Bachelor of Physiotherapy

Era University, Lucknow
Course Outline Effective
From: 2025-26

Name of the Program	**Bachelor of Physiotherapy**			**Year/ Semester:**	**3rd year/5st sem**
Course Name	**Cardiopulmonary medicine & surgery**	**Course Code:**	**BPT 505 BPP 505**	**Type:**	**Theory & Practical**
Credits	**04+01**			**Total Sessions Hours:**	**80 Hours**
Evaluation Spread	**Internal Continuous Assessment:**	**30 Marks**		**End Term Exam:**	**70 Marks**
Type of Course	Compulsory	✓ Core		Creative	Life Skill
Course Objectives	1. The student will be able to recognize and understand the diagnosis, management, and surgical treatment of heart, lung, and chest conditions. 2. They will also understand the congenital conditions of heart and lungs with their etiology, clinical features, sign and symptoms and treatment. 3. The students will also be able to recognize multiple types of procedure and surgeries perform on lung, heart and thoracic along with management.				
Course Outcomes (CO): *After the successful course completion, learners will develop following attributes:*					
CO1	Students will gain a deep understanding of the anatomical structures and physiological functions of the heart, lungs, and other thoracic organs.				
CO2	Students will be able to explain the pathophysiological mechanisms underlying common cardiothoracic conditions, such as coronary artery disease, valvular heart disease, lung cancer, and congenital heart defects.				
CO3	Students will acquire knowledge of the fundamental principles of cardiothoracic surgery, including pre-operative assessment, surgical techniques, and post-operative care.				
CO4	Students will learn the importance of interdisciplinary teamwork in managing cardiothoracic patients, including collaboration with cardiologists, pulmonologists, anesthesiologists, and other healthcare professionals.				
CO5	Students will explore the ethical and professional issues specific to cardiothoracic surgery and medicine, such as patient consent, risk management, and end-of-life care.				
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	**Examination of the Cardiovascular System** Examination of the Cardiovascular System – Investigations : ECG, Exercise Stress Testing, Radiology Congenital Heart diseases – Acyanotic congenital heart disease &Cyanotic congenital heart disease : Patent Ductus Arteriosus, Coarctation of Aorta, Atrial Septal Defect, Ventricular Septal Defect, Tetralogy of Fallot, Transposition of Great Vessels ; Acquired Heart Disease – Mitral Stenosis & Insufficiency, Aortic Stenosis and Insufficiency, Ischemic Heart Disease – Coronary Artery Disease, Cardiac tumors.			20	CO1

	Practical – Examination of Cardiothoracic Region		
Unit 2	**Examination of the Respiratory System :** Chest Radiographs, Pulmonary Function Testing, Arterial Blood Gas Analysis, Chronic Bronchitis, Emphysema, Asthma, Bronchiectasis, Cystic Fibrosis, Upper Respiratory Tract Infections, Pneumonia, Tuberculosis, Fungal Diseases, Interstitial Lung Diseases, Diseases of the pleura, diaphragm and chest wall ; Respiratory failure – Definition, types, causes, clinical features, diagnosis and management. **Practical – Exposure of patients with Cardiothoracic and Respiratory Conditions**	20	CO2 & CO4
Unit 3	**Thoracic surgeries:** Thoracotomy – Definition, Types of Incisions with emphasis to the site of incisions, muscles cut and complications. Lung surgeries : Pneumonectomy, Lobectomy, segmentectomy – Indications, Physiological changes and Complications ; Thoracoplasty, Pleurectomy, Pleurodesis and Decortication of the Lung. Cardiac surgeries – An overview of the Cardio-Pulmonary Bypass Machine – Extra cardiac Operations, Closed Heart surgery, Open Heart surgery. Transplant Surgery – Heart, Lung and Kidney – Indications, Physiological changes and Complications.	20	CO3, CO4 &CO5
Practical	Inspection, palpation, percussion, auscultation Pulse examination (rate, rhythm, volume) Blood pressure measurement Identification of heart sounds & murmurs ECG lead placement Interpretation of normal ECG Identifying common abnormalities (tachycardia, arrhythmia) Demonstration of stress test procedure Case-based discussion Identification of clinical signs Inspection (shape, movement) Percussion notes (resonant, dull) Breath sounds identification ABG interpretation basics X-ray interpretation	20	CO3, CO4 &CO5

CO-PO and PSO Mapping

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

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

Suggested Readings:

Text- Books	1. Surgery text book- S. Das 2. Cash Textbook of Cardiothoracic surgery
Reference Books	1. Bailey and Love's – Short Practice of Surgery
Para Text	**Unit 1:** https://www.youtube.com/watch?v=Zrxiy0fIjFw **Unit 2:** • https://www.youtube.com/watch?v=xIZQRjkwV9Q **Unit 3:** • https://www.youtube.com/watch?v=bSCbdqGjAZ0

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**	

Department of Physiotherapy
Era University, Lucknow
Course Outline
Effective From: 2025-26

Name of the Program	**BPT**			**Year/ Semester:**	**3nd Year/5th Semester**
Course Name	**Clinical Neurology and Neurosurgery**	**Course Code:**	**BPT 502 BPP 502**	**Type:**	**Theory + Practical**
Credits	**04+01**			**Total Sessions Hours:**	**80 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	1. Attendance: 2. Project/Assignment 3. Class Participation 4. Presentations 5. Bedside Behavior 6. Written Exam:				
Session Details	**Topic**			**Hours**	**Mapped CO**
UNIT 1	1. **Introduction to neurological Investigations**: Disorders of function in the context of Pathophysiology, Anatomy in Neurology and Cortical Mapping. 2. -Classification of neurological involvement depending on level of lesion. 3. Neurological assessment: Principles of clinical diagnosis, higher mental function, assessment of brain & spinal cord function, evaluation of cranial nerves and evaluation of autonomic nervous			**20**	**CO1 CO2**

	system. - Investigations: principles, methods, views, normal/abnormal values/features, types of following investigative procedures- skull x-ray, CT, MRI, evoked potentials, lumbar puncture, CSF examination, EMG, NCV. 4. **Lower cranial nerve paralysis** – Etiology, clinical features, investigations, and management of following disorders - lesions in trigeminal nerve, trigeminal neuralgia, trigeminal sensory neuropathy, lesions in facial nerve, facial palsy, bell's palsy, hemi facial spasm, Glossopharyngeal neuralgia, lesions of Vagus nerve, lesions of spinal accessory nerve, lesions of hypoglossal nerve. Dysphagia – swallowing mechanisms, causes of dysphagia, symptoms, examination, and management of dysphagia.		
UNIT 2	1. **Cerebro-vascular diseases & Accidents**: Define stroke, TIA, RIA, stroke in evolution, multi infarct dementia and Lacunar infarct. Classification of stroke – Ischemic, hemorrhagic, venous infarcts. Risk factors, cause of ischemic stroke, causes of hemorrhagic stroke. Classification of hemorrhagic stroke, classification of stroke based on symptoms, stroke syndrome, Investigations, differential diagnosis, medical and surgical management. 2. **Head injury:** Etiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications.	**20**	**CO2 CO3 CO5 CO6**
UNIT 3	1. **Movement disorders**: Definition, etiology, risk factors, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Parkinson's disease, Dystonia, Chorea, Ballism, Athedosis, Tics, Myoclonus and Wilson's disease. 2. **Cerebellar and coordination disorders**: Etiology, pathophysilogy, classification, clinical signs & symptoms, investigations, differential diagnosis, management of congenital ataxia, Friedreich's ataxia, Ataxia talengiectasia, Metabolic ataxia, Hereditary cerebellar ataxia, Tabesdorsalis and Syphilis.	**20**	**CO3 CO4 CO5 CO6**

PRACTICAL: 20 Hrs

1. Neurological Assessment
2. Assessments of Higher cortical function
3. Bed Transfers
4. Movement & coordination assessment
5. GCS
6. Tone and MMT assessment
7. Neurological Gait Assessment
8. Mat exercises
9. Suspension Therapy

CO-PO and PSO Mapping

CO	PO1	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. Neurology and Neurosurgery illustrated -Lindsasy
Reference Books	1. Principles of Neurology- Adams and Victor 2. Kendall's Muscles: Testing and Function, With Posture and Pain: Vincent M. Conroy (Author), Jr. Murray, Brian N. Lippincott Williams & Wilkins; 6th edition

Recapitulation & Examination Pattern

Internal Continuous Assessment:

Component	**Marks**	**Pattern**
Mid Semester	12	As per University Pattern
Class Test	04	
Class Presentation/Discipline	04	
Assignment/ Project	04	
Bedside Behavior	02	
Attendance	04	As per Policy
Total Marks	**30**	

Bachelor of Physiotherapy

Era University, Lucknow

Course Outline

Effective From: 2024-25

Name of the Program	**Bachelor of Physiotherapy**			**Year/ Semester:**	**3rd year/5th sem**
Course Name	**Community Medicine-I**	**Course Code:**	**BPT 504**	**Type:**	**Theory**
Credits	**03**			**Total Sessions Hours:**	**45 Hours**
Evaluation Spread	**Internal Continuous Assessment:**	**30 Marks**		**End Term Exam:**	**70 Marks**
Type of Course	Compulsory	✓ Core		Creative	Life Skill
Course Objectives	Student will learn about Health, Disease, Epidemiology, Epidemiology of communicable disease, Public health administration, Health programmes in India and Demography and Family Planning definition and also their implementation with evidence based practical approach.				
Course Outcomes (CO): *After the successful course completion, learners will develop following attributes:*					
Course Outcome (CO)	**Attributes**				
CO1	Acquire the basic concept of Health, Disease Principles of Epidemiology and Different Epidemiological methods that are required to be practiced in community and at all levels of health care system.				
CO2	Acquire the knowledge of Public health administration and Epidemiology of communicable disease in preventive and curative measures that are required to be practiced in community.				
CO3	Student will know about different Health programmes in India and Demography and Family Planning.				
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	**Health and Disease-** Definitions, Concepts, Dimensions and Indicators of Health, Concept of well-being, Spectrum and Determinants of Health, Concept and natural history of Disease, Concepts of disease control and prevention, Modes of Intervention, Population Medicine, Therole of socio-economic and cultural environment in health and disease. **Epidemiology, definition and scope-** Principles of Epidemiology and Epidemiological methods: Components and Aims, Basic measurements, Methods, Uses of Epidemiology, Infectious disease epidemiology, Dynamics and modes of disease transmission, Host defenses and Immunizing agents, Hazards of Immunization, Disease prevention and control, Disinfection.Screening for Disease: Concept of screening, Aims and Objectives, Uses and types of screening.	15	CO1
Unit 2	**Public health administration** An overview of the health administration set up at Central and state levels. The national health programme-highlighting the role of social, economic and cultural factors in the implementation of the national programmes. Health problems of vulnerable groups-pregnant and lactating women, infants and pre-school children, occupational groups . **Epidemiology of communicable disease** Respiratory infections, Intestinal infections, Arthropodborne infections, Zoonoses, Surface infections, Hospital acquired infections Epidemiology of chronic non-communicable diseases and conditions: Cardio vascular diseases: Coronary heartdisease, Hypertension, Stroke, Rheumatic heart disease, Cancer, Diabetes, 0besity, Blindness,Accidents and Injuries.	15	CO2
Unit 3	**Health programmes in India** Vector borne disease control programme, National leprosy eradication programme, National tuberculosis programme, National AIDS control programme, National programme for control of blindness, Iodine deficiency disorders (IDD) programme, Universal Immunisation programme, Reproductive and child health programme, National cancer control programme, National mental health programme. National diabetes control programme, National family welfare programme, National sanitation and water supply programme,Minimum needs programme . **Demography and Family Planning**: Demographic cycle, Fertility, Family planning-objectives Of national family planning programme and family planning methods, A general idea of advantageand disadvantages of the methods.	15	CO3

CO-PO Mapping

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

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

Suggested Readings:

Reference Books-

1. Textbook of Preventive & Social Medicine, Dr. J E Park

2. Textbook of Prevention Practice and Community Physiotherapy (Vol. 1)- Dr. Bharati Vijay Bellare

3. Physiotherapy in Community Health and Rehabilitation-Waqar Naqvi

4. ESSENTIALS OF COMMUNITY PHYSIOTHERAPY & ETHICS- PROF. (DR.) RAJENDRA RAJPUT

5. Textbook of Community Medicine: Preventive and Social Medicine, by Sunderlal. Maxcy Rosenau

6.Textbook of Community Medicine- Bhalwar

e-Learning Source:	1.https://youtu.be/0CiOFQbbouo?si=z3VzfvqZtSq3xUMiMedial_Tibial_Stress_Syndrome_A_Review_of_the_Literature 2. https://youtu.be/N-B4XPAdNuw?si=RISOOgZ7xUIoh3D- 3. https://youtu.be/lP-eevU5-Hc?si=IxeBZ9xwfwsA5eyl 4. https://youtu.be/5DBgh03wy6U?si=rtfPbloNr-un_CWK

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

Effective From:2023-24

Name of the Program	**Bachelor of Physiotherapy**			**Year/Semester:**	**3rd year/5th sem**
Course Name	**General Medicine**	**Course Code:**	**BPT 501**	**Type: 5th Sem**	**Theory**
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	1. The course enables the student to have comprehensive understanding of general diseases 2. Students will be able to list the etiology, pathology, clinical features and treatment method for various medical conditions				

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

CO1	Understand pathophysioloogical changes in infectious and metabolic disorders with their treatment
CO2	Understand pathophysiological changes in endocrine and hematological disorders with their treatment
CO3	Understand pathophysiological changes in digestive system disorders with their treatment
CO4	Understand the physiological changes during aging, diseases related to elderly people and their treatment
CO5	Understand pathophysiological changes in skin disorders and psychiatric disorders with their treatment
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: 02

Session Details	**Topic**	**Hours**	**MappedCO**
Unit1	1. **Infection** : Effects of Infection on the body – Pathology – source and spread of infection –vaccinations – generalized infections – rashes and infection – food poisoning and gasteroenteritis – sexually transmitted diseases – HIV infections and aids **Poisoning:** Clinical features – general management – common agents in poisoning –Pharmaceutical agents – drugs of misuse – chemical pesticides – Envenomation .	20	CO1

	Food and Nutrition: Assessment – Nutritional and Energy requirements; Deficiency diseases –Clinical features and treatment; Protein – Energy Malnutrition: Clinical features and treatment; Obesity and its related disorders : Causes – Complications – benefits of weight loss –Management of Obesity – diet, exercise and medications.		
Unit2	**2. Endocrine diseases**: Common presenting symptoms of Endocrine disease – common classical Disease presentations, clinical features and its management; Diabetes Mellitus: Etiology and Pathogenesis of diabetes – clinical manifestations of the disease – management of the disease –Complications of diabetes. **Diseases of the blood**: Examinations of blood disorders – Clinical manifestations of blood Disease; Anemia – signs and symptoms – types and management; Hemophilia - Cause – clinical features severity of disease – management – complications due to repeated heamorrhages – complications due to therapy. **3. Diseases of the digestive system** : Clinical manifestations of gastrointestinal disease –Aetiology, clinical features, diagnosis, complications and treatment of the following conditions: Reflux Oesophagitis, AchlasiaCardia, Carcinoma of Esophagus, GI bleeding, Peptic Ulcer disease, Carcinoma of Stomach, Pancreatitis, Malabsorption Syndrome, Ulcerative Colitis, Peritonitis, Infections of Alimentary Tract; Clinical manifestations of liver diseases - Aetiology, clinical features, diagnosis, complications and treatment of the following conditions: Viral Hepatitis, Wilson's Disease, Alpha1-antitrypsin deficiency, Tumors of the Liver, Gall stones, Cholycystitis	20	CO2
Unit3	**4. Geriatrics-** Physiology of ageing, manifestations of diseases in old people and general principles of management. Implications of aging in physical therapy. Lung disease, Pleurisy & Pulmonary embolism **5.Pediatrics:** Problem and management of LBW Infants, Perinatal problems and management, congenital abnormalities and management, Respiratory condition of childhood, The clumsy child, challenging behaviors, Educational delay **6.Diseases of the Skin**: Examination and clinical manifestations of skin diseases ; Causes, clinical features and management of the following skin conditions : Leprosy, Psoriasis, Pigmentary Anomalies, Vasomotor disorders, Dermatitis, Coccal and Fungal Parasitic and Viral infections. **7.Psychiatric Disorders**: Classifications, Causes, Clinical manifestations and treatment methods used in Psychiatry.	20	CO3
CO-POandPSOMapping			

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

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

SuggestedReadings:

ReferenceBooks

1. Davidson's Principles and Practice of Medicine.
2. Textbook of k. Das
3. Harrison's Internal Medicine.
4. Hutchinson's clinical methods.

ParaText

https://youtu.be/-axOMKLkLLQ?si=Duy9onplvJbqLuxg
https://youtu.be/tVP16UJurrs?si=Vl6_ujUBq2Zf6pYI
https://youtu.be/4R5JzLz2gH8?si=-M7sonorotXvKw6Z
https://youtu.be/cW4RJ2bSbn8?si=BY7nAbnl61hscbBy
https://youtu.be/MlV4kd16c5I?si=fKbQxGNFknkmGdKc
https://youtu.be/_CAv_eM2nSA?si=x_p7Vx-7vQpkGMYU

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:**	**III year/ V sem**
Course Name	**General Orthopedics And Traumatology**	**Course Code:**	**BPT 503/ BPP 503**	**Type:**	**Theory & Practical**
Credits	**4 + 1**			**Total Sessions Hours:**	**60 + 20 Hours**
Evaluation Spread	**Internal Continuous Assessment:**	**30 Marks**		**End Term Exam:**	**70 Marks**
Type of Course	○ Compulsory	◉ Core		○ Cre	○ Life Skill
Course Objectives	1. To understand basic principles of orthopaedics and diagnostic methods. 2. To learn fracture types, healing, complications, and management. 3. To study soft tissue and peripheral nerve injuries with management. 4. To understand traumatic spinal cord injuries and amputations. 5. To learn about congenital/acquired deformities and bone tumors. 6. To understand inflammatory, degenerative, and connective tissue disorders with surgical approaches.				
CourseOutcomes(CO): *Afterthesuccessfulcoursecompletion,learnerswilldevelopfollowing attributes:*					
Course Outcome (CO)	**Attributes**				
CO1	Demonstrate understanding of orthopaedic principles, clinical examination methods, and diagnostic investigations.				
CO2	Explain fracture types, healing, complications, and management approaches.				
CO3	Identify and describe mechanisms, clinical features, and management of soft tissue and peripheral nerve injuries.				
CO4	Analyze clinical features and management of spinal cord injuries and amputations.				
CO5	Recognize and explain congenital/acquired deformities, bone tumors, and degenerative conditions.				
CO6	Describe common orthopaedic surgical procedures and their biomechanical implications.				
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**	**MappedCO**
Unit1	1. **Introduction:** Introduction to Orthopaedic , clinical examination in an orthopaedic patient, common investigation procedures, radiological and imaging techniques in orthopaedics, inflammation and repair, soft tissue healing, 2. **Traumatology** Fracture: definition, types, signs and symptoms. Fracture healing. Complications of fractures. Conservative and surgical approaches. Principles of management – reduction (open/closed, immobilization etc). Subluxation/ dislocations – definition, signs and symptoms, management (conservative and operative). 3. **Fractures and Dislocations of Upper Limb** 4. **Fracture of spine** 5. **Fractures and Dislocation of lower limb** 6. **Fracture of pelvis and lower limb** **PRACTICAL:** Orthopaedic assessment	20 hrs	CO1 & CO2
Unit 2	7. **Soft Tissue injuries** such as sprains, strains, tendinitis, rupture, tenosynovitis, tendinitis and bursitis. Mechanism of injury of each, clinical features, managements-conservative and surgical. 8. **Hand injuries** 9. **Peripheral nerve injuries**, classification of nerve injuries, clinical features and management, including reconstructive surgery for radial, median and ulnar nerve lesions, femoral nerve, sciatic and lateral popliteal lesions. Brachial plexus injuries including Erb's, Klumpke's. 10. **Amputations** – Definition, levels of amputation of lower and upper limbs, indications, complications. 11. **Traumatic Spinal Cord Injuries** - Clinical features, complications, medical and surgical management of Paraplegia and Quadriplegia. **PRACTICAL:** Orthopaedic assessment	20 hrs	CO3 & CO4
Unit 3	12. **Deformities** – congenital and acquired deformities. 13. **Bone Tumors**: classification, clinical features, management – medical and surgical of the following tumors: osteoma, osteosarcoma, osteochondroma, enchondroma, Ewing's sarcoma, giant cell tumor, multiple myeloma, metastatic tumors. Perthes disease, slipped capital epiphysis and avascular necrosis. 14. **Inflammatory and degenerative conditions**:	20 hrs	CO5 & CO6

	osteoarthritis, rheumatoid arthritis, ankylosing spondylitis, gouty arthritis, psoriatic arthritis, hemophilic arthritis, still's disease (juvenile rheumatoid arthritis), charcot's joints. 15. **Connective tissue disorders** – systemic lupus erythematosus, poliomyelitis, lepsory, 16. **Orthopaedic surgeries**: arthrodeisis, arthroplasty (partial and total replacement), osteotomy, external fixators, spinal stabilization surgeries (Harrington's Luque's Steffi platting) etc. limb reattachments. **PRACTICAL** Orthopaedic assessment		
PRACTICALS	**TOPICS** 1. General Orthopaedic Case History Taking & Examination 2. Identification and Interpretation of Orthopaedic Radiographs (X-rays of fracture, dislocation, arthritis, etc.) 3. Clinical Examination of Upper Limb Joints (shoulder, elbow, wrist, hand) 4. Clinical Examination of Lower Limb Joints (hip, knee, ankle, foot) 5. Spine Examination – Cervical, Thoracic, and Lumbar regions 6. Assessment of Common Fractures (e.g., Colles', Supracondylar, Intertrochanteric) 7. Demonstration of Fracture Healing Stages on X-rays 8. Assessment and Management Principles of Dislocations (shoulder, hip, elbow, finger) 9. Soft Tissue Injury Evaluation – Sprain, Strain, Tendinitis, Bursitis 10. Peripheral Nerve Injury Clinical Tests (Radial, Median, Ulnar, Sciatic, Peroneal nerves) 11. Examination of Brachial Plexus Lesions (Erb's palsy, Klumpke's palsy) 12. Amputation Stump Examination & Levels of Amputation 13. Assessment of Traumatic Spinal Cord Injury 14. Recognition of Acquired Deformities (e.g., Genu varum, Genu valgum, Flatfoot) 15. Assessment of Bone Tumor Cases – Clinical and Radiological Signs 16. Evaluation of Degenerative Conditions (Osteoarthritis) 17. Examination of Inflammatory Arthritis (Rheumatoid arthritis, Ankylosing spondylitis) 18. Demonstration of Orthopaedic Surgical Procedures through X-rays (Arthroplasty, Arthrodesis,	20 hrs.	

	Osteotomy, External Fixator, Spinal Fixation) 19. Clinical Case Discussions – Integration of History, Examination, Investigations, and Management Plan		

CO-PO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3	2	2	1	-	-	2	1	-	2
CO2	3	2	2	1	-	-	2	1	-	2
CO3	3	2	2	1	-	-	2	1	-	2
CO4	3	2	2	1	-	-	2	1	-	2
CO5	3	2	2	1	-	-	2	1	-	2
CO6	3	2	2	1	-	-	2	1	-	2

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

Suggested Readings:

Text-Books	1. Essential Orthopaedics: Maheshwari 2. Textbook of Orthopaedics: Kotwal and Natrajan 3. Apley System of orthopedics and Fracture
Reference Books	1. Essential Clinical Orthopaedics by John Ebenezer 2. Outline of fracture: Adams
Para Text	1. https://youtu.be/dzgrAyckvJg 2. https://youtu.be/al2A_RQIFac 3. https://youtu.be/fFVaPonJk6M 4. https://youtu.be/mU75SnzPlbc 5. https://youtu.be/Mox5YRyf6bM 6. https://youtu.be/xc0ehmdW44k

Recapitulation & Examination Pattern

Internal Continuous Assessment:

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**	