SHREE SWAMINARAYAN PHYSIOTHERAPY COLLEGE, KALOL

PROPOSED SYLLABUS

3rd Year B. Physiotherapy

Faculty of Physiotherapy

Degree of Bachelor of Physiotherapy

ESTD 2022

सर्व विद्या अधिपतये

SWAMINARAYAN UNIVERSITY

THE RESERVOIR OF ALL KNOWLEDGE

SWAMINARAYAN UNIVERSITY

AHMEDABAD – MEHSANA HIGHWAY, AT & PO – SAIJ,
TAL. – KALOL,
DIST. – GANDHINAGAR - 382725

Program Outcomes (POs)

1. Do independent physiotherapy assessment and treatment for patient/client.

2. Work in conjunction with a multidisciplinary team to diagnose and treat movement dysfunctions as per red and yellow flags.

3. Develop skills for physical & functional diagnosis, treatment planning, management, and administration of physiotherapy treatment for patient support.

4. Find employment opportunities in Hospitals/Nursing homes/Sports Teams/Fitness Centers /Community Rehabilitation centers/Health planning boards/Health promotions services/Special Schools/Education Institutes/Industrial Sectors in both private and public sectors as well as in independent physiotherapy clinics.

5. Shall be able to pursue further qualifications to attain a senior position in the professional field and to keep abreast with the recent advances and new technology.

6. Ability to communicate effectively and flexibly in a manner that is appropriate for the patients and other healthcare professionals.

7. Acquaint with the basics of research, and involved in the research process.

8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the Physiotherapy practice as provided by national and state councils.

Program Educational Objectives (PEOs)

PEO 1: Professional Foundation and Application
Graduates will acquire and apply fundamental knowledge of basic medical sciences and physiotherapy principles to assess, diagnose, and manage functional disorders effectively across clinical, community, and institutional settings.

PEO 2: Clinical Decision-Making and Problem-Solving
Graduates will demonstrate clinical reasoning and problem-solving abilities to analyze patient conditions, evaluate treatment outcomes, and adapt physiotherapy interventions based on individual needs and current best practices.

PEO 3: Innovation, Research, and Lifelong Learning
Graduates will engage in evidence-based research, contribute to innovations in physiotherapy practice, and pursue higher education or specialization to remain updated with advancements in healthcare.

PEO 4: Social Responsibility and Ethical Practice
Graduates will uphold ethical values, communicate effectively, and contribute to society by participating in community health, national wellness initiatives, and collaborative interprofessional care, aligned with national and global health goals.

Program Specific Outcomes (PSOs)

PSO1: Clinical Assessment & Diagnostic Reasoning

Graduates will be able to perform comprehensive physiotherapy assessment across musculoskeletal, neurological, cardiopulmonary, pediatric, geriatric, and sports conditions and apply clinical reasoning to arrive at physiotherapy diagnoses.

PSO2: Evidence-Based Physiotherapy Practice

Graduates will integrate research evidence, clinical guidelines and professional expertise to plan and implement safe, effective and contemporary therapeutic interventions.

- **Course Credit Structure**

S. No	Year	Course Code	Course Name	L	T	P	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
Year-3												
1	3rd	BPT0301	General Medicine	2	-	-	4	55	-	10	-	65
2	3rd	BPT0301	Skin & V.D.	0.5	-	-	1	25	-	10	-	35
3	3rd	BPT0302	Neurology	2	-	-	4	55	-	10	-	65
4	3rd	BPT0302	Pediatrics	1	-	-	2	25	-	10	-	35
5	3rd	BPT0303	General Surgery	1.5	-	-	3	55	-	10	-	65
6	3rd	BPT0303	Cardiothoracic Surgery Plastic Surgery Neurosurgery	2	-	-	4					
7	3rd	BPT0303	Obstetrics & Gynecology	1	-	-	2	25	-	10	-	35
8	3rd	BPT0304	Orthopedics (Traumatic & Non-Traumatic)	3	-	-	6	80	-	20	-	100
9	3rd	BPT0305	Preventive & Social Medicine	1	-	-	2	40	-	10	-	50
10	3rd	BPT0306	Physical & Functional Diagnosis	3	-	3	9	80	80	20	20	200
11	3rd	BPT0307 BPT0308	Professional Practice & Ethics Evidence Based Physiotherapy & ICF	1	-	-	2	-	-	-	-	-
12	3rd	BPT03001	Supervised Clinical Practice	-	-	18	18	-	-	-	-	-
			Total - 12				**57**	**440**	**80**	**110**	**20**	**650**

THIRD YEAR B. PHYSIOTHERAPY

1. Medicine I (General Medicine + Skin & V.D.)

1.1 GENERAL MEDICINE

Prerequisite: Basic knowledge of human anatomy, physiology, pathology, and clinical case history taking.

COURSE OBJECTIVES:

1. To provide knowledge of etiology, pathophysiology, and clinical features of common medical disorders.

2. To understand cardiovascular, respiratory, metabolic, and rheumatological conditions relevant to physiotherapy practice.

3. To develop clinical reasoning in relation to medical conditions and their physiotherapy implications.

- **Teaching Scheme**

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	2	0	0	2	4	55	-	10	-	65

SYLLABUS: -

Sr. No.	Topic	Hours	Weightage
1	**Respiratory Diseases:** a) Lung function tests b) Pneumonia, ILD c) Respiratory failure d) Pulmonary edema e) Pulmonary embolism lung abscess f) Bronchiectasis g) Asthma h) Emphysema i) Pleural effusion j) Pneumothorax k) Empyema l) Chronic bronchiectasis m) Corona Virus Disease n) Swine Flu	14	18%
2	**Cardio Vascular Diseases:** a. Rheumatic fever b. valvular lesions c. congestive cardiac failure d. ischaemic heart diseases (Angina pectoris and myo-cardial infarction) stress test, hypertension, peripheral vascular-	15	20%

	diseases e. (TAO, Raynauds disease).		
3	**Endocrinal Disorders:** a. Diabetes mellitus b. obesity c. Thyrotoxicosis d. Myxodema	05	7%
4	**Gastro-intestinal Disorders:** a. Peptic ulcer b. Pancreatitis c. Dysentries and diarrhea d. Inflammatory bowel diseases e. Jaundice f. Cirrhosis of liver	05	7%
5	**Infectious Disease:** a. Tuberculosis b. Malaria c. Typhoid d. Infective hepatitis e. Tetanus	05	7%
6	**Nutritional Disorder:** a. Vitamins and its deficiencies b. Disorders including rickets and osteomalacia c. Anaemia.	05	7%
7	**UrogentialSystem:** a. Structure and functions of kidneys including physiology of micturition b. Acute and chronic renal failure c. Glomerulo-nephritis d. Pyelonephritis.	05	7%
8	**Rheumatology:** a. Rheumatoid arthritis b. Ankylosing spondylitis c. Gout d. Osteoarthritis e. Spondyloarthritis f. Systemic lupus erythromatous g. Polyarteritisnodosa h. Mixed connective tissue disorders i. Scleroderma	20	26%
9	**Fungal Infections with emphasis on Mucormycosis**	02	1%

1.2 SKIN & V.D. (DERMATOLOGY)

COURSE OBJECTIVES:

1. To impart knowledge of structure, functions, and disorders of the skin.
2. To understand the etiology and clinical features of common bacterial, viral, fungal, allergic, and autoimmune skin conditions.
3. To introduce sexually transmitted diseases and leprosy with their public health implications.

- **Teaching Scheme**

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	0.5	0	0	0.5	1	25	-	10	-	35

SYLLABUS: -

Sr.No.	Topic	Hours	Weightage
10	**Structure and functions of normal skin:** Primary and secondary skin lesions.	01	5%
11	Scabies and pediculosis.	02	11%
12	**Fungal infections of skin:** a) Dermatophytosis b) Pityriasisversicolor c) Candidiasis.	02	11%
13	**Bacterial infections of skin-lmpetigo / Boil.**	02	11%
14	**Viral infections of skin-Herpes zoster.**	02	11%
15	**Eczema / Dermatitis / Allergies.**	02	11%
16	**Psoriasis / Acne / Alopecia / Vitiligo and Leucoderma.**	04	18%
17	**Leprosy / Lepra - Reaction/Physiotherapy in leprosy.**	02	11%
18	**Sexually transmitted diseases:** a) Syphillis - primary & secondary, b) Gonorrhoea c) Chancroid d) AIDS.	02	11%

Medicine I (General Medicine + Skin & V.D.)

Course Outcome:

CO no.	CO statement	Unit
CO 1	Understand the etiology, pathophysiology, clinical features, and complications of major medical conditions affecting various systems.	1, 2, 3, 4, 5, 6, 7
CO 2	Explain systemic and multisystem diseases including cardiovascular, respiratory, endocrine, gastrointestinal, and infectious diseases.	1, 2, 3, 4, 5, 6, 7
CO 3	Describe clinical features and treatment aspects of dermatological, venereal, and rheumatological disorders.	8, 9, 10, 11, 12, 13, 14, 15, 16, 17 18
CO 4	Evaluate patients by using medical knowledge and plan multidisciplinary care and rehabilitation program	1-18
CO 5	Apply knowledge of clinical data and investigation results to plan physiotherapy approaches in general medicine and skin disorders.	1-18

CO- PO MAPPING

CO NO. /level	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO-1	2	2	1	-	-	-	-	-
CO-2	2	2	1	-	-	-	-	-
CO-3	2	2	1	-	-	-	-	-
CO-4	3	3	2	3	-	-	-	3
CO-5	3	3	1	-	-	-	-	-
TOTAL	12	12	6	3	-	-	-	3
No. of COs mapped with POs	5	5	5	1	0	0	0	1
Average	2.4	2.4	1.2	3	0	0	0	3
Round avg.	2	2	1	3	0	0	0	3

2. Medicine II (Neurology + Pediatrics)

COURSE OBJECTIVES:

1. To provide knowledge of neurological structures, functions, and related disorders.
2. To understand clinical features, evaluation, and basic management of common neurological conditions.
3. To relate neurological disorders to physiotherapy assessment and treatment.

1.1 NEUROLOGY

- **Teaching Scheme**

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	2	0	0	2	4	55	-	10	-	65

SYLLABUS: -

Sr. No.	Topic	Hours	Weightage
1	Anatomy, Physiology, Lesions and diseases of Pyramidal system, extra-pyramidal system, cerebellar system, spinal cord, upper and lower motor neuron, cranial nerves, brachial plexus, lumbosacral plexus and peripheral nerves.	08	11%
2	Causes, Clinical features, and management of: Unconscious patient, hemiplegia, paraplegia, quadriplegia, cerebral diplegia, spastic child, foot drop and wrist drop.	15	20%
3	Disorders of cerebral circulation.	08	11%
4	Infections: Encephalitis, meningitis, poliomyelitis, transverse myelitis, slow viral diseases.	05	7%
5	Diseases of Peripheral nerves: Peripheral neuropathy, other neuropathies.	10	13%
6	Muscle disorders: Myopathy, polymyositis, Muscular dystrophies.	05	7%
7	Degenerative diseases: Parkinsonism, myasthenia gravis motor neuron diseases, spinocerebellar degenerations and diseases of anterior horn cell, dementia.	13	17%
8	Costo-clavicular syndrome.	02	3%
9	Demyelinating disorders including multiple sclerosis.	05	7%
10	Basic concept of electrophysiology and electromyography.	03	4%
11	Giddiness and vertigo	02	2%

2.2 PEDIATRICS

- **Teaching Scheme**

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	1	0	0	1	2	25	-	10	-	35

SYLLABUS: -

Sr. No.	Topic	Hours	Weightage
12	Growth and development of a child from birth to 12 years, Including physical, social, adaptive development.	02	5%
13	The maternal and neonatal factors contributing to high risk pregnancy, the neonate, inherited diseases, maternal infections - viral and bacterial, maternal diseases incidental to pregnancy, induced hypertension, chronic maternal diseases such as heart diseases, renal failure, tuberculosis, diabetes, epilepsy, bleeding in the mother at any trimester.	02	5%
14	Community programs: International (WHO), national and local, for prevention of poliomyelitis, blindness, deafness, mental retardation and hypothyroidism, the immunization schedule for children.	02	5%
15	Cerebral Palsy : Etiology - prenatal, perinatal and postnatal causes, pathogenesis, types of cerebral palsy (classification), findings on examination, general examination, examination of C.N.S., musculoskeletal system, respiratory system, G.I. Tract and nutritional status.	05	13%
16	Associated defect-down's syndrome, Mental retardation, microcephaly, blindness, hearing and speech impairment, squint and convulsions.	03	9%
17	Prevention - Appropriate management of high risk pregnancies, prevention of neonatal and postnatal infections, metabolic problems.	02	5%
18	Muscular Dystrophy: Various forms, modes of inheritance and clinical manifestation, physical findings in relation to disabilities, progression of various forms and prognosis, treatment goals in forms which are not fatal.	05	13%
19	Spinabifida, Meningomyelocele : Development, clinical features - lower limbs, bladder and bowel complications - U.T.I. and hydrocephalus, medical management.	05	13%
20	Still's Disease: Classification, pathology in brief, physical findings, course and prognosis, treatment, prevention and correction of deformity.	02	5%
21	Acute C.N.S. infections, Classification (Bacterial and Viral), the acute illness, C.N.S. squeal leading to mental retardation, blindness, deafness,	05	13%

	speech defect, motor paralysis, bladder and bowel problems, seizure disorder and specific problems such as subdural effusion, hydrocephalus, pressure sores, feeding difficulties.		
22	Normal diet of newborn and child: List dietary calorie, fat, Protein, mineral and vitamin requirement in normal child and in a child with malnutrition. Childhood obesity. Etiology, findings, and treatment of rickets, vitamin D deficiency and resistant rickets	02	5%
23	Lung infections: Clinical findings, complications and medical treatment of bronchiectasis, lung abscess and bronchial asthma.	03	9%

Medicine II (Neurology + Pediatrics)

Course Outcome:

CO No.	Course Outcome Statement	Unit Nos.
CO1	Describe neurological structures, functional systems, and pediatric growth and development relevant to physiotherapy practice.	1,12
CO2	Explain clinical features, pathophysiology, and basic medical management of common neurological and pediatric conditions.	2,3,4,5,6,7,9,11,15,16,18,19,20,21,22,23
CO3	Apply neurological and pediatric medical knowledge to physiotherapy assessment and functional problem identification.	2,3,5,6,10,15,18,19
CO4	Analyze neurological and pediatric disorders, investigations, complications, and prognostic indicators affecting movement and function.	3,4,5,6,7,9,10,16,17,18,19,20,21
CO5	Design physiotherapy-oriented management approaches aligned with medical conditions, preventive strategies, and interdisciplinary care needs.	2,7,14,17,18,19,20,21

CO-PO Mapping

CO \ PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	2	2	1	-	-	-	-	-
CO2	2	2	2	-	-	-	-	-
CO3	3	2	2	3	-	-	-	-
CO4	3	3	2	3	3	-	3	3
CO5	3	3	3	3	3	-	3	3
Total	13	12	10	9	6	0	6	6
No. of COs mapping with POs	5	5	5	3	2	0	2	2
Average	2.6	2.4	2.0	3.0	3.0	0.0	3.0	3.0

Rounded (Average)	3	2	2	3	3	0	3	3

Teaching learning Methodology:

- Lecture
- Tutorial
- Case discussion
- Clinical Observation

Books Recommended (Medicine I & II):

1. Davidson's principles and Practices of Medicine – Edward – Churchill Livingstone.
2. Hutchinson's Clinical Methods – Swash – Bailliere Tindall.
3. A Short Text book of Medicine – Krishna Rao – Jaypee Brothers.
4. A Short Text book of Psychiatry – Ahuja Niraj – Jaypee Brothers.
5. Shah SN: API text book of Medicine. Vol I & II, 8th Ed, The Association of Physicians of India, Mumbai, 2008.
6. Golwalla SA, Golwalla AF: Medicine for students. 21st Ed, National book depot, Mumbai, 2005.
7. Das PC: Textbook of medicine. 4th Ed, Current books international, Kolkata, 2000.
8. Mehta PJ, Joshi SR, Mehta NP: Practical Medicine. 17th Ed, National Book Depot, New Delhi, 2005.
9. Fauci, Braunwald, Kasper, Longo, Jameson, Loscalzo: Harrison's principles of internal medicine. Vol I & II, 17th Ed, McGraw Hill, New York, 2008.
10. McPhee, Papadakins, Tierncy: Current medical diagnosis and treatment. 46th Ed, McGraw Hill, New York, 2007.
11. Ogilvie & Evans: Chamberlain's symptoms and signs in clinical medicine – An introduction to medical diagnosis. 12th Ed, Butterworth Heinmann, oxford
12. Douglas, Nicol & Robertson: Macleod's clinical examination. 11th Ed, Elsevier – Churchill Livingstone, Edinburgh, 2005

List of Open-Source Software/learning website (Medicine I & II)::

1. **https://www.merckmanuals.com/**
2. **https://www.physio-pedia.com/**
3. **https://www.medscape.com/**
4. **https://dermnetnz.org/**
5. **https://www.neuroanatomy.ca/**
6. **https://neurologytimes.com/**

7. https://globalchildhealth.tghn.org/
8. https://www.aap.org/ **(open resources)**

3. SURGERY

GENERAL SURGERY, CARDIOTHORACIC SURGERY, PLASTICSURGERY & NEUROSURGERY

COURSE OBJECTIVES:

1. Acquire foundational knowledge of general, specialty, obstetric, and gynecological surgical conditions, with emphasis on etiology, pathophysiology, and principles of management.
2. Develop understanding of perioperative and obstetric-puerperal care, including common complications, preventive measures, and their relevance to physiotherapy.
3. Build competence in correlating surgical and obstetric conditions with functional limitations to plan appropriate physiotherapeutic interventions.

Teaching Scheme

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	3.5	0	0	3.5	7	55	-	10	-	65

3.1 GENERAL SURGERY

COURSE OBJECTIVES:

1. To impart knowledge of surgical trauma, wound care, and anesthesia basics.
2. To understand common general surgical conditions and their management principles.
3. To introduce perioperative considerations relevant to physiotherapy practice.

SYLLABUS: -

Sr. No.	Topic	Hours	Weightage
1	Acute infections: Inflammatory fever, bacteremia, septicemia, pyeremia, toxemia.	04	7%
2	Specific types: Cellulitis-sites, lymphangitis, abcess with special reference to hand infection, carbuncle.	04	7%
3	Specific Types Contd.: Tetanus, Gas gangrene, hospital infection, cross infection with modes of spread and prevention	03	5%
4	General survey of chronic inflammation: syphilis (reference to other veneral diseases),* leprosy and actinomycosis	05	9%
5	Clean and contaminated wounds and infectious wound, principles of treatment, survey of factors affecting wound healing, ulcers and gangrene,	04	7%
6	Post operative complications of abdominal surgery, specifically chest, wound infection, edema	05	9%

7	Malignancy – spread and its behaviour	06	10%
8	Various abdominal incisions, abdominal drainage tubes, catheters and nasogastric tubes Ward demonstration for an hour a day for a period of one week	06	10%
9	Anaesthesia and OT Demonstrations	02	4%
10	Urinary tract infections	01	2%
11	Problems of trauma to the hand and their management	05	9%
12	Breast Surgeries	05	9%
13	Abdominal surgeries: appendisectomy, cholecystectomy, partial colostomy, ileostomy, hernia, prostractomy, nephrectomy	07	12%

3.2 CARDIOTHORACIC SURGERY

SYLLABUS:

Sr. No.	Topic	Hours	Weightage
14	Basic anatomy of chest walls, trachea and bronchial tree, lungs and bronchopulmonary segments, pleura and mediastinum.	02	5%
15	Physiology and mechanics of breathing and use of mechanical breathing - ventilator: (respirators).	02	5%
16	Pulmonary function tests.	02	5%
17	Investigation of lung diseases including endoscopies.	02	5%
18	Chest injury.	02	5%
19	Common suppurative diseases of lung - Bronchiectasis, lung abscess.	02	5%
20	Bronchogenic carcinoma	02	5%
21	Common surgeries of chest Thoracoplasty, pulmonary dissections, thoracotomy. Pneumothorax,hydrothorax-Pneumothorax, empyema.	05	13%
22	Common diseases of oesophagus and related conditions causing dysphagia.	02	5%
23	Surgery of portal hypertension.	02	5%
24	Surgery of pulmonary tuberculosis.	02	5%
25	Surgery of heart and great vessels.	02	5%
26	Basic anatomy of heart, great vessels.	01	4%
27	Investigation of patient undergoing cardiac surgery.	01	4%
28	Cardiac arrest, its management.	02	5%
29	Basic principles of open heart Surgery, Heart lung bypass (Extra Co-portal circulation)	02	5%
30	Common diseases of heart requiring surgery both congenital and acquired including open heart surgery.	02	5%
31	Common drugs used in cardiac surgery, its uses, side effects.	01	4%
32	Common vascular surgery, Embolectomy, vascular reconstructive surgery, (Thrombosis, Embolism, atherosclerotic and occlusive vascular diseases including coronary artery bypass)	02	5%

Clinical:

1. Examination of patients as regards chest & heart diseases.
2. Demonstration - Acquaintances with C.T. Surgery,
3. Equipments, I.C.C.U.O.T.
4. Radiology - X-ray studies - X-ray chest in various lung diseases.

3.3 PLASTIC SURGERY

SYLLABUS: -

Sr. No.	Topic	Hours	Weightage
33	Burns as a specific types of severe trauma, classification, early and late complications, management and reconstructive surgery – skin asan example of plastic procedure.	05	26%
34	Types of skin grafting – take up of a graft – healing of a graft, post operative care of plastic surgery with specific role of physiotherapy.	05	26%
35	Principles of cineplasty, tendon transplant, cosmetic surgery, types of graft, surgery of hands with emphasis on a management of traumatic and leprosy hand	05	26%
36	Neck, skin contractures and management	01	5%
37	Problems of trauma to hand and their management	03	17%

3.4 NEUROSURGERY

COURSE OBJECTIVES:

1. To impart basic knowledge of neurosurgical conditions and their surgical management.
2. To understand perioperative considerations and physiotherapy implications in neurosurgery.
3. To develop awareness of neurological trauma and tumor-related interventions.

SYLLABUS: -

Sr. No.	Topic	Hours	Weightage
38	NeuroPhysiology- Neurophysiology, basis of tone, disorders of tone and posture, bladder control, muscle contraction, movement and pain with clinical features and management of the following a. Congenital and childhood disorders - hydrocephalus spina bifida b. Trauma - Broad localization, first aid and management of squeal ofhead injury and spinal cord injury. c. Diseases of the Spinal Cord - Craniovertebral junction anomalies,syringomyelia, cervical and lumbar disc disease, tumors. d. Peripheral nerve disorders - Peripheral nerve injuries, localization & management. Entrapment neuropathies. e. Intracranial tumors - Broad classification, signs and symptoms. f. Pre-operative Assessment and indications and contra - indication for neurosurgery in intracranial tumors g. Management of pain, electrical stimulation of brain and spinal cord. h. Miscellaneous.	10	53%

39	Outline of surgical disorders of brain - head injuries. General survey of surgical disorders of spine and spinal cord problem of paraplegia, malignancy -	09	47%

Clinical: Operation Theator (O.T.) Visit.

3.5 OBSTETRICS AND GYNAECOLOGY

- **Teaching Scheme**

Teaching Scheme	L	T	P	Contact Hours	Credit	**ESE Max**	**Practical/ Viva Max**	**IA Max**	**CSE Max**	**Total Mark**
	1	0	0	1	2	25	-	10	-	35

SYLLABUS:-

Sr. No.	Topic	Hours	Weightage
40	Anatomy and physiology of the female reproductive organs. Puberty dynamics.	02	5%
41	Physiology of menstrual cycle-ovulation cycle, uterine cycle Cx. cycle, Duration, amount.	02	5%
42	Hormonal regulation of menstruation.	01	3%
43	Diagnosis of pregnancy.	01	3%
44	Abortion	01	3%
45	Physiological changes during pregnancy.	02	5%
46	Antenatal care.	04	10%
47	High risk pregnancy., prenatal, common complications investigation and management	02	5%
48	Muscuskeletal disorders during pregnancy	02	5%
49	Normal labor.	01	3%
50	Multiple Child birth	01	3%
51	Child birth complications, investigations and management	02	5%
52	Normal puerperium, lactation and postnatal.	03	7%
53	Family planning.	01	3%
54	Medical Termination of pregnancy (MTP).	01	3%
55	Infection of female genital tract including sexually transmitted diseases, low backache.	02	5%
56	Prolapse of uterus and vagina.	03	7%
57	Principles of common gynecological operations Hysterectomy, D&C, D&E,PEP Smear	01	3%
58	Menopause and its effects	02	5%
59	Sterility- Pathophysiology, investigations, management	01	3%
60	Urogenital dysfunction – pre and post natal condition	02	5%
61	Carcinoma of female reproductive organs – surgical management in brief	01	4%

Clinical: Operation Theator (O.T.) Visit

Surgery + Obstetrics & Gynecology

Course Outcome:

CO No.	Course Outcome Statement	Unit Nos.
CO1	Describe fundamental concepts of general, cardiothoracic, plastic, neurosurgical, obstetric, and gynecological conditions relevant to physiotherapy practice.	1,2,3,4,5,14,26,40,41,42
CO2	Explain perioperative care, anesthesia principles, surgical complications, and obstetric–puerperal considerations influencing physiotherapy management.	6,7,8,9,15,16,17,18,27,28,29,30,31,45,46,47,52
CO3	Apply principles of surgical management to correlate operative procedures with functional limitations and postoperative physiotherapy needs.	11,12,13,19,20,21,22,23,24,25,32,33,34,35,36,37,48,49,50,51
CO4	Analyze clinical features, investigations, and complications of cardiothoracic, neurological, and plastic surgical conditions affecting movement and function.	16,17,18,19,20,21,23,24,25,26,27,28,29,30,31,38,39
CO5	Design appropriate physiotherapy-oriented perioperative and rehabilitative plans for surgical and obstetric conditions within ethical and professional frameworks.	6,7,8,9,21,33,34,35,36,37,46,47,48,49,50,51,52,57,58,59,60,61

CO-PO Mapping

CO \ PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	2	2	1	-	-	-	-	-
CO2	2	2	2	-	-	-	-	-
CO3	3	2	2	3	-	-	-	-
CO4	3	3	2	3	3	-	3	3
CO5	3	3	3	3	3	-	3	3
Total	13	12	10	9	6	0	6	6
No. of COs mapping with POs	5	5	5	3	2	0	2	2
Average	2.6	2.4	2.0	3.0	3.0	0.0	3.0	3.0
Rounded (Average)	3	2	2	3	3	0	3	3

Teaching Learning Methodology:

- Lecture
- Tutorial
- Case discussion

Books Recommended:

1. S. Das: A concise textbook of surgery. 3rd Ed, Dr. S.Das, Calcutta, 2001.
2. S. Das: A manual on clinical surgery. 6th Ed, Dr. S. Das, Calcutta, 2004.
3. Dutta DC: Text book of obstetrics / Textbook of gynecology. 5th / 6th Ed, New central book agency (P) ltd, Kolkata, 2003/2004.
4. Basak KS: Essentials of ophthalmology. 3rd Ed, Current books international, Kolkata, 2004.
5. Bhargava KB, Bhargava SK & Shah TM: A short textbook of E.N.T diseases. 7th Ed, Usha publications, Mumbai, 2005
6. Russell RCG, Williams NS, Bulstrode CJK: Bailey & Love's short practice of surgery. 24th Ed, Arnold, London, 2004.
7. Mowschenson PM: Aids to undergraduate surgery. 3rd Ed, Churchill Livingstone, Edinburgh,
8. Farquharson M & Moran B: Farquharson's textbook of operative general surgery. 9th Ed, Hodder Arnold, London, 2005.
9. Lumley JSP: Hamilton Bailey's demonstrations of physical signs in clinical surgery. Butterworth Heinman, Oxford
10. Doherty MG: Current surgical diagnosis and treatment. 12th Ed, Lange medical books, New York, 2006.

List of Open-Source Software/learning website:

1. **https://www.surgicalcore.org/**
2. **https://www.osmosis.org/**
3. **https://www.physio-pedia.com/**
4. **https://ctsnet.org/**
5. **https://www.escardio.org/ (guidelines)**
6. **https://www.plasticsurgery.org/**
7. **https://www.oaepublish.com/plasticsurgery**
8. **https://www.neurosurgicalatlas.com/ (free section)**
9. **https://www.acog.org/ (open section)**
10. **https://open.umich.edu/find/open-educational-resources/ob-gyn**

4. ORTHOPEDICS

Teaching scheme for orthopedics (traumatic & non - traumatic)

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	3	0	0	3	6	80	-	20	-	100

4.1 ORTHOPEDICS (TRAUMATIC)

COURSE OBJECTIVES:

1. Gain comprehensive knowledge of traumatic and non-traumatic musculoskeletal disorders, including congenital, degenerative, infectious, neoplastic, and neurological orthopedic conditions.
2. Understand the principles of orthopedic assessment, interpretation of diagnostic findings, and their application in physiotherapy practice.
3. Develop the ability to integrate physiotherapeutic approaches in preoperative, postoperative, and conservative orthopedic management for functional restoration and prevention of disability.

SYLLABUS:

Sr. No.	Topic	Hours	Weightage
1	**Introduction:** **a. Fracture** **b. Dislocation and injuries of the upper limb** **c. Briefly mention general principles of Orthopedic surgery** **d. Definition and scope** **e. Brief history**	02	4%
2	**Fracture & dislocations:**	05	10%
	a. Causes, types **b. Mechanisms** **c. Displacement** **d. General symptoms** **e. Healing** **f. Principles of treatment** **g. Complications** **h. Malunion, delayed union** **i. Non-union** **j. Myositis ossificans** **k. Volkman's ischemic contracture** **l. Fat embolism** **m. Sudeck'sosteodystrophy**		

3	**Injuries to the hand:** **a. Types (open, closed),** **b. Principles of treatment,** **c. Injuries to the phalanges,** **d. Sprains, dislocations of MP & IP joints,** **e. Fractures of the phalanges,** **f. Metacarpals,** **g. Bennet's fracture,** **h. Mallet finger,** **i. Tendon injuries (flexor & extensor)**	02	4%
4	**Wrist & Forearm injuries:** **a. Wrist dislocation** **b. Colle's fracture** **c. Displaced epiphysis** **d. Smith's fracture** **e. Barton's fracture** **f. Injuries to carpal** **g. Scaphoid and sprains** **h. Fractures of forearm bones – greenstick fracture** **i. Infraction injury** **j. Both bone fracture** **k. Galleazi** **l. Monteggia** **m. Fracture dislocation**	02	4%
5	**Injuries to the elbow:** **a. Traumatic synovitis** **b. Sprain** **c. Dislocation of elbow joint**	02	4%
6	**Fractures involving elbow joint:**	03	6%
	a. Supracondylar fracture **b. Intercondylar fracture** **c. Fracture medial epicondyle** **d. Fracture of lateral condyle** **e. Myositis ossificans** **f. Fracture of the head of the radius** **g. Fracture of olecranon**		
7	**Injuries of shoulder and arm:** **a. Fractures of the proximal end** **b. Neck and shaft of humerus** **c. fractures of clavicle** **d. acromioclavicular and sternoclavicular dislocations** **e. fractures of the scapula**	05	10%
8	**a. Injuries of the spine:** **b. Injuries to the cervical spine (Both upper and lower),** **c. Atlanto-axial injuries** **d. Dorso Lumbar spine** **e. classification** **f. mechanism and types of injuries** **g. stable fracture without paraplegia** **h. fracture dislocation with paraplegia** **i. Management of fracture**	07	12%

	j. Management of paraplegia **k. Bedsore and bladder care**		
9	**Injuries of the pelvis:** **a. Fractures - its Mechanism, classification, management** **b. Fractures of acetabulum, sacrum and coccyx**	03	6%
10	**Injuries of the lower limb:** **a. Dislocations of the hip joint** **b. Intracapsular and trochantric fractures of femur** **c. Fractures of the neck of femur** **d. Fracture of the shaft of femur** **e. Fracture femur in childre** **f. Fracture of femoral condyles** **g. Tibial condyles and patella** **h. Injuries to extensor mechanism** **i. Contusion, haemarthrosis** **j. Knee joint dislocation and traumatic dislocation of patella** **k. Fracture and fracture dislocation of ankle** **l. Epiphyseal injury lower end of tibia Foot- fracture of talus** **m. Calcaneum** **n. Metatarsals and phalanges**	10	16%
11	**Soft tissue injuries:** **a. Ligamentous injuries of ankle** **b. knee and injury to Muscles** **c. Orthopaedic splints and appliances for injuries to muscles and tendons**	05	10%
12	**Tendon transfer:** **a. Principles** **b. Indications** **c. Common tendon transfer surgeries**	02	4%
13	**Amputation:** **a. Types, site** **b. Ideal stump** **c. Complications** **d. General principles of treatment** **e. Upper extremity and lower extremity amputations – prosthesis and prosthetic service, Principles of operative management, indication and contraindications for arthroplasty, osteotomy, arthrodesis, spinal stabilization, arthroscopy**	03	6%
14	**Limb reattachment:** **a) Principles** **b) Indications** **c) Technique.**	02	4%

Clinical: Operation Theator (O.T.) Visit

4.2 ORTHOPADICS (NON-TRAUMATIC)

SYLLABUS:

Sr.No.	Topic	Hours	Weightage
15.	**General Orthopedics** a. Clinical examination of an orthopedic patient, investigations, radiological and imaging techniques (salient features) b. Deformities, acquired deformities, causes and principles of management, splinting c. Traction: procedures, materials d. Preventive orthopedics e. Geriatric orthopedics	03	7%
16.	**Congenital disorders** a. Torticollis , wry neck, kyphosis, lordosis, scoliosis, spina bifida, myelomeningocele, congenital dislocation of hip, congenital genu recurvatum, talipesequinovarus b. Elevation of scapula, madelung's deformity, coxavara c. Endocranialdystosis, superior radio-ulna dysostosis, sternocleido mastoid tumor	10	22%
17.	**Infection of bones &joints** a. Osteomyelitis (acute and chronic), Brody's abscess as a complication of open fracture b. Skeletal tuberculosis, principles of treatment, T.B. of shoulder, elbow and wrist T.B. of hip, knee ankle, and foot c. Dactylitis, caries rib	05	11%
18.	**Arthritis** a) Acute pyogenic arthritis, septic arthritis of infancy, small pox arthritis, Syphilic infection of joint, Rheumatoid arthritis,osteoarthritis	05	11%
19.	**Bone tumors** a. Classification, true bone tumors- osteosarcoma, giant cell tumor, Ewing's sarcoma, chondroblastoma, chondrosarcoma, fibrosarcoma, lymphoma of bone, plasmacytoma b. Bone metastasis: synovial sarcoma, hemangioma of bone, adamanatinoma of long bones and chondroma c. Tumor like lesions: osteoid osteoma, benign osteoblastoma, non osteogenic fibroma, osteoma, osteochondroma and enchondroma	05	11%
20.	**Neurological and Muscular disorders** a. Definition, causes, clinical feature, complications, management (Multidisciplinary approach) medical and surgical of the following conditions: Cerebral palsy, Poliomyelitis, Leprosy b. Muscular dystrophy – types and treatment c. Injuries to plexus and nerves: Radial, Ulnar, Median, Brachial plexus, Sciatic and Lateral Popliteal	05	11%

21.	**Regional conditions of Spine and Lower limb** a. Back: Kyphosis, Scoliosis, Spondylolisthesis, Lumbosacral strain, intervertebral disc prolapse, fibrositis back, Lumbar canal stenosis, sacro iliac strain, spondylosis, spondylolysis b. Hip: Slipped capital femoral epiphysis, idiopathic chondrolysis of hip c. Knee: Genu valgum, genu varum, tibia varum, genu recurvatum, quadriceps fibrosis, recurrent dislocation of patella, bursa around the knee, loose bodies in the knee, chondromalacia patella d. Foot: Painful heel, Plantar fascitis, Posterior heel pain, flat foot, e. foot strain, pain in forefoot, Hallux valgus, anterior metatarsalgia	12	27%

Course Outcome:

CO No.	Course Outcome Statement	Unit Nos.
CO1	Describe traumatic and non-traumatic orthopedic conditions including fractures, dislocations, congenital, infectious, degenerative, neoplastic, neurological, and regional musculoskeletal disorders.	1,2,15,16,17,18,19,20,21
CO2	Explain principles of orthopedic assessment, diagnostic investigations, healing processes, complications, and preventive orthopedics relevant to physiotherapy practice.	2,8,11,15
CO3	Apply principles of conservative, preoperative, and postoperative orthopedic management to address functional limitations across upper limb, lower limb, spine, and pelvis conditions.	3,4,5,6,7,8,9,10,11,12,13,14
CO4	Analyze clinical features, mechanisms of injury, and pathological processes underlying orthopedic trauma and non-traumatic disorders to support clinical decision-making.	2,8,9,16,17,18,19,20,21
CO5	Design physiotherapy-oriented rehabilitation strategies for orthopedic conditions incorporating splinting, tendon transfer, prosthetic considerations, and ethical professional practice.	11,12,13,14,20

Teaching Learning Methodology:

- Lecture
- Tutorial
- Case discussion

CO-PO MAPPING

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	2	1	-	-	-	-	-
CO2	2	2	2	-	-	-	-	-
CO3	3	2	2	3	-	-	-	-
CO4	3	3	2	3	3	-	3	3
CO5	3	3	3	3	3	-	3	3
Total	13	12	10	9	6	0	6	6
No. of COs mapping with POs	5	5	5	3	2	0	2	2
Average	2.6	2.4	2.0	3.0	3.0	0.0	3.0	3.0
Rounded (Average)	3	2	2	3	3	0	3	3

Books Recommended:

1. Outline of Fracture-Adams
2. Outline of Orthopaedics-Adams
3. Orthopaedics and Traumatology-Natrajan
4. Apley's Orthopaedics
5. Textbook of orthopaedics- Maheshwari
6. Tureks Orthopaedics.
7. Cambells Operative Orthopaedics.

List of Open-Source Software/learning website:

1. https://orthobullets.com/
2. https://www.physio-pedia.com/
3. https://www.wheelessonline.com/

5. PREVENTIVE & SOCIAL MEDICINE

COURSE OBJECTIVES:

1. To provide knowledge of public health concepts and determinants of health and disease.
2. To introduce national health programs and community health care delivery systems.
3. To create awareness of occupational health, environmental health, and disaster management.

- **Teaching Scheme**

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	1	0	0	1	2	40	-	10	-	50

SYLLABUS: -

Sr. No.	Topic	Hours	Weightage
1	**General concept of health & disease** With reference to natural history of disease with pre-pathology phase	01	3%
2	**The role of social economics in communities**	01	3%
3	**Epidemiology and scope**	02	5%
4	**Public health administration** a) Overall view of the health administration setup and central and statelevels. b) Health care delivery programs in urban and rural areas, health and population statistics	02	5%
5	**The national health programs** Highlighting the role of social, economic and cultural factors in theimplementation of the national programs	01	3%
6	**Health problems of vulnerable groups** **Pregnant and lactating women, infantsand pre-school children, occupational groups and geriatrics**	02	5%
7	**Occupational health** **a) Definition, scope, occupational diseases and hazards** **b) Social security and other measures for the protection from occupational hazards, accidents and diseases**	05	12%
8	**Family planning** **a) Objectives of national family planning programs and family planning methods** **b) General idea of advantages and disadvantages of methods**	01	3%

9	**Mental health** **Community aspects of mental health: role of physiotherapists / therapists in mental health problems such as mental retardation**	05	12%
10	**Nutrition and Health** **Classification of foods, nutritional profiles of principal foods, nutritional problems in public health, community nutrition programs**	02	5%
11	**Environment and Health** **Components of environment, water and air pollution and public health: Pollution control, disposal of waste, medical entomology**	01	3%
12	**Communicable diseases**	02	5%
13	**An overall view of communicable diseases classified according to** **principal mode of transmission. Role of insects and other vectors**		3%
14	**International health agencies**	01	3%
15	**Principles and process of communication**	02	5%
16	**IEC (Information Education and Communication)**	01	3%
17	**Health education** **a) Philosophy, main principles and objectives** **b) Methods and tools of health education individual and group methods** **c) The role of profession in health education** **d) Role of other personal in health education, co-ordination and co- operation, health education with other members of the health team** **e) Elements of planning health education programs**	02	5%
18	**Hospital waste management** **Sources of hospital waste, health hazards, waste management**	02	5%
19	**Disaster Management** **Natural and manmade disasters, disaster impact and response, relief phase, epidemiologic surveillance and disease control, nutrition, rehabilitation, disaster preparedness.**	05	12%

Course Outcome:

CO No.	Course Outcome Statement	Unit Nos.
CO1	Describe concepts of health, disease, epidemiology, and social determinants influencing population health.	1,2,3
CO2	Explain public health administration, national health programs, and health care delivery systems relevant to community practice.	4,5,14
CO3	Apply principles of preventive medicine to address health problems of vulnerable groups, occupational health, nutrition, and communicable diseases.	6,7,10,12,13
CO4	Analyze environmental, mental health, disaster management, and hospital waste issues affecting community health and rehabilitation outcomes.	9,11,18,19
CO5	Design effective health education and IEC strategies using communication principles to promote community participation and health awareness.	8,15,16,17

CO-PO MAPPING

CO \ PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**
CO1	2	2	1	-	-	-	-	-
CO2	2	2	2	-	-	-	-	-
CO3	3	2	2	3	-	-	-	-
CO4	3	3	2	3	3	-	3	3
CO5	3	3	3	3	3	-	3	3
Total	13	12	10	9	6	0	6	6
No. of COs mapping with POs	5	5	5	3	2	0	2	2
Average	2.6	2.4	2.0	3.0	3.0	0.0	3.0	3.0
Rounded (Average)	3	2	2	3	3	0	3	3

Teaching Learning Methodology:

- Lecture
- Tutorial
- Case discussion

Books Recommended:

1. Textbook of Preventive and Social Medicine – K. Park
2. Essentials of Community Medicine: A Practical Approach – Sunder Lal, Adarsh, Pankaj
3. Principles of Community Medicine – B.K. Mahajan & M.C. Gupta
4. Community Medicine: Practical Manual – Dhiraj Agarwal

5. Oxford Handbook of Public Health Practice – David Pencheon
6. Public Health and Preventive Medicine – J.E. Park (International Edition)
7. National Health Programme Guidelines – Government of India
8. WHO Technical Reports and Guidelines – World Health Organization
9. Textbook of Preventive and Social Medicine – K. Park
10. Essentials of Community Medicine: A Practical Approach – Sunder Lal, Adarsh, Pankaj
11. Principles of Community Medicine – B.K. Mahajan & M.C. Gupta
12. Community Medicine: Practical Manual – Dhiraj Agarwal
13. Oxford Handbook of Public Health Practice – David Pencheon
14. Public Health and Preventive Medicine – J.E. Park (International Edition)
15. National Health Programme Guidelines – Government of India
16. WHO Technical Reports and Guidelines – World Health Organization

List of Open-Source Software/learning website:

1. https://www.who.int/
2. https://www.cdc.gov/
3. https://www.nhp.gov.in/

6. PHYSICAL & FUNCTIONAL DIAGNOSIS

COURSE OBJECTIVES:

1. To understand principles of human development and functional assessment.
2. To develop skills in clinical evaluation of neurological, musculoskeletal, cardiopulmonary, and functional disorders.
3. To introduce basic electrodiagnosis and interpretation of clinical investigations relevant to physiotherapy.

- **Teaching Scheme**

Teaching Scheme	L	T	P	Contact Hours	Credit	**ESE Max**	**Practical/ Viva Max**	**IA Max**	**CSE Max**	**Total Mark**
	3	0	3	6	9	80	80	20	20	200

SYLLABUS:-

Sr. No.	Topic	Hours	Weightage
1	**General principles of Human development & maturation** Aspects: a) Physical b) Motor c) Sensory d) Cognitive e) Emotional f) Cultural g) Social Factors influencing human development & growth: a) Biological b) Environmental c) Inherited. Principles of maturation – a) In general - in anatomical directional pattern cephalo – caudalproximo – distal centero – lateral b) Mass to specific pattern c) Gross to fine motor development Reflex maturation tests 5. Development in specific fields: a) Oromotor development b) Sensory development, c) Neurodevelopment of hand function	10	4%

2	**Electro diagnosis** a) Bioelectricity-Physiology of generation & propagation of action potential, volume conduction b) Therapeutic current-as a tool for electro diagnosis c) Physiological principles, use of alternating & direct currents in electro-diagnosis such as sensory & Pain threshold, Pain tolerance, -Short & long pulse test, S.D. curves, Chronaxie&Rheobase, accommodation ratio, d) Principles of nerve conduction studies, late responses * e) E.M.G. instrumentation, basic components, panel diagram, types of electrodes f) Principlesof Electro-myography, motor unit–Normal characteristics-activity at rest, recruitment/frequency pattern at minimal activity, Interference pattern	15	6%
3	**Assessment of Neurological dysfunction** a) Higher functions, cranial nerves, sensations & sensory organization, body image, tone, reflexes: superficial & deep, voluntary control, muscle strength, coordination, balance, posture, gait b) Scales: FRT, Berg's Balance, modified Ashworth, Glasgow Coma, TUG, FIM c) Functional diagnosis using ICF Interpretation of electro diagnostic findings, routine biochemical investigations	70	30%
4	**Assessment of Musculoskeletal Dysfunction** a) Tightness, deformity, joint mobility, muscle strength, limb length, trick movement, girth, posture, gait, special tests b) Functional diagnosis using ICF c) Interpretation of X-ray of extremities & spine, routine bio-chemical investigations, CT scan, MRI d) Assessment of pelvic floor muscle strength and function i. Digital evaluation of vagina ii. Perineometer iii. Pad test e) Disability Evaluation – gait and gait parameters, percentage of disability (temporary and permanent) Scales - NDI, MODI, WOMAC,SPADI,UEFS, LEFS	63	26%
5	**Assessment of cardio -pulmonary dysfunction** a) Vital parameters, chest expansion, chest excursion, breath holding test, breath sounds, rate of perceived exertion (RPE), peak flow rate Exercise Tolerance: six minutes' walk test, shuttle test, theoretical bases of Bruce's protocol, step test b) Ankle Brachial Index, tests for peripheral arterial & venous circulation c) Functional diagnosis using ICF	50	22%

	Interpretation of X-ray chest, routine bio-chemical investigations,ABG, PFT, ECG (normal values)		
6	**Assessment of pain** a) Intensity & quality **b)** Objective assessment & documentation: VAS, Numerical Rating Scale. Other scales	05	3%
7	**Assessment of Hand** **Sensations, mobility of joints, strength Special tests** **Hand function: Precision& power grips**	05	3%
8	**Assessment of Obesity** a) Classification b) Assessment – BMI, Waist circumference, Waist – Hip ratio **c)** Introduction to Quality of Life Questionnaire	05	3%
9	**Assessment of wounds.** **PRACTICALS:** Skills to be practiced on peer/model	05	3%

1. PT assessment for Orthopedic conditions –
   SOAP format- Subjective - history taking, informed consent, personal, past, medicaland socioeconomic history, chief complaints, history of present illness.
   Pain assessment- intensity, character, aggravating and relieving factors, site and location.

Objective Examination

On observation - body built swelling, muscle atrophy, deformities, posture and gait. **On palpation-** tenderness-grades, muscle spasm, swelling-methods of swellingassessment, bony prominences, soft tissue texture and integrity, warmth andvasomotor disturbances.
On examination – ROM – active and passive, resisted isometric tests, limb length-apparent, true and segmental, girth measurement, muscle length testing-tightness,contracture and flexibility, manual muscle testing, peripheral neurological examination- dermatomes, myotomes and reflexes, special tests and functional tests. Prescription of home program. Documentation of case records, and follow up.

Course Outcome:

CO No.	Course Outcome Statement	Unit Nos.

CO1	*Understand* the general principles of human growth, development, maturation, and neurodevelopment across physical, motor, sensory, cognitive, emotional, social, and cultural domains.	1
CO2	*Apply* principles of electrodiagnostic techniques to identify neurological, musculoskeletal, cardiopulmonary, and pain-related dysfunctions.	2,3,4,6
CO3	*Analyze* assessment findings from clinical examination, electrodiagnostic studies, imaging, scales, and functional measures using the ICF framework.	5
CO4	*Evaluate* functional limitations, disability levels, and quality of life using standardized outcome measures and clinical scales for various body systems	7
CO5	*Apply* appropriate assessment strategies for neurological, musculoskeletal, cardiopulmonary, hand function, obesity, wound, and pelvic floor conditions.	8,9

CO-PO MAPPUING

CO	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO8**
CO1	2	1	1	2	-	2	1	-
CO2	3	2	1	3	-	3	2	-
CO3	3	3	3	3	-	-	-	-
CO4	3	3	3	3	-	-	-	-
CO5	3	2	1	3	-	3	2	-
TOTAL	14	11	9	15	-	8	5	-
No. of Cos mapping with Pos	5	5	5	5	0	5	5	0
Average	11.6	9.4	8.2	3	0	1.6	1	0
Round Avg.	12	9	8	3	0	2	1	0

Teaching Learning Methodology:

- Lecture
- Tutorial
- Case discussion

Books Recommended:

1. Orthopaedic Physical Examination–Magee

2. Clinical Electro Therapy – Nelson – Currier --- Appleton &Lange publication
3. Clinical Electromyography–Mishra
4. Physical Rehabilitation, Assessment and treatment - Susan BO's Sullivan
5. Neurological Examination –John Patten
6. Diagnostic and Interventional Radiology- Thomas J. Vogl, Wolfgang Reith, Ernst J. Rummeny
7. Learning Radiology- William Herring.
8. Ruppel's Manual of Pulmonary Function Testing by Carl Mottram 10thEdition
9. Pulmonary Function Tests & Interpretation In Health & Diseases By P.S.Shankar3rd Edition
10. World Health Organization 2001. The International Classification of Functioning, Disability and Health (ICF). Geneva: WHO.http://www.who.int/clas- sifications/icf/en/
11. Maitland‟s book on Manual therapy,
12. Mobilisation of Extremities – Kaltenborn
13. Clinical Electromyography–Kimura
14. Orthopaedic Physical therapy–Donnatelli
15. NAGS, SNAGS and MWMS – Brian Mulligan
16. Physical Dysfunction –Trombly Scoot
17. Infant Motor Development-Jan Piek
18. Neuro-developmental Therapy–Janett Howle
19. Textbook of Radiology and Imaging- David Sutton

List of Open-Source Software/learning website:

1. https://www.physio-pedia.com/
2. https://www.ncbi.nlm.nih.gov/books/NBK499863/ (clinical assessment guides)
3. https://www.clinicalkey.com/ (free summaries)

7. PROFESSIONAL PRACTICE & ETHICS - III

(Not for University exam)

Teaching Scheme:

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	1	0	0	1	2	-	-	-	-	-

7.1 PROFESSIONAL PRACTICE & ETHICS

COURSE OBJECTIVES:

1. To develop professional and ethical values required for physiotherapy practice.
2. To enhance communication and interpersonal skills with patients and healthcare teams.
3. To inculcate professional behavior, confidentiality, and humanitarian approach in patient care.

SYLLABUS: -

Sr. No.	Topic	Hours	Weightage
1	Collecting data on psychosocial factors in Medicine/Surgery/Reproductive Health/Pediatrics	07	37%
2	Inter professional communication	06	32%
3	Ethics in clinical practice	06	31%

Teaching Learning Methodology:

- Lecture
- Tutorial
- Case discussion

Books Recommended:

1. Professionalism in Medicine: A Case-Based Guide for Medical Students – John Spandorfer, Charles A. Pohl, Susan L. Rattner, Thomas J. Nasca
2. Ethics in Physical Therapy: A Case Based Approach – Laura Lee (LL) Swisher, Catherine G. Page
3. Principles of Biomedical Ethics – Tom L. Beauchamp, James F. Childress
4. Medical Ethics and Professionalism – R.C. Goyal
5. Legal Aspects of Physiotherapy – R. Hamlyn

6. Code of Ethics and Professional Conduct – World Confederation for Physical Therapy (WCPT) / Indian Association of Physiotherapists (IAP)

List of Open-Source Software/learning website:

1. https://www.physio-pedia.com/Professionalism_and_Ethics
2. https://plato.stanford.edu/entries/ethics-medical/
3. https://www.hastingscenter.org/ (bioethics resources)

7.2 EVIDENCE BASED PRACTICE & ICF

COURSE OBJECTIVES:

1. To introduce concepts of evidence-based practice and research integration in physiotherapy.
2. To develop skills in literature search, data appraisal, and application of evidence in clinical practice.
3. To understand the International Classification of Functioning (ICF) framework and its relevance to physiotherapy.

SYLLABUS: -

Sr. No.	Topic	Hours	Weightage
1	**Finding the Evidence** a) Measuring outcomes in Evidence Based Practice, b) Measuring health outcomes, c) Measuring clinical outcomes, d) Inferential statistics and causation	05	26%
2	**Searching for the Evidence** a) Asking questions Identifying different sources of evidence	02	11%
3	**Assessing the Evidence** a) Evaluating the evidence; b) Levels of evidence in research using quantitative methods, levels ofevidence c) Classification system, d) Outcome measurements, e) Biostatistics, The critical review of research using qualitative methods	03	16%
4	**Systematically reviewing the evidence** a) Stages of systematic reviews b) Meta analysis The Cochrane collaboration	02	11%
5	**Using the evidence** a) Building evidence in practice Critically appraised topics (CATs)	02	11%

6	**International Classification of Function, Disability and Handicap**	05	25%

Teaching Learning Methodology:

- Lecture
- Tutorial
- Case discussion

Books Recommended:

1. Evidence-Based Rehabilitation: A Guide to Practice – Mary Law, Joy MacDermid
2. Evidence-Based Practice across the Health Professions – Tammy Hoffmann, Sally Bennett, Chris Del Mar
3. Introduction to Evidence-Based Practice in Nursing and Health Care – Kathy Malloch, Virginia Porter-O'Grady
4. Physiotherapy Evidence Database (PEDro) User Guide – PEDro Organisation (Online Resource)
5. International Classification of Functioning, Disability and Health (ICF) – World Health Organization (WHO)
6. Research Methods for Evidence-Based Practice in Health – Trisha Greenhalgh

List of Open-Source Software/learning website:

1. https://pedro.org.au/ (Physiotherapy Evidence Database)
2. https://www.cochranelibrary.com/ (abstracts free)
3. https://www.who.int/classifications/icf/en/

ESSENTIAL CRITERIA - INTERNSHIP

1. **Compulsory rotatory internship:**

   All students of Bachelor of Physiotherapy must undergo a compulsory rotatory internship for a period of 6 months after passing 4thyear B.P.T. examination in all subjects. It includes Minimum 1144 hours. Candidate will have to join internship within 15 days of declaration of 4th year University examination result. Internship should be done as per GSCPT rules. No candidate shall be awarded degree certificate without successfully completing six months of Internship.

   The Internship should be rotatory and cover clinical branches concerned with Physiotherapy such as Orthopedics, Cardiothoracic including ICU, Neurology, Pediatrics, General Medicine, General Surgery, Obstetrics, Geriatrics, Women's health, CBR and Gynecology both in-patient and out-patient services. On completion of all postings, the duly completed logbooks will be submitted to the Principal/Head of program to be considered as having successfully completed the internship program.

Leave during internship

Up to one leave per month with a total of six casual leaves during the entire internship period can be given to the student. In case of illness and hospitalization, additional up to maximum five sick leaves can be given to the student after verifying genuineness of the documents produced. If the amount of leave availed by the student exceeds the above mentioned leaves, he/she will have to compensate those remaining days in order to comply for successful internship completion

2. **Dress code:**
   Professionalism with respect to dressing is encouraged throughout the course. It is each student's responsibility to have appropriate dressing during all class assignments and learning activities. Students are supposed to wear apron compulsorily during practical and clinical hours.

3. **Migration/transfer of candidates:**
   The Vice Chancellor/Provost shall have the powers to place any migration/transfer he/she is fit for grant of permission for migration/transfer to candidates undergoing course of study in another University as prescribed by University.

4. **Skill development through value added courses:**
   Skill: Skill is the ability to perform a task leading to a specific predefined outcome.
   Skill may be:
   a) Intellectual or cognitive which includes clinical reasoning and decision making skills,

b) Procedural or psychomotor skills that require manual dexterity and include laboratory and clinical skills,

c) Communication skills,

d) Team skills including leadership skills

Skill Assessment: A session that assesses the skill of the student including those in the laboratory, bed-side, skills lab, skills station that uses mannequins/ paper cases/simulated patients/real patients as the context demands.

DOAP (Demonstration -Observation - Assistance - Performance): A practical session that allows the student to observe a demonstration, assist the performer, perform in a simulated environment, perform under supervision or perform independently.

During internship, it is mandatory for a student to undergo skill training of at least 30 hours in any /more than one speciality as per his / her choice from GSCPT approved skill trainers. Such a skill course must have hands-on exposure and allow DOAP.

Following courses can be taken in Skill Development Program.

Speciality	Course
Neuro-physiotherapy and Pediatric Physiotherapy	Vestibular rehabilitation
	Neuro Developmental Therapy (NDT)
	Sensory Integration
	EMG NCV studies
	Dysphagia rehabilitation
Musculoskeletal physiotherapy	Peripheral Joint mobilization techniques
	Spinal mobilization techniques
	Strength and conditioning
	Soft tissue manipulations - MET, MFR, PRT, ART
	Craniosacral therapy
	Visceral mobilization
	Occupational hazards and ergonomics
	Therapeutic taping
	Neurodynamics
	Dynamic neuromuscular stabilization
Cardiopulmonary physiotherapy	Pulmonary rehabilitation
	Cardiac rehabilitation
	ICU and physiotherapy management
	Fitness training
Sports sciences	Sports psychology
	Sports injury and rehabilitation
Health and wellness	Health promotion and wellness
	Pelvic floor rehabilitation
	Antenatal and post natal physiotherapy
	Manual lymphatic drainage techniques
	Oncology rehabilitation and palliative care
	Aquatic therapy

FINAL YEAR B. PHYSIOTHERAPY

A. Students will revise, recall and integrate the knowledge of previous years to evaluate, functionally diagnose, plan and execute short and long term management of various musculoskeletal, neurological & cardiovascular- respiratory dysfunctions in hospital and community settings.
B. Students also acquire knowledge pertaining to health promotion & disease prevention throughout lifespan in the community. They will also be able to analyze, prevent and treat problems associated with various industries in community physiotherapy.
C. Students will also acquire knowledge about biomechanical principles & application of a variety of aids & appliances used for ambulation, protection & prevention by studying Bioengineering.
D. Professional Practice and ethics as a subject will be studied in continuum from first year, so students will acquire the knowledge of ethical code of professional practice, as well as its moral& legal aspects. The principles of Hospital Administration, Management & Marketing will be studied separately.
E. Students will also acquire knowledge of Research Methodology and Biostatistics and apply the knowledge in project work in community physiotherapy.

University exams of Final Year B.P.T. shall be held at the end of one year.

FRAMEWORK OF THE CURRICULUM

COURSE DURATION: Four years and Six months of Internship.

Final Year B.P.T.

a. Students will revise, recall and integrate the knowledge of previous years to evaluate, functionally diagnose, plan and execute short- and long-term management of various musculoskeletal, neurological & cardiovascular- respiratory dysfunctions in hospital and community settings.
b. Students also acquire knowledge pertaining to health promotion & disease prevention throughout lifespan in the community. They will also be able to analyze, prevent and treat problems associated with various industries in community physiotherapy.
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e. Students will also acquire knowledge of Research Methodology and Biostatistics and apply the knowledge in project work in community physiotherapy

Internship

a. A period of 6 months (26 weeks, 44 hours per week with a total of 1144 hours) of continuous clinical practice to enhance the clinical reasoning, judgment, program planning, intervention, evaluation of intervention, follow up and referral skills of all the dysfunctions and impairments learnt throughout the curriculum of four years.

b. Those candidates declared to have passed the fourth year examination in all subjects shall be eligible for internship.

c. Internship must be done as per the GSCPT norms. A degree certificate shall be awarded ONLY on successful completion of six months of internship.

d. The Internship will be rotatory and shall equally cover all clinical branches concerned with Physiotherapy such as Orthopaedics, Cardiovascular & Respiratory including ICU, Neurology & Neurosurgery Pediatrics, General Medicine, Surgery, Obstetrics and Gynecology both inpatient and outpatient services.

e. Successful Completion: The student must maintain a logbook. On completion of each posting, the same will have to be certified by the faculty in charge of the posting for both attendance as well as work done. On completion of all the postings, the duly completed logbook will be submitted to the Principal/Head of program to be considered as having successfully completed the internship program.

COURSE OF STUDY – SUBJECTS & HOURS DISTRIBUTION

1. credit = 1 classroom lecture per week for 19 weeks (1 term) (makes 19 lectures in one term) or

2. Practical/clinical hours per week for 19 weeks (1 term) (makes 38 practical hours in one term)

YEAR WISE DISTRIBUTION OF HOURS AND CREDITS

SUBJECT	SUBJECT CODE	THEORY HOURS	PRACTICAL HOURS	TOTAL	CREDITS
Physiotherapy In Neurological Conditions	BPT0401	114	19	133	6.5
Physiotherapy In Musculoskeletal Conditions	BPT0402	114	19	133	6.5
Physiotherapy In Cardio respiratory and medical surgical conditions	BPT0403	114	19	133	6.5
Community Health and Rehabilitation	BPT0404	38	19	57	2.5
Assistive Technologies	BPT0404	19	-	19	1

Biostatistics & Research Methodology	BPT0405	38	-	38	2
Professional Practice & Ethics- IV *	BPT0405				
Professional Practice & Ethics		19	-	38	2
Administration, Management And Marketing		19			
Supervised Clinical Practice (4 Hours/Day)	BPT04001	-	912	912	24
Research Project & Field Work*		-	19	19	0.5
		475	1007	1482	51.5

*Student to be evaluated by respective college.

- **6-month compulsory rotatory internship: 1144 Hours**

EXAMS:

PAPER NO.	SUBJECT CODE	SUBJECT	MARKS				
			THEORY		PRACTICAL		TOTAL
			EXTERNAL	INTERNAL	EXTERNAL	INTERNAL	
1	BPT0401	Physiotherapy in Neurological Conditions	80	20	80	20	200
2	BPT0402	Physiotherapy in Musculoskeletal Conditions	80	20	80	20	200
3	BPT0403	Physiotherapy in Cardio respiratory + Physiotherapy in Medical Surgical Conditions	80 (55+25)	20 (15+5)	80	20	200
4	BPT0404	Community Health and Rehabilitation + assistive technologies	80 (40 + 40)	20 (10 + 10)	40	10	150

5	BPT0405	Professional practice and Ethics III + Biostatistics & Research Methodology	80 (40 + 40)	20 (10 + 10)			100
TOTAL			**400**	**100**	**280**	**70**	**850**

STRUCTURE OF QUESTION PAPERS

Duration: **3 Hours**

Total Marks: 80

Section-I

Que. 1 Long Answer	1 x 15 = 15	(Any 1 out of 2)
Que. 2 Short Answer	3 x 05 = 15	(Any 3 out of 4)
Que. 3 Very Short Answer	5 x 02 = 10	(Any 5 out of 6)

Section-II

Que. 4 Long Answer	1 x 15 = 15	(Any 1 out of 2)
Que. 5 Short Answer	3 x 05 = 15	(Any 3 out of 4)
Que. 6 Very Short Answer	5 x 02 = 10	(Any 5 out of 6)

Applicable for following subjects

Physiotherapy in Neurological Conditions
Physiotherapy in Musculoskeletal Conditions
Professional Practice and Ethics III(Section-I) & Biostatistics and Research Methodology (Section-II)

Duration: 3 Hours

Total Marks: 80

Section-I

Que. 1 Long Answer	2 x 15 = 30	(Any 2 out of 3)
Que. 2 Short Answer	3 x 05 = 15	(Any 3 out of 4)
Que. 3 Very Short Answer	5 x 02 = 10	(Any 5 out of 6)

Section-II

Que. 4 Long Answer	1 x 15 = 15	(Any 1 out of 2)
Que. 5 Short Answer	2 x 05 = 10	(Any 2 out of 3)

Applicable for following subjects

Physiotherapy in Cardiorespiratory Conditions (Section I) + Physiotherapy in General Medical & Surgical Conditions (Section II)
Community Health Rehabilitation (Section I) + Assistive technologies (Section II)

FINAL YEAR B. PHYSIOTHERAPY

1. PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS

Prerequisite: Students must have prior knowledge of neuroanatomy, neurophysiology, and basic neurological assessment gained in earlier BPT years.

COURSE OBJECTIVES:

At the end of the course candidate will be able to

1. Acquire the knowledge of normal neurodevelopment with specific reference to locomotion.
2. Assess, identify and analyze neuro motor and psychosomatic dysfunction in terms of alteration in the muscle tone, power, coordination, involuntary movements, sensations, perceptions etc.
3. Correlate the assessment findings with provisional diagnosis and investigations such as EMG/NCS and arrive at Physical and functional diagnosis with clinical reasoning in various neuromuscular disorders.
4. Plan, prescribe and execute short term and long term treatment with special reference to relief of neuropathic and psychosomatic pain and use of various physiotherapeutic techniques/ modalities, including ergonomic advice and parent education in neuro pediatric cases.
5. Prescribe appropriate orthoses/splints and fabricate temporary protective and functional splints.

- **Teaching Scheme:**

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	3	-	0.5	3.5	6.5	40	-	10	-	50

SYLLABUS:-

Sr. No.	Topic	Hours	Weightage
1	**Review of basic Neuro anatomy and physiology**	02	2%
2	**Physiotherapy techniques to improve tone, voluntary control, co-ordination**	05	4%

3	**Neuro physiotherapeutic Techniques:** Concepts, principles, techniques and effects of: NDT, PNF, Brunnstrom movement therapy, Vojta therapy, Rood's sensory motor approach, Contemporary task oriented approach.	10	6%
4	**Application of skills** as PNF, co-ordination, functional re- education, balancing exercise by using techniques based on neuro physiological principles.	10	6%
5	**Tools used for neuro rehabilitation like vestibular balls, tilt board etc.**	05	4%
6	**Application of transfer, functional re-education exercises & gait training**	05	4%
7	**Bladder training.**	02	2%
8	**Developing a philosophy for caring.**	01	1%
9	**Prescription of appropriate orthotic devices & fabrication of temporary splints.**	02	2%
10	**Lifting techniques, wheel chair modifications, adaptive devices.**	05	4%

11	**Ergonomic advice for prevention/rehabilitation to the patients / parents /caregivers**	05	4%
12	**Education about handling of a patient.**	01	1%
13	**Pediatric Neuro-physiotherapy** Use of various Neurophysiological approaches & modalities in high risk babies, minimum brain damage, developmental disorders, Cerebral palsy, Down's syndrome, Hydrocephalus, Spina bifida	15	11%
14	**Assessment & management of brain Disorders** Stroke, Meningitis, Encephalitis, Head Injury, Parkinson's disease, parkinsonism syndromes, Multiple sclerosis, Brain tumors	15	11%
15	**Assessment & management of spinal cord lesions and bladder dysfunction** Multiple sclerosis, transverse myelitis, Poliomyelitis/PPRP, syringomyelia, spinal cord injury and sub acute combined degeneration of spinal cord, Motor neuron disease (ALS, SMA and other types), spinal tumors	15	11%
16	**Assessment & Management of Co-ordination Disorders** Ataxia, Friedriech's ataxia, Cerebellar ataxia, Sensory ataxia	15	11%
17	**Assessment & Management of Muscle Disorders** Muscular dystrophy (DMD) & other myopathies	05	4%
18	Assessment & Management of disorders of neuromuscular junction Myasthenia Gravis	02	2%
19	**Assessment & management of neuropathies and nerve injuries** Emphasis on 5th, 7th and 8th cranial nerves, Peripheral nerves, Polyneuropathy – Classification of Polyneuropathies	05	4%
20	**Pre and post-surgical assessment & management in neuro surgery** Hydrocephalus and myelomeningocele, C.V. junction anomalies, syringomyelia	03	2%
21	**Electro diagnostic procedures and prognosis in neurological disorders** SD curves, EMG & NCS.	05	4%

Course Outcomes:

CO No.	Course Outcome Statement	Unit Nos.
CO 1	Understand relevant investigative techniques that assist in the diagnosis of various neurological conditions.	2,3,13,14,15,16,17,18,19,20,21
CO 2	Apply theoretical knowledge in clinical assessment for effective evaluation and decision-making in patient care	2,3,4,5,6,7,8,9,10,13,14,15,16,17,18,19,20,21
CO 3	Analyze neuromotor and psychosomatic dysfunctions by identifying alterations in muscle tone, strength, coordination, involuntary movements, sensation, and perception	1,2,3,4,5,14,15,16,17,18,19,20,21
CO 4	Apply knowledge for prescription of orthotic device, safe lifting techniques, wheelchair modifications, and adaptive devices to improve patient safety, comfort, and functional independence.	8,9,10,11,12
CO 5	Apply neurophysiological principles to perform functional re-education, coordination training, balance exercises, gait training, bladder training and PNF techniques for neurological rehabilitation.	3,4,5,6,7,14,15,16,17,18,19,20,21

CO-PO MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	2	1	-	-	-	-	-
CO2	3	2	1	-	-	-	-	-
CO3	3	3	2	3	3	3	3	3
CO4	3	2	1	-	-	-	-	-
CO5	3	2	1	-	-	-	-	-
Total	14	11	6	-	-	-	-	3
No. of Cos mapping with Pos	5	5	5	0	0	0	0	1
Average	2.8	2.2	1.2	0	0	0	0	3
Round (Average)	3	2	1	0	0	0	0	3

Teaching & Learning Methodology:

- Interactive lectures with case-based explanations

- Demonstration and supervised practice of neuro-facilitation & functional training techniques
- Clinical case discussions and bedside teaching
- Video-based analysis of gait and movement abnormalities

Books Recommended:

- O'Sullivan, Schmitz & Fulk – *Physical Rehabilitation*
- Umphred – *Neurological Rehabilitation*
- Carr & Shepherd – *Motor Relearning Programme*
- Shumway-Cook & Woollacott – *Motor Control: Theory and Applications*
- Braddom – *Physical Medicine & Rehabilitation*

List of Open-Source Software/learning website:

- Physiopedia – https://www.physio-pedia.com
- NeuroPT (APTA Neurology Section Resources) – https://www.neuropt.org
- OpenStax Anatomy & Physiology – https://openstax.org
- PubMed Central (Open Access Neuroscience Papers) – https://www.ncbi.nlm.nih.gov/pmc

2. PHYSIOTHERAPY IN MUSCULO-SKELETAL CONDITIONS

Prerequisite: Students should have foundational understanding of kinesiology, biomechanics, musculoskeletal anatomy, and therapeutic exercise principles.

COURSE OBJECTIVES:

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

1. Identify, discuss and analyze the musculoskeletal dysfunction in terms of biomechanical, kinesiological and biophysical basis and correlate the same with the provisional diagnosis, routine radiological and electro physiological investigations and arrive at appropriate physical and functional diagnosis with clinical reasoning
2. Describe as well as acquire the skill of executing short and long term physiotherapy treatment by selecting appropriate modes of mobilization/ manipulation, electrotherapy, therapeutic exercise and appropriate ergonomic advise for the relief of pain, restoration / maintenance of function & / or rehabilitation for maximum functional independence in ADLs at home & workplace
3. Understand the nature of sports injuries, able to evaluate and treat sports injuries, understand the role of physiotherapist in training and rehabilitating a sports person
4. Prescribe appropriate walking aids, orthosis and prosthesis

- **Teaching Scheme:**

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	3	-	0.5	3.5	6.5	40	-	10	-	50

SYLLABUS:-

Sr. No.	Topic	Hours	Weightage
1	Evaluation, interpretation of investigations & functional diagnosis (ICF) with appropriate clinical reasoning for planning & implementation of management techniques	02	2%
2	Planning, Prescription & Implementation of short term & long term goals with clinical reasoning	02	2%
3	Documentation	02	2%
4	Different physiotherapeutic techniques for functional restoration/ maintenance and prevention of disability	03	2%

5	Different electro therapeutic techniques for relief of acute and chronic pain, swelling, wound healing, re-education with clinical reasoning	02	2%
6	Different physiotherapeutic techniques to improve/maintain muscle performance	05	4%
7	Different physiotherapeutic techniques to increase joint mobility.	05	4%
8	Different physiotherapeutic strategies for correction / maintenance of good posture	05	4%
9	Different physiotherapeutic strategies to improve efficiency and safety of gait pattern	05	4%
10	Prescription of appropriate orthotic & prosthetic devices & fabrication of simple temporary splints.	02	2%
11	Appropriate Home Program & Ergonomic advice for preventive measures & Functional efficiency at home & work place	03	2%

12	**Physiotherapy approach in traumatology** Definition of fracture, classification of fracture, signs and symptoms of fracture, healing process of fracture, factors affecting healing, methods of reduction, complications of fracture	05	4%
13	**Physiotherapy assessment in fracture cases** Principles of PT management in fractures - Guidelines for fracture treatment during period of immobilization and guidelines for treatment after immobilization period Physiotherapy assessment and management of upper limb fractures and dislocations, lower limb fractures and dislocations including pelvis and spinal fractures	05	4%
14	**Physiotherapy assessment & management of soft tissue injury** Contusion, sprains, strains, ruptures	03	2%
15	**Physiotherapy assessment & management of degenerative conditions** Osteoarthritis (OA) with emphasize on Knee, Hip and Hand cervical spondylosis, lumbar spondylosis	20	10%
16	**Physiotherapy assessment & management of inflammatory conditions** Rheumatoid arthritis (RA), ankylosing spondylitis (AS), Still's disease, gout, periarthritis, bursitis, synovitis, capsulitis, tendinitis, tenosynovitis, fasciitis, Osgood Schlatter disease	05	2%
17	**Physiotherapy assessment and management of infective Conditions** Tuberculosis (TB) of spine and other major joints, osteomyelitis, pyogenic arthritis, septic arthritis	03	4%
18	**Physiotherapy assessment & management of congenital and acquired deformities** Congenital - CTEV, CDH, Torticollis, pesplanus, pescavus, Sprengel's scapula, Madelung's deformity Acquired: scoliosis, kyphosis, coxavara, genu varum, valgum and recurvatum, wry neck	05	4%
19	**Physiotherapy assessment & management of spinal conditions** Spondylolisthesis, Spinal canal stenosis, Spondylolysis, Intervertebral disc prolapse, Sacro-iliac joint dysfunction, Coccydynia Sacralisation, Lumbarisation, Spina bifida occulta	10	8%
20	**Physiotherapy assessment & management of amputations** Definition, indications, types, levels of amputation of lower and upper extremities, pre and post operative assessment and management with emphasize on stump care and bandaging, pre and post prosthetic training and complete rehabilitation	10	8%
21	**Rehabilitation of patient with orthopedic surgery** Pre and post operative management of arthroplasty of all major joints, girdle stonearthroplasty , arthrodesis, arthroscopy, oesteotomy Reattachment of limb	10	8%

22	**Physiotherapy assessment & management of re-constructive surgery** Cerebral Palsy, poliomyelitis, leprosy	03	2%
23	**Physiotherapy assessment & management of hand injury**	05	4%
24	**Physiotherapy assessment & management of metabolic and hormonal disorders of the bone tissue** a) Osteoporosis, rickets, osteomalacia	01	1%
25	**Physiotherapy assessment & management of miscellaneous orthopedic conditions** a) Mallet finger b) Trigger finger c) Dequerian's disease d) Metatarsalgia e) hallux valgus f) Dupuytren's contracture g) Thoracic outlet syndrome h) Chondromalacia patellae i) Ganglion j) Tennis elbow k) Plantar fasciitis	02	2%
26	**Sports Medicine** a) Introduction & classification of sports injury b) Aetiological factors c) Prevention of sports injury d) Frequency and site of injury e) Investigation and assessment in sports injury	07	5%
27	**Management of sports injuries** a) Pharmacology in sports b) Rehabilitation in sports	03	2%

Course Outcomes:

CO No.	Course Outcome Description	Unit
CO1	**Understand** the principles of physiotherapy assessment, functional diagnosis based on ICF, clinical reasoning, goal setting, treatment planning, and professional documentation in musculo-skeletal conditions.	1,2,3
CO2	**Apply** physiotherapeutic and electro-therapeutic techniques to manage pain and swelling, improve muscle performance and joint mobility, correct posture, and enhance gait for functional restoration and disability prevention.	4,5,6,7,8,9
CO3	**Apply** appropriate physiotherapy management strategies for traumatic injuries, soft tissue lesions, degenerative, inflammatory, infective, congenital, acquired, metabolic, and miscellaneous musculo-skeletal disorders.	12, 13, 14, 15, 16, 17, 18, 24, 25

CO4	**Analyze** spinal conditions, amputations, orthopedic and reconstructive surgical cases, and hand injuries to plan comprehensive physiotherapy rehabilitation programs.	19, 20, 21, 22, 23
CO5	**Analyze** sports-related musculo-skeletal injuries and occupational demands to formulate preventive strategies, rehabilitation protocols, ergonomic advice, orthotic and prosthetic prescription, and home-based physiotherapy programs for functional efficiency and long-term recovery.	10, 11, 26, 27

CO-PO MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	2	1	2	-	2	2	-
CO2	1	2	1	1	1	1	2	1
CO3	1	2	1	1	1	1	2	1
CO4	3	1	2	3	1	3	1	1
CO5	3	1	2	3	1	3	1	1
TOTAL	10	8	7	10	4	10	8	4
No. of Cos mapping with Pos	5	5	5	5	5	5	5	5
Average	2	1.6	1.4	2	0.8	2	1.6	0.8
Round (Average)	2	2	2	2	1	2	2	1

Teaching & Learning Methodology:

- Demonstration and hands-on practice of joint assessment and manual therapy
- Case-based learning for MSK and sports injury conditions
- Problem-based learning using clinical scenarios
- Seminars/workshops on exercise prescription and taping techniques

Books Recommended:

- Kisner & Colby – *Therapeutic Exercise: Foundations and Techniques*
- Magee – *Orthopedic Physical Assessment*
- Dutton – *Orthopaedic Physical Therapy*
- Brukner & Khan – *Clinical Sports Medicine*
- Cyriax – *Textbook of Orthopaedic Medicine*

- Physiopedia – MSK Section
- OrthoBullets – https://www.orthobullets.com
- OpenStax – Anatomy & Biomechanics chapters
- MOOC: *MSK & Sports Medicine* – https://www.coursera.org

3. PHYSIOTHERAPY IN CARDIO RESPIRATORY & MEDICAL SURGICAL CONDITIONS

Prerequisite: Students must have basic knowledge of respiratory and cardiovascular anatomy, physiology, pathology, and earlier exposure to general physiotherapy assessments.

- **Teaching Scheme:**

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	3	-	0.5	3.5	6.5	40	-	10	-	50

3.1PHYSIOTHERAPY IN CARDIO-PULMONARY CONDITIONS

COURSE OBJECTIVES:

At the end of the course candidate will be able to

1. Identify, discuss and analyze cardio vascular and pulmonary dysfunction based on pathophysiological principles and arrive at the appropriate physical and functional diagnosis.
2. Select strategies for cure, care and prevention to adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work place and in community
3. Execute the effective physiotherapeutic measures (with appropriate clinical reasoning) with special emphasis to breathing retraining, nebulization, humidification, bronchial hygiene, general mobilization and exercise conditioning in general medical and surgical conditions
4. Acquire knowledge of the overview of patients care at the intensive care area, artificial ventilation, suctioning, positioning for bronchial hygiene and continuous monitoring of the patient at the intensive care area
5. Acquire the skill of evaluation and interpretation of functional capacity using simple exercise tolerance tests, symptom limited tests
6. Acquire the skill of basic cardiopulmonary resuscitation

SYLLABUS:-

Sr. No.	Topic	Hours	Weightage

1	**Anatomy and physiology of respiratory & cardiac system** a) Anatomy of thorax b) Biomechanics of thoracic cage c) Muscles of respiration d) Ventilation perfusion matching /mismatching, compliance	02	2%
2	**Investigations and tests** a) Sub maximal /maximal exercise tolerance testing b) Cardiac & Pulmonary radiographs c) PFT d) ABG e) ECG f) Hematological and biochemical Tests	05	5%
3	**Physiotherapy techniques to increase lung volume** a) Positioning, breathing exercises b) Neurophysiological facilitation of respiration, mechanical aids - Incentive spirometry c) CPAP d) IPPB	10	10%

4	**Physiotherapy techniques to decrease the work of breathing** a) Measures to optimize the balance between energy supply and demand, positioning, Breathing re-education – Breathing control techniques b) Mechanical aids: IPPB, CPAP, BIPAP	10	10%
5	**Physiotherapy techniques to clear secretions** a) Hydration b) Humidification & Nebulization c) Mobilization and breathing exercises d) Postural drainage e) **Manual techniques:** Percussion, vibration and shaking, ACBT, Autogenic Drainage, Mechanical aids: PEP, Flutter, IPPB, facilitation of cough and huff, suctioning	10	10%
6	**Physiotherapy in common complications following surgery And Drug therapy** a) Drugs to prevent and treat inflammation, drugs to treat bronchospasm b) Drugs to treat breathlessness c) Drugs to help sputum clearance, drugs to inhibit coughing d) Drugs to improve ventilation e) Drugs to reduce pulmonary hypertension drug delivery doses f) Inhalers and nebulizers	05	5%
7	**Introduction to ICU & mechanical ventilator** a) ICU monitoring – apparatus, airways and tubes used in the ICU - Physiotherapy in the ICU – common conditions in the ICU. b) Mechanical ventilator: types c) Modes of ventilator d) Advantages and disadvantages Oxygen therapy, e) CPR f) Aseptic precautions	13	13%
8	**Physiotherapy assessment & management techniques in Obstructive lung conditions** a) Chronic bronchitis b) Emphysema c) Asthma d) Bronchiectasis e) Cystic fibrosis	07	7%
9	**Physiotherapy assessment & management techniques in Restrictive lung conditions** a) Rib fracture b) Pleural effusion	07	7%

	c) Pleurisy and empyema d) Pulmonary embolism e) Pulmonary tuberculosis f) Atelectasis, pneumothorax g) Bronchopulmonary fistula h) Pneumonia, ARDS		
10	**Physiotherapy following Lung surgeries** a) Pre and post operative physiotherapy b) Assessment and management in Lobectomy c) Pneumonectomy d) Decortication e) Thoracoplasty	05	5%
11	**Pulmonary Rehabilitation** a) Definition b) Aims and objectives c) Team members d) Benefits e) Principles of exercise prescription and techniques of rehabilitation	07	7%
12	**Anatomy and physiology of cardiovascular system** a) Anatomy b) Blood supply and conduction system of heart	01	1%
13	**Physiotherapy assessment & management for cardiovascular disorders** a) Cardiovascular disease b) Congestive heart failure c) Myocardial infarction d) Valvular diseases of heart e) Cyanotic and acyanotic congenital heart diseases f) Endocarditis	05	6%
14	**Cardiac Rehabilitation** a) Definition b) Aims and objectives c) Team members d) Benefits e) Principles of Exercise prescription and techniques of rehabilitation	07	7%
15	**Physiotherapy assessment & management of vascular diseases** a) Venous: Thrombosis b) Phlebitis and phlebo-thrombosis c) Varicose veins d) DVT e) Venous Ulcers Arterial: Berger's disease, acute and chronic arterial occlusion, lymphedema	05	5%

3.2 PHYSIOTHERAPY IN GENERAL MEDICAL-SURGICAL CONDITIONS

COURSE OBJECTIVES:

1. Acquire knowledge of rationale of basic investigative approaches in the medical system and surgical intervention regimes related to cardio vascular and pulmonary impairment
2. Select strategies for cure, care and prevention to adopt restorative and rehabilitative measures for maximum possible functional independence of a patient at home, work place and in community
3. Acquire the knowledge of evaluation and physiotherapy treatment for obstetrics and gynecological surgical conditions
4. Acquire the knowledge of various conditions where physiotherapy plays a vital role in the rehabilitation (psychiatry, dermatology and ENT conditions)
5. Assess the various degrees of burns, plan and implement physiotherapy techniques for the rehabilitation of a burn and wound patient.

SYLLABUS:-

Sr. No.	Topic	Hours	Weightage
16	**Physiotherapy assessment & management for abdominal surgeries** surgeries on upper gastro- intestinal tract - oesophagus- stomach- duodenum, surgery on large and small intestine – apendicectomy, cholecystectomy, partial colectomy, illieostomy, nephrectomy . Hernia: herniotomy, herniorraphy, hernioplasty	05	15%
17	**Physiotherapy Assessment & management in onco surgeries** Mastectomy: simple, radical .Hysterectomy, prostatectomy, neck dissection	05	15%
18	**Physiotherapy in obstetrics and gynecology surgeries** Electrotherapy and exercise therapy measures following pelvic repair and caesarean section	05	15%
19	**Wounds, local infections, ulcers, pressure sores** UVR and other electrotherapeutic modalities for healing of wound, prevention of hypergranulated scars, relief of pain and mobilization	05	15%
20	**Physiotherapy in burns, skin grafts and re-constructive plastic surgery**	05	15%
21	**Physiotherapy in ENT conditions** Nonsuppurative otitis media, chronic suppurative otitis media, otosclerosis, labyrinthitis and mastoidectomy resulting into facial palsy, laryngectomy, pharyngeo – laryngectomy, tracheostomy and its care, sinusitis	02	7%
22	**Physiotherapy in skin conditions** Leprosy, acne, alopecia, psoriasis, syphilis	02	7%
23	**Physiotherapy in psychiatric conditions**	01	3%

	Schizophrenia, depression, psychosis, anxiety		
24	**Emergency Care** Basic Life Support, First aid & emergency care, Biomedical waste management	04	12%

Course Outcomes:

CO No.	Course Outcome Statement	Unit Nos.
CO 1	Apply physiotherapy assessment and management strategies for patients with cardiopulmonary conditions, undergoing surgeries, ENT, skin conditions and psychiatric conditions	2,3,4,5,6,8,9,10,11,13,14,15,16,17,18,20,21,22,23
CO 2	Apply appropriate electrotherapy and exercise therapy measures in the physiotherapy management of surgeries, ENT, skin conditions and psychiatric conditions	16,17,18,19,21,22,23
CO 3	Understand relevant investigations technique which will help to diagnosed various cardiovascular and respiratory conditions.	2
CO 4	Analyze physiotherapy assessment findings to plan appropriate management for patients with cardiopulmonary disease, undergoing surgeries, ENT, skin conditions and psychiatric conditions	2,3,4,5,6,8,9,10,11,13,14,15,16,17,18,20,21,22,23
CO 5	Apply comprehensive pulmonary, cardiac, and vascular rehabilitation programs, including pre- and post-operative care, exercise prescription, and multidisciplinary team based management according to detailed assessment of patients.	11,13,14,15

CO-PO MAPPING

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	1	-	-	-	-	-
CO2	3	2	1	-	-	-	-	-
CO3	2	2	1	-	-	-	-	-
CO4	3	3	2	-	-	-	-	3
CO5	3	2	1	-	-	-	-	-
Total	14	11	6	0	0	0	0	3

No. of Cos mapping with Pos	5	5	5	0	0	0	0	1
Average	2.8	2.2	1.2	0	0	0	0	3
Round (Average)	3	2	1	0	0	0	0	3

Teaching & Learning Methodology:

- Demonstration and supervised practice of chest physiotherapy and breathing techniques
- ICU simulation/clinical exposure for suctioning, ventilator modes, and monitoring
- Case-based learning for cardiac, pulmonary, and postoperative rehabilitation
- Problem-based learning on emergency and postoperative complications

Books Recommended:

- Carolyn Kisner – *Cardiopulmonary Physical Therapy*
- Elizabeth Dean – *Cardiopulmonary Physical Therapy*
- Paul Litchfield – *Respiratory Physiotherapy*
- Dutton – *Pulmonary Rehabilitation*
- Mehta – *ICU Protocols*

List of Open-Source Software/learning website:

- Respiratory Care Open Courseware – https://www.rcjournal.com
- OpenWHO – *COVID-19, Emergency Care, Public Health* – https://openwho.org
- Physiopedia – Cardiorespiratory Module
- NPTEL – Biomedical & Health Sciences Lectures – https://nptel.ac.in

4. COMMUNITY HEALTH REHABILITATION AND ASSISTIVE TECHNOLOGIES

Prerequisite: Students should have basic understanding of public health concepts, epidemiology, and primary health care approaches taught in earlier years.

- **Teaching Scheme:**

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	1.5	-	0.5	2	3.5	80	40	20	10	150

4.1COMMUNITY HEALTH REHABILITATION

COURSE OBJECTIVES:

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

1. Describe the general concepts about Health, Disease & Physical fitness
2. Describe policies for the rehabilitation of disabled and Role of Council to promote physiotherapy as a health delivery system
3. Describe the strategies to assess prevalence & incidence of various conditions responsible for increasing morbidity in the specific community, role of physiotherapy in reducing morbidity, expected clinical & functional recovery, reasons for non-compliance in specific community & environmental solution for the same
4. Describe the evaluation of disability & planning for prevention & rehabilitation
5. Describe CBR in urban & rural set up, WHO policies, concept of team work, role of multi-purpose health worker
6. Identify with clinical reasoning the prevailing contextual (environmental & psychosocial, cultural) factors, causing high risk, responsible for various dysfunctions & morbidity related to lifestyle & specific community like women, aged, industrial workers & describe planning strategies of interventional policies to combat such problems.

- **Teaching Scheme:**

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	1	-	1.5	2.5	2.5	40	-	10	-	50

SYLLABUS:-

Sr. No.	Topic	Hours	Weightage
1	**Concepts of community health** a) Preventive, promotive, restorative and rehabilitative b) WHO definition of health and disease c) Health delivery system - 3 tier	03	6%
2	**Disability types** a) Physical & Psychological Evaluation, b) Prevention & Legislation related to Persons with Disability (PWD)	03	6%
3	**CBR** a) Definition b) Principles, types (institutional, reach out and community), concepts c) WHO policies d) Principles of Team work of medical practitioner, Physiotherapist e) Occupational Therapist f) Speech & Audiology Therapist g) Prosthetist & Orthotist	15	25%

	h) Definition i) Principles, types (institutional, reach out and community), concepts j) WHO policies k) Principles of Team work of medical practitioner, Physiotherapist l) Occupational Therapist m) Speech & Audiology Therapist n) Prosthetist & Orthotist o) Clinical psychologist p) Vocational counselor and social worker q) Role of Physiotherapy in team r) Concept of multipurpose health worker s) Role of Physiotherapy and strategies in 3 tier Health delivery system t) Communication strategies		
4	**Health Care** a) Prevention, Promotion & Restoration b) In peri-pubertal age group c) In women-pregnancy and menopause d) In Geriatrics- neuromusculoskeletal, cardiovascular, pulmonary, metabolic and degenerative conditions e) In Obese / over weight f) In Cardiovascular and Pulmonary conditions g) In Diabetes h) Health promotion for all	05	9%
5	**Women and child care** a) Antenatal exercises, Specific Breathing exercises, Relaxation, Postural training, Pelvic floor strengthening exercises with clinical reasoning b) Physiotherapy during labor c) Postnatal exercises program after normal labor / labor with invasive procedures with clinical reasoning d) Menopause-Osteoporosis, Mentalhealth, Physiotherapy management e) Preterm babies f) Adolescent age group g) Nutritional disorders in women and children	10	17%
6	**Geriatrics** a) Physiology of aging b) environmental changes and adaptations, balance and falls c) Role of Physiotherapy in geriatric population	10	17%
7	**Physical fitness** a) Energy system, b) Indurance c) Aerobic Exercise d) Pacing of activity	05	9%

8	**Ergonomics**	05	9%
9	**IQ Testing**	01	2%

Teaching & Learning Methodology:

- Community field visits and survey-based learning
- Demonstration of disability evaluation and screening tools
- Group activities on health promotion, ergonomics, and preventive physiotherapy
- Project-based learning through community assignments

Books Recommended:

- J.N. Sharma – *Community Physiotherapy*
- Park – *Textbook of Preventive and Social Medicine*
- WHO – *CBR Guidelines*
- Sundar – *Community Based Rehabilitation*
- Paul & Hellen – *Community-Based Rehabilitation*

List of Open-Source Software/learning website:

- OpenWHO – Public Health, Outbreak Response courses
- WHO CBR Portal – https://www.who.int/disabilities/cbr
- National Health Portal (NHP India) – https://www.nhp.gov.in
- UNICEF Data & Public Health Resources – https://data.unicef.org

4.2 ASSISTIVE **TECHNOLOGIES**

Prerequisite: Students must have introductory knowledge of biomechanics and basic exposure to orthotics, prosthetics, and functional rehabilitation concepts.

COURSE OBJECTIVES:

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

1. Acquire knowledge about biomechanical principles of application of variety of aids & appliances used for ambulation, protection & prevention
2. Acquire in brief knowledge about various materials used for splints/Orthosis& Prostheses and selection criteria for splints/Orthosis& Prostheses
3. Acquire the skill of fabrication of simple splints made out of low cost material.

SYLLABUS:-

Sr. No.	Topic	Hours	Weightage
10	Introduction and terminology: prosthesis and orthosis	01	5%
11	Classification of orthosis and prostheses	01	5%
12	Bio-mechanical principles of orthotic application	02	11%
13	Bio-mechanical principles of prosthetic application	02	11%
14	Orthotic appliances for Hip, Knee, Ankle& foot - Prescription and design & modification	02	11%
15	Spinal conditions inclusive of fractures, spondylolisthesis, kyphosis, scoliosis etc.	02	11%
16	Upper limb conditions – splinting prescriptions with principles	02	11%
17	Prosthesis –	04	20%
	a) Upper & lower limb; endo skeletal & exo skeletal,		
	b) Hip, knee & foot prosthetic components with k-levels		
	c) Upper limbs: cosmetic restoration, terminal devices (body powered), self help devices (adl equipments), myoelectric, microprocessor / sensor cotrolled (externally powered)		
	d) Adaptive devices		
18	Psychological & Physiological aspects of orthotic and prosthetic application	01	5%
	Material used in favbrication of Prosthetiscs & Orthotics briefly.	01	5%
	Mobility aids: canes, crutches, walking frames, walkers, wheel chairs manual / electrically powered.	01	5%

Course Outcomes:

CO No.	Course Outcome Statement	Unit Nos.
CO1	Describe fundamental concepts of community health, disability, physical fitness, and health delivery systems relevant to community-based physiotherapy practice.	1, 2, 7
CO2	Explain principles of community-based rehabilitation, multidisciplinary teamwork, health promotion, and population-specific preventive strategies across the lifespan.	3, 4, 5, 6
CO3	Apply biomechanical principles to the selection and prescription of orthoses, prostheses, mobility aids, and ergonomic interventions for community and clinical settings.	8, 10, 11, 12, 13, 14, 15, 16, 17
CO4	Analyze contextual, psychosocial, environmental, and functional factors influencing disability, morbidity, and rehabilitation outcomes in diverse community populations.	3, 4, 5, 6, 9, 18
CO5	Design basic community-oriented rehabilitation plans and low-cost assistive solutions integrating ethical, professional, and population health perspectives.	2, 3, 14, 16, 17, 18

CO-PO Mapping

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	2	1	-	-	-	-	-
CO2	2	3	2	-	-	2	-	-
CO3	3	2	2	3	-	2	-	-
CO4	3	3	2	3	3	-	3	3
CO5	3	3	3	3	3	-	3	3
Total	13	13	10	9	6	4	6	6
No. of COs mapping with POs	5	5	5	3	2	2	2	2
Average	2.6	2.6	2.0	3.0	3.0	2.0	3.0	3.0
Rounded (Average)	3	3	2	3	3	2	3	3

Teaching & Learning Methodology:

- Demonstration of orthotic, prosthetic, and assistive device applications
- Hands-on workshops for splint fabrication and gait training
- Case-based learning on amputees and patients using mobility aids
- Exposure visits to orthotics-prosthetics laboratories

Books Recommended:

- Lehneis & O'Brien – *Orthotics and Prosthetics*
- Edward Lemaire – *Orthotic & Prosthetic Rehabilitation*
- Helander – *Aids and Appliances for the Disabled*
- Smith & Michael – *Prosthetics & Orthotics in Clinical Practice*
- Radcliffe – *Prosthetic and Orthotic Practice*

List of Open-Source Software/learning website:

- Free 3D Assistive Device Designs (NIH 3D Print Exchange) – https://3dprint.nih.gov
- WHO Assistive Devices Resources – https://www.who.int/health-topics/assistive-technology
- Open Prosthetics Project – https://openprosthetics.org
- e-NABLE Prosthetic Devices – https://enablingthefuture.org

5. BIO-STATISTICS & RESEARCH METHODOLOGY

Prerequisite: Students should have basic understanding of scientific enquiry, literature search, and familiarity with types of data from prior academic exposure.

Teaching Scheme:

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	1	-	-	1	2	40	-	10	-	50

5.1 BIO-STATISTICS

COURSE OBJECTIVES:

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

1. Recognize different variables as per their types and should be able to decide on how to treat them differently as per requirement
2. Differentiate complete enumeration and various forms of sampling (random: Simple, stratified, cluster, multi stage; non random: snow ball, quota, purposive, convenient) with understanding of merits and demerits of them
3. Decide when to apply what test or a measure of central tendency according to the need of the data and OBJECTIVES
4. Interpret a given output of regression or ANOVA according to the context

SYLLABUS:-

Sr. No.	Topic	Hours	Weightage
1	Introduction to statistics in physiotherapy.	01	5%
2	Understanding 'Data' and its types.	02	10%
3	Presentation of various data: tables, graphs and descriptive statistics.	02	10%
4	Measures of central tendencies (CT): mean, median, mode; merits and demerits; when to apply which measure of CT for the given data.	02	10%
5	Measures of dispersion: range, mean deviation, standard deviation, coefficient of variance	02	10%
6	Application of normal distribution and its properties.	01	5%
7	Testing of hypothesis (measuring change):one sample with population, comparing two samples(Z test for proportion, difference of two proportion, independent sample 't' test, paired 't' test, chi square test.	02	10%
8	Conceptual understanding of correlation, linear and multiple regression, analysis of variance (ANOVA) and analysis of co-variance (ANCOVA).	04	20%

9	Complete enumeration and sampling methods: random: simple, stratified, cluster, multi stage; non random: snow ball, quota, purposive, convenient.	02	10%
10	Simple statistical analysis through excel.	02	10%

5.2 RESEARCH METHODOLOGY

COURSE OBJECTIVES:

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

1. Understand and differentiate various study designs.

. List the need of methodical and regular literature search in research

3. Plan a study choosing an appropriate design for a given problem according to given objectives.

SYLLABUS:-

Sr. No.	Topic	Hours	Weightage
11	What is research? Why research?	01	6%
	Research Design	02	11%
12	Types of epidemiological studies & measurements of various indications.	02	11%
13	Possible errors that may generate due to study design & how to overcome them.	02	11%
14	How to read and what to read from journals.	02	11%
15	Role of research in Physiotherapy.	02	11%
16	Components of research proposal – introduction and rationale, material & methods, results and discussion.	03	17%
17	Where to look for good literature and why.	02	11%
18	The Evidence Based Practice.	02	11%

Course Outcomes:

CO No.	Course Outcome Statement	Unit Nos.
CO1	Describe fundamental concepts of biostatistics, data types, and statistical measures relevant to physiotherapy research.	1, 2, 3, 4, 5, 6
CO2	Explain sampling methods, probability concepts, hypothesis testing, and inferential statistical techniques used in health research.	7, 8, 9
CO3	Apply appropriate statistical tests and basic data analysis using spreadsheet tools to interpret physiotherapy research data.	7, 8, 10
CO4	Analyze research designs, epidemiological studies, sources of error, and published literature to support evidence-based physiotherapy practice.	11, 12, 13, 14, 15, 18
CO5	Design a basic physiotherapy research proposal integrating study design, methodology, literature review, and ethical considerations.	16, 17

CO-PO MAPPING

CO \ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	2	2	1	-	-	-	-	-
CO2	2	2	2	-	-	-	-	-
CO3	3	2	2	3	-	-	3	-
CO4	3	3	2	3	3	-	3	3
CO5	3	3	3	3	3	-	3	3
Total	13	12	10	9	6	0	9	6
No. of COs mapping with POs	5	5	5	3	2	0	3	2
Average	2.6	2.4	2.0	3.0	3.0	0.0	3.0	3.0
Rounded (Average)	3	2	2	3	3	0	3	3

Teaching & Learning Methodology:

- Hands-on data analysis sessions using Excel/SPSS
- Workshops on research designs, sampling, and hypothesis formulation
- Literature review activities and journal clubs
- Mentored sessions for writing research proposals

Books Recommended:

- Kothari – *Research Methodology: Methods and Techniques*
- Gupta & Kapoor – *Fundamentals of Mathematical Statistics*
- Indrayan – *Medical Biostatistics*
- Creswell – *Research Design*
- Rosner – *Fundamentals of Biostatistics*

List of Open-Source Software/learning website:

- JAMOVI (Open-source statistical software) – https://www.jamovi.org
- JASP (Free alternative to SPSS) – https://jasp-stats.org
- Zotero (Free reference manager) – https://www.zotero.org
- PubMed Central – Open access medical research database

6. PROFESSIONAL PRACTICE & ETHICS – IV

Prerequisite: Students must have prior exposure to ethical principles, communication skills, and professional conduct introduced in earlier ethics modules.

Teaching Scheme:

Teaching Scheme	L	T	P	Contact Hours	Credit	ESE Max	Practical/ Viva Max	IA Max	CSE Max	Total Mark
	1	-	-	1	2	40	-	10	-	50

6.1 PROFESSIONAL PRACTICE & ETHICS

COURSE OBJECTIVES:

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

1. Understand the moral values and meaning of ethics.
2. Acquire bedside manners and communication skills in relation with patients, peers seniors and other professionals.
3. Develop psychomotor skills for physiotherapist patient relationship.
4. Develop skill to evaluate and make decision for plan of management based on sociocultural values and referral practice.
5. Develop behavioral skills and humanitarian approach while communicating with patients, relatives, society at large and co-professionals.
6. Develop bedside behavior, respect & maintain patients' confidentiality.
7. Understand the importance of council, its functioning and Act.

SYLLABUS:-

Sr. No.	Topic	Hours	Weightage
1	Outlines of Gujarat State Council for Physiotherapists (GSCPT) Act 2011 with more emphasis on formation, functions of council, importance for registration etc. Outline of The Indian Association of Physiotherapists, National Council of Allied and Healthcare Professionals	02	11%
2	Ethical principles in health care services, research, teaching related to physiotherapy.	02	11%
3	Scope of practice as patient manager, consultant, critical inquirer, educator, administrator.	01	5%
4	**Rules of professional conduct** a) Physiotherapy as a profession b) Relationship with patients c) Relationship at health care institution i.e. hospital, clinic etc. d) Relationship with colleagues and peers e) Relationship with medical and other professionals	05	24%
5	Confidentiality and responsibility	01	5%
6	Malpractice and negligence	02	11%
7	Professional development, competence and expertise	02	11%
8	Sale of goods: personal and professional standards	02	11%
9	**Legal aspects:** legal responsibility of physiotherapists for their action in the professional context understanding liability and obligations in case of medico legal action.	02	11%

Teaching & Learning Methodology:

- Case discussions on ethical dilemmas and medico-legal issues
- Role play on communication, consent, and professional conduct
- Seminars on professional regulations and ethical guidelines
- Reflective writing on ethical decision-making

Books Recommended:

- Purtilo & Haddad – *Health Professional Ethics*
- Beauchamp & Childress – *Principles of Biomedical Ethics*
- IAP / GSCPT – *Code of Ethics*
- Morrison – *Health Care Ethics*

- Rollnick – *Motivational Interviewing in Healthcare*

List of Open-Source Software/learning website:

- NITI Aayog Health Ethics Resources – https://www.niti.gov.in
- WHO Bioethics Online Modules – https://www.who.int/ethics
- IAP / GSCPT Ethical Guidelines – (Open access PDFs available online)
- Medscape (Ethics Case Discussions) – https://www.medscape.com

6.2 ADMINISTRATION, MANAGEMENT & MARKETING

Prerequisite: Students should possess basic understanding of healthcare systems, documentation, and organizational roles within physiotherapy settings.

COURSE OBJECTIVES:

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

1. Learn the management basics in fields of clinical practice, teaching, research and physiotherapy practice in the community.
2. Acquire communication skills in relation with patients, peers, seniors and other professionals & the community.
3. Acquire the knowledge of the basics in managerial & management skills, & use of information technology in professional practice.
4. Develop psychomotor skills for physiotherapy practice.
5. Develop skill to evaluate and make decision for plan of management based on sociocultural values and referral practice.
6. Develop behavioral skill and humanitarian approach while communicating with patients, relatives, society at large and co-professionals

SYLLABUS:

Sr. No.	Topic	Hours	Weightage
1	Management studies related to local health care organization management & structure, planning delivery with quality assurance & funding of service delivery, information technology and career development in physiotherapy.	04	21%
2	Administration-principles-based on the goal & functions at large hospital set up/domiciliary services/private clinic/ academics.	04	21%
3	Budget-planning.	02	11%
4	Performance analysis- physical structure/ reporting system (man power, status, functions, quantity & quality of services, turn over, cost benefit revenue contribution)	04	21%
5	Setting up therapeutic gymnasium, fitness clinics, cardiac and pulmonary rehab centers etc	04	21%
6	Time management	01	5%

Teaching & Learning Methodology:

- Case studies on clinic/hospital administration and workflow
- Workshops on documentation, SOPs, budgeting, and resource management
- Role play on leadership, teamwork, and conflict resolution
- Field visits to healthcare institutions for administrative exposure

Books Recommended:

- Sakharkar – *Principles of Hospital Administration & Planning*
- Sharma & Goyal – *Hospital Administration*
- Kotler – *Marketing Management*
- Ginter – *Healthcare Management: Planning and Strategy*
- WHO – *Quality Assurance in Healthcare*

List of Open-Source Software/learning website:

- OpenWHO – Health Systems & Management Courses
- Coursera (Free Audit) – Healthcare Management courses
- WHO Quality Assurance & Patient Safety Resources