



EKLAVYA
UNIVERSITY

ज्ञानप्राप्तये लक्ष्यसंस्थानम्

Sagar Road, Damoh (M.P.), Bharat

Eklavya University, Damoh (MP)

B.P.T. IInd Year

Syllabus 2022-23

School of Nursing & Paramedical Science



School of Nursing and Paramedical
Sciences

SCHEME OF EXAMINATION: BACHELOR OF PHYSIOTHERAPY (B. P. Th.)

Second Year B. P. Th. Examination

S.No.	Subject Code	Subject	Internal		University Examination			Total
			Theory	Practical	Theory	External Viva	External Practical	
1	BPHSI20Y201	Pathology & Microbiology	20	-	80	-	-	100
2	BPHSI20Y202	Biochemistry & Pharmacology	20	-	80	-	-	100
3	BPHSI20Y203	Medicine including Pediatrics & Geriatrics	20	-	80	-	-	100
4	BPHSI20Y204	General Surgery, Obstetrics & Gynecology	20	-	80	-	-	100
5	BPHSI20Y205	Exercise Therapy including Yoga	20	20	100	20	40	200
6	BPHSI20Y206	Electrotherapy	20	20	100	20	40	200
Total Marks.								800

N.B.- Viva marks will be added in theory marks along with internal assessment theory; candidate have to get min. 50% marks in theory and viva collectively for passing the examination.

Course code	Pathology & Microbiology	
BPHSI20Y201		
Pre-requisite	Nil	Syllabus version
Course Objectives:		
<ol style="list-style-type: none"> 1. To know about the agents responsible for causing clinical infection to CNS, Musculoskeletal Respiratory, and Genitourinary system. 2. To illustrate the best method to prevent the development of infection. 3. To understand to recognize the sign and symptom considered red flag for serious diseases. 		
Course Outcome:		
At the end of the course, the student will be able to-		
<ol style="list-style-type: none"> 1. Acquire the knowledge of concepts of cell injury & changes produced thereby in different tissues & organs, capacity of the body in healing process. 2. Recall the etio -pathogenesis, the pathological effects & the clinico-pathological correlation of common infections & non-infectious diseases 3. Acquire the knowledge of concepts of neoplasia with reference to the etiology, gross & microscopic features, diagnosis & prognosis in different tissues & organs of the body. 4. Correlate normal & altered morphology of different organ systems in different diseases needed for understanding disease process & their clinical significance [with special emphasis to neuro- musculo-skeletal & cardio-respiratory systems] 5. Acquire knowledge of common immunological disorders & their resultant effects on the human body. 6. Understand in brief, about the Haematological diseases & investigations necessary to diagnose them & determine their prognosis. 		
Student Learning Outcomes (SLO):		
<ol style="list-style-type: none"> 1. students will be able to learn the pathological changes in various conditions, diseases and disorders, which are commonly treated by physiotherapy. 2. students will be able to demonstrate an understanding of the pathology and microbiology of common diseases that therapists would encounter in their 		

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daily practice.

3. students will be able to understand how to protect themselves and their patients from infections during their interactions.

Unit – 1

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PATHOLOGY: Aims and objectives of study of pathology. Concept of Diseases, Classification of Lesions. Brief outline of cell injury, degeneration, necrosis and gangrene.

MICROBIOLOGY: Introduction and historical background. Classification of Microorganisms. Morphology of bacteria.

Unit – 2

20

PATHOLOGY: Brief outline of cell injury, degeneration, necrosis and gangrene. Brief concepts of inflammation and Repair, Degeneration, Necrosis and Gangrenes. Inflammation: Definition, vascular and cellular phenomenon, differences between transudate and exudate, granuloma. Deficiency Diseases vitamin A, vitamin B, vitamin C, vitamin D. Vascular disturbances: Oedema, Thrombosis, Embolism, Hemorrhage and Shock. Blood Disorder: Anemia, Leukemia, Hemorrhagic disorders.

MICROBIOLOGY: Sterilization and disinfection. Immunity – Antigens and Antibodies, General overview of antigen antibody reaction and practical applications

Unit – 3

20

PATHOLOGY: Neoplasia: Brief overview of Tumors, Definition, Classification, Etiology and spread of tumors, Benign versus Malignant tumors. In brief about Respiratory system diseases- Etio-pathogenesis, gross pathology of conditions - aging, Pneumonia, Bronchitis, Bronchiectasis, COPD, Asthma, Emphysema, Pulmonary Tuberculosis, Lung cancers, Restrictive Lung disease and Occupational Lung diseases. Cardiovascular system: – Etio-pathogenesis, gross pathology of conditions- aging, IHD, myocardial infarction, CCF, HT, Rheumatic heart disease, Congenital heart disease, Arteriosclerosis, Thrombo-angitis, Vasomotor- Raynaud's, venous thrombosis, Gangrene, Lymph edema. Alimentary system – Peptic ulcer, Carcinoma of stomach- Ulcerative lesions of Intestine. Liver – Hepatitis, Cirrhosis and Hepatoma. Pancreas – Pancreatitis, Carcinoma of Pancreas, Diabetes.

MICROBIOLOGY: Gram Positive cocci – Staph, Strepto, Pneumococci. 7. Gram-negative cocci – Gonococci and Meningococci. Gram positive bacilli –

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Tubercule bacilli, Lepra bacilli, Clostridium tetani, Clostridium perfringens. Gram negative bacilli – Salmonella, Coliforms, pseudomonas, proteus etc. Anaerobic non – sporing cocci and bacilli.

Unit – 4

20

PATHOLOGY: Details about: CNS and PNS: Etio-pathogenesis, gross pathology of conditions - Aging, Meningitis, Encephalitis, Parkinson's, Amyotrophic lateral sclerosis, Ataxias, Multiple Sclerosis, stroke, Neuropathies (Carcoat Marie Tooth's disease, Compression and entrapments, diabetic, G.B syndrome), Poliomyelitis and post-polio syndrome, Myasthenia Gravis, brief outline of C.N.S. Tumours and peripheral nerve lesions. Musculoskeletal system (Bones and Joints): Etio-pathogenesis, gross pathology of conditions - osteomalacia, Osteoporosis, Osteomyelitis, Osteoarthritis, rheumatoid arthritis, Gout, spondyloarthropathy, Osteonecrosis, bone tumors, Myofascial pain syndrome. Biological responses to trauma, bone and soft tissue immobilization Muscle – Poliomyelitis, Myopathies, Volkman's ischemic contracture. Skin – Scleroderma, Psoriasis, Autoimmune disorders.

MICROBIOLOGY: Virology – General introduction, brief description of polio virus, Rubella Hepatitis-B and AIDS (diagnosis, prevention and treatment). Spirochetes- Syphilis (congenital and acquired). Malaria, Mycology – Actinomycosis, Maduramycosis, Mucosal Candidiasis, Applied microbiology as relevant to diseases of bones, joints, Muscles, Skin, Infection and Burns.

Unit – 5

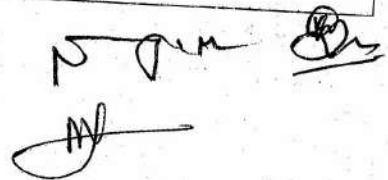
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PATHOLOGY: In brief about Urinary system – Nephrotic syndrome, Nephritis, Glomerulonephritis. Prostate –Prostatitis, BPH, Carcinoma of Prostate. Endocrine – Thyroid, Thyroiditis, Thyroid Tumours. Salivary gland – Salivary gland tumours.

MICROBIOLOGY: Demonstration of collection of clinical specimen. Demonstration of morphology and culture of organisms. Demonstration of simple Gram's and Ziehl- Neelsen staining. Sterilization and Disinfection techniques. Demonstration of serological tests for syphilis, Hepatitis

Mode: Flipped Class Room, Case Discussion, Lectures.

REFERENCE BOOKS: Chatterjee, K. D. Parasitology: Protozoology and helminthology Chatterjee, Calcutta 1965 Cotran, Ramzi S Pathologic Basis of Disease W. B. Saunders, Singapore 1999
Vinay Kumar Basic Pathology Harcourt 1997



Talib, V. H. Essential Parasitology Mehta, New Delhi 2001.

TEXT BOOK: Chakraborty, P. Textbook of Microbiology NCB, Calcutta 1999
Ananth Narayan, R. Text Book of Microbiology Orient Longman, Madras 1986
Nagalotimath, S.J. Textbook of Pathology CBS, New Delhi 1998.

Note:- No Questions should be asked from practical demonstration in theory paper.

Pathology Practical (8hrs.)

1. Normal total and differential WBC count, Hemoglobin, RBC.

2. Demonstration of slides:

- Anemia
- Leukemia
- Acute inflammation – Appendix
- Chronic inflammation – Non – specific.
- Tuberculosis of lymph Node – specific inflammation.
- Leprosy – Skin and Leprabacilli.
- Squamous cell carcinoma – skin.
- Osteogenic sarcoma – Bone tumor.
- Osteoclastoma – Bone tumor.
- Ewings – Bone tumour.
- Multiple Myeloma – Bone tumor.

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School of Nursing and Paramedical
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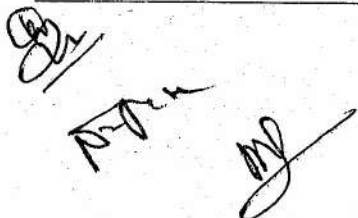
Department of Paramedical

SYLLABUS

Bachelor of Physiotherapy (BPT)
4½ YEAR DEGREE COURSE

Year	BPT 2nd Year
Subject	Biochemistry & Pharmacology
Time	100 hrs Theory

Course code	Biochemistry & Pharmacology	
BPHSI20Y202		
Pre-requisite	Nil	Syllabus version
Course Objectives:		
<ol style="list-style-type: none"> 1. To understand the knowledge of carbohydrates its metabolism and protein with its structure. 2. To know about enzymes factor affecting and its therapeutic uses. 3. To know about the vitamins and its deficiency manifestation sources. 4. Illustrate about the minerals, functions and its deficiency manifestation. 5. To know about hormones and nutrition with mechanism. 		
Course Outcome:		
<ol style="list-style-type: none"> 1. Student will be able understand about the vitamins and its deficiency manifestation sources. 2. Student will be able to illustrate about the minerals, functions and its deficiency manifestation. 3. Student will be able to know about hormones and nutrition with mechanism 		
Student Learning Outcomes (SLO):		
<p>At the end of the course the candidate will be able to</p> <ol style="list-style-type: none"> 1. Describe Pharmacology effects of commonly used drugs by patients referred for Physiotherapy. List their adverse reaction, precautions to be taken and contra – indication, formulation and route of administration. 2. Identify whether the pharmacological effects of the drug interfere with Therapeutic response of Physiotherapy & vise a versa 3. Indicate the use of analgesics & anti-inflammatory agents with the movement disorders with consideration of cost efficiency & safety for individuals need. 4. Get the awareness of other essential & commonly used drug by patients –The basis for their use & common as well as serious adverse reaction. 		



BIOCHEMISTRY: Basic Biophysics: Concept of Acid base, buffer, Henderson- Hasselbach equation, brief knowledge of biophysical process such as Osmosis. Viscosity, Surface tension, Dialysis with special emphasis on their biomedical implication. A brief study of Radio-isotopes and their clinical applications. General Biochemistry with Biomedical functions
Nutrition: Basic principles of nutrition Carbohydrates, Proteins and Lipid caloric requirement and balance diet.

Carbohydrates: Definition, classification with examples and general functions.

Metabolism - Glycolysis, T.C.A Glycogen metabolism, Blood Sugar regulation, Diabetes and diabetic keto-acidosis Lipids: Definition, classifications and general functions. Essential fatty acids, cholesterol, Blood lipids. Brief review of lipoproteins. Metabolism- Oxidation of fatty acids, cholesterol synthesis, and fatty liver. Proteins: Definition, classification, and Bio-medical Importance.

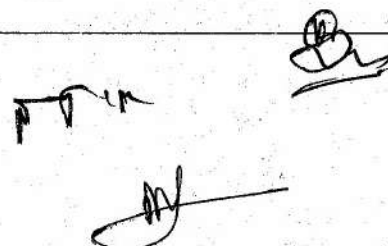
Study of hemoglobin and immunoglobulins with functions.

PHARMACOLOGY: Definition of drug, Pharmacokinetics and Pharmacodynamics. Broad categories of adverse drug reactions. Alcohols, Analgesics and Antipyretics, anti-inflammatory drugs. Sedatives

BIOCHEMISTRY: Plasma Proteins and functions. Metabolism: General reactions of amino acids. Formation and fate of ammonia - Urea cycle. Nucleic Acids: Brief overview of the structure of RNA and DNA including Nucleosides and Nucleotides. Study of few biologically important nucleotides. Tissue chemistry: Chemistry of connective tissue, bone and teeth. Composition function and chemical mediators of nerve structure of muscle tissue. General Biochemistry of muscle contraction and relaxation. Enzymes: Definition, classification with examples. Factors affecting enzyme action. Brief study of enzyme inhibition. Clinical importance of enzymes. Vitamins: Definition, classification and functions. Dietary source, Daily requirement and deficiency disorders

PHARMACOLOGY: Stimulants. Drugs acting on muscles- Muscle relaxants, Muscle stimulants.

Anti-parkinsonism agents, Drugs modifying B.P.



Unit - 3	20
<p>BIOCHEMISTRY: Bioenergetics, Study of Plasma Membrane, Review of laws of thermodynamics as applicable to biological systems. Concept of free energy charge. High-energy compounds and Respiratory chain.</p> <p>PHARMACOLOGY: Hypolipidemia, Anticoagulants, Thyroxin and Anti thyroid drugs, Anti-diabetics.</p>	
Unit - 4	20
<p>BIOCHEMISTRY: General Metabolism , Carbohydrate metabolism: Glycolysis, TCA, Glycogen metabolism, blood sugar regulation, Diabetes and Diabetic Ketoacidosis. Lipids Metabolism: Beta-oxidation of Fatty acids, Fatty acid synthesis, cholesterol synthesis, Ketosis and Fatty liver. Protein Metabolism: General reaction of Amino acids, Formation and fate of Ammonia, Urea cycle. Purine and Pyrimidine: Only catabolism of Purine to be Stressed in detail with special emphasis on Gout. General breakdown of Pyrimidine and associated disorders.</p> <p>PHARMACOLOGY: Glucocorticoids, Calcium, Phosphorus, Calcitonin and Parathormone. Narrow spectrum antibiotics. Broad-spectrum antibiotics.</p>	
Unit - 5	20
<p>BIOCHEMISTRY: Water and Electrolyte Balance, General outline of fluid compartments of the body with their water and electrolyte content and balance, Dehydration</p> <p>PHARMACOLOGY: Anti-cancer drugs. Drugs acting on respiratory systems: Respiratory stimulants and respiratorydepressants, Bronchodilators, Expectorants. Anti-Asthmatics, Anti-tussive. Vitamins. Ovarian hormones, Anabolic steroids, Estrogen, Progesterone, Androgen. Locally acting drugs: Anodies, Local anesthetic drugs, Counter-irritants Rubefacient, Soothing agent, Anti-microbial.</p>	
# Mode: Flipped Class Room, Case Discussion, Lectures.	
<p>REFERENCE BOOKS:-</p> <p>Tripathi, K.D. Essential of Medical Pharmacology New Delhi Pharmacology by N.Murugesh Pharmacology & Pharmacotherapeutics by Satoskar.</p> <p>Review of biochemistry, Harper (24th Ed.)</p> <p>TEXT BOOKS:-</p> <p>Textbook of Biochemistry by West and Todd.. Textbook of Medical Biochemistry by Chatterjee and Shinde, Principles of Biochemistry by A. Lehninger.. Textbook of Biochemistry by A.C. Deb. Textbook of Pharmacology by B.N. Ghose.</p>	



School of Nursing and Paramedical
Sciences




Department of Paramedical

SYLLABUS

Bachelor in Physiotherapy
4½ YEAR DEGREE COURSE

Year	BPT 2nd Year
Subject	Medicine including Paediatrics & Geriatrics
Time	130 hrs Theory

Course code	Medicine including Paediatrics & Geriatrics	
BPHSI20Y203		
Pre-requisite	Nil	Syllabus version
Course Objectives:		
<ol style="list-style-type: none"> 1. To know about the various paediatrics conditions in spine and extremities 2. To Describe etiology, pathophysiology sign and symptom and management of the various paediatrics conditions. 3. To Describe normal development and growth of a child, importance of Immunization, breast feeding and psychological aspect of development 4. To Acquire skill of clinical examination of neonate /child with respect of neurological musculoskeletal and respiratory function 		
Course Outcome:		
<ol style="list-style-type: none"> 1. Students will be able to connect science and technology with society. 2. Students will be able to identify and describe the etiology, pathology clinical symptoms and management of cardiovascular and respiratory condition. 3. Students will be able to Knowledge of various drugs used for each medical condition to understand its effects and uses during therapy 4. Students will be able to Understand skill of history taking and clinical examination of neurological and paediatric conditions as a part of clinical teaching 5. Students will be able to be able to acquire the skills of basic life support and describe the principles of management at the intensive care 		
Student Learning Outcomes (SLO):		
<ol style="list-style-type: none"> 1. Students will be able to Understand skill of clinical examination of neurological and paediatric conditions as a part of clinical teaching. 2. Students will be able to be able to acquire the skills of basic life support and describe the principles of management at the intensive care unit. 		
Unit – 1		26
Infections-Outline briefly the Etiology, symptoms and brief management of the		

following disease. Bacterial – Tetanus, Typhoid, Viral – Herpes simplex, Herpes Zoster, Measles, Hepatitis –B. and HIV. Protozal – Filariasis, Malaria, Amoebiasis. Diseases of blood, Define and describe clinical aspects of Nutritional Anaemias, Brief description of Bleeding Disorder with emphasis to Haemophilia. Lymphadenopathy and splenomegaly, Leukaemia – acute and chronic, Diseases of Liver, Jaundice, Viral Hepatitis. Cirrhosis of Liver

PAEDIATRICS: Normal Growth and development of child – motor, mental, language and social from birth to 12 years including physical, social, adaptive development, Pathological presentations of growth and development disorders

Unit – 2

26

GIT Diseases (Brief description), Peptic Ulcer, Diarrhea and Dysentery, Renal Diseases, Brief description of acute and Chronic renal Failure. Urinary Tract Infection, Acute Nephritis, Nephrotic Syndrome, Nutritional and Metabolic Disease. Balanced normal diet. Protein Calorie Malnutrition A vitaminosis of both water and fat-soluble vitamins, Diabetes mellitus – Definition, Classification and complications, brief description of management of diabetes mellitus. Obesity – Etiology and management. Hyper and Hypothyroidism. Calcium Homeostasis. Gigantism and Acromegaly. PAEDIATRICS: Common infectious diseases in children: Brief description of following infectious diseases along with outline of management: Tetanus, diphtheria, Mycobacterial, measles, chicken pox, gastroenteritis, HIV, and Malaria Immunization programmers – WHO schedule, different vaccinations, rationale; special consideration to various disease eradication programmers like Pulse-Polio.

Unit – 3

26




Diseases of Bones, Joints and Connective tissue. Brief introduction to understanding of Auto immune diseases. Rheumatic fever and Rheumatoid arthritis – Aetiopathogenesis, Clinical features, complications, diagnosis and briefly outline the management. Brief description of Systemic Lupus Erthematosus.

Polyarteritis Nodosa, Dermatomyositis, Scleroderma. Osteoarthritis – Aetiopathogenesis, clinical feature, diagnosis, complication and management.

PAEDIATRICS: Child and nutrition - Nutritional requirements, malnutrition

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<p>syndrome, Vitamins (A, B, C, D & K) and Minerals (iron, calcium phosphorus, iodine) deficiencies in children and management in brief</p> <p>Clinical presentation, management & prevention of the following: - Cerebral palsy, Poliomyelitis, Muscular dystrophy.</p>	
Unit – 4	26
<p>Genetics and Diseases-Common inherited disorders, Prevention of genetic disorders, Miscellaneous, Allergy, Drug reactions.</p> <p>PAEDIATRICS: Childhood rheumatism-types, clinical presentation, & management in brief, Acute CNS infections: clinical presentation, complications and management of bacterial and tubercular infections in brief.</p>	
Unit – 5	26
<p>Dermatology-Common skin infections, Psoriasis, Leprosy- aetio pthogenesis, clinical features and treatment. Venereal diseases – Syphilis, HIV etc., brief description and prevention (lecture demonstration only). Radiology (Both in normal and Pathological conditions) Radiology of Bone and joints. Radiology of chest including Heart.</p> <p>Geriatric-Physiology of ageing, manifestations of diseases in old people and general principles of management. Common Geriatric Disorders and their management, Implications of aging in physical therapy. lung disease, Pleurisy & Pulmonary embolism</p> <p>PAEDIATRICS: Clinical presentation, management & prevention of the following respiratory conditions: URI, LRI, bronchiolitis, asthma, TB (in brief) Clinical presentation, management & prevention of the following cardiac conditions: Rheumatic heart disease, SABC, Congenital heart disease - ASD, VSD, PDA (in brief)</p>	
# Mode: Flipped Class Room, Case Discussion, Lectures.	
REFERENCE BOOKS:-	
Davidson Principles and Practice of Medicine (Churchill Livingstone)	
Chamberlin, E.N. and Ogilvie, C. Symptoms and signs in Clinical Medicine Jhon Wright	
Haslett, C. Davidson's Principal and Practice of Medicine Churchill	

Livingstone, London 6 Golwalla, Aspi F. Medicine For Student NBD, Mumbai

D.L Harrison's Principles of Internal Medicine Mc-Graw Hill, New York

Behrman, R. Nelson's Text Book of Pediatrics W B Saunders, London

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Text Books :-

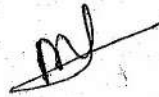
1. Davidson Principles and Practice of Medicine (Churchill Livingstone)
2. Chamberlin, E.N. and Ogilvie, C. Symptoms and signs in Clinical Medicine Jhon
3. Wright
4. Swash, Michael Hutchison's Clinical Methods W B Saunders, London
5. Ghai, O. P. Essential Pediatrics Interprint, New Delhi
6. C. Davidson's Principal and Practice of Medicine Churchill Livingstone, London
7. Golwalla, Aspi F. Medicine for Student NBD, Mumbai
8. Behrman, R. Nelson's Text Book of Pediatrics W B Saunders, London
9. Kasper, D.L Harrison's Principles of Internal Medicine Mc-Graw Hill, New York

Note

Students shall be posted for one month in general Medicine ward. They shall do clinical checking and ward work to acquaint themselves to General Medicine and pediatrics.

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School of Nursing and Paramedical
Sciences


Department of Paramedical

SYLLABUS

Bachelor of Physiotherapy (BPT)
4½ YEAR DEGREE COURSE

Year	BPT 2nd Year
Subject	General Surgery, Obstetrics & Gynaecology
Time	150 hrs Theory

Course code	General Surgery, Obstetrics & Gynaecology	
BPHSI20Y204		
Pre-requisite	Nil	Syllabus version
Course Objectives:		
<ol style="list-style-type: none"> 1. To understand & describe pre operative evaluation various surgical indications in abdominal thoracic, Neuro Surgical & Peripheral vascular conditions. 2. To understand surgical steps & approaches in short & should be able to describe components of soft tissues cut to reach target tissue & complications. 3. To assess post operative complications & its implications in ward treatment, prognosis, morbidity & mortality. 4. To describe effects of surgical trauma & Anaesthesia in post operative course. 5. To understand classify, clinically assess, evaluate & describe surgical management in brief in. a) Wounds and Ulcers b) Burns c) Head Injuries 		
Course Outcome:		
At the end of the course, student will -		
<ol style="list-style-type: none"> 1. Be able to describe the normal & abnormal physiological events during the Puberty, Pregnancy, Labour, Puerperium, & Pre, Peri & Post Menopause. 2. Be able to discuss common complications during Pregnancy, Labour, Puerperium & Pre, Peri & Post Menopausal stage & various aspects of Urogenital Dysfunction & the management in brief. 3. Acquire the skills of the clinical examination of Pelvic Floor 		
Student Learning Outcomes (SLO):		
<ol style="list-style-type: none"> 1. Student will be able to understand & describe pre operative evaluation various surgical indications in abdominal thoracic, Neuro Surgical & Peripheral vascular conditions. 2. Student will be able to understand surgical steps & approaches in short & should be able to describe components of soft tissues cut to reach target tissue & complications. 3. Student will be able to assess post operative complications & its implications in ward treatment, prognosis, morbidity & mortality. 4. Student will be able to describe effects of surgical trauma & Anaesthesia in post operative course. 		

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5. Student will be able to understand classify, clinically assess, evaluate & describe surgical management in brief in. a) Wounds and Ulcers b) Burns c) Head Injuries
6. Student will be able to be able to read & interpret finding of X-ray chest & Abdomen, CT Scan, USG.

Unit – 1	30
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General Surgery Theory 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, postoperative complications and their management

OBSTETRICS AND GYNECOLOGY: Brief Anatomy and physiology of female reproductive system. Basic principles of clinical examination, investigation, diagnosis, prognosis of female reproductive system disorders. Menstruation and its disorders.

Unit – 2	30
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General Surgery Theory: Abdominal surgery: Incisions, complications and management of following:




Nephrectomy, Appendectomy, Herniorrhaphy, Mastectomy, Thyroidectomy, Colostomy, Adrenalectomy, Cystectomy, Hysterectomy, Prostatectomy, Cholecystectomy, Ileostomy, Incisional hernia and its prevention.

OBSTETRICS AND GYNECOLOGY: Physiological changes during pregnancy. Antenatal care and diagnosis of pregnancy including high-risk pregnancy. Labour, stage of labour, normal and abnormal labour, Delivery and management of neonate.

Unit – 3	30
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General Surgery Theory Burns: Causes, Classification, Medical management and precautions in the acute stage, complications of burns and their management.

OBSTETRICS AND GYNECOLOGY: Puerperium & postnatal care, social obstetrics- maternal & perinatal mortality. Pelvic pain and its management: Musculo-skeletal problems in an obstetric patient, management . Importance Gynecological condition, a short review of PID, Tumors, malignancies,

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infertility, Endometriosis, Ectopic pregnancy, Vesicular mole.

Unit - 4

30

General Surgery Theory: Principles of plastic surgery, post – operative management and complications. Cineplasty. Principles of cosmetic surgery. Skin grafting. Surgery of Hand with emphasis on management of traumatic & leprosy hand. Burns and plastic surgery management

OBSTETRICS AND GYNECOLOGY: Prenatal and post-natal care. Prolapse Uterus, causes of incontinence of urine, type and management. Pelvic inflammatory diseases.

Unit - 5

30

General Surgery Theory: Ophthalmology: Etiology, symptomatology and treatment of visual defects emphasis on Errors of Refraction, Squint. Conjunctivitis, Trachoma, Corneal ulcers, Iritis, Cataract, Retinitis, Detachment of retina and Glaucoma (lecture demonstration only-10 Hrs.) E.N.T. Etiology, symptomatology and treatment of sinusitis, Rhinitis, Acute and Chronic Otitis, Otosclerosis, Mastoidectomy and loss of hearing. (lecture demonstration only-10 Hrs.)

OBSTETRICS AND GYNECOLOGY: Abortion and birth control. Surgical consideration in obstetrics and gynecology.

Mode: Flipped Class Room, Case Discussion, Lectures.

REFERENCE BOOKS

1. Surgery by Nan. Surgery by Baily & Love – Short Practice of Surgery by Rain & Ritelife.
2. Jeffcoat's Principles of Gynecology.
3. General Surgical Operations by R.M. Kirk and R.C.N. Williamson.

TEXT BOOKS:

1. Russell, R.C.G. Short practice In Surgery Arnold, London
2. Gupta, R. L. Text Book of Surgery Jaypee, New Delhi. Gynaecology and
3. Obstetrics in the Health care of a Woman by Seymoul L. Romney, Mary Jane
4. Gray, J. A. Merrill. Shaw's Textbook of Gynecology.

LIST OF PRACTICALS –(Posting in hospital)	
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- Students shall be posted for one month in General Surgery, plastic and burns, obstetrics and Gynecology & Radiology units. They will do clinical checking and ward work to acquaint themselves to General Surgical and Obs. & Gyn. conditions.

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School of Nursing and Paramedical
Sciences

Department of Paramedical

SYLLABUS

Bachelor of Physiotherapy (BPT) 4½ YEAR DEGREE COURSE

Year	BPT 2nd Year
Subject	Exercise Therapy including Yoga
Time	200 hrs (120 Theory+80 Practical)

Course code	EXERCISE THERAPY INCLUDING YOGA	
BPHSI20Y205		
Pre-requisite	Nil	Syllabus version
Course Objectives:		
<ol style="list-style-type: none"> 1. To know about the basic principles of biophysics relative to mechanics of movement/ motion and understand the efficacy of various position used in therapy. 2. To Understand the definition, principle of yoga and their benefits and cautions for each Asanas. 3. To Describe Asanas in various positions in their physiological changes occur in body. 4. To acquire skills of performing Pranayama and Yogasanas 		
Course Outcome:		
<ol style="list-style-type: none"> 1. Student will acquire the application skill on models. 2. Student will be able to acquire skills of performing Pranayama and Yogasanas 3. Student will be able to understand the efficacy of various position used in therapy 		
Student Learning Outcomes (SLO):		
<p>At the end of the course, the candidate will</p> <ol style="list-style-type: none"> 1. Analyze Normal human posture [static &dynamic] & various Normal Musculo skeletal movements during Gait, activities of daily living, & describe the movements of the Thorax during breathing. 2. Describe the Biophysical properties of connective tissue, effect of mechanical loading, factors influencing the Muscle strength, mobility of articular &peri-articular soft tissues. 3. Describe the physiological & Therapeutic uses, merits /demerits of various exercise modes. 		

4. Demonstrate various therapeutic exercises on self & acquire the application skill on models.
5. Acquire the skill of assessment of isolated & group muscle strength, & Range of motion of the joints subjectively & objectively.
6. Describe the pattern of normal and abnormal movements of various joints and activities.

Unit - 1

24

Introduction to Exercise Therapy, Exercise and physiology of body. Psychogenic and Pharmacological aspects of exercise, Classification of movements in details- Active voluntary movements: Free, assisted and resisted, Indication, contraindications, advantages and techniques of various types of active exercises, Clinical methods of strengthening of various muscle groups, Involuntary movements. Passive movements: Definition, types- Relaxed, forced and stretching type . Indications, contraindications, advantages and Techniques of various passive movements . Voluntary Movements, Free exercises, assisted exercises, Resisted exercise . Free exercises – Classification technique effects of free exercise on various systems. Resisted exercises – technique and types of resistance, SET system (heavy resisted exercise, Oxford method, Delorme method, McQueen's method) Relaxed passive movement- Definition, Classification of relaxed passive movements, Technique, effects and uses of relaxed passive movements.

Unit - 2

24

Muscle strength – Anatomy and Physiology of muscle tissue, Causes of muscle weakness/paralysis, Prevention of muscle weakness/paralysis. Type of muscle work and contractions, Torque of muscle work, Muscle assessment M.R.C. grading, Principles of muscle strengthening/re-education, early re-education of a paralyzed muscle etc, Strengthening technique, Endurance training, Therapeutic Gymnasium. Manual Muscle Testing Concept, introduction, significance and limitations. Grade systems, Techniques of Muscle testing. Emphasis on skills to grade upper, lower limb, neck and trunk muscles including trick movements. Joint movement-Classification of joint movements, Causes for restrictions of joint

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movement, prevention of restriction of joint range of motion. principles of mobilization of joint, increasing its range of motion, technique of mobilization of stiff joint. Accessory movements- glides, traction and approximation, Mobilization of peripheral, spinal joints, techniques and grading in detail. Manipulation therapy: Introduction, Principles of therapy, Indications and Contraindication (no clinical application of these techniques).

Goniometry: - Measurement of various joints range in normal and disease condition. Different techniques of goniometry. Limb length measurements. Passive stretching- Aims, Principles, Indications, Techniques & contra indications.

Unit – 3

24

Relaxation- Description of fatigue and spasm & factors. General causes, signs and symptoms of fatigue. Principle to obtain relaxation in various positions, effects and uses, Techniques of Relaxation- local and General with indication. Neuromuscular coordination and P.N.F: Basic theory of proprioceptive –neuromuscular facilitation techniques, Functional Re-education Exercises. Re-education of muscles: Concept, technique, spatial and temporal summation. Various reduction techniques and facilitating methods .Progressive strengthening of various muscle groups in Grade-I-Grade IV. Muscle strengthening technique – PNF - Principles of PNF, indications, contra indications, techniques, limb patterns, Co-ordination: Balance – Static and Dynamic, Definition of co-ordinated movements, incoordinated movements, Factors for coordinated movements, causes of incoordination, Discoordination: LMNL & UMNL, cerebellar lesion, loss of kinesthetic sense (Tabes dorsalis, leprosy, syringomyelia). Principles of re-education of coordinated movements , techniques of coordinated exercises, Reeducation of balance and coordination: PNF and Frenkel's exercises, Suspension Therapy Principles of suspension, Type of suspension, Therapeutic effects and uses of suspension therapy, their application either to mobilize a joint or to increase muscle power. Hydrostatics and Hydrodynamics: History, Properties of water, Specific gravity, Hydrostatic pressure, Archimedes principle, Buoyancy-law of floatation, Effect of buoyancy on movements performed in water, Equilibrium of a floating body, Bernoulli's theorem, Physiological effects of exercise in water .



Unit - 4	24
<p>Hydrotherapy -Indication, contraindication, benefits, dangers and precautions, Hydrotherapy regimes of exercises, Hydrotherapy exercise for all age groups. Types of pools and baths Soft tissue manipulations Techniques of application, Kneading and picking up, rolling (back) Clapping, Tapping, Friction. Isometric exercise and Isotonic exercise. Exercises of the shoulder and hip and evaluation, Exercise of hand, foot and evaluation, Exercise of the knee and elbow and evaluation. Spinal exercises including neck exercises</p>	
Unit - 5	24
<p>Gait analysis, Pathological gaits, Gait training Walking aids and crutch walking: - Description of crutch - components, classification Good crutch, measurements, Crutch use- Preparation, Training, counseling, Crutch gaits- types, & significance. Crutch complications- Palsy, dependency etc. Types of paraplegic gaits .Oedema- Types and treatment ,Group Therapy: Indication, contraindication, types Yogasanas and Pranayama Physiology and therapeutic principles of yoga, Yogasanas and their scientific studies. Concept of total yoga discipline, Yogasana for physical culture, relaxation and medication. Psycho-physiological aspects yoga procedures Psychological aspects of yoga, Psycho-social aspects of yoga ,Yogasanas for physical fitness, relaxation, flexibility and meditation Therapeutic application of yoga- Application of Yogasana in flexibility, cardio-respiratory rehabilitation, Neuro motor learning. Yoga a holistic approach.</p>	
# Mode: Flipped Class Room, Case Discussion, Lectures.	
REFERENCE BOOKS:-	
<ol style="list-style-type: none"> 1. Hollis, M. and Cook, P.F. Practical Exercise Therapy Blackwell, 2. Oxford Gardiner, Dena M. Principles of Exercise Therapy CBS, New Delhi 3. Lippert, Lynn Clinical Kinesiology for Physical Therapy Jaypee, New Delhi 4. Paliarulo, 5. Hislop, H.J. and Montgomery, J.Daniels and Worthingham's uscle 6. Testing. Techniques of Manual Examination W.B.Saunders, Philadelphia 7. Norkin Measurement of Joint Motion 	



8. Kisner & Colby -Therapeutic Exercises Foundations and Techniques 7th Ed
9. Dina Gardiner - Exercise Therapy
10. Therapeutic Exercise Foundation and Technique Jaypee, New Delhi.

TEXT BOOKS:-

1. Hollis, M. and Cook, P.F. Practical Exercise Therapy Blackwell, Oxford
 2. Gardiner, Dena M. Principles of Exercise Therapy CBS, New Delhi
 3. Lippert, Lynn Clinical Kinesiology for Physical Therapy Jaypee, New Delhi
 4. Paliarulo, M. A. Introduction to Physical Therapy Mosby, London
 5. Jones and Barker, Human Movement Explained Butter worth- Heine
 6. Thomson, Ann Tidy's Physiotherapy Varghese, Mumbai
- Hislop, H.J. and Montgomery, J.Daniels and Worthingham's uscle Testing:


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LIST OF PRACTICALS –

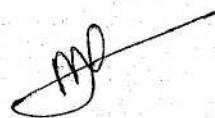
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Demonstration and learning of active & passive movements of Limbs and spine
Demonstration and practice of Manual Muscle testing, Goniometry Demonstration and practice of muscle stretching techniques

1. Demonstration and practice of muscle strengthening techniques
Demonstration and practice of muscle reeducation techniques
Demonstration and practice of coordination exercises (Frankel's)
Demonstration and practice of relaxation techniques.
2. Demonstration and practice of all types of soft tissue manipulation, mobilization of peripheral joints, various types of manipulations demonstrated and practiced to Upper limbs, Lower Limbs, Neck and Face appropriately Demonstration of normal and pathological gaits and crutch walking.
3. Demonstration and practice of suspension techniques Demonstration and Practice of Functional Re-education Technique. Demonstration and Practice of various Yogasana & Pranayama.

PRACTICAL EXAMINATION

Students will be assessed by viva & practical demonstrations based upon learning in theory & practical classes.

N. S. M. 




School of Nursing and Paramedical
Sciences


Department of Paramedical

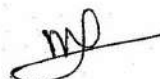
SYLLABUS

Bachelor of Physiotherapy (BPT)
4½ YEAR DEGREE COURSE

Year	BPT 2nd Year
Subject	Electrotherapy
Time	200 hrs Theory (120 Theory + 80 Practical)

Course code	ELECTROTHERAPY	
BPHSI20Y207		
Pre-requisite	Nil	Syllabus version
Course Objectives:		
<ol style="list-style-type: none"> 1. To prompt introspection and motivate students towards self-appraisal, goal-setting and problem solving. 2. Familiarize students with negotiation techniques and importance of right attitude for better coordination and team building. 3. Guide students to better drafting in creative and critical compositions. 4. Help students review policies of global importance affecting corporate interactions. 		
Course Outcome:		
<ol style="list-style-type: none"> 1. Students will be able to connect science and technology with society. 2. Students will learn to prepare for Group Discussions and thus, be able to perform 3. well in discussions, debates and interviews. 4. Examine and analyze the complex nature and seriousness of the patient's condition or extent of injuries to assess the need for advanced emergency medical care, and perform complex medical care based on assessment findings of the patient's condition and/or situation. 5. Demonstrate an increased depth and breadth of patient care in the prehospital setting by applying principles from evidence-based research in emergency medicine. 		
Student Learning Outcomes (SLO):		
<p>At the end of the course, the candidate will-</p> <ol style="list-style-type: none"> 1. Describe the Production & Physiological effects, Therapeutic uses, merits, demerits indication & contraindications of various low/medium Frequency Currents modes. 2. Describe the Physiological effects & therapeutic uses of various therapeutic ions & Topical Pharmaco-therapeutic agents to be used for the application of Iontophoresis & sono/phonophoresis 		

PTM 



3. Acquire the skill of Application of the Electro therapy modes like UVR and LASER on models, for the purpose of Assessment & Treatment.
4. Acquire an ability to select the appropriate mode as per the tissue specific & area specific application.

Unit – 1

24

LOW FREQUENCY CURRENTS: I. Nerve Muscle Physiology: Resting potential, Action potential, propagation of action potential, in myelinated and unmyelinated nerve fiber, Motor unit, and Synapse and Synaptic transmission of Impulse. Effect of negative and positive electrodes on nerve and accommodation of the nerve.

Faradic Current Definition, Characteristic of original Faradic current, modified faradic plane faradic current interrupted faradic current and surged faradic current, parameters, indication, effect on denervated muscles, innervated muscles, technique of application, group muscles stimulation, individual muscle stimulation, faradic bath, faradic under pressure, pelvic floor muscle reeducation, therapeutic effect of faradic current, contraindication and dangers.

Galvanic Current: Classification of Galvanic current o Plain galvanic current Interrupted galvanic current. Plain Galvanic Current :- Parameters of plain Galvanic current, principle of Iontophoresis technique of Iontophoresis (Bath method, bath and pad method, pad method) Common drugs used in Iontophoresis with its polarity, therapeutic effect, contraindication and dangers of plain galvanic current .Interrupted Galvanic current (Interrupted direct current I.D.C.) - Definition of IDC, parameters, wave form, duration and amplitude of the pulse effect of strength and duration on muscles and nerves technique of stimulation of individual muscles and group muscles, therapeutic effect, contraindication and dangers and precaution of IDC.

Unit – 2

24

S.D. Curve , Chronaxae and Rheobase, Nerve Conduction, EMG Nerve Conduction Velocity Measurement (outline only).

Electro-Diagnosis -

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TENS: Definition, parameters and wave form, pain gate theory of pain modulation, techniques of application, therapeutic effect and contraindication.

MEDIUM FREQUENCY CURRENTS: Definitions, effects, indications, techniques of application, contraindications Interferential therapy. Physiological, therapeutic effects & dangers, Indications & contra indications. Technique and method of applications, Dosimetry

Short Wave Diathermy: Introduction, Principle of application (Capacitor field methods and conductive field methods) preparation of patient, Therapeutic effects, contraindication and dangers of SWD.

Pulsed S.W.D.: Definition, Characteristic, Principles of Treatment, Therapeutic effects, Indications, Technique of application, Contraindications and dangers.

Microwave Diathermy: Definition, characteristic of wave, properties of microwave, technique of application, Therapeutic effects, contraindication, and dangers, precautions and potential harmful effects, Dosimetry

HIGH FREQUENCY CURRENT: Methods of application-capacitor and induction electrode, precautions and Potential harmful effects of treatment, Dosimetry.

Unit – 3

24

Infra-Red: Introduction, Classification, penetration depth, Techniques of application, Dangers and Contraindications.

Ultraviolet Radiation : Introduction, classification of ultraviolet rays, penetration depth, effect of ultraviolet, Physiological and therapeutic effects- photosensitization, test dose calculation, technique of application, (contact methods non contact methods) Physiological and Therapeutic effect, Indications and contraindications, Potential harmful effects and dangers, Methods of application, Sensitizes, Filters, Dosage, wavelength, penetration, tolerance, Treatment / Application condition wise.

LASER:-(infrared and red light laser, helium/neon laser and semi conductor laser)

ACTINOTHERAPY: Comparison between UVR & IR Therapy. Definition, principle of application, (contact methods non contact methods) technique of

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application, Therapeutic effect and potential harmful effects, dose calculation, indications, contraindications and dangers.

ULTRASONIC THERAPY: Introduction and Characteristics of the wave parameters, coupling media, Therapeutic effects, Indications, Contraindication and Dangers, Testing of Apparatus, and Techniques of application and dose.

Unit - 4

24

THERMAL THERAPY MODALITIES: Therapeutic effects and uses, Techniques and applications. Indications, contraindications, precautions and Potential harmful effects of various heat modalities:

Paraffin wax bath therapy - Introduction, Preparation of wax, preparation of patient, Method of application, Therapeutic Effects, Indications and Contraindications.

Hydro collator packs (Heating pad, and Moist heat): Introduction, methods of application, indication, contra indication. Whirlpool and moist heat Heating pads.

Hot air chambers, fluidotherapy.

Cryotherapy: Introduction, Physical Principles, Physiological and Therapeutic effects, Techniques of Application, Indications, precautions and Potential harmful effects of treatment, Contraindications and dangers, Dosimetry. Physiological and therapeutic effects & potential harmful effects. Indications, contraindications, methods of application and precautions.

Unit - 5

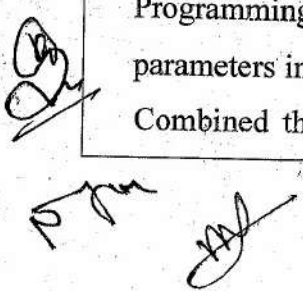
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Computerization of electrotherapy modalities. Programming of parameter of treatment. Appropriate Selection and combination of parameters in therapy. Combined therapy-Microwave with traction, Ultrasonic therapy with stimulation, IFT or TENS-Principles, uses, indications etc. Bio Feedback.

Introduction, principles of Bio feedback, therapeutic effects of Bio Feedback, Indication and Contraindications, Techniques of Treatment.

Advanced electrotherapy: Computerization of electrotherapy modalities. Programming of parameter of treatment. Appropriate Selection and combination of parameters in therapy.

Combined therapy-Microwave with traction, Ultrasonic therapy with stimulation,



IFT or TENS-Principles, uses, indications etc

Mode: Flipped Class Room, Case Discussion, Lectures.

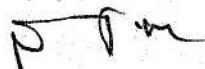
REFERENCE BOOKS:-

1. John Low and Reed - Physical Principles Explained
2. Low & Reed-Electrotherapy Explained 4th ed
3. 1s Electro therapy – 3rd & 10th ed,
4. Electro therapy – by Low & Read
5. Jagmohan Singh - Textbook of Electrotherapy 2nd Ed
6. Jun Kimura-Electro diagnosis in diseases of nerve & muscle
7. Khatri - Basics of Electrotherapy 2nd Ed

TEXT BOOKS:-

1. Froster, A. and Palastanga, N. Clayton's Electrotherapy: Theory and Practice AITBS, Delhi
2. Jhon, Low and Ann, Reed Electrotherapy Explained: Principles Butterworth Heine, Oxford
3. Nelson, R.M. and Currier; D.P. Clinical Electrotherapy Appleton and Lange
4. Chemeron, M.H. Physical Agents in Rehabilitation W B Saunders, London
5. Michlovitz, S L Thermal Agents in Rehabilitation F A Davis, Philadelphia
6. B.K.Nanda, Electrotherapy , Jaypee Publication, New Delhi

Jagmohan Singh- Electrotherapy, Jaypee Publication, New Delhi



1. Techniques of application of above treatment modalities (Demonstration & Practice)
2. Demonstration of Electrical Modalities functioning & Usage
3. Demonstration and practice of various motor point stimulations.
4. Demonstration and practice of therapeutic application of different low frequency currents.
5. Demonstration and practice of Electro diagnosis (demonstration and Practice of following electro diagnostic Measures)
6. F.G. Test, SD curves plotting, Chronaxae and Rheobase, Reaction of degeneration.
7. Demonstration and practice of therapeutic application of the following modalities:

PRACTICAL EXAMINATION

Students will be assessed by viva & practical demonstrations based upon learning in theory & practical classes.

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