathies 2. Guillain-Barre syndrome 4. Diabetic neuropathies 5.
CIDP 6. Brachial and lumbosacral plexopathies 7. Thoracic outlet syndrome 8. Carpal Tunnel Syndrome and other median
neuropathies 9. Ulnar and radial neuropathies 10. Peroneal, sciatic, and tibial neuropathies.
14. Myopathies : 1. Manifestations of myopathies (include muscle masses) 2. Muscular dystrophies (Duchenne, limb girdle, GSH,
scapuloperonela, myotonic, etc) 3. Dermatomyositis and polymyositis.
15. Infectious disorders: 1. Bacterial meningitis 2. Chronic meningitis 3. Encephalitis 4. HIV + HTLV-1 5. Brain and spinal abscess 6.
Spirochetes (neurosyphilis and Lyme) 7. Creutzfeldt-Jakob disease 8. Cerebral malaria 9. Neurocysticercosis

16. Neck, back and spinal cord disorders: 1. Approach to neck and low back disorders 2. Diagnostic testing for neck and back
disorders 3. Radiculopathy and cauda equina syndrome 4. Spondylosis including spondylolytic cervical myelopathy and facet
joint pain 5. Myofascial pain and SI joint 6. Facet joint pain 7. Treatment of chronic neck and back pain

Suggested Readings

1. Saunder's Mannual for Neurologic Practice. Randolf Evans, Elsavier
2. Neurology And Neurosurgery Illustrated. Lindsay And Bone
3. Diseases of the Nervous System. R Bannister
4. Brain's Clinical Neurology. R Bannister
5. Pediatric Orthopaedics And Fractures. Sharrard
6. Disorders of Muscle. Dubowitz
7. Normal Development. Illingworth

BPT 303 COMMUNITY & REHABILITATION MEDICINE

Course Description: This course involves an over view of community resources available for rehabilitation.

Course Objective: To teach the concept of team approach in rehabilitation, Observation and identification of diagnostic features,
Medical and surgical aspects of disabling conditions, Identification of residual potentials in patients with partial and
total disability and the formulation of appropriate goals in treatment and rehabilitation.

1. Conceptual framework of rehabilitation, definitions and various models of rehabilitation.
2. Epidemiology of disability with emphases on locomotor disability, its implications on the individual, family, society, economy and the
state. Describe the following communicable diseases with reference to reservoir, mode of transmission, route of entry and level of
prevention. (Poliomyelitis, Meningitis & Encephalitis, Tuberculosis, Filariasis Leprosy, Tetanus, Measles.) Epidemiology of Rheumatic
heart disease, cancer, chronic degenerative disease and cerebrovascular accidents.
3. Outline the influence of nutritional factors such as Protein Energy Malnutrition, Anemia, Vitamin and mineral deficiency on disability.
Preventive aspects of disability and organizational skills to manage it. Define occupational health and list methods of prevention of
occupational diseases and hazards.
4. Physical restorative services
5. Education of the persons with disabilities.
6. Vocational Rehabilitation.
7. Community Based Rehabilitation and Out -Reach programs to rehabilitate persons with disabilities living in rural areas: Define
community based and institution based rehabilitation. Describe the advantage and disadvantage of institution and community-based
rehabilitation.
8. Statutory provisions, schemes of assistance to persons with disability.
9. Role of the Voluntary Sector in rehabilitation of the Persons with Disabilities.
10. Legislative support for Rehabilitation: Outline the Employees State insurance scheme and its various benefits, Describe the social
security measures for protection from occupational, Hazards, accidents, diseases, and the workman's compensation act
11. Strategies for awareness, public education, and information: List the principles of health education, methods of communication and
role of health education in rehabilitation services.
12. Basic principles of administration and finance including personnel management and budget preparation and procurement etc.

13. Role of technology and manpower for rehabilitation.
i. Outline selected National Health Programs
ii. Architectural Barriers And Possible Modifications: With Reference To Rheumatoid Arthritis, Cerebrovascular Accident, Spinal
Cord Injury, And Other Disabling Conditions.
iii. Disability Evaluation: Principles Of Disability Evaluation And Discuss Its Use.
iv. Legal Aspects: Legal Aspects Of Disability In Terms Of Compensation For Disability And Benefits Available To The Disabled.
v. Social Implications: Social Implications Of Disability For The Individual And For The Community.
vi. Community Based Rehabilitation Module: Cbr Module And Compare This With An Institutional Based Rehabilitation System
vii. Description of roles of members of the Rehabilitation Team
a) Physician
b) Occupational Therapist and Physiotherapist
c) Clinical Psychologists
d) Social worker
e) Prosthetic and Orthotic Engineers
f) Audiologists and Speech Therapists
g) Hearing aid and ear mould technicians
h) Orientation and Mobility instructors
i) Teachers for various categories of children with disabilities.
j) Vocational instructors, Counselors and Placement Officers
k) Multi – purpose rehabilitation workers
l) The FAMILY

Recommended Books

1. Community Based Rehabilitation by Sunder

2. Preventive and Social Medicine by Park and Park

BPT 304 PHYSIOTHERAPY IN GENERAL MEDICINE AND GENERAL SURGERY

Course Description: This course involves a description of the assessment and treatment of patients with general medical and general
surgical conditions.

Course Objectives: The student will be able to conduct a safe and effective treatment of patients with General medical and General
surgical conditions

1. Review of the pathological changes and principles of management by Physiotherapy in the following conditions:
a) Diabetes Mellitus
b) Oncology
c) Geriatric Medicine.
d) Inflammation (acute, chronic and suppurative).
e) Edema – Traumatic, obstructive, paralytic, edema due to poor muscle and laxity
f) Common condition of Skin – Acne, Psoriasis, Alopaecia, Leucoderma, Leprosy.
g) Deficiency Diseases – Rickets, Diabetes, Obesity, Osteoporosis & other efficiency disorders related to Physiotherapy.
h) Psychiatric Disorders – Psychosis, Psychoneurosis, Senile dementia.
2. Special Considerations
a) Problems of Elderly:
i) Medical, sensori motor, cognitive falls.
ii) Frail and Institutionalised elder
iii) Functional assessment of the elderly
3. General Gynaecology and Obstetrics and ENT: Review of the pathological changes and principles of pre and postoperative

management by Physiotherapy of the following conditions:
a) Common abdominal surgeries, including GIT, liver, spleen, kidney, bladder, etc.
b) Common operation of reproductive system, including surgical intervention for child delivery. Ante natal and post natal
Physiotherapy management.
c) Common operations, of the ear, nose, throat and jaw as related to Physiotherapy.
d) Common organ transplant surgeries - heart, liver, bone marrow, etc.
4. Wounds, Burns and Plastic Surgery: Review of the pathological changes and principles of pre and postoperative management by
Physiotherapy of the following conditions.
a) Wounds, ulcers pressure sores.
b) Burns and their complications.
c) Common reconstructive surgical procedures for the management of wounds, ulcers, burns and consequent contractures
and deformities.
5. PHYSIOTHERAPY IN GENERAL SURGERY
Assess the patients, medical history, past treatment, breathing pattern, ability to cough and pain. Identify problems: Pain, increased
secretions, defective posture and decreased exercise tolerance. Treatment techniques: Breathing exercise, huffing and coughing,
mobilizing exercise, posture correction and graduated exercise programme.

BPT 304 PHYSIOTHERAPY IN GENERAL MEDICINE AND GENERAL SURGERY PRACTICAL

Course Description: This course involves a description of the assessment and treatment of general medical and general surgical
conditions.

Course Objectives: The student will be able to conduct a safe and effective treatment of patient with General medical and general
surgical conditions

The students will be shown patients of relevant diseases and disorders for:
1. History taking of the conditions of patients.
2. Assessment of medical and cardiopulmonary functions
3. Clinical diagnosis of the presentations.
4. Investigations and tests of different clinical presentations
5. Physiotherapy management of the various diseases & surgeries

Recommended Books

1. Physiotherapy In Gynaecological & Obstetrical Conditions-Poldon
2. Astrand P. A. Rodahe K. -Text Book Of Work Physiology
3. Therapeutic Exercise –Kisner

BPT 305 RESEARCH METHODOLOGY AND BIOSTATISTICS

Course Description: This course involves a description of principles for conducting research.

Course Objectives: The student will be able to frame a research project using the principles of research methodology and biostatistics.

1. Introduction
a) Introduction Importance of research in clinical practice, scientific approach, characteristics, purposes, and limitations.
b) Ethical issues in research, elements of informed consent.
c) Structure of a research proposal.
2. Research Methodology
a) Research question including literature review.
b) Measurement: Principles of measurement, reliability and validity.
c) Experimental sampling and design.
d) Descriptive and Inferential research research
3. Biostatistics:

a) Descriptive statistics.
b) Comparison of means, T-tests.
c) Analysis of Variance
d) Multiple comparisons
e) Non-parametric statistics
f) Correlation

Recommended Books

1. Handbook of Research in Physical Therapy. C. E. Bork
2. Physical Therapy Research: Principles and Application. E. Domholdt
3. Research Methodology for Physical Therapists. C. Hicks

BPT FOURTH YEAR

Paper-29 CARDIOPULMONARY PHYSIOTHERAPY

Course Description: This course involves a description of the assessment and treatment of patients with cardiopulmonary conditions.

Course Objectives: The student will be able to conduct a safe and effective treatment of patient with cardiopulmonary conditions

A. ANATOMY: Review the regional anatomy of thorax, upper respiratory tract - trachea and bronchial tree. Lung and bronchopulmonary
segments. Muscles of respiration. Heart and great vessels. Movements of the chest wall and surface anatomy of lung and heart.

B. PHYSIOLOGY; Review the mechanics of respiration, inspiration and expiration, lung volumes, respiratory muscles, compliance of lung
and chest wall, work of breathing, dead space, gas exchange in lung and pulmonary circulation.

C. GENERAL OVERVIEW:

I. ASSESSMENT: Describe physical assessment in cardiorespiratory dysfunction: Inspection: Posture (recumbent, erect,
orthopneic): breathing pattern (rate, rhythm, use of accessory muscles), chest movement (summery, Intercostals and
diaphragmatic components), Chest deformity (Barrel chest, pigeon chest), Spinal deformity(scoliosis, kyphosis, kyphoscoliosis),
sputum (color, type, volume, consistency), cough (types, productive/non-productive, presence of a normal cough reflex).

Palpation: Tactile and vocal fremitus, mobility of thoracic spine and rib cage. Percussion: Dullness and hyper resonance.

Auscultation: Normal and abnormal breath sounds. Measurement: Chest expansion at different levels (auxiliary), nipple,
xiphoid); exercise tolerance (six minute walking test); post - operative range of motion and muscle assessment.

II. PHYSICAL TREATMENT: Indication, goals and procedure of breathing exercises. Describe diaphragmatic breathing, localised
basal expansion, apical expansion, specific segmental exercise raising the resting respiratory level. Chest mobillsation
exercises. Relaxation positions for the breathless patient - high side lying, forwarded lean sitting, relaxed sitting, forward lean
standing, relaxed standing. Controlled breathing during walking and during functional activity. Exercise for the breathless
patient. Exercise tolerance testing and exercise programme. Technique of huffing and coughing, forced expiratory technique,
vibratory chest shaking and percussion. Techniques of postural drainage, including indications, general precautions and contraindications,
preparation, drainage of individual bronchopulmonary segments, modified postural drainage and continuing

postural drainage as a home programme.
III. Mechanical Respiration: Classification and principles of operation of commonly used ventilators and outline the use of Bear,
Bennett, Emerson & Bird type ventilators. Principles of Aerosol Therapy. Describe the physical properties of aerosols and their
deposition in the alveoli. Describe the principles of operation of nebulisers. Principles of humidification therapy and methods of
correcting humidity deficits. Describe the principles of operation of pass - over humidifiers and bubble - diffusion humidifiers.
Techniques of sterile nasopharyngeal and endotracheal suctioning.
D. PHYSIOTHERAPY IN OBSTRUCTIVE LUNG DISEASES: Assess: Effort of breathing. Extent of wheeze, pattern of breathing, sputum
production, chest deformity, exercise tolerance (Patients efforts tolerance.) Identify problems: Decreased outflow due to
bronchospasm, anxiety due to difficulty in ventilation, exhaustion due to increased work of disturbed breathing, increased secretions
which are difficult to remove, decreased exercise tolerance. Demonstrate treatment techniques: Relaxation postures and techniques,
reassurance and education about disease. Controlled breathing, breathing exercise, postural drainage, vibratory shaking, huff ing and
coughing, graduated exercise programme and posture correction.
E. PHYSIOTHERAPY IN CHEST INFECTIONS: Assess: Sputum, cough, fever and dyspnea. Identify problems: Productive cough with risk
hemoptysis, exhaustion due to increased work of breathing, chest deformity, decreased exercise tolerance. Treatment techniques:
postural drainage with use of adjuncts, percussion, vibration, huffing, and coughing to expectorate mobilising exercises to thorax and
graduated exercise.
F. G. PHYSIOTHERAPY IN RESTRICTIVE LUNG DISORDERS: Assess:. Chest expansion at different levels, mobility of thorax and spine,
posture (kyphosis or scoliosis) and tests for exercises tolerance (six minutes walking test}. ldentify problems: Decreased expansion of
lung due to restriction of chest wall movement causing decreased ventilation, defective posture and decreased exercise tolerance.
Demonstrate treatment techniques: Vigorous mobilising exercises to thorax and spine, breathing exercise to increase ventilation and
drain secretions, exercises for posture correction, graduated exercises to increase tolerance.
G. PRINCIPLES OF INTENSIVE CARE PHYSIOTHERAPY: Principles of intensive care therapy. Knowledge of the following equipment:
Endotracheal tubes, tracheostomy tubes, Humidifiers, ventilators, High frequency ventilators, differential ventilators, CPAP masks,
suction pump, Electrocardiogram. Pressure monitors - arterial, central venous, pulmonary artery and pulmonary wedge, Intracranial.
Temperature monitors. Assess: special instructions pertaining to any operation performed, respiration, level of consciousness . Colour,
blood pressure, pulse, temperature, sputum expectorated (colour and quantity), drugs (time last does of analgesic given), drains,
presence of pacemaker or intra aortic balloon pump. ECG and blood gas results. Describe chest radiograph with respect to expansion
of lungs, size of heart, presence of secretions and placement of chest tubes.
H. PHYSIOTHERAPY AFTER PULMONARY SURGERY: Preoperative: Demonstrate treatment techniques: Explanation to patient, care of
incision, mechanical ventilation, breathing exercise, huffing and coughing, mobilising exercise, posture

correction, graduated exercise
programme. Post - operative: Assess: Special instructions pertaining to operative procedure performed, breath sounds, cyanosis,
respiratory rate, temperature and pulse, blood pressure, drainage from pleural drain (bubbling or swinging) sputum expectorated,
analgesia, movements of chest wall (symmetry) position of patient and effort of breathing, chest radiograph and blood gases.
Identifying problems: Pain, intercostal drains in situ, decreased air entry, retained secretions, decreased movement of the shoulder of
affected side, decreased mobility and poor posture. Treatment techniques: Deep breathing and segmental breathing exercises,
vibrations, percussions, huffing and coughing, full range active-assisted arm exercises, ankle foot exercises, trunk exercises, posture
correction, positioning of patient, IPPB and inhalations.
I. PHYSIOTHERAPY AFTER CARDIAC SURGERY: Pre operative: Assess patients of medical history, normal breathing pattern of patient,
pulse, respiratory rate, BP, thoracic mobility, posture and patients exercise tolerance. Identifying problems: Excess secretions,
decreased mobility of thorax, defective posture, decreased exercised tolerance. Treatment techniques: Explain to the patients about
their operation and about the incision, ICU, Endotracheal tube. Central lines, nasogastric tube, catheter, ECG leads, drains, peripheral
lines, temperature probe etc. Teach breathing exercises, splinting of incision, huffing and coughing, correct posture, range of motion
exercises to trunk and shoulders, active exercise to ankle and foot. Post operative: Assess special instructions pertaining to operative
procedure performed, type of incision, blood pressure, pulse rate, respiration, colour, time of last analgesic dose, drains, temperature,
ECG, chest X-ray and blood gases. Identify problems: Pain, decreased air entry, retained secretions, reduced leg movements,
decreased mobility. Treatment techniques: Deep breathing exercises, suctioning, active/assisted exercises to arm and leg, graduated
exercise programme.
J. PHYSIOTHERAPY IN REHABILITIATION AFTER MYOCARDIAL INFARCTION: Role of the physiotherapist in a coronary care unit during the
first 48 hours. Principles of formulation of an exercise programme: Bed exercises, walking, stair climbing. Home exercise programme
and advice on leisure activities. Describe physiotherapy for complications after myocardial infarction: Chest infections, cerebral
embolism and shoulder hand syndrome.

CARDIOPULMONARY PHYSIOTHERAPY PRACTICAL

Course Description: This course involves a description of the assessment and treatment of patients with cardiopulmonary conditions.

Course Objectives: The student will be able to conduct a safe and effective treatment of patient with cardiopulmonary conditions

The students will be shown patients of relevant diseases and disorders for:

1. History taking of the conditions of patients.
2. Assessment
3. Clinical diagnosis of the presentations.
4. Investigations and tests of different clinical presentations
5. Physiotherapy management of the various disorders & surgeries

Recommended Books

1. Cash`S Text Book For Physiotherapists In Chest, Heart & Vascular Diseases

2. Chest Physical Therapy & Pulmonary Rehabilitation-Donna Frownfilter
3. Brompton`S Hospital Guide
4. Physio Therapy In Cardio- Vascular Rehabilitation-Webber
5. Exercise & The Heart, Wenger

Paper-30 NEUROPHYSIOTHERAPY

Course Description: This course involves a description of the assessment and treatment of patients with neurological conditions.

Course Objectives: The student will be able to conduct a safe and effective treatment of patient with neurological conditions

A. REVIEW OF NEURONATOMY AND PHYSIOLOGY

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

B. PRINCIPLES OF ASSESSMENT

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

C. PRINCIPLES OF TREATMENT

I. Review the treatment principles as follow
1. Sensory re -education: hypersensitivity, hyposensitivity and anesthesia.
2. Treatment of altered tone: hyper tonicity and hypotonicity
3. Motor re- education: Strengthening exercise coordination exercises, joint mobilization exercises, use of equilibrium and
labyrinthine system, use of PNF patterns, controlled sensory use of stretch to elicit movement (facilitation), light joint
compression (in habitation) use of reflex activity to improve motor function, physiogenic sequence of motor behaviors:
Treatment to improve functions: Free exercises, gait training with and without aids, activities of daily living, mat exercises
and exercises and recreation.
4. Review the use of ambulatory aids in neurological conditions: in spastic upper motor neuron lesions, in lower motor
neuron lesions, in dorsal column dysfunction and cerebellar dysfunction.
5. Revise the use of splints and braces in spastic upper motor neuron and in flaccid lower motor neuron lesions in both
upper and lower limbs.
6. Revise the management of chronic pain in neurological conditions with respect to the types of pain, treatment modalities
available, selection criteria for each modality and possible complications.

II. THEORETICAL BASIS OF TREATMENT:
Rood's approach
Bobbath Neurodevelomental Therapy
Proprioceptive Neuromuscular Facilitation
Motor Relearning Program
I. CEREBRAL PALSY
Define cerebral palsy and describe the topographical classification - monoplegia, diplegia, paraplegia hemiplegia and
tetraplegia. Describe types of cerebral palsy: Visual, hearing, speech and intelligence. Assess reflex activity at different levels:
cortical, mid brain, brain stem, spinal, Assess developmental milestones from birth to five years. Assess functional ability: prone
to supine (rolling) coming to sitting, quadripod, crawling, kneeling, stand with support and walking. Examine for contractures as
follows: hip flexion, adduction, internal rotation, knee flexion, ankle plantar flexion, inversion eversion, flexion contractures of
elbow, wrist and fingers and spinal deformities.
Treatment- Describe and demonstrate the treatment of motor disabilities: Passive movement, stretching of soft tissue
tightness, use of ice to reduce spasticity, positioning the child to prevent soft tissue contractures, to inhibit abnormal reflexes
and to facilitate volitional movement. Techniques of carrying of different types of children, encouraging bimanual activities in
different starting positions like prone, sitting and standing and activities across the midline, appropriate home programmes for
position in the child, handling them and assisting improvement of function. Introduction to treatment techniques: Bobath,
Rood.
II. PERIPHERAL NERVE LESIONS:
Identify types of' peripheral nerve lesions. Assess the motor system: Specific muscles, range of motion, active and passive
ranges, muscle girth. Assess sensory system: touch, pain, temperature, paraesthesia, and nerve regeneration. Assess
autonomic function: sweating, skin condition, soft tissue atrophy. Treatment: describe muscle re-education techniques,
electrical stimulation (selection of current), Passive and auto assisted stretching and massage. Sensory re-education and pain
relief by various modalities. Common splints used in peripheral nerve lesions: static, dynamic and functional. Muscle transfers:
preparation for transfer. Assessment of muscle power. Stretching of soft tissue tightness, isolation of muscle contraction,
specific muscle strengthening.
Post - operative management: Pressure bandaging and muscle re-education after transfer. Describe a home programme.
III. MUSCULAR DYSTROPHY:
Stages of the disease ambulatory, wheel chair and bed stages. Significance of exercise: resisted, active and free. Identify and
assess common contractures and deformities. Assess range of motion and muscle power. Assess functional ability.
Demonstration of treatment programme for strengthening weak muscle: active movements and hydrotherapy. Increase range
of motion by suspension therapy, powder board, passive stretching, positioning, etc. Demonstration of gait training with

appropriate orthoses. Describe management of chest complications: breathing exercises, chest percussion, drainage of
secretions and assisted coughing.

IV. PARKINSONISM:

Review the natural history, course and prognosis of the disease. Identify and assess problems in posture, sitting, kneeling and
standing balance, voluntary and automatic movements, rigidity, tremor and gait. Assess also hearing, speech and finger
dexterity. Describe disability grading according to Yahr. Demonstration of treatment: Postural awareness and relaxation
training, gait training techniques, associated reactions, heel toe gait, overcoming obstacles, start and stop on command,
turning and walking backwards, forwards and side wards. Describe an appropriate home exercise programme.

V. SPINAL CORD LESIONS:

Describe types of spinal cord lesions. Describe signs of tract and root interruptions. Positioning of the patient in acute spinal
cord injury. Describe assessment of the motor system tone, power of specific muscles, range of motion and limb girth. Describe
assessment of sensory system and reflexes. Assessment of functional ability and balance reactions in appropriate cases.

Assessment of respiratory function: Muscles of respiratory, coughing ability and vital capacity. Level of lesion is ascertained.

Treatment: Stages of immobilization and stage when loading of the spine is allowed. Describe spinal orthosis, Demonstration
motor re-education programmes and a programme for respiratory care in high level paraplegics and quadriplegics.

Demonstrate progressive ambulation, mat exercises, various strengthening programmes, methods of decreasing spasticity and
improving sitting balance. Demonstration of various types of paraplegic gaits and re-education in functional activities: transfers
and protective falling. Common ambulatory aids used in paraplegics and common splints used in tetraplegics. Use of
hydrotherapy in paraplegics. Describe the concept of team approach in rehabilitations of these patients.

VI. HEMIPLEGIA

Hemiplegia and identify the following sensory disturbance, alteration in tone, loss of selective movement, loss of balance
reactions and communications problems.

Treatment: Unilateral and bilateral approaches to treatment. Describe positioning in the supine position, on the affected and
on the unaffected sides. Demonstration activities in the recumbent, position: arm mobilization, trunk elongation, scapular
movement, arm elevation activities for a recovering arm. Activities for the lower limb. Hip and knee flexion over the side of the
bed. Knee extension with dorsiflexion, hip control, isolated knee extension.

Mat activities: Demonstrate rolling on to affected, unaffected sides, sitting and kneeling. Technique of making a patient sit
passively and active assisted sitting. Demonstrate transfer techniques. Activities in sitting: equal weight transfer through arms
balance reactions of trunk. Head demonstrate activities in the standing position: Standing from plinth, from chair (assisted and
independent). Weight bearing on affected leg. Knee control in standing, weight transfers forward, backward and sideward, gait

training and stair climbing describe tilt board activities in the lying and sitting positions. Additional methods of stimulat ion using
verbal cues, ice pressure and tapping. Management of shoulder pain and shoulder hand syndrome. Identify and describe a
hemiplegic gait, identify synergy components and abnormal reflex activities.
Re-education of gait: motor relearning techniques, functional approach and use of orthoses.
VII. CEREBELLAR LESIONS: Identify and assess abnormal tone, decomposition of movement, rapid alternate movements,
pleurothotonus, proprioception, dysmetria, posture and gait.
Treatment: Exercise for incoordination. Frenkels and weighted exercises. Demonstrate techniques for re-education of balances
and equilibrium reactions by visual compensation. Use of appropriate aids for ambulation depending on the severity of
affection: Walker, elbow crutches, quadripod walking sticks, etc.
VIII. POLIOMYELITIS: Stages in the disease: acute, recovery, and residual paralysis. Describe treatment in the acute stage: heat,
chest care, positioning. Assessment of a patient in the recovery stage: active and passive range of motion, soft tissue tightness,
muscle power and spinal deformities. Treatment in the recovery stage: muscle strengthening - progressive resistive exercises,
active - assisted, active and active - resisted exercises. Role of suspension and hydrotherapy. Treatment of soft tissue tightness
by passive stretching. Auto stretching and positioning. Treatment in the stage of residual paralysis pre-operative assessment of
contractures: hip flexion, TFL contracture, and knee flexion and foot deformities. Assessment of limb length discrepancy and
spinal deformities. Orthotic aids commonly used in the management of polio. Tendon transfer operation commonly performed.
Functional retraining for self-care, gait training and posture correction.

NEUROPHYSIOTHERAPY PRACTICAL

Course Description: This course involves a description of the assessment and treatment of patients with neurological conditions.

Course Objectives: The student will be able to conduct a safe and effective treatment of patient with neurological conditions

The students will be shown patients of relevant diseases and disorders for:

1. Basic history taking to determining whether the brain spinal cord or peripheral nerve is involved.
2. Assessment of higher mental function such as orientation, memory, attention, speech and language.
3. Assessment of cranial nerves.
4. Assessment of motor power.
5. Assessment of sensory function touch, pain and position.
6. Assessment of tone- spasticity, rigidity and hypotonia.
7. Assessment of cerebellar function.
8. Assessment of higher cortical function- apraxia etc.
9. Assessment of gait abnormalities
10. Clinical diagnosis of the presentations.
11. Investigations and tests of different clinical presentations
12. Physiotherapy management of the various diseases & surgeries

Recommended Books

1. Cash`s Text Book For Physiotherapists In Neurological Disorders --Jaypee Bros. Publication
2. Proprioceptive Neuro Muscular Facilitation- By Herman Kabat
3. Practical Physical Therapy-Margaret Hollis
4. Therapeutic Exercise –O` Sullivan

5. “Right In The Middle”-Patracia Devis
6. Stroke Rehabilitation--Margaret Johnson
7. Therapeutic Exercise –Basmajiian.
8. Physical Rehabilitation -Krusen

Paper-31 ORTHOPEDIC PHYSIOTHERAPY

Course Description: This course involves a description of the assessment and treatment of patients with orthopedic and sports conditions.

Course Objectives: The student will be able to conduct a safe and effective treatment of patients with orthopedic and sports conditions

1. Introduction

a) Assessment of the Patient

b) Setting of Treatment Goals and Plans

2. Traumatology

a) General Physiotherapy approach

b) Effects of different therapeutic modalities in various Traumatic conditions.

c) Principles of fracture management including Physiotherapy at different stage.

d) Prevention and management of complication of fractures.

e) Dislocations Fractures and Soft Tissue Injuries: Signs, symptoms, common sites, assessment and physiotherapeutic management.

i) Upper limb Trauma

ii) Lower limb Trauma

iii) Spinal trauma.

f) Assessment, Management and Treatment Goals of Amputation: Levels of Amputation, Stump Care, Bandaging, Pre and Post

Prosthetic Management, Prosthetic Checkout, Complications and their Management, etc

3. General Orthopedics: Review of the Condition, Assessment, Management and Treatment Goals and plans for the following Conditions

a) Congenital deformities: Torticollis Thoracic inlet Syndrome, CTEV, Foot deformities, Developmental dysplasia of the hip, etc.

b) Acquired Deformities: Deformities of spine, knee, shoulder, hip, hand etc. , VIC

c) Bone & joint tuberculosis

d) Diseases of the joints: Osteoarthritis, rheumatoid arthiritis, Ankylosing spondylitis, Reiter’s disease, Gout

4. Regional Orthopedics: Review of the Condition, Assessment, Management and Treatment Goals and plans for the following Conditions

a) Shoulder: Tendinitis, Peri Arthritis, Rotator Cuff Injury, Deltoid Fibrosis, Adhesive Capsulitis, Frozen Shoulder, etc.

b). Elbow; Tennis Elbow, Golfer’s Elbow, Recurrent Slipping of Ulnar Nerve, Pulled Elbow, etc.

c) Wrist and Hand:Ganglion, DeQuervain’s Disease, Trigger Thumb and Finger, Carpal Tunnel Syndrome, Dupuytren’s Contracture, etc

d) Spine: Cervical: Brachial Neuralgia, Brachial Plexus Injury, Thoracic Inlet Syndromes, Torticollis, Cervical Spondylitis, PID,

etc. Thoracic and Lumbar Spine: Deformities of the spine, Spondylolisthesis, Lumbosacral Strain, Lumbar Canal

stenosis, Spondylitis, PID, etc

e) Hip: Coxa Vara, Slipped Upper Femoral Epiphysis, AVN, etc.

f) Knee: Deformities, Quadriceps Fibrosis, Recurrent Dislocation of the Patella, Osgood Schlatter’s Disease, Loose Bodies,

Anterior Knee Pain, Chondromalacia Patellae, etc.

g) Foot & Ankle: Painful Heel, Plantar Fascitis, Posterior Heel Pain, Deformities, Forefoot pain, metatarsalgia, Tarsal Tunnel

Syndrome, etc

h) Peripheral Nerve Injuries: Outline the clinical features and management, including reconstructive surgery, Radial, median and
ulnar nerve lesions.Sciatic and lateral popliteal lesions, Brachial Plexus injuries including Erb's, Klumpke's and crutch
palsy.
5. Orthopedic surgery; Pre and postoperative assessment and management of surgeries like:
a) Osteotomy, Arthrodesis, Arthroplasty, joint replacements
b) Tendon transplant, soft tissue release, Grafting.
c) Spinal stabilization, Reattachment of limbs, illizarov's technique.

Spinal surgeries. In Cerebral Palsy & Polio

6.Amputation
7. Introduction to manual therapy

ORTHOPEDICS PHYSIOTHERAPY PRACTICAL
Course Description: This course involves a description of the assessment and treatment of patients with orthopedic and sports conditions.
Course Objectives: The student will be able to conduct a safe and effective treatment of patients with orthopedic and sports conditions
The students will be shown patients of relevant disease and disorders for:
1. History taking of the conditions of patients.
2. Assessment
3. Clinical diagnosis of the presentations.
4. Investigations and tests of different clinical presentations
5. Physiotherapy management of the various disorders & surgeries
Recommended Books
1. Cash`S Text Book Of Orthopaedics & Rheumatology For Physio Therapists-Jaypee Bros.
2. Manual Mobilisation Of Extremity Joints-By Fredy Kaltenborn,Maitland
3. Therapeutic Exercise -----By-Kolby & Kisner
4. Therapeutic Exercises----By O`Sullivan
5. Taping Techniques - Rose Mac Donald
6. Orthopaedic Physical Therapy-By Donatelli
7. Manual Therapy –By Maitland,

Paper-32 SPORTS PHYSIOTHERAPY
Course Description: This course involves a description of the assessment and treatment of patients with orthopedic and sports conditions.
Course Objectives: The student will be able to conduct a safe and effective treatment of patients with orthopedic and sports conditions
1. The role of the physical therapies in sport, exercise and physical activity.
2. Foundations of Sports Injury Management
i. Sports Injury Management and the Athletic Trainer
ii. Preparticipation Examinations
iii. Protective Equipment.
3. Injury Assessment and Rehabilitation Sport Injury
i. Assessment Tissue Healing and Wound Care
ii. Therapeutic Modalities
iii. Therapeutic Exercise.
4. Axial Region
i. Head and Facial Conditions
ii. Spinal Conditions
iii. Thorax.

iv. Thorax and Visceral Conditions.
5. Upper Extremity
i. Shoulder Conditions
ii. Upper Arm.
iii. Elbow and Forearm
iv. Conditions Wrist and Hand Conditions.
6. Lower Extremity Pelvis.
i. Hip and Thigh Conditions
ii. Knee Conditions Lower Leg, Ankle, and Foot Conditions.
7. Special Considerations
i. Environmental Conditions
ii. Respiratory Tract Conditions
iii. Gastrointestinal Conditions
iv. The Diabetic Athlete
v. Common Infectious Diseases
vi. Blood Pressure Disorders
vii. Seizure Disorders
viii. Sudden Death Conditions of the Female Athlete.
ix. Disabled Athlete, & Senior
8. Medical considerations for rehabilitation practitioners in sport and exercise settings Pharmacological agents in sport and exercise
i. Medical imaging of injury.
ii. Medical issues in sport and exercisev
9.Diet and Nutrition
10 Pharmacology in Sports

Rehabilitation in Sports

Young and Older age Athletes

Physiological effect of exercise in various body system

SPORTS PHYSIOTHERAPY PRACTICAL
Course Description: This course involves a description of the assessment and treatment of patients with sports conditions.
Course Objectives: The student will be able to conduct a safe and effective treatment of patients with sports conditions
The students will be shown patients of relevant disease and disorders for:
1. History taking of the conditions of patients.
2. Assessment
3. Clinical diagnosis of the presentations.
4. Investigations and tests of different clinical presentations
5. Physiotherapy management of the various Sports Injuries
Suggested Readings
1. Prentice, W. “Therapeutic Modalities for Allied Health Professionals.
2. Prentice, William E., Rehabilitation Techniques in Sports Medicine,/
3. Gregory Kolt Physiotherapy in Sports and Exervise

Paper-33 GENERAL PHYSIOTHERAPY

Objective

To understand the disease process and management of various general conditions.

Principles of Physiotherapy management in General Surgical Conditions. Complication of Surgery and management.

Pre and Post-operative assessment and physiotherapy management in the following.

Cholecystectomy
Gastractomy
Appendicectomy
Nephroctomy
Herniorraphy
Prostatectomy
Breast Surgery (Mastectomy)

3. Dermatology: Physiotherapy management in the following Boils, Carbuncle, Ulcer, Scleroderma, AIopacia, Psoriasis, Acne-Vulgaris, Leprosy, Psoriatic Arthritis, Vetiligo etc.

4. Physiotherapy in Burns and Plastic Surgery.

5. Obstetrics and Gynaecology Physiotherapy in following, Pregnancy, Labour, Prenatal and Post natal period, Incontinence, Prolapse Uterus, Pelvic inflammatory diseases, Pelvic floor muscle disorders and pelvic surgeries.

6. Pediatrics' Physiotherapy

Neonatal screening of the following C.P. Erb's Palsy, Birth Asphyxia, CTEV, Congenital hip dislocation and Respiratory disorders, Physiotherapy assessment and management in the above conditions, Physiotherapy in ITU and ICCU. Physiotherapy in Paediatric Surgery.

7. Physiotherapy in E.N.T

Physiotherapy in following conditions sinusitis Rhinitis. Acute and Chronic otitis Media, Adenoids, Tonsillitis Orosclerosis, Mastoidectomy.

8. Geriatrc Physiotherapy
9. Physiotherapy in Cancer.
10. Physiotherapy in Occupational disorders.
11. Physiotherapy in Psychiatry.
12. Physiotherapy in AIDS and Alcoholics.
13. Miscellaneous conditions Inflammations, Wound, Oedema, Fibrosities, Urological surgery etc.

PRACTICAL

Various physiotherapy procedure and treatment techniques for the above mentioned conditions to be demonstrated and practiced by the students

Paper-34 COMMUNITY PHYSIOTHERAPY

Objective

To understand the disability in communities and to apply therapeutic agents for their management.

Introduction of community Physiotherapy.

Demography, population dynamics and social factors related to health and disease, urban and rural societies, process of urbanization and its impact on health and diseases, community behaviors and ecology.

Public health administration including the requirement of international health, social security, public health law and role of international and other organization.

Environmental hygiene including man and his environment, occupational and industrial hygiene, village and town sanitation, bacteriology of water milk food hygiene.

Communicable disease and their prevention and control, common disease and their preventive aspects and tuberculosis, leprosy, polio, disability prevention. Preventive aspects of psychological medicine and psychiatry.

Introduction and General Principles of Biostatistics, Statistical Procedures.

Introduction Psychological development from birth to adolescence.

Management of child in Physiotherapy c1inic/dept. parent counselling in respect of Physical Health and Hygiene.

8. Concept and Philosophy of Public health. Public health in India.
   General Epidemiology.
   Health Education, environmental health, disposal of wastes.
9. Water norma for potability purification.
10. Preventive Physiotherapy:

Prevention, levels of prevention, various measures in the Prevention of disability and dysfunction public Health Physiotherapy.

11. Public Health Physiotherapy

Introduction, definition, objectives and functions of public health Physiotherapists surveying and evaluation: Utilization of physiotherapy manpower, payment for physiotherapy services, School Physiotherapy health Programmers, Physiotherapy services in the State and Centre. Private practice administration.

FIELD PROGRAMME (PRACTICAL)

In rural areas to conduct survey of population requiring Physiotherapy services and Treatments,

Paper-34 COMMUNITY PHYSIOTHERAPY 75 hrs

Objective

To understand the disability in communities and to apply therapeutic agents for their management.

Introduction of community Physiotherapy.

Demography, population dynamics and social factors related to health and disease, urban and rural societies, process of urbanization and its impact on health and diseases, community behaviors and ecology.

Public health administration including the requirement of international health, social security, public health law and role of international and other organization.

Environmental hygiene including man and his environment, occupational and industrial hygiene, village and town sanitation, bacteriology of water milk food hygiene.

Communicable disease and their prevention and control, common disease and their preventive aspects and tuberculosis, leprosy, polio, disability prevention. Preventive aspects of psychological medicine and psychiatry.

Introduction and General Principles of Biostatistics, Statistical Procedures.

Introduction Psychological development from birth to adolescence. Management of child in Physiotherapy c1inic/dept. parent counselling in respect of Physical Health and Hygiene.
8. Concept and Philosophy of Public health. Public health in India. General Epidemiology.Health Education, environmental health, disposal of wastes.
9. Water norma for potability purification.
10. Preventive Physiotherapy:
Prevention, levels of prevention, various measures in the Prevention of disability and dysfunction public Health Physiotherapy.
11. Public Health Physiotherapy
Introduction, definition, objectives and functions of public health Physiotherapists surveying and evaluation: Utilization of physiotherapy manpower, payment for physiotherapy services, School Physiotherapy health Programmers, Physiotherapy services in the State and Centre. Private practice administration.

FIELD PROGRAMME (PRACTICAL)

In rural areas to conduct survey of population requiring Physiotherapy services and Treatments,

Paper-35 Ethics Administration and Computer Application

Objective

To understand the basics principle of administrative skills and computers.

Unit-I Ethics

Definition, principles, moral issues in health care, bioethics.

Unit-II: Professional conduct

Rule of professional conduct, relation ship with patients, medical collegues, other professional. Confidentiality, and responsibility personal and professional standard.

Unit-III: Legal Concepts

Consumer protection act, liability, documentation, negligence, protection from mal practice, claims, compensation.

Unit-IV: International Organization and regulation

WCPT, advertising, documentation, sale of services and goods, inform choice and consent continuing education and personal development.

Unit-V: Organization and administration

Organizational Characteristics physical facilities and planning, organizational structure and job design for physical therapy practice.

Unit-VI: Management

Management principles, work design for physiotherapy, recruitment and hiring of professional. Personnel development, and performance appraisal, physiotherapy marketing and strategies of marketing current trends and marketing fianance planning and management.

Unit-VII: Computer application

Basics of computer application, hard ware and soft ware, windows, MS word, Excel, MS office, SPSS, and MS power point.

BPT 405 ORGANIZATION, ADMINISTRATION & ETHICS IN PHYSIOTHERAPY

Course Description: This course involves a description of ethical code of professional practice, as well as its moral & legal aspects; role of
W.H.O.& W.C.P.T. At the end of the course the student will acquire the knowledge of the basics in Managerial & Management skills
Course Objectives: This course is aimed to enable the candidate to acquire the knowledge of ethical code of professional practice, as well
as its moral & legal aspects; role of W.H.O.& W.C.P.T. At the end of the course the student will acquire the knowledge of the basics in
Managerial & Management skills.
1. General Administration
A. Planning & Organisation: Planning Cycle, Principles of Organisational Charts, Resource and Quality management, Planning change
B. Financial issues including budget and income generation
C. Hospital Management: Hospital Organisation, Staffing, information, Communication and co-ordination with Physiotherapy.
services of hospital, Cost of service, Monitoring and Evaluation.
D. Self Management:
i) Preparing for first job
ii) Time Management
iii) Career development
2. Administration of the department
a. Describe methods of administration in a Physiotherapy department: Records: their purpose eg. Attendance, statistics,
inventory, stock. Maintenance of records eg. Methods of community and institutional based departments (CBR & IBR) .
Referrals- purpose and types of referral
b. Demonstrate administration of the following: Store keeping materials, inventory records, purchase ordering petty cash
accounting. General maintenance of equipment, furniture, buildings, costing of splints/ aids/ equipment/ articles/ made in
Physiotherapy
c. Describe and demonstrate: Types of correspondence, Methods of filing.
d. Describe methods for care of equipment and materials
e. Discuss budgeting- including items for an annual budget.
f. Discuss considerations for constructions of a new department, and modification of an old department including: Space required
Allotment of space, eg suitability for access, plumbing requirements & circulation of air.
g. Plan assessment forms eg. Pre-vocational ADL hand function & higher functions for initial evaluation and progress recording.
h. Outline method of writing Physiotherapy department annual reports. Calculate monthly and annual statistics. Make plans for
future requirements eg. Consider staff patient ratio, equipment and staff requirements.

i. Plan to organize picnic or sports program for patients
j. Outline legal aspects related to rehabilitation: Medico Legal cases, Workmans' Compensation Act & Insurance Facilities. Other
financial benefits available for the disabled.
k. Outline safety precautions in Physiotherapy
3. Physiotherapy Ethics
a) History of Physiotherapy
b) Philosophy of Physiotherapy
c) Major ethical principles applied to moral issues in health care
d) Rules of professional conduct & scope of practice.
e) Relationship with patient
f) Relationship with medical
g) Relationship with the profession
h) Confidentiality and responsibility
i) Provision of services and advertising
j) Sale of goods.
k) Professional and government licensing accreditation and education standards.
l) Laws and legal concepts
m) Law - protection from malpractice claim
n) Consumer protection act, liability and documentation.
o) Indian Association of Physiotherapists

Paper-36 Physiotherapy Project

Manav Bharti University

Syllabus

Industrial Fire Safety Protection (OSH 270)

This course was last offered prior to 2007. The syllabus may be revised for future offerings, including possible changes in the textbooks.

Program Information

This is a three-credit undergraduate level course and is one in a series of undergraduate courses in Occupational Safety and Health. Students may take courses individually as needed, or choose from several certificate or degree options:

- Focus in Occupational and Environmental Safety and Health
- Certificate in Environmental Health and Safety
- Certificate in Occupational Safety and Health

For additional information, see our program description page.

This course was developed by Maurice Russo.

Course Information

Course Title: Industrial Fire Safety Protection (OSH 270)
Credits: 3
Instructor: Maurice Russo

E-mail: maur2@earthlink.net
Phone: (860) 301-8345

Course Description

Three Credits. This course is a writing course that has as it subject industrial fire safety in the workplace, the understanding of fire and fire hazards, and how to protect against these hazards.

Course Objectives

Upon successful completion of this course, you will be able to:

- Identify principles of fire safety/protection.
- Discuss the history of fire safety/protection and the impact of historical conflagrations on it.
- Describe the basic characteristics and nature of fire.
- Identify different types of fires and explain the proper ways to extinguish them.
- Identify common types of fire hazards that exist in industrial arenas.
- Describe the basic types of building construction and their associated fire hazards.
- Identify government agency regulations and private organization standards that have shaped industry's fire safety/protection policies.
- Describe how the concept of "Life Safety" relates to smoke and fire control design.
- Write a comprehensive research paper on a fire or conflagration event explaining how the event impacted the fire service or regulatory climate.

Course Requirements and Grading

You will be given a midterm and final examination in this course, which will account for 30% of your grade. You will be expected to participate in specific fire safety/protection discussions that addresses the use of these practices in the industrial environment, any regulatory requirements, detection and suppression of fires, agencies that deal with these issues and proper response and mitigation practices, this will account for 20% of your grade. The written assignments will include four three to five page papers, and a final research paper that is equal to or greater than fifteen pages. These papers and other written course assignments will account for 40% of your grade. I will review all papers, and you will be required to edit and revise papers for final submission.

Grading Category	Percentage of Final Grade
Quizzes	10 %
Midterm Exam	15 %
Final Exam	15 %
Discussion	20 %
Written Assignments & Papers	40 %

You are responsible for acting in accordance with the Student Code, available at http://www.dosa.uconn.edu/student_code.cfm.

Course Materials

This course text may be purchased locally, through an online bookstore, or through the Storrs UConn Bookstore. Please visit our page on buying books for more information.

Required Text:
Schroll, R. C. (2002). *Industrial fire protection handbook.* (2nd ed.). CRC Press: Boca Raton, FL. ISBN: 1587160587

Required Articles:
These articles are provided in the course through Electronic Course Reserve (ECR).

Cote, A. & Bugbee, P. (1988). *Principles of fire protection*. National Fire Protection Association.

Dunn, V. (1988). *Collapse of burning buildings .* Fire Engineering, A PennWell Publication, New York, NY.

Planer, R. G. (1979). *Fire loss control, a management guide.* Marcel Dekker, Inc. New York.

Factory Mutual Insurance Company. (2001). *Pocket guide to automatic sprinklers (3 rd ed.).*

Factory Mutual Insurance Company. (2000). *Fighting fire with portable fire extinguishers.*

Software Requirements

- Word processing software
- Adobe Acrobat Reader

- Video player such as Microsoft Windows Media Player, RealMedia Player, or Apple QuickTime Movie player.
- Your Internet browser and browser settings need to be WebCT compatible. See Settings.

Course Outline

I. What is Fire Safety

- Why Be Concerned About Fire Safety
- The History of Fire Safety
- Case Studies

II. Major Fire Losses of the Past

- Historic Fires That Defined Modern Fire Protection
- 20th Century Fires
- Independent Reading and Paper

III. Understanding Fire

- Fire Characteristics and Behavior
- Fire Chemistry
- Extinguishing Agents and Methods

IV. Building Construction

- Standard Types
- Truss Construction
- Collapse Hazards

V. Loss and Hazard Control

- Loss Control Programs
- Laws and Regulations
- Organizing and Managing Loss Control
- Hazard Control and Fire Prevention
- Types of Hazards

VI. Life Safety

- Principles Concerning Life Safety
- Exit Features
- Evacuation Planning

VII. Fire Protection & Suppression Systems

- Construction Features Affecting Fire Protection
- Types of Installed Fire Protection
    - Passive
    - Active
- Operation of Active Systems
    - Standpipe Systems
    - Automatic Sprinkler Systems
        - Wet & Dry Pipe Systems

        - Sprinkler Heads
        - Sprinkler System Insp. & Maint.
    - Water Spray & Foam Systems
    - Water Supply Systems
    - Inert Gas Systems and others

VIII. Portable Fire Extinguishers

- Types of Portable Extinguishers
    - Water
    - Foam
    - Dry Chemical
    - CO2, and Halon
    - Other Styles
- Selecting the Right Extinguisher
- Placement and Use
- Training, Inspection and Maintenance

IX. The Fire Community

- Regulations and Standards
    - National Fire Protection Agency (NFPA)
    - Factory Mutual (FM)
    - Underwriters Laboratories (UL)
- Federal, State, and Local Agencies
    - FEMA
    - Departments of Fire Training or Public Safety
    - Local Fire Departments and Brigades
- Professional Organizations
    - SFPE
    - IFSTA
    - IAFC
    - ISFSI

X. Planning for Emergencies and Preparing The Team

- Why Plan
- A Systematic Approach
- Action Plans and Their Use
- Determining Needs
- Organizing The Team
- Training and Operations

XI. Coping with Fire

- Notification and Documentation
- Cause Determination
- Evaluating Impact
- 21st Century Catastrophes

Evaluation of the Course

Students will be provided an opportunity to evaluate instruction in this course using the University's standard procedures, which are administered by the Office of Institutional Research.