BACHELOR OF PHYSIOTHERAPY

Era University, Lucknow

Course Outline: 2024-2025

Name of the Program	**Bachelor of Physiotherapy**			**Year/Semester:**	**II year/IV sem**
Course Name	**Pathology**	**Course Code:**	**BPT- 401**	**Type:**	**Theory & Practical**
Credits	**04**			**Total Sessions Hours:**	**60 Hours**
Evaluation Spread	**Internal Continuous Assessment:**		**30 Marks**	**End Term Exam:**	**70Marks**
Type of Course	Compulsory		✓ Core	Creative	Life Skill
Course Objectives	Understand the concepts of cell injury and changes in relation to the pathological effects of infectious and non infectious diseases and understand the disease process, the clinical significance With special emphasis on neuro-musculoskeletal and cardio-respiratory system.				

Course Outcomes(CO): *After the successful course completion ,learners will develop following attributes:*

CO1	Illustrate the knowledge of cell injury and its healing process
CO2	Describe the aetiology and pathogenesis of different diseases of vascular and cardiorespiratory system
CO3	Describe the aetiology and pathogenesis of different diseases of bones, joints and Muscular system
CO4	Describe the aetiology and pathogenesis of different diseases of hepato biliary, Endocrine and Integumentary system
CO5	Describe the aetiology and pathogenesis of different diseases of central nervous system
Pedagogy	Interactive, discussion-based, student-centered, presentation.
Internal Evaluation Mode	Mid-term Examination: 30 Marks Class test: 12 Marks Class participation or any other : 04 Marks Assignments/Project: 04 Marks Attendance: 04 Marks Class Presentation: 04 Bed Side behavior or Interaction in Class: 0

Session Details	**Topic**	**Hours**	**Mapped CO**
lood	**Cell Injury, Inflammation and Neoplasm:** a**. Cell**: Brief outline of cell injury, hypertrophy , atrophy , degeneration necrosis and gangrene **b. Inflammation:** Definition, vascular and cellular phenomena, difference between transudate and exudate, granuloma c**. Neoplasms:** Definition, characterstic features, benign and malignant tumor, spread of tumor, cancer pain syndrome	10	CO1

Unit2	**Vascular and cardiorespiratory system:** **a. Circulatory disturbance:** odema, Hemorrhage, embolism, thrombosis, infarction, shock, Volkmann's ischemic contracture **b. Blood disorders**: Concept of Anemia, bleeding disorder-Hemophilia **c. Cardiovascular system:** etiopathogenesis and gross pathology of atherosclerosis, coronary heart disease, rheumatic heart disease d. **Respiratory system:** chronic bronchitis, asthma, bronchiectasis, Emphysema	10	CO2
Unit3	**Bones, Joints and Muscular system:** **a. Bones:** eitiopathogenesis and gross pathology of following conditions: Rickets/ Osteomalacia, Osteoporosis, Osteomyelitis, Hyperparathyroidism **b. Joint:** Osteoartheritis, Rheumatoid arthiritis, gout, Spondyloarthopathy (including ankylosing spondylitis) Osteonecrosis, paget's disease **c. Muscles:** myositis ossificans, myofascial pain syndrome, septic arthritis	10	CO3
Unit4	**Hepato- biliary, Endocrine, Integumentary system:** **a Hepato-biliary system:** Jaundice types, etiopathogenesis and diagnosis **b. Endocrine**: Diabetes Mellitus, non- neoplastic lesions of thyroid-Thyrotoxicosis, Myxedema **c. Skin:** Brief outline of Scleroderma, Psoriasis, Pressure ulcer and burns	10	CO4
Unit5	**Central Nervous System:** **a. CNS:** eitiopathogenesis and gross pathology of following conditions: Meningitis, encephalitis, Parkinson's, Amytropic lateral sclerosis, Ataxia, Multiple sclerosis, neuropathies (Charcot marie tooth disease, compressions and entrapments, diabetics, GB sybdrome) , malformation, CVA, Extradural and intradural hematoma **b. Myopathies,** Poliomyelitis, myopathies, mysthenia gravis muscular dystrophy	10	CO5
Practical	1. pathology lab exposure 2. instruments and equipments exposure 3. E.S.R 4. Preparation of anticoagulation. 5. preparation of blood smears 6. Estimation of hemoglobin by Sahli's method and discussion of other methods used 7. Staining of slide by Leishman method. 8. Study of peripheral blood smear	10 hours	

CO-POandPSOMapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	3	3	2	3	3	1	-	-	-	-	-	-
CO2	3	2	3	3	2	3	3	1	-	-	-	-	-	-
CO3	3	2	3	3	2	3	3	1	-	-	-	-	-	-
CO4	3	2	3	3	2	3	3	1	-	-	-	-	-	-
CO5	3	2	3	3	2	3	3	1	-	-	-	-	-	-

Strongcontribution-3, ***Averagecontribution-2,*** ***Lowcontribution-1,***

SuggestedReadings:

ReferenceBooks	1. Text book of pathology: Harshmohan 2. Text book of Pathology: Robbins.
ParaText	https://youtu.be/X2i8TGTmTd4?si=bOB5l-JACAOnVKx7 https://youtu.be/TEuSV_7gWA8?si=FQx2KnCAGHQfbPz8 https://youtu.be/Gzi_Hr_vVMc?si=45OlVPMJPLu2pPW2 https://youtu.be/kmcllohbpd8?si=U6BDrVRGO9up73yL https://youtu.be/gIACp5js4MU?si=DC0U1wO3mM5Y_4Tl https://youtu.be/xH3kSyX9Hsc?si=3B8Jy2l37PZbLBiG

Recapitulation&ExaminationPattern

InternalContinuousAssessment:

Component	**Marks**	**Pattern**
Class test	12	Contains **01 long question.** question carries **04**Marks. **02 Short questions.** Each question carries **02**Marks **04 multiple choice questions.** Each question carries **01**Marks
Class participation or any other	04	This to be made on activities and instruction given by subject teacher.
Marks Assignments/Project:	04	Assignment to be made on topics and instruction given by subject teacher
Class Presentation:	04	This to be made on topics and instruction given by subject teacher
Bed Side behavior or Interaction in Class	02	This to be made on activities and instruction given by subject teacher.
Attendance	04	As per policy
Total Marks	**30**	

BACHELOR OF PHYSIOTHERAPY

Era University, Lucknow

Course Outline: 2024-2025

Name of the Program	**Bachelor of Physiotherapy**			**Year/ Semester:**	**2nd year/4th sem**
Course Name	**Electro Therapy-II**	**Course Code:**	BPT 402/ BPP 402	**Type:**	**Theory/ Practical**
Credits	**05**			**Total Sessions Hours:**	**75 Hours**
Evaluation Spread	**Internal Continuous Assessment:**	**30 Marks**		**End Term Exam:**	**70 Marks**
Type of Course	Compulsory	✓ Core		Creative	Life Skill
Course Objectives	At the end of the course, the candidate will be able to Describe the Production & Physiological effects, Therapeutic uses, merits, demerits indication & contraindications of various Thermo, actinotherapy, and medium & high frequency modes of currents. Acquire the skill of Application of the Electro therapy modes on models, for the purpose of Assessment & Treatment. Acquire an ability to select the appropriate mode as per the tissue specific & area specific application				
Course Outcomes (CO): *After the successful course completion, learners will develop following attributes:*					
Course Outcome (CO)	**Attributes**				
CO1	To Know about basics of various diagnostic investigation in the physiotherapy practice.				
CO2	Describe the Production & Physiological effects, Therapeutic uses, merits, demerits indication &contraindications of various medium Frequency Currents and their uses in physiotherapy practice.				
CO3	Describe the Production & Physiological effects, Therapeutic uses, merits, demerits indication &contraindications of various high frequency Currents and their uses in physiotherapy practice.				
CO4	Describe the Production & Physiological effects, Therapeutic uses, merits, demerits indication & contraindications of various sound waves and their uses in physiotherapy practice.				
Pedagogy	Interactive, discussion-bases, student-centered, presentation.				
Internal Evaluation Mode	Mid-term Examination: 30 Marks Class test: 12 Marks Class participation or any other : 04 Marks Assignments/Project: 04 Marks Attendance: 04 Marks Class Presentation: 04marks Bed Side behavior or Interaction in Class: 02 marks				

Session Details	Topic	Hours	Mapped CO
Unit 1	Electro-diagnosis- FG Test SD Curve: Methods of Plotting SD Curve, Apparatus selection, Characters of Normally innervated Muscle, Characters of Partially Denervated Muscle; Characters of Completely denervated Muscle, Chronaxie & Rheobase. Nerve Conduction Velocity Studies EMG: Construction of EMG equipment. Bio-feedback	15	CO1
Unit 2	Medium Frequency Currents- Interferential Therapy: Define IFT, Principle of Production of IFT, Static Interference System, Dynamic Interference system, Dosage Parameters for IFT, Electrode placement in IFT, Physiological & Therapeutic effects, Indications & Contraindications. Russian Current Rebox type Currental	10	CO2
Unit 3	High Frequency Currents- Electromagnetic Spectrum. SWD: Define shortwave, Frequency & Wavelength of SWD, Principle of Production of SWD, Circuit diagram & Production of SWD, Methods of Heat Production by SWD treatment, Types of SWD Electrode, Placement & Spacing of Electrodes, Tuning, Testing of SWD Apparatus, physiological and therapeutic effects, indications, contraindications, dangers, dosage parameters. Long wave diathermy- Principles of application, Indications and Contraindications, Physiological effects. LASER: Define LASER, Types of LASER, Principles of Production, and Production of LASER by various methods, Methods of application of LASER. Dosage of LASER, Physiological & Therapeutic effects of LASER, Safety precautions of LASER, Classifications of LASER, Energy density & power density. Pulsed Electromagnetic Energy: Principles, Production & Parameters of PEME, Uses of PEME. Microwave Diathermy: Define Microwave, Wavelength & Frequency, Production of MW, Applicators, Dosage Parameters, Physiological & Therapeutic effects, Indications & Contraindications, Dangers of MWD.	25	CO3
Unit 4	Ultrasound- Define Ultrasound, Frequency, Piezoelectric effects: Direct, Reverse, Production of US, Treatment Dosage parameters: Continuous & Pulsed mode, Intensity, US Fields: Near field, Far field, Half value distance, Attenuation, Coupling Media, Thermal effects, Non-thermal effects, Principles & Application of US: Direct contact, Water bag, Water bath, Solid sterile gel pack method for wound. Uses of US, Indications & Contraindications, Dangers of Ultrasound, and Phonophoresis: Define Phonophoresis, Methods of application, commonly used drugs, Uses, Dosages of US. Magnetotherapy Magnetic Stimulation: Physiological Effect of Magnetism, Principles, Therapeutic uses, Indications & contraindication.	10	CO4
Practical	The student of Electrotherapy must be able to demonstrate the use of electrotherapy modalities applying the principles of electrotherapy with proper techniques, choice of dosage parameters and safety precautions.	30	

	Plotting of SD curve with chronaxie and rheobase Demonstrate FG test Application of Ultrasound for different regions- various methods of application Demonstrate treatment techniques using SWD, PSWD,PEMF, Microwave diathermy Demonstrate treatment techniques using Magneto therapy. Demonstrate treatment method using IFT for various regions Calculation of dosage and technique of application of LASER Winding up procedure after any electrotherapy treatment method. Demonstrate the technique of application of Long wave diathermy.		

CO-PO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1		3	2	1	2	3	1
CO2	1	1	2	1		2		1	2	
CO3	1		2		1		2		3	3
CO4	3	1	2	2		3	1	2		2

Strongcontribution-3, Averagecontribution-2, Lowcontribution-1,

Suggested Readings:

Reference Books-

1. Clayton's Electrotherapy (theory and practice) – Clayton's AIBS publications.
2. Electrotherapy Explained by John Low and Reed, 3rd edition, B & H Publications.
3. Practical in Electrotherapy by Joseph Kahn, Churchill livingstone.
4. Electrotherapy: Evidence Based Practice by Kitchen Sheild, 11th ed.
5. Physical Agents in Rehabilitation: From Research to Practice by Cameron

e-Learning Source:	1. https://youtu.be/PqbRvPLg-nsffghgg 2. https://youtu.be/P11P0BVTU 3. https://youtu.be/TDCKqKMSrUw 4. https://youtu.be/iPXVdTCMktM

Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	Marks	Pattern
Class Test	12	Contains **01 long question.** Question carries **04**Marks. **02 Short questions.** Each question carries **02**Marks **04 multiple choice questions.** Each question carries **01**Marks
Class participation or any other	04	This to be made on activities and instruction given by subject teacher.
Marks Assignments/Project:	04	Assignment to be made on topics and instruction given by subject teacher
Class Presentation:	04	This to be made on topics and instruction given by subject teacher
Bed Side behavior or Interaction in Class	02	This to be made on activities and instruction given by subject teacher.
Attendance	04	As per policy
Total Marks	**30**	

BACHELOR OF PHYSIOTHERAPY

Era University, Lucknow

Course Outline: 2024-2025

Name of the Program	**BPT**			**Year/ Semester:**	**II year/ IV sem**
Course Name	**Exercise Therapy II**	**Course Code:**	**BPT 403/ BPP 403**	**Type:**	**Theory + Practical**
Credits	**05**			**Total Sessions Hours:**	**60 Hours**
Evaluation Spread	**Internal Continuous Assessment:**	**30 Marks**		**End Term Exam:**	**70 Marks**
Type of Course	Compulsory	• **Core**		Creative	Life Skills
Course Objectives	To prepare the students well to use exercise therapy as a valuable tool in the rehabilitation and management of patients with a wide range of conditions.				
Course Outcomes (CO): *After the successful course completion, learners will develop following attributes:*					
CO1	Students will be able to explain the physiological responses to exercise, including cardiovascular, respiratory, muscular, and metabolic changes.				
CO2	Students will be able to analyze human movement patterns and apply biomechanical principles to exercise prescription.				
CO3	Students will be able to assess a patient's functional limitations, muscle strength, range of motion, and other relevant factors to inform exercise programming.				
CO4	Students will be able to demonstrate and teach a variety of exercise techniques, including resistance training, aerobic conditioning, balance exercises, and stretching.				
CO5	Students will be able to design and implement individualized exercise programs based on patient goals, functional limitations, and medical conditions.				
CO6	Students will be able to integrate exercise therapy into the management of specific conditions, such as musculoskeletal injuries, neurological disorders, and chronic diseases.				
Pedagogy	Interactive, discussion-bases, student-centered, presentation.				
Internal Evaluation Mode	Mid-term Examination: 30 Marks Class test: 12 Marks Class participation or any other : 04 Marks Assignments/Project: 04 Marks Attendance: 04 Marks Class Presentation: 04 Bed Side behavior or Interaction in Class: 02				
Session Details	**Topic**			**Hours**	**Mapped CO**
UNIT 1	**Resisted exercise:** Definition - strength, power, endurance. Guiding principle of resisted exercise, determinants, types Manual and Mechanical Resistance Exercise, Isometric Exercise, Dynamic Exercise - Concentric and Eccentric, Dynamic Exercise - Constant and Vanable Resistance, Isokinetic Exercise, Open-Chain and Closed-Chain Exercise, precautions, contraindications. Progressive Resistance Exercise - de Lormes, Oxford, MacQueen, Circuit Weight Training, Plyometric			**10**	**CO1 CO2**

	Training--Stretch- Shortening Drills, Isokinetic Regimens **Aerobic Exercises:** Definitions, Physiological response to Aerobic Exercise, Evaluation of aerobic capacity - exercise testing, Determinant of Aerobic Exercise, Physiological Changes with Aerobic Training, Aerobic Exercise Program, Applications of Aerobic Program in patients with chronic illness.		
UNIT 2	**1. Hydrotherapy:** Definitions, Goals and Indications, Contraindications, Properties of water, Therapeutic Exercises in Hydrotherapy, Special equipment used. **2. Balance training:** Definition and Key terms, Balance control, Components of balance, Balance Impairment, Examination of Impaired Balance, Balance training Exercises. **3. Posture:** Normal Postural Control, Postural Alignment, Postural Stability, Postural Impairment and Mal-Alignment, Postural Training.	**10**	**CO2 CO5 CO6**
UNIT 3	**Joint mobilization:** Definition - Mobilization, Manipulation, indications, limitations, contraindications and precautions, applications of Mobilization technique to various joints. **Principles of Maitland, Mulligan and Mckenzi joint Manipulation techniques**	**10**	**CO3 CO4**
UNIT 4	**Gait Training:** Definition, Different methods of Gait Training, Gait Training ni Parallel Bars, Walking Aids: Types: Crutches, Canes, Frames; Principles and training with walking aids. **Instrument Assisted Soft Tissue Mobilization:** a. General Description of Inflammation and repair, Acute, Sub Acute, and Chronic stage, General Treatment Guidelines. Techniques and Principles of Mobilization and Manipulation. Techniques and Principles of Cupping therapy, IASTM and reflexology. b. Techniques and Principles of PRT (Position release techniques), c. MET (Muscle energy techniques), Active and Passive release of soft tissues, Butler concepts and techniques.	**20**	**CO3 CO4 CO5 CO6**
UNIT 5	**Proprioceptive Neuromuscular Facilitation** a. Principles, Diagonal patterns of movements, Basic procedures, Upper Extremity Diagonal patterns, Lower Extremity Diagonal Patterns. b. Technique in PNF - Rhythmic Initiation, Repeated Contractions, Reversal of Antagonists, Alternating Isometrics, Rhythmic Stabilization.	**5**	**CO3 CO4**
UNIT 6	**Breathing Exercises:** Aims and Goals of Breathing Exercises, Procedures of Diaphragmatic Breathing, Segmental Breathing, Pursed-Lip Breathing, Preventing and Relieving Episodes of Dyspnea, Positive Expiratory Pressure Breathing, Respiratory Resistance Training, Glossopharyngeal Breathing. Exercises to mobilize the chest, Postural Drainage, Manual Technique used in Postural Drainage, Postural Drainage.	**5**	**CO5 CO6**

	Bed Rest Complications: Indications of prolonged bed rest. Complications after a period of prolonged immobilization related to Neurological, Musculoskeletal, Cardiovascular and gastrointestinal systems, Prevention and treatment of the complications.		

PRACTICAL:

a. Suspension exercise to all major joint
b. P.N.F Techniques
c. Coordination exercises, balancing exercises.
d. Massage – upper limb, lower limb, back, face.
e. Assess and evaluate posture and gait.
f. mobilization of individual joint regions
g. techniques for muscle stretching

CO-PO and PSO Mapping

CO	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	1	2	-	-	-	-	-	-	-
CO2	3	1	2	1	-	-	-	-	-	-
CO3	2	2	3	-	-	-	-	-	-	-
CO4	2	3	3	-	-	-	-	-	-	-
CO5	2	2	1	-	-	-	-	-	-	-
CO6	2	2	1	-	-	-	-	-	-	-

Strong contribution-3, Average contribution-2 , Low contribution-1,

Suggested Readings:

Text- Books	1. The Principles Of Exercise Therapy 4Ed, GARDINER M.D., CBS; Fourth edition 2. Therapeutic Exercise: Foundations and Techniques: Lynn Allen Kisner, Carol Colby F A Davis Co; 5th edition
Reference Books	1. Kendall's Muscles: Testing and Function, With Posture and Pain: Vincent M. Conroy (Author), Jr. Murray, Brian N. Lippincott Williams & Wilkins; 6th edition 2. MEASUREMENT OF JOINT MOTION: A GUIDE TO GONIOMETRY: Cynthis C. Norkin, D.J, White, F.A. Davis Company; 5th edition
Para Text	• **https://www.youtube.com/watch?v=tD4bQoI1y4U** • **https://www.youtube.com/watch?v=RzYNgxaQxH8&list=PL96PwaGX4JBNeDZj10iFZ5VJaA8686SzR** • **https://www.youtube.com/watch?v=uEgwIDceurE&list=PLX6J5EEctlRyI8Imou0cAuRz627W_fPMt**

Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	Marks	Pattern
Class Test	12	Contains **01 long question.** Question carries **04**Marks. **02 Short questions.** Each question carries **02**Marks **04 multiple choice questions.** Each question carries **01**Marks
Class participation or any other	04	This to be made on activities and instruction given by subject teacher.
Marks Assignments/Project:	04	Assignment to be made on topics and instruction given by subject teacher
Class Presentation:	04	This to be made on topics and instruction given by subject teacher
Bed Side behavior or Interaction in Class	02	This to be made on activities and instruction given by subject teacher.
Attendance	04	As per policy
Total Marks	**30**	

BACHELOR OF PHYSIOTHERAPY

Era University, Lucknow

Course Outline: 2024-2025

Name of the Program	**Bachelor of Physiotherapy**			**Year/Semester:**	**II year/IV sem**
Course Name	**First aid and Emergency care**	**Course Code:**	**BPT 405/ BPP 405**	**Type: 4th Sem**	**Theory /Practical**
Credits	**04**			**Total Sessions Hours:**	**60 Hours**
Evaluation Spread	**Internal Continuous Assessment:**		**30 Marks**	**End Term Exam:**	**70Marks**
Type of Course	Compulsory		✓ Core	Creative	Life Skill
Course Objectives	• With the understanding of this course the student must be able to identify and manage situation of first aid and common emergencies				

Course Outcomes(CO): *After the successful course completion ,learners will develop following attributes:*

CO1	Demonstrate an understanding of the principles and importance of first aid
CO2	Assess and assist causality and monitor vital parameters Administer first aid to an adult casuality who is wounded or bleeding , suffering from shock, Choking, minor injuries, poisoning and bites
CO3	Demonstrate skills in giving first aid treatment in medical emergencies
CO4	Understand and manage different types of disasters considering their specificities. Learn to integrate knowledge and to analyse, evaluate, manage and respond to different public health aspects of disaster events at local and global level
CO5	Apply basic first aid to a range of traumas and/or medical conditions
Pedagogy	Interactive, discussion-based, student-centered, presentation.
Internal Evaluation Mode	Mid-term Examination: 30 Marks Class test: 12 Marks Class participation or any other : 04 Marks Assignments/Project: 04 Marks Attendance: 04 Marks Class Presentation: 04 marks Bed Side behavior or Interaction in Class: 02 marks

Session Details	**Topic**	**Hours**	**Mapped CO**
Unit 1	**Basics of Fist Aid** 1. Definition, aims &importance of first aid, rules general principles of first aid, concepts of emergency **Procedure and techniques in first aid** Instrumentation used in First Aid (First Aid kit), dressing , bandaging and splinting, Transportation of injured patient, CPR , mouth to mouth, Sylvester, schafer, holger neilson, external cardiac massage	10	CO1
Unit 2	**First aid in emergency**	10	CO2

	Asphyxia, drowning, shock, wound and bleeding, injuries of soft and dense tissues, injuries of joint and bone, falls, hanging, Forgien body ear, nose and throat poisoning- ingestion, inhalation, bite and stings **Assessing a causality and vital parameters** Assessing the sick or injured , mechanism of injury, primary survey, secondary survey, head to toe examination, monitoring vital signs		
Unit 3	**Emergency management** Principle of emergency care Triage Airway obstruction, basic of knowledge of first aid management of burn Basic knowledge of first aid for medical and surgical emergency, basic knowledge of first aid management of heat stroke, basic knowledge of first aid management of snake bite and poisoning	10	CO3
Unit 4	**Emergency disaster management** Natural calamities -Flood, earthquake, volcanic eruptions, man made disaster- explosion, war , fire accidents Role of PT in disaster management Community resources, police, ambulance services	10	CO4
Unit 5	**The unconscious causality** Breathing and circulation, life saving priorities, unconscious adults **Techniques and equipments** Removing clothing, removing headgear, causality handling, first aid material, dressing, cold compresses, principles of bandaging, roller bandages, tubular gauze bandages, square knot, hand and foot cover,slings	10	CO5
Practical	First aid kit Dressing and bandaging CPR Artificial respiration Foreign body obstruction- chocking Transfer techniques Primary and secondary Assessment Monitoring of vital signs PRICE management	10 hours	

CO-POandPSOMapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	3	1	3	-	3	2	-	-	-	-	-	-	-
CO2	3	3	3	3	-	3	1	1	-	-	-	-	-	-
CO3	3	2	3	3	-	3	2	2	-	-	-	-	-	-
CO4	3	2	3	3	-	3	3	3	-	-	-	-	-	-
CO5	3	2	3	3	-	3	2	2	-	-	-	-	-	-

Strongcontribution-3, Averagecontribution-2, Lowcontribution-1,

SuggestedReadings:

ReferenceBooks

1. 1. First aid and emergency care by Meenakshi Kubade
2. First aid & management of general injuries & common ailments-Gupta & Gupt
3. First aid in emergency – St-john.

	4. Indian First Aid Mannual-https://www.indianredcross.org/publications/FA-manual.pdf 5. Red Cross First Aid/CPR/AED Instructor Manual 6. BLS Provider Manual eBook
ParaText	https://youtu.be/xoXZCDH2bIU?si=gSE7FVtC-v838grd https://youtu.be/FhZtQwayP1g?si=POAJyxJALrXUqjfp https://youtu.be/gn6xt1ca8A0?si=-OmRuk1gXHpzMER4 https://youtu.be/ea1RJUOiNfQ?si=ju31o_k7RLIcWaSx https://youtu.be/GmqXqwSV3bo?si=vEDExxavKtYCpdOx https://youtu.be/PhH9a0kIwmk?si=U_bqs97StTRAaFmj https://youtu.be/2v8vlXgGXwE?si=P3hVvjZiumQLWEqS

Recapitulation&ExaminationPattern

InternalContinuousAssessment:

Component	**Marks**	**Pattern**
Class test	12	Contains **01 long question.** question carries **04**Marks. **02 Short questions.** Each question carries **02**Marks **04 multiple choice questions.** Each question carries **01**Marks
Class participation or any other	04	This to be made on activities and instruction given by subject teacher.
Marks Assignments/Project:	04	Assignment to be made on topics and instruction given by subject teacher
Class Presentation:	04	This to be made on topics and instruction given by subject teacher
Bed Side behavior or Interaction in Class	02	This to be made on activities and instruction given by subject teacher.
Attendance	04	As per policy
Total Marks	**30**	

BACHELOR OF PHYSIOTHERAPY

Era University, Lucknow

Course Outline: 2024-2025

Name of the Program	**BPT**			**Year/Semester:**	**II year. III sem**
Course Name	**BIOMECHANICS & KINESIOLOGY - I**	**Course Code:**	**BPT 305/ BPP 305**	**Type:**	**Theory & Practical**
Credits	**05**			**Total Sessions Hours:**	**75 Hours**
Evaluation Spread	**Internal & Continuous Assessment**	**30 Marks**		**End Term Exam:**	**70 Marks**
Type of Course	○ Compulsory	◉ Core		○ Creative	○ Life Skill
Course Objectives	1. Comprehend the shoulder complex, including its components, motions, and integrated function. 2. Understand the elbow complex, its structure, function, and the balance between mobility and stability. 3. Familiarize with the wrist and hand complex, including joints, structures, and their roles in prehension and grip. 4. Understand the biomechanics of the vertebral column, including structure, function, and effects of aging, as well as the role of associated muscles in stability and mobility. 5. Understand posture, including its static and dynamic aspects, control, and influencing factors				
Course Outcomes (CO): *After the successful course completion, learners will develop following attributes:*					
Course Outcome (CO)	**Attributes**				
CO1	Proficiency in explaining the shoulder complex's function and kinematics				
CO2	Ability to assess and describe the structural and functional aspects of the elbow complex				
CO3	Competence in understanding the wrist and hand complex and its significance in various hand activities				
CO4	Ability to analyze the structural and functional aspects of different regions of the vertebral column and implement strategies for maintaining spinal health and mobility across the lifespan				
CO5	Ability to analyze the elements of posture and the effects of age, gender, occupation, pregnancy, and recreation on postural habits, facilitating the promotion of healthy postural practices				
Pedagogy	Interactive, discussion-bases, student-centered, presentation.				
Internal Evaluation Mode	Mid-term Examination: 30 Marks Class test: 12 Marks Class participation or any other : 04 Marks Assignments/Project: 04 Marks Attendance: 04 Marks Class Presentation: 04 marks Bed Side behavior or Interaction in Class: 02 marks				

Session Details	Topic	Hours	Mapped CO
UNIT 1	**1. Shoulder Complex :** Components of Shoulder Complex : SC Joint – SC Motions, AC Joint – AC Motions, ST Joint – Resting Position of Scapula, Motions of Scapula, GH Joint - GH Motions, Static & Dynamic Stabilization of GH Joint, Integrated Function of Shoulder Complex.	12	CO1
UNIT 2	**1. Elbow Complex :** Introduction of Structure, Function – Humeroulnar & Humeroradial Articulations, Structure - Proximal & Distal Radioulnar Articulations, Function – Radioulnar Joint, Mobility & Stability - Elbow Complex.	12	CO 2
UNIT 3	**2. Wrist & Hand Complex :** Wrist Complex, Radiocarpal Joint Structure, Midcarpal Joint Structure, Functions of Wrist Complex, Hand Complex,Palmar Arches, MCP, IP Joints of Fingers, Structure of the Thumb, Prehension, Power Grip, Precision Handling	12	CO 3
UNIT 4	**3. Biomechanics of Vertebral Column :** General structure & Function, Regional Structure & Function : Structure & Function of Cervical Region, Structure & Function of Thoracic Region, Structure & Function of Lumbar Region, Structure & Function of Sacral Region, Muscles of Vertebral Column, Effects of Aging.	12	CO4
UNIT 5	**4. Posture** Static & Dynamic Posture, Postural Control, Major Goals & Basic Elements of Control, Kinetics & Kinematics of Posture, Coincident Action Lines, Optimal Posture : Standing, Sitting & Lying, Effects of Age, Gender, Occupation, Pregnancy & Recreation on Posture	12	CO5
	PRACTICALS: 1. Goniometry – Measurement of joint ROM. 2. Identification of Muscles of Shoulder Elevation & Depression 3. Identification of Axis of humerus & forearm 4. Identification of Carrying Angle 5. Identification of functional position of Wrist & Hand 6. Analysis of Posture	15	

CO-POMapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	1	1	1	-	2	-	-	1
CO2	3	2	1	1	1	-	2	-	-	1
CO3	3	2	1	1	1	-	2	-	-	1
CO4	3	2	1	1	1	-	2	-	-	1
CO5	3	2	1	1	1	-	2	-	-	1

Strongcontribution-3, Averagecontribution-2, Lowcontribution-1,

SuggestedReadings:

Text-Books

1. Joint Structure and Function – A comprehensive Analysis, By Cynthia Norkins
2. Basic Biomechanics Explained - Low & Reed – Butterworth Heinmann
3. Basic Biomechanics. Nordins

Reference Books	1. Kinesiology: Applied to Pathological Motion - Soderberg Lippincott 2. Basic Biomechanics & clinical Kinesiology. Otis 3. Biomechanics of Human Movement. D Winter
ParaText	1. https://youtu.be/j5873VW2ohw 2. https://youtu.be/0mqbfA8Zz4A?list=PLvHpMUaCG10Qf5uKW4lgmVcqLgWLDYNHI 3. https://youtu.be/gQz18YlLEwI 4. https://youtu.be/p1Lf_iafOjQ?list=PLvHpMUaCG10SU6m8kcu78y8z9GJ6txEVM 5. https://youtu.be/WyawJsth8vw?list=PLvHpMUaCG10Rs3tOl5BHRERk6c62sHZgj

Recapitulation&ExaminationPattern

InternalContinuousAssessment:

Component	**Marks**	**Pattern**
Class test	12	Contains 01 long queation. question carries 04 marks 02 short questions. each question carries 02 marks 04 multiple choice questions. each question carries 01 marks
Class participation or any other	04	This to be made on activities and instruction given by subject teacher
Marks assignments/project	04	Assignment to be made on topics and instruction given by subject teacher
Class presentation	04	This to be made on topics and instruction given by subject teacher
Bed side behavior or interaction in class	02	This is to be made on activities and instruction given by subject teacher
Attendance	04	As per policy
Total marks	30	