MALLA REDDY VISHWAVIDYAPEETH

SCHOOL OF ALLIED AND PUBLIC HEALTH SCIENCES AND TECHNOLOGY

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Program

BACHELOR OF PHYSIOTHERAPY (BPT)

COURSE STRUCTURE

2024

MALLA REDDY VISHWAVIDYAPEETH

SCHOOL OF ALLIED AND PUBLIC HEALTH SCIENCES AND TECHNOLOGY

BACHELOR OF PHYSIOTHERAPY

COURSE STRUCTURE

I year I semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	PT61011	Human Anatomy - I	4	-	-	4	30	70	100
2	PT61012	Human Physiology - I	4	-	-	4	30	70	100
3	PT61013	Medical Bio-chemistry- I	4	-	-	4	30	70	100
4	PT61015	Sociology	2	-	-	2	30	70	100
5	PT61014	English and Communication Skills	1	-	2	2	30	70	100
6	PT61016	Basic Computers	1	-	2	2	30	70	100
7	PT61011	Human Anatomy - I Practical	-	-	4	2	30	70	100
8	PT61012	Human Physiology - I Practical	-	-	4	2	30	70	100
TOTAL			16	-	12	22	240	560	800

I year II semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	PT61021	Human Anatomy - II	4	-	-	4	30	70	100
2	PT61022	Human Physiology - II	4	-	-	4	30	70	100
3	PT61023	Fundamentals of Exercises therapy and soft tissue manipulation	3	-	-	3	30	70	100
4	PT61024	Fundamentals of Electrotherapy	3	-	2	4	30	70	100
5	PT61025	General Psychology	3	-	-	3	30	70	100
6	PT61026	Human Anatomy – II Practical	-	-	3	1.5	30	70	100
7	PT61027	Human Physiology – II Practical	-	-	3	1.5	30	70	100
8	PT61028	Fundamentals of Exercises therapy and soft tissue manipulation- Practical	-	-	4	2	30	70	100
9	PT61029VA	Interpersonal Communication	1	-	-	1	100	-	100
10	PT61029VB	Stress Management	1	-	-	1	100	-	100
TOTAL			19	-	12	25	440	560	1000

II year III semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	PT61031	Pathology	3	-	-	3	30	70	100
2	PT61032	Medical Microbiology	3	-	-	3	30	70	100
3	PT61033	Biomechanics and kinesiology -I	4	-	-	4	30	70	100
4	PT61034	Exercise therapy-I	4	-	-	4	30	70	100
5	PT61035	Electrotherapy-I	4	-	-	4	30	70	100
6	PT61036	Exercise therapy-I Practical	-	-	4	2	30	70	100
7	PT61037	Electrotherapy-I Practical	-	-	4	2	30	70	100
8	PT61038VA	Soft Skills Development	1	-	-	1	100	-	100
TOTAL			19		8	23	310	490	800

II year IV semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	PT61041	Pharmacology	3	-	-	3	30	70	100
2	PT61042	Biomechanics and Kinesiology-II	4	-	-	4	30	70	100
3	PT61043	Exercise therapy-II	4	-	-	4	30	70	100
4	PT61044	Electrotherapy-II	4	-	-	4	30	70	100
5	PT61045	Exercise therapy -II Practical	-	-	4	2	30	70	100
6	PT61046	Electrotherapy -II Practical	-	-	4	2	30	70	100
7	PT61047VA	Health and Well-being	1	-	-	1	100	-	100
TOTAL			16	-	8	20	280	420	700

III year – V semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	PT61051	Orthopedics &Traumatology	4	-	-	4	30	70	100
2	PT61052	Surgery	4	-	-	4	30	70	100
3	PT61053	Medicine-I (Cardiovascular Respiratory Medicine, General Medicine, Rhematology and Gerontology)	4	-	-	4	**30**	**70**	100
4	PT61054	Medicine-II (Neurology and Paediatrics)	4	-	-	4	30	70	100
5	PT61055	Clinical Training	-	-	12	4			
6	PT61056VA	Environmental Awareness	1	-	-	1	100	-	100
TOTAL			**17**		**12**	**21**	**220**	**280**	**500**

III year – VI semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	PT61061	Physiotherapy in Orthopaedics-I	4	-	-	4	30	70	100
2	PT61062	Physiotherapy in Neurology-I	3	-	-	3	30	70	100
3	PT61063	Community Medicine	3	-	-	3	30	70	100
4	PT61064	Obstetrics & Gynaecology	2	-	-	2	30	70	100
5	PT61065	Physiotherapy in Orthopaedics-I Practical	-	-	4	2	30	70	100
6	PT61066	Physiotherapy in Neurology-I Practical	-	-	4	2	30	70	100
7	PT61067	Clinical training	-	-	12	3			100
8	PT61068VA	Art of Being a Better Person	1	-	-	1	100		100
TOTAL			**13**		**20**	**20**	**280**	**420**	**700**

IV year – VII semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	PT61071	Physiotherapy in Orthopedics-II	3	-	-	3	30	70	100
2	PT61072	Physiotherapy in Neurology-II	3	-	-	3	30	70	100
3	PT61073	Physiotherapy in Cardio thoracic diseases and Surgical Conditions – I	3	-	-	3	30	70	100
4	PT61074	Research methodology & Biostatistics	2	-	-	2	30	70	100
5	PT61075	Clinical Training	-	-	15	5			
6	PT61076	Physiotherapy in Orthopedics-II Practical	-	-	4	2	30	70	100
7	PT61077	Physiotherapy in Neurology-II Practical	-	-	4	2	30	70	
8	PT61078	Physiotherapy in Cardio thoracic diseases and Surgical Conditions – I Practical	-	-	4	2	30	70	
9	PT61079VA	Healthy Eating for Healthy Living	1	-	-	1	100	-	100
TOTAL			**12**		**27**	**23**	**310**	**490**	**800**

IV year – VIII semester

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	Max. Marks		
							INT	EXT	TOTAL
1	PT61081	Physiotherapy in Cardio thoracic diseases and Surgical Conditions – II	3	-	-	3	30	70	100
2	PT61082	Physiotherapy in Women's health	2	-	-	2	30	70	100
3	PT61083	Rehabilitation medicine	3	-	-	3	30	70	100
4	PT61084	Clinical Training	-	-	18	6			
5	PT61085	Physiotherapy in Cardio thoracic diseases and Surgical Conditions – II Practical	-	-	4	2	30	70	100
6	PT61086	Physiotherapy in Women's health-Practical	-	-	4	2	30	70	100
7	PT61087	Dissertation	-	-	4	2	30	70	
8	PT61088VA	Professionalism in the Workplace	1	-	-	1	100	-	100
TOTAL			**9**		**30**	**21**	**280**	**420**	**700**

1.1 Under Graduate Programme

Sl. No.	Course	Duration	Eligibility for admission
1	Bachelor of Physiotherapy	4.5 years	Intermediate BiPC, vocational Physiotherapy (with bridge course) 10+2 or equivalent

1.2. Medium of Instruction:

English shall be the medium of instruction for all subjects of study and for examinations.

1.3. Duration of the Course

Duration details are mentioned under clause no. 1.1 of this booklet.

1.4 Examination Regulations

1.4.1 Attendance: 75% of attendance (physical presence) is mandatory.
Medical leave or other types of sanctioned leaves will not be counted as physical presence. Attendance will be counted from the date of commencement of the session to the last day of the closing of attendance before the final examination.

1.4.2 Internal Assessments:

a) Regular periodic assessment shall be conducted throughout the course. In each semester there will be **two one hour internal assessments (10 marks each)** and a continuous assessment **(10 marks).** Thus a total of 30 marks for the internal exam. (i.e. weightage for internal assessment shall be 30% of the total marks in each subject).

b) **Exam pattern for internal assessment** in each semester will be

(a) Short questions 3 nos. out of which the student should write two questions each carrying 5 marks (i.e. 2 x 5 = 10 marks) . Two such internal examinations will be conducted.

(b) Continuous assessment of the student will be done. Students overall attendance, performance in class, behaviour of the student, extra-curricular activities etc will be assessed. Continuous assessment carries 10 marks.

(d) Thus a total of 30 marks for the internal examination. (10 + 10 + 10 = 30 marks). A candidate should secure a minimum of 40% marks in the internal assessment in each subject to be eligible to appear for the University examination

(e) For value added courses, only internal examination will be conducted. The assessment comprised of five assignments/presentations/case presentations each carrying 10 (i.e. 5 x 10 = 50 marks). Final examination will be for 50 marks with 5 questions each carrying 10 marks (5 x 10 = 50 marks). The minimum pass is 40% marks.

1.4.3 University Examinations (External):

a) University Examination shall be conducted at the end of every semester.

b) A candidate who satisfies the requirement of attendance and internal assessment marks, as stipulated by the University shall be eligible to appear for the University Examination.

c) Examination will be of 3 hours duration (for theory). The question pattern for those subjects without practical examination (70 marks) will be (a) Three essay questions out of which the student should answer 2 questions each carrying 10 marks (i.e. 2 x 10 = 20 marks) (b) Eight short note questions out of which the student should attempt six questions, each carrying 5 marks (6 x 5 = 30 marks). (c) Ten very short questions each carrying 2 marks (i.e. 10 x 2 = 20 marks). Thus a total of 70 marks.

d) The question pattern for practical examination (a) Spotters/major practical/minor practical/Viva/practical record.

The minimum pass for internal assessment is 40% and for the University Examination is 50% . i.e. a student should score a total of 50% (adding the internal and external examination) to pass in each subject.

FIRST YEAR

Semester- I

1. Human Anatomy – I
2. Human Physiology - I
3. Biochemistry
4. Sociology
5. English and Communication Skills
6. Basics of computers
7. Human Anatomy - I Practical
8. Human Physiology - I Practical

HUMAN ANATOMY-I

L/T/P/C
4/-/-/4

COURSE DESCRIPTION:

The focus of this course is an in-depth study and analysis of the regional and systemic organization of the body. Emphasis is placed upon structure and function of human movement. A comprehensive study of human anatomy with emphasis on the nervous, musculoskeletal and circulatory systems is incorporated. Introduction to general anatomy laysthe foundation of the course. Dissection and identification of structures in the cadaver supplemented with the study of charts, models, prosected material and radiographs are utilized to identify anatomical landmarks and configurations.

OBJECTIVES:

- The student should be able to identify & describe Anatomical aspects of muscles, bones,joints, their attachments & to understand and analyze movements.
- Application of knowledge of anatomy on the living (living anatomy).
- To identify and describe the course of peripheral nerves.
- To identify & describe various structures of the Cardio Vascular &Respiratory system andthe course of blood vessels

- Identify and describe various structures of Thoracic cage and mechanisms of Respiration
- Be able to apply knowledge of Living anatomy with respect to Cardio Vascular &Respiratory system
- To Obtain Knowledge of other systems & sensory organs

SYLLABUS

UNIT-I

GENERAL ANATOMYAND HISTOLOGY

General Anatomy:

1. Fascia
2. Muscles
3. Bones
4. Joints
5. Vessels
6. Nerve

General Histology:

1. Epithelial
2. Connective tissue
3. Muscle
4. Bone and cartilage
5. Nerve and vessels
6. Embryology

UNIT-II

UPPER EXTREMITY:

1. Osteology: Clavicle, Scapula, Humerus, Radius, Ulna, Carpals, Metacarpals, Phalanges.
2. Muscles: Origin, insertion, nerve supply and actions.

UNIT-III

UPPER EXTREMITY:

1. Joints: Shoulder girdle, shoulder joint, elbow joints, radio ulnar joint, wrist joint and joints of the hand.
2. Breast, pectoral region, axilla, cubital fossa, Arches of hand
3. Brachial plexus, nerves of upper extremity
4. Blood vessels and lymphatic drainage

UNIT-IV

CARDIO VASCULAR & RESPIRATORY ANATOMY

1. Thoracic wall
2. Mediastinum
3. Heart: Anatomy of heart, blood Supply, nerve supply, conducting System and major blood vessels
4. Lungs: Anatomy of lungs, bronchial tree, pleura, Broncho pulmonary segments, blood Supply and nerve supply
5. Diaphragm: Origin, insertion, nerve supply and action, openings in the diaphragm.
6. Intercostal muscles: and Accessory muscles of Respiration: Origin, insertion, nerve supply and action
7. Ribs and sternum

UNIT-V

SYSTEMIC ANATOMY

1. **Digestive system:**
    - List the parts of the digestive system
    - Anatomy of stomach, liver, gall bladder, spleen, pancreas, intestines.
2. **Urinary system:**
    - Anatomy of kidney, urinary bladder
3. **Endocrine system:**
    - Position and hormones secreted by each organ
4. **Genital system:**
    - Male organs and female organs

RECOMMEMDED TEXT BOOKS

1. Human Anatomy – Snell

2. Anatomy- Chaurasia, Volume- I,II & III

3. Neuro anatomy -- Inderbir Singh

4. Human Anatomy – Kadasne, Volume- I,II & III

5. Neuroanatomy -- Vishrsam Singh

6. Human Anatomy – Datta

HUMAN PHYSIOLOGY-I

L/T/P/C
4/-/-/4

COURSE DESCRIPTION:

The course is designed to study the function of the human body at the molecular, cellular, tissue and systems levels. The major underlying themes are; the mechanisms for promoting homeostasis, cellular processes of the metabolism, membrane function and cellular signaling; the mechanisms that match supply of nutrients to tissue demands at different activity levels; the mechanisms that match the rate of excretion of waste products to their rate ofproduction; the mechanisms that defend the body against injury and promote healing.

These topics address the consideration of nervous and endocrine regulation of the cardiovascular, hematopoietic, pulmonary, renal, gastro-intestinal and musculoskeletal systems including the control of cellular metabolism. The course stresses on the integrative nature of physiological responses in normal function and disease. This course will serve as a pre-requisite/foundation for the furthercourses i.e. Exercise physiology or Pathology

OBJECTIVES:

At the end of the course, the candidate will:

- Acquire the knowledge of the relative contribution of each organ system in maintenance of the Milieu Interior (Homeostasis)
- Be able to describe physiological functions of various systems, with special

reference to Musculo-skeletal, Cardio-respiratory,

- Analyze physiological response & adaptation to environmental stresses- with specialemphasis on physical activity, altitude, temperature
- Acquire the skill of basic clinical examination, with special emphasis to Peripheral & Central Nervous system, Cardiovascular & Respiratory system, & Exercise tolerance / Ergography

SYLLABUS

UNIT - I

GENERAL PHYSIOLOGY

Cell:

1. **Structure of cell membrane**
    a) Fluid mosaic model
    b) Lipid bi-layer
    c) Functions of cell membrane
2. **Transport across cell membrane**
    A. Basic mechanism of transport
    a) Channel proteins
    b) Carrier proteins

    B. Methods of transport
    a) Passive transport
    b) Active transport
3. **Body fluids**
    a) Intracellular fluid
    b) Extracellular fluid
    c) Body electrolytes
    d) Regulation of body fluid volume
4. **Homeostasis**
    a) Regulation of body function
    b) Homeostatic regulatory mechanism

BLOOD:

1. **Composition of blood & it's volume**

2. **Plasma**
3. **Hemopoiesis**
    a) Composition
    b) Plasma protein
4. **Erythrocytes**
    a) Normal count
    b) Structure of RBC (shape & size)
    c) Functions of RBC
    d) Hemoglobin (Normal Value, Fate, Function)
    e) Anemia & polycythemia
    f) ESR & PCV
5. **Leukocytes**
    a) Classification
    b) Functions of leukocytes
6. **Platelets**
    a) Normal count
    b) Functions of thrombocytes
    c) Blood Coagulation
    d) Bleeding time & clotting time
7. **Blood group**
    a) ABO system
    b) Landsteiner's law
    c) ABO incompatibility
    d) Rh system
    e) Rh incompatibility & erythroblastosis fetalis
8. **Blood transfusion**
    a) Collection & storage of blood
    b) Precautions
    c) Cross matching
    d) Hazards of blood transfusion

Nerve:

1. **Structure of a neuron**

2. **Classification of neurons**
3. **Electrical activity of neuron**
    a) Resting membrane potential
    b) Action potential
4. **Propagation of nerve impulse**
5. **Properties of nerve fibers**
6. **Neuroglia - Types & functions**
7. **Nerve injury**
    a) Types of nerve injury
    b) Effect of nerve injury
    c) Regeneration of damaged nerve fiber

UNIT - II

MUSCLE PHYSIOLOGY

1. **Classification**
2. **Properties of skeletal muscle**
3. **Structure of skeletal muscle**
    a) Sarcomere
    b) Sarcotubular system
    c) Neuromuscular junction & disease affecting it
4. **Excitation-Contraction coupling**
5. **Mechanism of muscle contraction**
6. **Functions of skeletal muscle**
7. **Types of muscle contractions**
8. **Red & white muscles**
9. **Rigor mortis, muscular dystrophy, altered muscle tone, muscle cramp, atrophy, EMG**

UNIT - III

CARDIOVASCULAR SYSTEM

1. **Structure of heart & blood vessels**
2. **Properties of cardiac muscle**
3. **Origin & spread of cardiac impulse**

4. **Cardiac cycle & heart sounds**
5. **Cardiac output**
    a) Related terms
    b) Regulation of cardiac output
    c) Circulatory shock
6. **Pulse & Heart rate and it's regulation**
7. **Blood pressure**
    a) Definitions
    b) Factors controlling & influencing BP
    c) Regulation of BP
8. **Regional circulation**
    a) Coronary circulation
    b) Cerebral circulation
9. **Normal ECG.**

UNIT - IV

RESPIRATORY SYSTEM

1. **Introduction, structure & function of RS**
    a) Upper respiratory tract
    b) Lower respiratory tract
    c) Respiratory membrane
2. **Mechanism of breathing**
    a) Mechanics of breathing
    b) Respirstory pressure change
    c) Compliance
    d) Surfactant
3. **Respiratory volumes & capacities**
4. **Pulmonary ventilation & Dead space**
5. **Transport of respiratory gases**
6. **Nervous & chemical regulation of respiration**
7. **Pulmonary function test - direct & indirect method**

8. **Physiological changes with altitude & acclimatization**

UNIT - V

EXERCISE PHYSIOLOGY

1. Basal Metabolic Rate & Respiratory Quotient
2. Energy metabolism
3. Fatigue
4. Oxygen debt
5. Acute cardiovascular changes during exercise; difference between mild, moderate & severe exercise.
6. Concept of endurance
7. Acute respiratory changes during exercise
8. Concept of training/conditioning; effects of long-term exercise/training on the CVS & RS
9. Body temperature regulation during exercise
10. Hormonal & metabolic effects during exercise
11. Exercise for muscle strength, power, endurance and there effects on it.

Physical fitness & its components

RECOMMENDED TEXT BOOKS

1. Textbook on Medical Physiology –Guyton
2. Textbook of Physiology –A K Jain (for MBBS students)
3. Human Physiology - C.C. Chatterjee
4. Essentials of Medical Physiology - Sembulingam, K.
5. Comprehensive Textbook of Medical Physiology : Vol - 1 & 2 - Pal, Gopal Krushna
6. Physiology : Prep Manual For Undergraduates - Joshi, Vijaya D.
7. Practical Physiology - Joshi, Vijaya D.

BIOCHEMISTRY

L/T/P/C
4/-/-/4

UNIT- I

CARBOHYDRATE CHEMISTRY

- Definition, general classification with examples
- Composition and functions of Monosaccharides, Disaccharides and Polysaccharides
- Anomers, Epimers, Enantiomers, Mutarotation
- Glycosaminoglycans (mucopolysaccharides)

LIPID CHEMISTRY

- Definition, classification with examples.
- Classification and Functions of Fatty acids, Phospholipids, Lipoproteins
- Structure and functions of Cholesterol
- Sources and functions of Ketone bodies

UNIT-II

AMINO ACID CHEMISTRY

- Definition, Classification of amino acids with examples.
- Definition, Classification of proteins with examples
- Structural organization of proteins
- Biologically important peptides

NUCLEIC ACIDS AND NUCLEOTIDE CHEMISTRY

- Composition and Functions of Nitrogen bases, Nucleosides, Nucleotides
- Structure and Functions of DNA
- Structure, Types and Functions of RNA
- Differences between DNA and RNA

UNIT-III

ENZYMES

- Definition, Classification of enzymes with examples
- Active site, Enzyme specificity.
- Factors affecting enzyme activity
- Enzyme inhibition
- Isoenzymes and their clinical significance - LDH, Creatine kinase, ALP

VITAMINS

- Definition, Classification

- Fat soluble Vitamins- Sources, RDA, Functions and Deficiency.
- Water soluble Vitamins - Sources, RDA, Functions and Deficiency.

UNIT-IV

INTERMEDIARY METABOILISM

- Glycolysis
- TCA cycle
- β-oxidation of fatty acids (Palmitic acid)
- Ketone body formation and utilization
- Urea cycle

UNIT-V

MINERAL METABOLISM

- Definition, Classification. Sources, RDA, Functions and Deficiency of Calcium, Phosphorous, Iron, Sodium,Potassium

CLINICAL BIOCHEMISTRY

Normal and abnormal constituents of Urine and Blood and their clinical significance:

Normal constituents:

Organic: Urea, Uric acid, Creatinine
Inorganic: Ca, phosphate, chloride, electrolytes

Abnormal constituents:

Glucose, Ketone bodies, Protein, Blood, Bile salts, Bile pigments

RECOMMENDED BOOKS

1. Essentials of Biochemistry by U.Satyanarayana.
2. Text book of Biochemistry for Medical students. DM Vasudevan
3. Integrated textbook of Biochemistry Volume –I and II. Indumathi.
4. Text book of Biochemistry for Medical students. M N Chatterjee and Rana Shinde.
5. Harper's Illustrated Biochemistry.
6. Essentials of Biochemistry. Pankaja Naik

SOCIOLOGY

L/T/P/C
2/-/-/2

SUBJECT DISCRIPTION Sociology will introduce student to the basic sociology concepts, principles and social process, social institutions in relation to the individual, family and community and the various social factors affecting the family in rural and urban communities in India will be studied.

UNIT 1

1. Introduction:

a. Meaning- Definition, Nature and Scope of Sociology
b. Methods of Sociological Investigations, Case Study, Social Survey, Questionnaire and Interview methods.
c. Importance of its study with special reference to Health Care Professionals.

2. Social Factors in health and disease situations:

a. Role of Social factors in health
b. Role of social factor in illness
c. Decision making in taking treatment

UNIT-2

1. Socialization:

a. Definition and Meaning of Socialisation
b. Primary, Secondary and Anticipatory socialisation
c. Agencies of Socialisation

2. Social Groups:

a. Definition and Features of Social Group
b. Primary Social Group
c. Secondary Social Group
d. The role of Primary and Secondary Groups in Hospitals.

UNIT-3

1. Family:

a. The family, meaning and definition
b. Functions of family
c. Changing family patterns
d. Influence of Family on the individuals health, the effects of sickness in the family.

2. Community:

a. Rural community: meaning and features- Health problems of rural community.
b. Urban community: meaning and features – Health problems in urbanities.

UNIT-4

1. Culture and Health:

a. Concept of Health
b. Concept of Culture
c. Cultural factors affecting Health and diseases

2. Social Change:

a. Meaning of social change
b. Factors of social change
c. Human adaptation and social change
d. Social planning and Health

UNIT-5

1. Social Problems:

a. Population explosion
b. Juvenile delinquency
c. Alcoholism
d. Unemployment
e. Poverty
f. Problems of women

2. Social Security:

Social security and social legislation

Recommended Books:

1. Principles of sociology--------- C.N. Shankar Rao
2. Sociology for physiotherapy students ------K.P Neeraja

ENGLISH AND COMMUNICATION SKILLS

L/T/P/C
1/-/2/2

Course Objectives:

- To enhance the lexical and grammatical skills of the learners.
- To develop reading competencies for academic and professional requirements.
- To write effectively to meet professional needs.
- To hone speaking and listening skills.
- To enhance empathy and other vital interpersonal skills of the learners

UNIT 1: Sympathy (Poem) by Charles Mackay
Reading - Reading and its importance, techniques of effective reading. Writing - Paragraph Writing (Topic sentence, Supporting sentences, and Conclusion) Grammar - Parts of Speech (Parsing), Articles Vocabulary - Pain and Symptoms, and Common Illness **ELCS LAB** CALL LAB: Phonetics - Vowel Sounds (Monophthongs and Diphthongs) Listening - Introduction to listening, Purpose of Listening, and Barriers to effective listening ICS LAB: Speaking - Self-introduction and Introducing others, JAM

UNIT 2: A Birthday Letter by Jawaharlal Nehru
Reading - Skimming and Scanning Writing - Letter writing (Requests, Leave applications, Purchase letters, Letters in correspondence with medicalinsurance companies) Grammar - Phrase, Clause and Sentence; Prepositions Vocabulary - Body parts and diseases, Definitions / One-word substitutes **ELCS LAB** CALL LAB: Phonetics - Consonant Sounds Listening - Listening for gist and specific information ICS LAB: Speaking - Small talk, Narration of anecdotes

UNIT 3: The secret of work by Swami Vivekananda
Reading - Making inferences and predictions Writing - E-mail writing Grammar - Tenses, Reported speech Vocabulary - Food and lifestyle, Instruments and Equipment **ELCS LAB** CALL LAB: Intonation Listening - Listening and identifying facts and opinions ICS LAB: Speaking - Role Plays (OET) (Giving and taking instructions, Interacting with and explaining processes, conditions and instructions to the patients and their attenders,

UNIT 4: All the world's a stage (Poem) by William Shakespeare
Reading - Reading for explicit and implicit meaning Writing - Short essays: 2-Paragraph Essay, Thesis Statement Grammar - Subject-Verb agreement, Degrees of Comparison Vocabulary - Caring and Emotions, Medical Abbreviations and Acronyms **ELCS LAB** CALL LAB: Consonant Clusters Listening - Listen- Comprehend - Speak , Health Care ICS LAB: Speaking - Formal Discussions, Physical Description/Personality

UNIT 5: Sister Nivedita: Calcutta's Angel of Mercy (Article/Essay) by Monidipa Dey
Reading - Intensive and Extensive Reading, Reading comprehension passages from OET and IELTS Writing - Report writing (Analyzing tests and Reporting patient condition) Grammar – Voice, If conditionals Vocabulary - Health, Hygiene and Wellness, Medical Vocabulary/Terminology **ELCS LAB** CALL LAB: Past Tense Markers and Plural Markers Listening - Listening tasks from OET and IELTS ICS LAB: Speaking - Conversation practice, Short oral presentations specifying the condition of the patient

COURSE OUTCOMES:

- Construct grammatically correct sentences with appropriate vocabulary.

- Analyze, interpret and synthesize a diverse range of profession-specific concepts through better comprehension of the text.
- Draft various types of written communication pieces useful to their professional lives.
- Understand and apply norms of scientific communication, soft skills and positive interpersonal communication.
- Listen effectively and speak fluently in formal and informal situations, especially in their workplace.

TEXTBOOK:

1. English for nurses by Vijaya Laxmi Naidu. Nirali Prakashan. 2008.

REFERENCE BOOKS:

1. Practical English Usage by Michael Swan. OUP. 1995.
2. On Writing Well by William Zinsser, Harper Resource Book. 2001.
3. Cambridge English for nursing by Virginia Allum and Patricia Mc Garr. CUP. 2010.
4. English for nursing by Ross Wright and Bethany Cagnol. Pearson. 2001.
5. English for nursing-2 by Maris Spada Symonds and Ross Wright. Pearson. 2001.
6. Everyday English for International nurses by Joy Parkinson and Chris Brooker. Elsevier. 2004.
7. Oxford English for career Nurses by Tony Grice. Oxford University Press. 2007.

BASIC COMPUTERS

L/T/P/C
1/-/2/2

COURSE OBJECTIVES:

1. To understand all components of computer, different working environments and operations ofcomputer.
2. To learn creating different types of word documents, MS Excel manipulations, Power pointdocuments.
3. To understand basic requirements of computer network hardware, software and itsnetwork architecture.

UNIT – I

Introduction to computers--Definition of Computer-Characteristics of computer-Components of Computer Hardware – Input & Output devices- Memories– RAM and ROM– MB, GB their conversions – Software : Application Software and Systems software- Data and Information –Different computer languages- Number systems- Binary and decimal conversions.

UNIT – II

MS WORD: Typing text in MS Word– Manipulating text¬– formatting text–using different font sizes, bold, italic– bullets and numbering –Pictures, Aligning the text and justify– choosing paper size– adjusting margins– header and footer, inserting page no's in a doc– printing a file with options– using spell check and grammar– find and replace– mail merge – insert tables in a document.

UNIT – III

MS EXCEL: Creating MS Excel-Cell editing, using formulas and functions, manipulating data with excel– using sort function to sort numbers and alphabets– drawing graphs and charts using data in excel.

MS POWERPOINT: Slide transition and animation-slides with sounds– inserting clip arts– Pictures, tablesand graphs.

UNIT – IV

Introduction to Computer Networks: Introduction, Computer Network Devices(Hubs, Switches, Routers, Gateway, Bridge, Modems, Wireless Access Points, Firewalls & NIC), Types of computer Networks (LAN, MAN & WAN), Network Topologies (Star, Ring, Mesh, Tree, Hybrid Topologies), Internet Based Applications, Advantages & Disadvantages of Computer Networks, E-Mail, Components of E-Mail, Attaching Files in E-mail, Different Search Engines.

UNIT – V

Introduction to Artificial Intelligence & ML: History of AI, Sub Areas of AI, Applications of AI in Healthcare, Benefits of AI in Health Care, Challenges of AI in Healthcare, Introduction to MachineLearning, Applications of Machine Learning, Machine Learning Algorithms, Real world Machine Learning Use Cases.

COURSE OUTCOMES:

At the end of the course the student will be able

1. To understand peripherals of the computer how it works and understand various languages ofthe computer.
2. To create any kind of presentations for presenting their knowledge anywhere in the form ofdocument or ppt.
3. To create excel sheets to save data and process the data efficiently.
4. To understand basic requirements of computer network hardware, software and itsnetwork architecture.

REFERENCES:

1. Computer Fundamentals by Goel, Anita Pearson
2. Computer Fundamentals : Concepts, Systems & Applications- 8th Edition by Priti Sinha, PradeepK., Sinha
3. MS-Office 2010 Training Guide by Prof. Satish Jain, M. Geetha
4. Computer Networks, Andrews S Tanenbaum, 5th Edition, Pearson Education
5. Artificial Intelligence : A modern Approach, Stuart J. Russell and Peter Norvig, Third Edition, PearsonEducation
6. Hands-on Machine Learning with Scikit-Learn, Keras, and TensorFlow, Aurelien Geron-Oreilly, 2ndEdition.

HUMAN ANATOMY - I Practical

L/T/P/C
-/-/4/2

Human anatomy practicals for physiotherapy students are essential for understanding the structure of the human body, its systems, and their functional relationships. These practicals focus on giving students hands-on experience in identifying anatomical structures, learning dissection techniques, and understanding the musculoskeletal, nervous, and cardiovascular systems, all of which are vital for effective physiotherapy practice.

GROSS SPECIMENS/SPOTTERS

Upper Extremity

1. Identify the **spotter**- (Cross section of shoulder Joint, Elbow Joint, Wrist complex,Hand)
2. Identify the bone- UPPER EXTREMITY BONES (Scapula, Clavicle, Humerus, Radius and Ulna, Carpals, Metacarpals and Phalanges) Including side determination
3. **Surface Anatomy of the Upper Extremity** – UPPER EXTREMITY BONES AND MUSCLES
4. Myology- **(cadaveric spotter)** Spotters of the upper extremity muscles including the origin, insertion, blood and nerve supply
5. Spotters of Blood vessels (Profunda Brachii, Brachial, Radial, Ulnar)
6. Spotter of Nerves (Axillary, Musculocutaneous, Radial, Median, Ulnar)

Structure and Parts of the Breast- Spotter

Cardio-vascular and Respiratory Anatomy

1. Gross Specimen of Heart, Lung
2. Spotters of Bronchial tree, Bronchopulmonary segments
3. Myology- (Diaphragm, Intercoastal muscles and Accessory Muscles)

Systemic Anatomy

1. Gross Specimen/Spotter (Stomach, Liver, Gall Bladder, Spleen, Pancreas, Intestines,Kidney, Uterus)

2. Cross section of Kidney
3. Spotters of Glands- (Pituitary Gland, Thyroid gland, Adrenal gland, Parathyroid, Pineal Gland)

HUMAN PHYSIOLOGY - I Practical

L/T/P/C
-/-/4/2

These practicals typically align with the theoretical aspects of physiology and help students apply concepts to real-world clinical scenarios. Key Areas Covered in Human Physiology for this semester includes the following.

1. Determination of blood group
2. Estimation of haemoglobin concentration
3. Peripheral pulse determination
4. Auscultation of Heart sounds
5. Determination of blood pressure
6. Auscultation of breathe sounds
7. Assessment of respiratory rate
8. Anthropometric assessment (BMI & WHR)

Semester- II

1. Human Anatomy - II
2. Human Physiology - II
3. Fundamentals of Exercises therapy and soft tissue manipulation
4. Fundamentals of Electrotherapy
5. General Psychology
6. Human Anatomy – II Practical
7. Human Physiology – II Practical
8. Fundamentals of Exercises therapy and soft tissue manipulation-Practical
9. VAC 1. and VAC 2 (Interpersonal Communication. and Stress Management)

HUMAN ANATOMY – II

L/T/P/C
4/-/-/4

COURSE DESCRIPTION:

The focus of this course is an in-depth study and analysis of the regional and systemic organization of the body. Emphasis is placed upon structure and function of human movement. A comprehensive study of human anatomy with emphasis on the nervous, musculoskeletal and circulatory systems is incorporated. Introduction to general anatomy laysthe foundation of the course. Dissection and identification of structures in the cadaver supplemented with the study of charts, models, prosected material and radiographs are utilized to identify anatomical landmarks and configurations.

Objectives:

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

- Identify & describe Anatomical aspects of muscles, bones,joints, their attachments & to understand and analyze movements.
- Apply the knowledge of anatomy on the living (living anatomy).
- Identify and describe the course of peripheral nerves and blood vessels
- Obtain Knowledge of other systems & sensory organs

SYLLABUS

UNIT-I

LOWER EXTREMITY:

1. Osteology including features, side determination, muscular attachment, clinical and applied anatomy of the following lower extremity bones

   Innominate bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges.

2. Myology: Origin, insertion, nerve supply, action, function, clinical and applied anatomy
   - Anterior compartment of thigh, Medial compartment and Posterior compartment
   - Gluteal Region
   - Anterior aspect of leg, medial and lateral aspect, Posterior aspect of leg
   - Dorsum of foot

UNIT-II

LOWER EXTREMITY:

1. Arthrology: Joint structure, articulating components, relations, joint actions, Clinical and Applied Anatomy including Radiography
2. Hip Joint, Knee joint, Ankle joint, joints of the foot.
3. Femoral triangle, femoral canal and inguinal canal, Adductor canal, popliteal fossa, arches of foot
4. Lumbar plexus, Sacral plexus, Nerves of the Lower Extremity including cutaneous Nerves
5. Blood vessels and lymphatic drainage

UNIT-III

VERTEBRAL COLUMN AND PELVIC GIRDLE:

1. Atypical and typical vertebra
2. Structure and features of Cervical, thoracic, lumbar, sacral and coccygeal vertebrae
3. Origin, insertion, nerve supply and actions of pre and para vertebral muscles
4. Muscles of Trunk and Abdomen
5. Core muscle Anatomy

6. Joints of vertebral column, structure and composition of intervertebral disc including the Radiography Evaluation
7. Joint structure, articulating components, relations, joint actions, Clinical and Applied Anatomy including Radiography of Sacro- Iliac joint
8. Structure of Innominate bone Pelvic girdle and muscles of the pelvic floor including Applied Anatomy

UNIT-IV

HEAD AND NECK:

1. Bones of the skull and face
2. Muscles of the face and neck
3. Triangles of the neck
4. Gross anatomy of eyeball, nose, ears and tongue

UNIT-V

NEURO ANATOMY:

1. General organization of Nervous System
2. Central Nervous System-Gross structure of Brain and Spinal Cord
3. Diencephalon- Gross structure of Thalamus, Hypothalamus and Basal Ganglia
4. Meninges and Coverings of spinal cord
5. Cerebro-Spinal Fluid and ventricles of brain
6. Spinal Cord- Segmental features, Laminae, Nuclei, Tracks of spinal cord
7. Spinal nerves, nerve root ganglia
8. Blood supply to brain and spinal cord with clinical and applied anatomy
9. Peripheral Nervous system
10. Cranial nerves- Course and applied AnatomNeuromuscular junction

RECOMMEMDED TEXT BOOKS

1. Human Anatomy – Snell
2. Anatomy- Chaurasia, Volume- I,II & III
3. Neuro anatomy -- Inderbir Singh
4. Human Anatomy – Kadasne, Volume- I,II & III

5. Neuroanatomy -- Vishrsam Singh

6. Human Anatomy – Datta

HUMAN PHYSIOLOGY-II

L/T/P/C
4/-/-/4

COURSE DESCRIPTION

The course in Physiology over the first year is designed to give the student an in-depth knowledge of fundamental reactions in the human body. The major topics covered include the following: Nervous system, special senses, reproductive system, endocrine system, gastro-intestinal and excretory.

Objectives:

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

- Describe physiological functions of various systems, with special reference to nervous system
- Acquire the skill of basic clinical examination, with special emphasis to Peripheral & Central Nervous system, special senses.

SYLLABUS

UNIT-I

NERVOUS SYSTEM-I

1. Introduction to nervous system - CNS, PNS and ANS
2. Neurotransmitters - Definition, fate of neurotransmitter, types
3. Synapse - Definition, type, structure, transmission of impulse across a synapse, properties.
4. Receptors and Sensation - Types of sensations, Classification of receptors, properties
5. Sensory System - Organization of the sensory system, sensory Homunculus
6. Ascending Tracts - Definitions, Neuronal composition of ascending tracts, dorsal column, anterolateral tract
7. Pathophysiology of pain - Definitions, hyperalgesia and allodynia, deep pain, referred

pain and it's theories, management of chronic pain, endogenous opioid analgesic system

8. Motor Cortex - Cerebrum, cortical areas of brain, motor homunculus, cerebral dominance, connections, mapping the functional areas of brain
9. Descending Tracts - Pyramidal system, extrapyramidal system

UNIT-II

NERVOUS SYSTEM-II

1. Spinal cord - Introduction, effects of complete transection of the spinal cord, effects of hemisection of the spinal cord(Brown-Sequard Syndrome)
2. Reflexes - Reflex action, reflex arc, classification, properties, types - conditioned reflex, stretch reflex, inverse stretch reflex, withdrawal reflex, crossed extensor reflex, superficial reflexes(Plantar & Abdominal)
3. Connections, Functions and applied aspect of thalamus, hypothalamus, cerebellum, basal ganglia
4. Regulation of tone, Posture and it's reflexes, Equilibrium and vestibular apparatus
5. Limbic system, Reticular Activating System, Sleep and it's types, sleep disorders, Electroencephalogram (EEG)
6. Higher Functions - Learning, Memory,Speech
7. Autonomic Nervous System - Sympathetic division, Parasympathetic division, control of autonomic functions
8. Cerebrospinal fluid - Formation and circulation, composition and properties, functions, applied aspect - Hydrocephalus, lumbar puncture

UNIT-III

SPECIAL SENSES:

1. Vision - Anatomy of eye, visual pathway, pupillary reflexes, dark adaptation, light adaptation, photosensitivity
2. Hearing - Anatomy of ear, auditory pathway, tests for hearing - Watch test, Rinne's test, Weber's test, deafness, Audiometry
3. Taste and Smell: Taste sensations, taste pathway, olfactory pathway

ENDOCRINOLOGY:

1. Hormones - Definition, types, hormonal chemistry, regulation, hormone receptor, mechanism of action
2. Secretion, regulation, function and applied aspect of Hypothalamus, Pituitary Gland, Thyroid Gland, Parathyroid Gland, Pancreas, Adrenal Gland.

UNIT-IV

REPRODUCTIVE SYSTEM:

1. Sex determination and differentiation & it's abnormalities, puberty, importance of sex hormones
2. Female reproductive system - Internal & external genital organs, Oogenesis, Structure of egg, Follicle development, ovulation, menstrual cycle, menopause
3. Male reproductive system - Testes, accessory sex organs, Spermatogenesis, structure of sperm
4. Physiology of pregnancy - Fertilization, Implantation, Placenta(formation, function, hormones), maternal changes during pregnancy, pregnancy tests, infertility
5. Childbirth Physiology - Parturition, Lactation

UNIT-V

GASTROINTESTINAL SYSTEM:

1. Physiological stages of digestion
2. Liver function

EXCRETORY SYSTEM:

1. Kidneys-structure & function
2. Urine formation (to exclude concentration and dilution)
3. Juxtaglomerular apparatus
4. Fluid and electrolyte balance – Na, K, H_2O
5. Neural control of Micturition and diuresis
6. Applied physiology: Types of bladder

RECOMMENDED TEXT BOOKS

1. Text book on Medical Physiology – Guyton

2. Textbook of Physiology – A K Jain

FUNDAMENTALS OF EXERCISES THERAPY AND SOFT TISSUE MANIPULATION

L/T/P/C
3/-/-/3

COURSE DESCRIPTION

The subject provides introduction to Exercise Therapy. It explains the basic mechanics and its application to human body. It also describes fundamental and derived positions and their effects and uses. It covers various relaxation techniques that are applied to induce relaxation. This course additionally covers therapeutic principles and skills of application of massage. It also enhances the skill of evaluation of vital parameters.

Objectives:

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

- Define the various terms used in relation to Mechanics, muscle mechanics
- Demonstrate the movements in terms of various anatomical planes and axes.
- Demonstrate various starting & derived positions used in therapeutics.
- Describe physiological principles & acquire the skills of application of therapeuticmassage
- Acquire the skills of assessment of basic evaluation like sensations, reflexes &vitalparameters
- Describe physiological basis and principle of relaxation and acquire the skills ofrelaxation methods

SYLLABUS

UNIT-I

1. Basic principles

a) Introduction to Exercise Therapy

b) The aims of Exercise Therapy

c) The techniques of Exercise Therapy

d) Approach to patient's problems and Assessment of patient's condition

e) Measurements of Vital parameters

2. Mechanics & its Application to human body

a) Axes / planes

b) Laws of inertia & motion

c) Gravity, C.O.G., L.O.G. and B.O.S.

d) Equilibrium – Types and affecting factors

e) Mechanics of Forces Work, Energy, Power

f) Friction, Momentum, Parallelogram of Forces

g) Torque

h) Pendulum

i) Mechanical and Anatomical pulleys

j) Levers

3. Muscle Mechanics

a) Types of Muscles- Anatomical & Physiological

b) Types of muscle work / Contraction

c) Muscle Action: Roles as Agonist, Antagonist, Fixators, Synergist

d) Active & Passive insufficiency

e) Range of muscle work, Angle of pull – with importance to efficiency of muscle work andstability of joint

UNIT-II

Starting Positions:

Fundamental positions & derived Positions: Demonstration, muscle work, effects and uses.

UNIT-III

Relaxation:

1. *Introduction:* Muscle Tone, Postural tone, Voluntary Movement, mental attitude,

Degrees of relaxation, Pathological tension in muscle

2. *Methods & techniques of relaxation:*
    a) General relaxation:
        - Support, comfort, restful atmosphere
        - Additional Methods of promoting Relaxation - Jacobson's and Laura Mitchell
    b) Local Relaxation:
        - Heat, Massage, Rhythmicpassive movements

UNIT-IV

Soft tissue manipulation:

a. Definition
b. History
c. Classification
d. Principles
e. Technique
f. Effects & uses (Physiologic and therapeutic effects)
g. Indications and contra indications

UNIT-V

Soft tissue manipulation:

Therapeutic application for the following regions

- Upper limb
- Lower Limb
- Neck
- Back
- Abdomen
- Face
- Scalp

Recommended Textbooks

1. Therapeutic exercise by Barbara Bandy
2. Therapeutic exercise by Carolyn Kisner
3. Principles of exercise therapy by M.Dena Gardiner

4. Practical Exercise therapy by Hollis Margaret
5. Therapeutic exercise by Sydney Litch
6. Therapeutic exercise by Hall & Brody
7. Therapeutic exercise by Basmajjian
8. Physical Rehabilitation by o'Sullivan.
9. Therapeutic massage by Gaurang Sinha

FUNDAMENTALS OF ELECTROTHERAPY

L/T/P/C
3/-/2/4

COURSE DESCRIPTION

This course will cover the basic principles of Physics that are applicable in medical equipments used in Physiotherapy. It will also help to understand the fundamentals of currents, sound waves, Heat & its effects, electromedical radiations and their effects as well as their application in physical therapy.

Objectives:

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

- Recall the physics principles & Laws of Electricity, Electrom agnetic spectrum, & ultrasound
- Describe effects of environmental & man made electromagnetic field at thecellular level & risk factors on prolonged exposure.
- Describe the Main electrical supply, Electric shock, precautions
- Enumerate Types & Production of various Therapeutic electrical currents & describe thepanel diagrams of the machines
- Test the working of the various electrotherapeutic equipments
- Describe in brief, certain common electrical components such as transistors, valves, capacitors, transformers etc & the simple instruments used to test / calibrate these components

SYLLABUS

UNIT – I

- **Basic Physics of electricity:**

  Structure of atom, Isotopes, States of matter; Compound formation-(covalent formation),Properties of Electric lines of forces, Conductors, Non-conductors, Latent heat,Transmission of heat

- **Condenser:**
  - Principles
  - Capacity
  - Types & construction
  - Electric field
  - Charging and discharging of thecondenser
  - Duration of Discharge
  - Discharge through inductance
  - Capacitive reactance & uses ofcondenser

UNIT – II

- **Main supply:**
  - Production of Electricity
  - Types: A.C./ D.C.
  - Distribution/ Grid system wiring of thehouse, colour coding of electrical supply to the apparatus
  - Earthing and its importance
  - Types of Plugs & Switches
- **Static Electricity:**
  - Theory of Electricity
  - Production of Electric Charge
  - Characteristics of charged electrical bodyand capacitor and inductance: types & uses
  - Potential difference
- **Current electricity**

- EMF
- Resistance: Combination of resistance in series and parallel
- Ohms Law
- Devices for regulating current: Identification, functioning & Uses- Rheostat, Potentiometer, Ammeters,
- Oscilloscopes, Voltmeter
- Voltage and Power
- Thermal effects of electric current-Joule's Law.

- **D.C. and A.C.:**
  - Source – Cell and rectified AC
  - Rectification of AC
  - Thermionic valves – Diode and Triode
  - Metal Rectifier
  - Types of Rectification
  - Transformers-Types & Functions
  - Smoothing circuit
  - Semiconductor and its types
  - Diodes & Transistors
  - Choke coil
- **Electric Shock**
  - Definition
  - Types (Electric Shock & Earth shock)
  - Severity
  - Causes, Effects & Precaution

UNIT – III

- **Magnetism:**
  - Nature and Types
  - Molecular theory of Magnetism
  - Property of Magnet
  - Magnetic effect of electric current – Electro Magnets
- **Electro Magnetic Induction:**

- Production
- Direction of induced EMF
- Strength of induced EMF
- Type – Self & Mutual induction
- Inductive Reactance
- Eddy currents
- Principles and Laws – Faraday's , Lenz's
- Dynamo

- **Electro Magnetic Spectrum:**
  - Laws of transmission: Reflection, Refraction, Absorption, Attenuation
  - Electro Magnetic Radiation
  - Laws Governing E.M.R.
  - Laws of Reflection, Refraction, Absorption,Attenuation, Cosine Law, Inverse SquareLaw, Grothus Law
- **Environmental currents:** Risk factors on prolonged exposure to E.M. field.

UNIT – IV

Electrical Modalities: Production, Physical principles, Panel diagrams,Testing of apparatus of the following.

- S.W.D.
- Ultrasound
- U.V.R.
- I.R.

UNIT – V

Electrical Modalities: Production, Physical principles, Panel diagrams,Testing of apparatus of the following.

- I.F.T.
- Diagnostic Electrical Muscle Stimulator
- T.E.N.S
- LASER (no panel diagram)

Recommended books:

1. Clayton's Electro therapy – 3rd & 10th edition
2. Electro therapy explained – Low & Reed
3. Electro Therapy – Kahn
4. Electrotherapy Evidence Based Practice-Sheila Kitchen 11th edition
5. Clinical Electrotherapy -- Nelson & Currier

GENERAL PSYCHOLOGY

L/T/P/C
3/-/-/3

SUBJECT DESCRIPTION

Human Psychology involves the study of various behavioural patterns of individuals, theories of development, normal and abnormal aspects of motor, social, emotional and language development, communication and interaction skills appropriate to various age groups. The study of these subjects will help the student to understand their clients while assessment and while planning appropriate treatment methods.

Objectives:

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

- Define the term Psychology & its importance in the Health delivery system, & will gain knowledge of Psychological maturation during human development & growth & alterationsduring aging process.
- Understand the importance of psychological status of the person in health & disease;environmental & emotional influence on the mind & personality.
- Have the knowledge and skills required for good interpersonal communication.

SYLLABUS

UNIT - I

1. Introduction to Psychology

a) Schools: Structuralism, functionalism, behaviourism, Psychoanalysis.
b) Methods: Introspection, observation, inventory and experimental method.
c) Branches: pure psychology and applied psychology
d) Psychology and physiotherapy

2. Growth and Development

a) Life span: Different stages of development (Infancy, childhood, adolescence, adulthood, middle age, old age).
b) Heredity and environment: role of heredity and environment in physical and psychological development, “Nature v/s Nurture controversy”.

UNIT - II

1. Sensation, attention and perception

a) Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense.
b) Attention: Types of attention, Determinants of attention (subjective determinants and objective determinants).
c) Perception: Gestalt principles of organization of perception (principle of figure ground and principles of grouping), factors influencing perception (past experience and context).
d) Illusion and hallucination: different types.

2. Motivation

a) Motivation cycle (need, drive, incentive, reward).
b) Classification of motives.
c) Abraham Maslow’s theory of need hierarchy

UNIT - III

1. Frustration and conflict

a) Frustration: sources of frustration.

b) Conflict: types of conflict.

c) Management of frustration and conflict

2. Emotions

a) Three levels of analysis of emotion (physiological level, subjective state, and overt behavior).

b) Theories of emotion

c) Stress and management of stress.

3. Intelligence

a) Theories of intelligence.

b) Distribution of intelligence.

c) Assessment of intelligence

UNIT - IV

1. Learning

a) Factors effecting learning.

b) Theories of learning: trial and error learning, classical conditioning, Operant conditioning, insight learning, social learning theory.

c) The effective ways to learn: Massed/Spaced, Whole/Part, Recitation/Reading, Serial/Free recall, Incidental/Intentional learning, Knowledge of results, association, organization, and mnemonic methods.

2. Thinking

a) Reasoning: deductive and inductive reasoning

b) Problem solving: rules in problem solving (algorithm and heuristic)

c) Creative thinking: steps in creative thinking, traits of creative people

UNIT - V

1. Personality

a) Approaches to personality: type & trait, behavioristic, psychoanalytic and humanistic approach.

b) Personality assessment: observation, situational test, questionnaire, rating scale, interview, and projective techniques.

c) Defence Mechanisms: denial of reality, rationalization, projection, reaction formation, identification, repression, regression, intellectualization, undoing, introjection, acting out.

Recommended books:

1. Invitation to Psychology - Beena and Paremeshwaran.
2. General Psychology - S.K.Mangal.
3. Introduction to Health Psychology - Shelly E.Taylor.
4. Introduction to Psychology - Atkinson and Hilgard.
5. Introduction to Psychology - Morgan and king.
6. Psychology applied to modern life - Wayne Weiten Margareta L. Lord.
7. Psychology and Sociology for GNM and BPT student - Jacob Anthikad

HUMAN ANATOMY PRACTICAL – II

L/T/P/C
-/-/3/1.5

GROSS SPECIMENS/SPOTTERS

SPINE, PELVIS AND LOWER EXTREMITY

7. Identify the **spotter**- Osteology- Identify the bone, LOWER EXTREMITY BONES (Innominate bone, femur, tibia, fibula, patella, tarsals, metatarsals and phalanges.) Including side determination, Spinal Segments, Vertebrae (Cervical, Thoracic, Lumbar, Sacral and Coccyx), Pelvis and Innominate Bones
8. **Surface Anatomy of the Spine and Lower Extremity** –Atlas, Axis, C-7 vertebrae, Spinous and Transverse process of vertebra, Locate the Innominate bone, ASIS and PSIS, Coccyx, Sacrum, Greater Trochanter, Condyles of femur, Patella, Tibial Tubercles and condyles, Shin Bone, Tarsal bones, Malleoli
9. Myology- **(cadaveric spotter)** Spotters of the lower extremity muscles including the origin, insertion, blood and nerve supply
10. Arthrology- (Cross section of Hip Joint, Knee Joint, Ankle Joint, Joints of Foot, Pelvic Joints, Joints of Spine, Intervertebral Joints, Facet Joints, Sacro-Iliac Joints)
11. Abdominal muscles, Pre and para vertebral muscles, pelvic floor muscles
12. Popliteal Fossa, Inguinal Canal, Arches of foot
13. Spotters of Blood vessels

NEURO-ANATOMY

IDENTIFY THE SPOTTER

1. Cross Section of the Skull, Sinuses of skull,
2. Muscles of the skull and face
3. Triangles of the neck

SYSTEMIC ANATOMY

1. Gross Specimen/Spotter (Brain and Spinal Cord)
2. Cross section of brain and spinal cord
3. Identify the spinal nerves
4. Cranial Nerves

HUMAN PHYSIOLOGY PRACTICAL – II

L/T/P/C
-/-/3/1.5

1. Examination of superficial sensations
2. Examination of deep sensations
3. Examination of cortical sensations
4. Examination of reflexes
5. Cranial nerve examination
6. Examination of Balance and coordination

FUNDAMENTALS OF EXERCISES THERAPY AND SOFT TISSUE MANIPULATION-PRACTICAL

L/T/P/C
-/-/4/2

1. Measurements of Vital parameters
2. Demonstration of Fundamental and Derived position
3. Demonstration of various techniques to induce Relaxation.
4. Soft tissue manipulations

SECOND YEAR

Semester – III

1. Pathology
2. Microbiology
3. Biomechanics and Kinesiology-I
4. Exercise therapy-I
5. Electrotherapy-I
6. Exercise therapy-I Practical
7. Electrotherapy-I Practical
8. VAC (Soft Skills Development)

PATHOLOGY

L/T/P/C
3/-/-/3

SUBJECT DESCRIPTION:

Students will develop an understanding of pathology underlying clinical disease states involving the major organ systems and epidemiological issues. Students will learn to recognize pathology signs and symptoms considered red flags for serious disease. Students will use problem-solving skills and information about pathology to decide when referrals to another health care provider or alternative interventions are indicated. Students will develop the ability to disseminate pertinent information and findings, and ascertain the appropriate steps to follow.

SYLLABUS

UNIT-I

INTRODUCTION TO PATHOLOGY:

1. **Cell injuries:**
    a) Reversible cell injury: Types, Sequential changes, Cellular swellings, vacuolation, Hyaline changes, Mucoidchanges
    b) Irreversiblecellinjury: Typesof Necrosis & Gangrene, Autolysis. Pathologic calcification: Dystrophic and Metastatic
    c) Intracellular Accumulations – Mucin, Protein accumulations
    d) Extra cellular accumulations: Amyloidosis - Classification, Pathogenesis,

Pathology including special stains.

2. **Inflammation and Repair:**
    a) Acute inflammation: features, causes, vascular and cellular events.
    b) Inflammatory cells and Mediators.
    c) Chronic inflammation: Causes, Types, Classification nonspecific and granulomatous with examples.
    d) Repair, Wound healing by primary and secondary union, factors promoting and delaying the process.
    e) Healing: Muscle, nerveand bonehealing.

3. **Immunopathology:**
    a) Immune system: General concepts.
    b) Hypersensitivity: type and examples, antibody and cell mediated tissue injury with examples. Secondary immunodeficiency including HIV Infection. Auto-immune disorders: Basic concepts and classification, SLE.
    c) AIDS- Etiology, Mode of transmission, Diagnostic procedures, handling of infected material and health education.

UNIT-II

1. **Circulatory Disturbances:**
    a) Hyperemia/Ischemia and Hemorrhage Edema: Pathogenesis and types. Chronic venous congestion: Lung, Liver, Spleen, Systemic Pathology Thrombosis and Embolism: Formation, Fate and Effects.
    b) Infarction: Types, Common sites.
    c) Shock: Pathogenesis, types, morphologic changes.
2. **Growth Disturbances and Neoplasia:**
    a) Atrophy, Hypertrophy, Hyperplasia, Aplasia, Hypoplasia, Metaplasia, agenesis, dysplasia.
    b) Precancerous lesions.
    c) Neoplasia: Definition, classification, Biological behaviour: Benign

and Malignant, Carcinoma and Sarcoma.

d) Malignant Neoplasia: Grades and Stages, Local & Distant spread.

e) Carcinogenesis: Environmental carcinogens, chemical, viral, occupational and Heredity

f) Tumour & host interactions–local and systemic effects-metastatic (special reference to bones andC.N.S.)

UNIT-III

1. **Alimentary tract:**

Gastric / Duodenal ulcer, Enteric fever, Enteritis, Gastritis (related to consumption of NSAID)

2. **Nutritional Disorders:**

Protein energy malnutrition: Marasmus, Kwashiorkor, and Vitamin deficiency disorders, classification with specific examples.

3. **Endocrine:** Hypo and Hyperthyroidism, Diabetes

4. **Genetic Disorders:**

Basic concepts of genetic disorders and some common examples and congenital malformation.

UNIT-IV:

1. **Respiratory System:**

Pneumonia, Bronchitis, Bronchiectasis, Asthma, Tuberculosis, Carcinoma of lungs, Occupational lung diseases

2. **Cardiovascular Pathology:**

a. Congenital Heart disease: Atrial septal defect, Ventricular septal defect, Fallot's tetralogy, Patent ductus arteriosus. Endocarditis. Rheumatic Heart disease.

b. Vascular diseases: Atherosclerosis, Monck Berg's medial calcification, Aneurysm and Arteritis and tumors of Blood vessels.

c. Ischemic heart Disease: Myocardial infarction. Hypertension and hypertensive heart Disease.

UNIT-V:

Musculoskeletal System:

a. Osteomyelitis – Rickets – Osteomalacia –Osteoporosis

b. Arthritis- degenerative (Osteoarthritis, Calcanealspur, Periarthritis, Spondylosis)

c. inflammatory (R.A., AnkylosingSpondylitis, Gout)

d. Infective-T.B.

Neuropathology:

a. Neuropathology

b. Inflammationsand Infections: TB Meningitis, Pyogenic Meningitis,

viral meningitis and Brain Abscess

c. Tuberculosis, Cysticercosis

d. CNS Tumors, Astrocytoma, Neuroblastoma, Meningioma, Medulloblastoma.

e. Cerebro-Vascular Diseases – Atherosclerosis – Thrombosis, Embolism, Aneurysm, Hypoxia, Infarction & Hemorrhage, Hydrocephalous, Increased Intracranial Pressure

f. Leprosy

g. Parkinsonism

Recommended Textbooks

1. Textbook of pathology: Harsh Mohan
2. General systemic pathology: Churchill Livingstone
3. Text book of Pathology: Robbins
4. General Pathology – Bhende

MEDICAL MICROBIOLOGY

L/T/P/C
3/-/-/3

SUBJECT DESCRIPTION:

Microbiology involves the study of common organisms causing diseases including nosocomial infections and precautionary measures to protect one from acquiring infections. The knowledge and understanding of Microbiology is essential to institute appropriate treatment or suggest preventive measures to the patient. It is essential for the students to develop sound knowledge of prevalent communicable diseases and the agents responsible for causing clinical infections, pertaining to C.N.S, C.V.S, Musculoskeletal system, Respiratory system, genitourinary system, wound infections and of newer emerging pathogens. The students will know the importance and practices of best methods to prevent the development of infections inself and patients (universal safety precautions)

SYLLABUS

UNIT-I

General Microbiology:

a) Definitions: infections, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic, Zoonosis, Epizootic, Attack rate.
b) Normal flora of the human body.
c) Routes of infection and spread; endogenous and exogenous infections; source at reservoir of infections.
d) Bacterial cell. Morphology limited to recognizing bacteria in clinical samples Shape, motility and arrangement. Structures, which are virulence, associated.
e) Physiology: Essentials of bacterial growth requirements.
f) Sterilization, disinfection and universal precautions in relation to patient care and disease prevention. Definition of asepsis, sterilization, disinfection.
g) Antimicrobials: Mode of action, interpretation of susceptibility tests, resistance spectrum of activity.

UNIT-II

Immunology:

a) Basic principles of immunity immune biology: lymphoid cells and organs. Antigen, Antibodies, antigen and antibody reactions with relevance to pathogenesis and serological diagnosis.

b) Humoral immunity and its role in immunity Cell mediated immunity and its role in immunity. Immunology of hypersensitivity.

UNIT-III

Clinical/Applied Microbiology:

Pathogenesis, Disease spectrum, management and prevention of:

a) Streptococcal infections.

b) Tuberculosis and leprosy.

c) Poliomyelitis.

d) Hepatitis, HIV.

e) Pyrexia of unknown origin

UNIT-IV

Pathogenesis, Disease spectrum, management and prevention of:

a) Sexually transmitted diseases.

b) Respiratory tract infections, anaerobic infections.

c) CNS infections, GIT infections, Pelvic inflammatory disease.

d) Urinary tract infections, Wound infections.

e) Blood stream infections, Hospital acquired infections.

f) Zoonotic diseases, Opportunistic infections.

g) Malaria, Filariasis

UNIT-V

General Virology

a) General properties of viruses

b) Basic structure and broad classification of viruses

c) Pathogenesis of viral infections

d) List of commonly used antiviral agents

Mycology:

a) General properties of fungi

b) Classification based on disease: superficial, subcutaneous, Systemic and opportunistic infections including Mycotoxins

c) Antifungal agents.

Recommended Textbooks:

1. Short text book of Medical Microbiology by Sathish Gupta
2. Text book of Microbiology by Jayaram Panicker
3. Microbiology &Parasitology by Rajesh war Reddy
4. Text book of Microbiology by Anantha Narayanan
5. Microbiology by Baveja
6. Text book of microbiology by Chakraborthy

BIOMECHANICS AND KINESIOLOGY- I

L/T/P/C
4/-/-/4

SUBJECT DESCRIPTION:

This subject provides an in-depth exploration of the principles of biomechanics, focusing on the mechanical aspects of human movement and the forces that act on the body during various physical activities. Students will learn how to analyze and understand the complex interactions between muscles, bones, joints, and external forces, applying this knowledge to improve movement efficiency, prevent injury, and enhance performa nce in sports, rehabilitation, and everyday activities.

SYLLABUS

UNIT-I

INTRODUCTION TO BIOMECHANICS:

a) Basic principles of joint design

b) Classification of joints

c) Osteokinematics & Arthrokinematics

d) Concave Convex Rule

e) Elements of muscle structure and function

f) length tension relationship

g) Properties of connective tissues (Bone, muscles, cartilage, tendons and ligaments, capsule): eg. Histeresis, Creep, Stress relaxation, Viscoelasticity

UNIT-II

1. **The shoulder complex:** Structure and components of the shoulder complex and their integrated function.
2. **The elbow complex:** Structure and function of the elbow joint – humeroulnar and humeroradial articulations, mobility and stability of the elbow complex; the effects of immobilization and injury.

UNIT-III

1. **Superior and inferior radioulnar joints:** Structure and function
2. **The wrist and hand complex:** Structural components and functions of the wrist complex; structure ofthehand complex; functional position of the wrist and hand.

UNIT-IV

1. **The hip complex:** structure and function of the hip joint; hip joint pathology- arthrosis, fracture, bony abnormalities of the femur:
2. **The knee complex:** structure and function of the knee joint – tibiofemoral joint and patellofemoral joint; effects of injury and disease.

UNIT-V

The ankle and foot complex:

structure and function of the ankle joint, subtalar joint, talocalcaneonavicular joint, transverse tarsal joint, tarsometatarsal joints, metatarsophalangeal joints, interphalangeal joints, structure and function of the plantar arches, muscles of the ankle and foot, deviations from normal structure and function – Pes Planus and Pes Cavus

EXERCISE THERAPY-I

L/T/P/C
4/-/-/4

SUBJECT DESCRIPTION:

This course offers an in-depth exploration of the various techniques used in exercise therapy to improve physical function, enhance mobility, and aid in the rehabilitation of injuries and chronic conditions. Students will learn to apply specific therapeutic exercise interventions that address the unique needs of different populations. Emphasis is placed on the practical application of these techniques, grounded in evidence-based practice and aligned with current rehabilitation protocols.

SYLLABUS

UNIT-I

1. **Measurement of Joint range of motion:**
   a) ROM-Definition
   b) Goniometer: parts, types, principles, uses, Limitations of goniometry
   c) Techniques for measurement of ROM for all peripheral joints, cervical and lumbar
2. **Anthropometric Measurements:**
   Muscle girth – biceps, triceps, forearm, quadriceps, calf.
3. **Measurement of Limb Length:**
   True limb length, apparent limb length, segmental limb length

UNIT-II

1. Passive Movements:

Causes of immobility, Classification of Passive movements, and Specific definitions related to passive movements, Principles of giving passive movements, Indications, contraindications, effects of uses, Techniques of giving passive

movements

2. <u>Active Movements:</u>

a) Definition of muscle strength, muscle power and muscle endurance.

b) Types of active movements

1. Free exercise: Classification, principles, techniques, indications, contraindications, effects and uses
2. Active Assisted Exercise: principles, techniques, indications, contraindications, effects and uses Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses.
3. Resisted Exercise: Definition, principles, indications, contraindications, precautions & techniques, effects and uses
4. Open-Chain and Closed-Chain exercise.

UNIT – III

1. <u>Pelvic tilt:</u>

- Describe the following:
- Normal pelvic tilts, alterations from normal: anterior tilt (forward), posterior tilt (backward)lateral tilt.
- Muscles responsible for alterations and pelvic rotation. iii. Identification of normal pelvic tilts,pelvic rotation and altered tilts and their corrective measures

2. <u>Suspension therapy:</u>

a) Definition, principles, equipment's & accessories, Indications & contraindications,Benefits of suspension therapy.

b) Types of suspension therapy: axial, vertical, pendular Techniques of suspension therapy forupper limb Techniques of suspension therapy for lower limb

3. Complication of bed rest:

a) Describe the complications of patients on prolonged bed rest.

b) Burger's exercises

c) Demonstrate maintenance exercises for patients on prolonged bed

UNIT-IV

1. Manual Muscle Testing:

a) Introduction to MMT

b) Principles, Limitations

c) Techniques of MMT for group muscle: Techniques of MMT for upper limb, lower limb and spine.

2. Muscle stretching

a) Definition of terms related to stretching

b) Tissue response towards immobilization and elongation

c) Determinants of stretching exercise, Effects of stretching Inhibitionand relaxation procedures

d) Precautions and contraindications of stretching

e) Techniques of stretching.

UNIT-V

Muscle Strengthening:

a) Concepts -Strength, Power, Endurance

b) Factors influencing the Strength of normal muscle/ hypertrophy, recruitment of motor units, change after the training, training with isometric, isotonic & Isokinetic muscle contraction

c) Principles: Overload, Intensity, Motivation, Learning, Duration, Frequency,

d) Reversibility, Specificity, Determinants

e) Methods : Subjective & Objective

f) Individual joint Strengthening ExercisesUpper Limb, Lower Limb & Spine

g) Concepts- 1 RM, 10 RM & Dynamometry

h) Progressive Resisted Exercise - Delorme, Zinoveiff, Mc queen protocols

i) Use of gymnasium equipment.

ELECTROTHERAPY-I

L/T/P/C
4/-/-/4

SUBJECT DESCRIPTION:

This course offers an in-depth understanding of the principles and applications of low- frequency electrotherapy in clinical practice. Students will explore the physiological effects of low-frequency electrical currents, including their role in pain modulation, muscle stimulation, and tissue healing. Emphasis will be placed on patient assessment, proper electrode placement, dosage parameters, and safety precautions. Practical sessions and case studies will allow students to apply theoretical knowledge in real-world rehabilitation settings, enhancing clinical decision-making skills.

SYLLABUS

UNIT-I

1. **Nerve-Muscle Physiology:** Action Potential, Resting membrane potential, Propagation of Action Potential, Motor unit, synapse, Accommodation, Stimulationof Healthy Muscle, Stimulation of Denervated Muscle, and Stimulationfor Tissue Repair.
2. Sinusoidal currents
3. High Voltage Currents
4. Micro Currents
5. Didynamic Currents

UNIT-II

1. Faradic currents : Physiological & Therapeuticeffects, indications, contraindications
2. Faradic type
3. Strong Surged Faradic
4. Application of Faradic current
   a) Faradism Under pressure – Indications,Principle of application, Technique of application
   b) faradic foot bath: Indications, Principle of application, Technique of application
   c) Motor Points: Definition, Identification

d) Faradic re-education: Indications, Principle of application, Technique of application

UNIT-III

Galvanic / Direct currents (Continuous DC & Interrupted DC) : Physiological & Therapeuticeffects, Indications, Contraindications

a) Definition: Galvanic & Interrupted GalvanicCurrents
b) Property of Accommodation
c) Technique & Methods of Application ofGalvanic currents
d) Types – Anodal & Cathodal, Therapeuticeffects & uses, Technique & Methods ofapplication, Dangers & precautions
e) Ionization /Iontophoresis: Theory of Medical Ionisation, Effects & Uses of various Ions, Indications and contraindications, Dangers andprecautions

UNIT-IV

ELECTRO ANALGESIA

a) Pain – definition
b) Acute / chronic pain
c) Theories of pain: specificity, summation, pattern theories.
d) Pain gate mechanism
e) Descending pain suppression mechanism
f) Transcutaneous Electrical Nerve Stimulation (TENS)
g) Types of TENS
h) Parameters
i) Dosage
j) Indications
k) Contraindications
l) Dangers

NMES:

a) Principles,
b) Techniques,
c) Indications and contraindications

UNIT-V

Electro-diagnosis:

1. FG Test
2. SD Curve: Methods of Plotting SD Curve, Apparatus selection, Characters of Normally innervated Muscle, Characters of Partially Denervated Muscle, Characters of Completely Denervated Muscle, Chronaxie & Rheobase.
3. Nerve conduction velocity studies – principles and types
4. Types of EMG
5. Bio-feedback

Medium requency:

1. Interferential Therapy: Define IFT, Principle of Production of IFT, Static Interference
    a) System, Dynamic Interference system, Dosage Parameters for IFT, Electrode placement in IFT, Physiological & Therapeutic effects, Indications &Contraindications.
    b) Application of IFT for Clinical conditions:
        - PA shoulder
        - OA Knee
        - Stress incontinence
        - Low back ache
        - Neck pain
2. Russian Current
3. Rebox type Current

EXERCISE THERAPY-I Practical

L/T/P/C
-/-/4/2

The syllabus typically focuses on the practical application of the measurement techniques and exercise principles. It includes the following topics.

1. Measurement of joint ROM
2. Measurements muscle girth
3. Measurement of Limb Length
4. Techniques of Passive Movements and active movements
5. Suspension therapy
6. Manual Muscle Testing
7. Muscle stretching
8. Muscle Strengthening

ELECTROTHERAPY-I Practical

L/T/P/C
-/-/4/2

The Syllabus typically covers the practical applications of low-frequency electrical currents in physiotherapy for pain relief, muscle stimulation, and tissue healing. It includes the following topics.

1. Application of Faradic current: Faradic re-education/strengthening, Faradism Under pressure, faradic foot bath
2. Application of galvanic currents, Ionization /Iontophoresis
3. Application of Transcutaneous Electrical Nerve Stimulation (TENS)
4. Application of Interferential Therapy
5. Electro-diagnosis: FG Test, SD curve

Semester – IV

1. Pharmacology
2. Biomechanics and Kinesiology-II
3. Exercise therapy-II
4. Electrotherapy-II
5. Exercise therapy -II Practical
6. Electrotherapy -II Practical
7. VAC (Health and Well-being)

PHARMACOLOGY

L/T/P/C
3/-/-/3

SUBJECT DESCRIPTION:

This course introduces the student to basic pharmacology of common drugs used, their importance in the overall treatment including Physiotherapy. The student after completing the course will be able to understand the general principles of drug action and the handling of drugs by the body. The student will be aware of the contribution of both drug and physiotherapy factors in the outcome of treatment.

SYLLABUS

UNIT-I

General Pharmacology:

a) Introduction
b) Definitions
c) Classification of drugs
d) Sources of drugs
e) Routes of drug administration
f) Distribution of drugs
g) Metabolism and Excretion of drugs
h) Pharmacokinetics
i) Pharmacodynamics
j) Factors modifying drug response

k) Adverse effects

UNIT-II

Autonomic Nervous system:

a) General considerations – The Sympathetic and Parasympathetic Systems, Receptors, Somatic Nervous System

b) Cholinergic and Anti-Cholinergic drugs, Adrenergic and Adrenergic blocking drugs, Peripheral muscle relaxants.

UNIT-III

Cardiovascular Pharmacology:

a) Drugs used in the treatment of heart failure: Digitalis, Diuretics, Vasodilators, ACE inhibitors Antihypertensive Drugs: Diuretics, Beta Blockers, Calcium Channel Blockers, ACE Inhibitors, Central Acting Alpha Agonists, Peripheral Alpha Antagonists, Direct acting Vasodilators

b) Antiarrhythmic Drugs

c) Drugs used in the treatment of vascular disease and tissue ischemia : Vascular Disease, Hemostasis Lipid-Lowering agents, Antithrombotic, Anticoagulants and Thrombolytics Ischemic Heart Disease – Nitrates, Beta-Blockers, Calcium Channel Blockers, Cerebral Ischemia Peripheral Vascular Disease.

Neuropharmacology:

a) Sedative-Hypnotic Drugs: Barbiturates, Benzodiazepines

b) Antianxiety Drugs: Benzodiazepines, Other Anxiolytics

c) Drugs Used in Treatment of Mood Disorders: Monoamine Oxidase Inhibitors, Tricyclic Antidepressants, Atypical Antidepressants, Lithium

d) Antipsychotic drugs

UNIT-IV

Disorders of Movement:

a) Drugs used in Treatment of Parkinson ’s disease

b) Antiepileptic Drugs

c) Spasticity and Skeletal Muscle Relaxants

Inflammatory/Immune Diseases:

a) Non-narcotic Analgesics and Nonsteroidal Anti-Inflammatory Drugs: Acetaminophen,NSAIDs, Aspirin, Nonaspirin NSAIDs, drug Interactins with NSAIDs

b) Glucocorticoids: Pharmacological Usesof Glucocorticoids, adverse effects,

Physiologic Use of Glucocorticoids

c) Drugs Used in Treatment of Arthritic Diseases: Rheumatoid Arthritis, Osteoarthritis, Gout

d) Drugs Used in the Treatment of Neuromuscular Immune/Inflammatory Diseases: Myasthenia gravis, Idiopathic Inflammatory Myopathies, systemiclupus Erythematous, Scleroderma, Demyelinating Disease

e) Respiratory Pharmacology: Obstructive Airway Diseases, Drugs used in Treatment of Obstructive airway Diseases, Allergic Rhinitis

UNIT-V

Digestion and Metabolism:

a) Gastrointestinal Pharmacology: Peptic Ulcer Disease, Constipation,

Diarrhea

b) Drugs Used in Treatment of Diabetes Mellitus: Insulin, Oral Hypoglycemic drugs

Geriatrics:

a) Pharmacology and the geriatric Population: Adverse effects of special concern in the Elderly, Dementia, Postural hypotension.

Recommended Textbooks:

1. Lippincott's Pharmacology.
2. Essential of Medical Phramacology by Tripathi
3. Textbook of Medical Pharmacology by Padmaja Uday kumar
4. Pharmacology by N.Murugesh
5. Pharmacology & Pharmacotherapeutics by Sadoskar

BIOMECHANICS AND KINESIOLOGY-II

L/T/P/C

4/-/-/4

SUBJECT DESCRIPTION:

This course is the continuation of the 'Biomechanics and Kinesiology-I' of the previous semester. This subject provides an in-depth exploration of the principles of biomechanics, focusing on the mechanical aspects of human movement and the forces that act on the body during various physical activities. Students will learn how to analyze and understand the complex interactions between muscles, bones, joints, and external forces, applying this knowledge to improve movement efficiency, prevent injury, and enhance performance in sports, rehabilitation, and everyday activities.

SYLLABUS

UNIT-I

Biomechanics of the vertebral column:

a) General structure and function of vertebral column.
b) Spinal curves and their significance.
c) Role of the spine in movement and stability
d) Vertebral structure and intervertebral discs.

Biomechanics of cervical spine:

a) Kinematics and kinetics of cervical spine
b) Stability and mobility of cervical spine
c) Motion segments and their role in neck movemen
d) Disc degeneration, herniation, neck pain and radiculopathy: biomechanical causes and implications

UNIT-II

Biomechanics of lumbosacral region:

a) Kinematics and kinetics of lumbar spine

b) Stability and mobility of lumbar spine

c) Lumbar-pelvic rhythm

d) Coupled movements in the spine

e) Forces acting on the vertebral column (compression, tension, shear, and torsion).

f) Load distribution across spinal segments and intervertebral discs.

g) Disc degeneration, herniation, lumbar stenosis, back pain and radiculopathy: Biomechanical causes and implications

h) SI joint

UNIT-III

Biomechanics of Posture:

- Define Posture
- Discuss Development of Human posture
- Describe Changes from quadruped to biped
- Discuss Factors affecting posture; Postural patterns and Postural Mechanism
- Discuss Ideal postural alignment in all 3 planes
- Discuss Physiological deviations
- DiscussAnalysis of all views

UNIT-IV

Biomechanics of Gait:

- Describe Gait with respect to
- Characteristics of Human locomotion
- Gait cycle: Phases: Traditional & RLA
- Kinematics and Kinetics
- Variables
- Determinants
- Subjective & Objective evaluation

UNIT-V

1. Kinesiology of Activities of Daily Living:

Apply the knowledge of joint kinematics and kinetics towards the understanding of ADL viz.

i. Supine to Sitting, Sitting to Standing,

ii. Squatting up and down,

iii. Staircase climbing up & down

iv. Lifting, v. Pulling, Pushing,

vi. Overhead activities,

vii. Running, Jogging

2. Temporomandibular Joint (TMJ):

a) Kinematics of the TMJ: mandibular movements (elevation, depression, protrusion, retraction, and lateral deviation).
b) Muscle actions involved in TMJ movement (masseter, temporalis, pterygoids, digastric, and hyoid muscles).
c) Biomechanics of normal TMJ function during chewing, speaking, and swallowing.
d) TMJ loading and its implications on dental occlusion and craniofacial alignment.

3. Joints of thoracic cage:

a) Movement of the ribs during breathing: bucket-handle and pump-handle movements.
b) Kinematics and kinetics of thoracic spine and rib cage.
c) Role of the thoracic cage in respiration and posture.
d) Clinical relevance: thoracic mobility, rib fractures, scoliosis, and postural dysfunction.

EXERCISE THERAPY-II

L/T/P/C
4/-/-/4

SUBJECT DESCRIPTION:

This course offers an in-depth exploration of the various techniques used in exercise therapy to improve physical function, enhance mobility, and aid in the rehabilitation of injuries and chronic conditions. Students will learn to apply specific therapeutic exercise interventions that address the unique needs of different populations. Emphasis is placed on the practical application of these techniques, grounded in evidence-based practice and aligned with current rehabilitation protocols.

SYLLABUS

UNIT-I

JOINT MOBILITY: Describe the following

Joint ranges (outer range, middle range, inner range), individual joint structures, joint movements (anatomic, accessory), causes of joint range limitations, prevention of joint stiffness, positioning (physiological resting position).

PERIPHERAL JOINT MOBILIZATION

- Biomechanical basis for mobilization, Effects of joint mobilization, Indications and contraindications, Grades of mobilization, Principles of mobilization, Techniques of mobilization for upper limb, lower limb, Precautions.
- Forced passive movements: small amplitudes, large amplitudes.

I. AEROBIC EXERCISE

Definition and key terms; Physiological response to aerobic exercise, Examination and evaluation of aerobic capacity – Exercise Testing, Determinants of an Exercise Program, The Exercise Program, Normal and abnormal response to acute aerobic exercise, Physiological changes that occur with training, Application of Principles of an Aerobic conditioning program for patients – types and phases of aerobic training.

UNIT-II

I. *PROPRIOCEPTIVE NEUROMUSCULAR FACILITATION*

- Definitions & goals
- Basic neurophysiologic principles of PNF: Muscular activity, Diagonals patterns ofmovement: upper limb, lower limb
- Procedure: components of PNF
- Techniques of facilitation
- Mobility: Contract relax, Hold relax, Rhythmic initiation
- Strengthening: Slow reversals, repeated contractions, timing for emphasis, rhythmic stabilization Stability: Alternating isometric, rhythmic stabilization. Skill: timing for emphasis, resisted progression Endurance: slow reversals, agonist reversal

FUNCTIONAL RE-EDUCATION:

a. Principles & Indications
b. Mat exercises- mobility, strength andbalance training
c. Progression to sitting, standing and walking
d. Transfers

UNIT-III

I. *BALANCE - DEFINITION*

- Physiology of balance: contributions of sensory systems, processing sensory information, generating motor output
- Components of balance (sensory, musculoskeletal, biomechanical) Causes of impaired balance, Examination & evaluation of impaired balance, Activities for treating impaired balance: mode, posture, movement, Precautions & contraindications, Types Balance retraining.

I. *CO-ORDINATION EXERCISE*

- Anatomy & Physiology of cerebellum with its pathways
- Definitions: Co-ordination, Inco-ordination

- Causes for Inco-ordination,
- Test for co-ordination: equilibrium test, non-equilibriumtest, Principles of co-ordination exercise.
- Frenkel's Exercise

UNIT-VI

IV. *HYDROTHERAPY:*

- Describe Hydrostatic pressure, upward thrust of water buoyancy. List the indications and contra-indications for hydro therapy.
- Describe the dress of patients and the therapist and necessary hydrotherapy equipment.Types of hydro therapy: Sterile pool contrast bath, whirlpool bath, Hubbard tank.
- Construction of hydrotherapy tank: Design of construction, safety features, cleaning the pool,water heating systems, hygiene of patient and pool.

II. *POSTURE:*

- Describe the following: Posture (static and dynamic), Definition of good posture, Muscles responsible for good posture. Postural mechanisms, Definition of abnormal posture (Kyphosis, Scoliosis, Lordosis, Kypho-scoliosis, Kypholordosis), Assessment of posture (inspection, Scoliosis, Lordosis, Kypho-scoliosis, Kypholordosis), Assessment of posture (inspection, measurement – length of legs, width of pelvis, plumb line – R.O.M. of trunk in flexion, extension,side flexion and rotation.
- Describe and demonstrate postural correction by: Strengthening of muscles, Mobilization of trunk, Relaxation. Active correction of the deformities, passive correction (traction), posturalawareness, abdominals and back extensors.
- Outline principles in bracing of the trunk and surgical correction.
- Demonstrate practically: Identification of abnormal posture, and postural corrective measures.

UNIT-V

III. *GAIT:*

- Define gait and center of gravity of the human body.
- Describe muscles responsible for normal gait, six determinants of gait (pelvic rotation, pelvic tilt,hip flexion, lateral displacement of pelvis, knee flexion, in stance phase, normal foot pattern during walking).
- Describe the walking cycle: Stance (heel strike, foot flat, mid stance, and foot off), Swing(acceleration, mid swing and deceleration).
- Describe the following pathological gaits: Gluteus medius Gait, Gluteus Maximus gait, Hipflexor weakness gait, Quadriceps weakness gait, Foot drop gait, hemiplegic gait, Ataxic waddling gait, Equines gait, Calcaneus gait, Equinovarus gait.
- Demonstrate skill in identifying pathological gait and proper gait training

V. WALKING AIDS AND GAIT TRAINING

- Types: Crutches, Canes, Frames; Principles and training with walking aids
- Crutch walking:
- Describe the following: Components of a crutch, types of classification of crutches, characters of good crutch, preparing a patient for crutch walking, crutch walking muscles, measurement of crutches (axillary piece, hand piece), crutch stance, crutch palsy, types of crutch walking (4 point,3 point, 3 point (non-weight bearing and partial weight bearing), modified 3 point (paraplegic andshuffling gait, swing to and swing through)
- Demonstrate crutch measurement (sitting, standing and lying positions) and various types ofcrutch walking (even ground, stairs and ramps).

VI. TRACTION: Principles, types, indications, contra indications and risks

ELECTROTHERAPY-II

L/T/P/C
4/-/-/4

SUBJECT DESCRIPTION:

This course tends to explore fundamental skills in application of electrotherapeutic modalities and knowledge of indications, contraindications and physiological principles needed for appropriate patient care. It includes topics such as Electrical stimulation, T.E.N.S., Iontophoresis, Ultrasound / Phonophoresis, Diathermy and Electro diagnostic testing etc.

UNIT – I

1. Wax Therapy: Principle of Wax Therapy application – latent Heat, Composition of WaxBath Therapy unit, Methods of application of Wax, Physiological & Therapeutic effects,Indications& Contraindication, Dangers.
2. Contrast Bath: Methods of application, Therapeutic uses, Indications & Contraindications.
3. Moist Heat Therapy: Hydro collator packs – in brief, Methods of applications,Therapeutic uses, Indications & Contraindications.
4. Cyclotherm: Principles ofproduction, Therapeutic uses, Indications & Contraindications.
5. Fluid therapy: Construction, Method of application, Therapeutic uses, Indications &Contraindications.
6. Whirl Pool Bath: Construction, Method of Application, Therapeutic Uses, Indications& Contraindications.
7. Magnetic Stimulation, Principles, Therapeutic uses, Indications & contraindication.

UNIT-II

8. Cryotherapy: Define- Cryotherapy, Principle- Latent heat of fusion, Physiological & Therapeutics effects, Techniques of Applications, Indications & Contraindications, Dangers, and Methods of application with dosages.
9. LASER: Define LASER. Types of LASER. Principles of Production. Production of LASER by various methods. Methods of application of LASER. Dosage of LASER. Physiological &Therapeutic effects of LASER. Safety precautions of

LASER. Classifications of LASER. Energy density & power density.

UNIT - III

1. Infra-Red Radiation (IRR):

Define IRR, wavelength & parameters, Types of IR generators, Production of IR, Physiological & Therapeutic effects, Duration & frequency of treatment, Indication & Contraindication.

2. Ultraviolet Radiation (UVR):

Define UVR, Types of UVR, UVR generators: High pressure mercury vapour lamp, Water cooled mercury vapour lamp, Kromayer lamp, Fluorescent tube, Theraktin tunnel,PUVA apparatus. Physiological & Therapeutic effects. Sensitizers & Filters. Testdosage calculation. Calculation of E1, E2, E3, E4 doses. Indications, contraindications. Dangers. Dosages for different therapeutic effects, Distance in UVR lamp

UNIT-IV

1. SWD: Define short wave, Frequency & Wavelength of SWD, Principle of Production of SWD, Circuit diagram & Production of SWD, Methods of Heat Production by SWD treatment, Types of SWD Electrode, Placement & Spacing of Electrodes, Tuning, Testingof SWD Apparatus, Physiological & Therapeutic effects, Indications & Contraindications,Dangers, Dosage parameters.

2. Pulsed Electro Magnetic Energy: Principles, Production & Parameters of PEME, Uses of PEME.

3. Micro Wave Diathermy: Define Microwave, Wave length & Frequency, Production of MW, Applicators, Dosage Parameters, Physiological & Therapeutic effects, Indications &Contraindications, Dangers of MWD.

UNIT - V

1. Ultrasound: Define Ultrasound, Frequency, Piezo Electric effects: Direct, Reverse, Production of US, Treatment Dosage parameters: Continuous& Pulsed mode, Intensity, USFields: Near field, Far field, Half value distance,

Attenuation, Coupling Media, Thermal effects, Non-thermal effects, Principles & Application of US: Direct contact, Water bag, Water bath, Solid sterile gel pack method for wound. Uses of US, Indications & Contraindications, Dangers of Ultrasound.

2. Phonophoresis: Define Phonophoresis, Methods of application, commonly used drugs, Uses. Dosages of US.

Recommended Textbooks

1. Claytons Electrotherapy by Forster & Plastangs
2. Electrotherapy Explained by Low & Reed
3. Clinical Electrotherapy by Nelson
4. Electrotherapy Evidence based practice by Sheila Kitchen
5. Physical agents by Michile Cameroon
6. Principles of Electrotherapy by Michile Camreeon
7. Thermal agents by Susan Michlovitz

EXERCISE THERAPY-II (Practical)

L/T/P/C
-/-/4/2

The syllabus typically focuses on the practical application of the measurement techniques and exercise principles. It includes the following topics.

- Test for co-ordination
- Frenkle's exercises
- Functional re-education
- PNF techniques
- Peripheral joint mobilization
- Posture: Analysis, correction
- Crutch measurement, gait training, pathological gaits

ELECTROTHERAPY-II (Practical)

L/T/P/C
-/-/4/2

The Syllabus typically covers the practical applications of low-frequency electrical currents in physiotherapy for pain relief, muscle stimulation, and tissue healing. It includes the following topics.

- Short wave Diathermy
- Ultra sound therapy
- IRR
- UVR
- Laser
- Paraffin wax
- Maoist heat
- Contrast bath
- Cryotherapy

THIRD YEAR

Semester – V

1. Orthopedics &Traumatology
2. Surgery
3. Medicine-I (Cardiovascular Respiratory Medicine, General Medicine, Rhematology and Gerontology)
4. Medicine-II(Neurology and Paediatrics)
5. VAC (Environmental Awareness)

Orthopedics &Traumatology

L/T/P/C

4/-/-/4

COURSE DESCRIPTION:

This course intends to familiarize students with principles of orthopedics along with familiarization with terminology and abbreviations for efficient and effective chart reviewing and documentation. It also explores various orthopaedics conditions needing attention, focusing on epidemiology, pathology, as well as primary and secondary clinical characteristics and their surgical and medical management. The purpose of this course is to make physiotherapy students aware of various orthopaedics surgical conditions so these can be physically managed effectively both pre as well as postoperatively.

SYLLABUS

UNIT-I

1. **Introduction of orthopaedics:**

   Introduction to orthopaedics terminology, types of pathology commonly dealt with clinical examination, common investigations and outline of non-operative and management.

2. **Principle of operative treatment:**

   List the indication, contraindications and briefly outline principles of:

Arthrodesis, Arthroplasty, Osteotomy, Bone grafting and tendon -transfers.

3. **Sprains and muscle strains:**

List the common sites of sprains and muscle strains and describe the clinical manifestation and treatment.

4. **Fractures and dislocations:**

a. Types of fractures including patterns, open and closed fractures and fracture - dislocations.
b. Differences between dislocation and subluxation.
c. general &local signs &symptoms of fractures dislocations
d. principles of management of fractures and dislocations
e. prevention & treatment of complications including: Fracture-disease, Volkmann's ischemic contracture, Sudeck's atrophy, carpal tunnel syndrome, Myositis ossificans and shoulder hand syndrome.
f. fracture healing

UNIT II

1. *UPPERLIMB FRACTURES & DISLOCATIONS*

a. Enumerate major long bone fractures and joint injuries.
b. Briefly describe their clinical features, principles of management and complications.

2. *LOWERLIMB FRACTURES &DISLOCATIONS*

a. Enumerate major long bone fractures and joint injuries.
b. Briefly describe their clinical features, principles of management and complications.

3. *RECURRENT DISLOCATIONS*

Outline the mechanism, clinical features, principles of management and complications of recurrent dislocation of the shoulder and patella.

UNIT-III

1. *SPINAL FRACTURES AND DISLOCATIONS*

Outline the mechanism, clinical features, principles of management and complications of spinal injuries

2. *AMPUTATIONS*

a. Classify amputations, list indications for surgery.
b. Outline pre-operative, operative and prosthetic management.
c. Outline prevention and treatment or complications.

3. *BONE &JOINT INFECTIONS*

Outline the etiology, clinical features, management and complications of septic arthritis, osteomyelitis, Tuberculosis (including spinal T.B)

4. *BONE JOINT TUMORS*

Outline the etiology, clinical feature, management and complications of the following (benign, malignant bone and joint tumours, osteomas, osteosarcomas, osteoclastomas, Ewings sarcoma, multiple myeloma.

UNIT-IV

1. *CHRONIC ARTHRITIS*

Outline the pathology, clinical features, mechanism of deformities, management and complications of: rheumatoid arthritis, osteoarthritis of major joint and spine, Ankylosing spondylitis.

2. *LOW BACK ACHE, PAINFUL ARC SYNDROME, TENDINITIS, FACITIES &SPASMODIC TORTICOLLIS*

Outline the above including clinical features and management.

3. *SPINAL DEFORMITIES*

Classify spinal deformities and outline the salient clinical features, management and complications

UNIT-V

1. *POLIOMYELITIS*

Describe the pathology, microbiology, prevention, management and complications of polio, outline the treatment of residual paralysis including use of orthoses: principle of muscle transfers.

2. *CONGENTIAL DEFORMITIES*

Outline the clinical features and management of CTEV, CDH, flat foot, vertical talus, limb deficiency (Radial club hand and femoral, tibial and fibular deficiencies, meningo-myelocele, Arthrogryposis multiplex congenita, osteogenesis imperfecta

3. *PERIPHERAL NERVE INJURIES*

Outline the clinical features and management. Including reconstructive surgery of

a. Radial, median and ulnar lesions.
b. Sciatic and lateral popliteal lesions.
c. Brachial plexus injuries including Erb's, Klumpke's crutch palsy

4. *HAND INJURIES*

Outline of clinical features, management and complications of skin and soft tissue injury, Tendon injury, bone and joint injury

5. *LEOROSY*

Outline of clinical features, management and complications of neuritis, muscle paralysis, trophic laceration and hand and feed deformities

Recommended Books:

1. Outline of Fractures—John Crawford Adams.
2. Outline of Orthopedics.— John Crawford Adams.
3. Text book of Orthopedics.—Maheswari.
4. Apley's Orthopedics.
5. Textbook of Orthopedics and Traumatology— M.N.Natarajan

SURGERY

(General, Cardiovascular & Thoracic, Plastic/Reconstructive Surgery)

L/T/P/C
4/-/-/4

SUBJECT DESCRIPTION:

This subject intends to familiarize students with principles of General surgery including various specialties like cardiovascular, thoracic, neurology and plastic surgery. It also familiarizes the students with terminology and abbreviations for efficient and effective chart reviewing and documentation. It explores various conditions needing attention, focusing on epidemiology, pathology, as well as primary and secondary clinical characteristics and their surgical and medical management. The purpose of this course is to make physiotherapy students aware of various surgical conditions general surgery and specialty surgeries so these can be physically managed effectively both pre as well as postoperatively.

SYLLABUS

UNIT-I

GENERAL SURGERY:

1. Anaesthesia types, Effect, indications andcontraindications and common postoperative complications
2. Haemorrhage and Shock, classification,description and treatment
3. Water & Electrolyte imbalance
4. Inflammation – acute & chronic-signs, symptoms, complications & management
5. Wounds & Ulcers, Cellulitis – classification, healing process, management, bandaging, Dressing solutions and its uses and debridement Procedure, hand washing and universalprecautions.
6. Enumerate Common abdominal surgicalincisions – classification, indications, opening – closure, advantages and disadvantages, complications (includingburst abdomen and feacal fistula), minimally invasive surgery.
7. Mastectomy and oncosurgery– approach,complications & management

8. Amputation – types, sites, complications& management
9. Burns – causes, complications,classification & management
10. Varicose veins and PVD
11. Hernias-surgery, precautions andcomplications
12. Transplantation approach, risk problems related to donor and receipient, precautions.

UNIT-II

NEUROSURGERY:

Introduction, Indications and Complications of following Neuro surgeries: Craniotomy, Cranioplasty, Stereotactic surgery, Deep brain stimulation, Burr-hole, Shunting, Laminectomy, Hemilaminectomy, Rhizotomy, Microvascular decompression surgery, Endarterectomy, Embolization, Pituitary surgery, Ablative surgery - Thalamotomy and Pallidotomy, Coiling of aneurysm, Clipping of aneurysm, and Neural implantation.

UNIT-III

CARDIO VASCULAR AND THORACICSURGERY:

1. Introduction, Cardiorespiratory resuscitation, cardiopulmonary bypass, Special investigation procedures in cardiac surgery, Basic techniques in cardiac surgery approach, incisions, Typesof operation, Complications of cardiac surgery, Lines, drains and tubes.
2. Brief description of indications, surgery,complications for following surgery :
    a. Surgeries of thorax
    b. Surgeries of the lung
    c. Surgeries of pleura and pericardium
    d. Surgery for coronary artery disease
    e. Valvular surgeries
    f. Surgery for Congenital Heart Disease
    g. Peripheral arterial disorder, Burger'sdisease, Raeynaud's disease and

Aneurysm

h. Gangrene, Amputation,DVT

UNIT-IV

E.N.T. Surgery:

1. Tracheostomy – indications, surgicalapproach & management
2. Surgical procedures in VIIth cranial nervepalsy
3. Vertigo

Ophthalmic Surgery:

Surgeries for IIIrd, IVth, VIth Cranial Nerve palsy

UNIT-V

PLASTIC SURGERY / RECONSTRUCTIVE SURGERY:

1. Skin grafts & flaps – Types, indicationswith special emphasis to burns, wounds
2. Ulcers, complications and postoperativecare
3. Tendon transfers, with special emphasis tohand, foot & facial paralysis, & repair of Flexor & Extensor Tendon Injuries
4. Keloid & Hypertrophied scar management
5. Reconstructive surgery of peripheralnerves
6. Micro vascular surgery- reimplantationand revascularization

RECOMMENDED TEXT BOOKS

1. Short practice of surgery-- Bailey and Love
2. Textbook of Surgery – Das

MEDICINE-I

(General Medicine, Cardiovascular-Respiratory Medicine, Rhematology)

L/T/P/C
4/-/-/4

SUBJECT DESCRIPTION:

This subject intends to familiarize students with medical terminology & abbreviations for efficient & effective chart reviewing & documentation. It also explores selectedsystemic diseases, focusing on epidemiology, pathology, histology, etiology as well as primary & secondary clinical characteristics & their management. Discusses & integrates subsequent medical management of General, Rheumatology, Gerontology, Cardio-vascular & Respiratory systems, to formulate appropriate intervention, indications, precautions & contraindications.

SYLLABUS

UNIT-I

General Medicine:

1. Disorders of Endocrine system (Diabetes) Introduction, pathophysiology, types, role of physical activity, complications of diabetes (autonomic neuropathy, myopathy, weakness) &medications.
2. Thyroid, Pituitary & Adrenal conditionsCushing's syndrome
3. Obesity
4. Nutrition Deficiency Disease (Rickets, Vit. E,Vit. D, Vit. B , micro nutrients,(Zn, Se)
5. Intoxication (Drug abuse; Alcohol, smoking,cocaine dependence)

UNIT-II

Cardio-Vascular Diseases:

1. Hypertension – systemic
2. Cardiac Conditions-
    a. I.H.D. (Angina, Myocardial infarction)

b. R.H.D.
c. Infective Endocarditis
d. Cardio myopathy
e. Heart Failure

3. **Valvular Heart Disease**
    a. Congenital
    b. Acquired
4. **Congenital Heart Disease**
5. **Investigations**
    a. Basics of E.C.G. [Normal & Abnormal (Ischaemia, Infarction & Arrhythmias)]
    b. Observation of conduction of stress test onpatient
    c. 2D Echo (Ejection Fraction & Wall motionAbnormality)

UNIT-III

Diseases of the Respiratory System:

1. Common Infectious diseases like Tuberculosis, Pneumonia, Lung Abscess, and Bronchiectasis.
2. Diseases of Pleura like Pleural Effusion, Pneumothorax, Hydropneumothorax, and
3. Empyema
4. ILD & Occupational lung diseases like Silicosis,Asbestosis, Pneumoconiosis, Brucellosis,
5. Farmer's Lung.
6. Obstructive Airway Diseases (C.O.P.D. with CorPulmonale, Pulmonary Hypertension, Bronchial Asthma & Cystic Fibrosis)

UNIT-IV

1. **Intensive Care Unit**
    a. Infrastructure
    b. Instrumentation.
    c. Mechanical Ventilation (settings &monitoring)

d. Assessment, monitoring & management ofpatient in I.C.U.

2. **Basic Life Support** :Introduction & Demonstration

3. **Investigation: Normal & Abnormal**

   a. Chest X-ray

   b. Blood Gas Analysis

   c. PFT(Observation of conduction on patient)

UNIT-V

Rheumatological Conditions:

a. Rheumatoid Arthritis

b. S L E

c. S S A

d. Gout

e. Polymyositis

f. Fibro myalgia

g. Ankylosing spondylitis

RECOMMENDED TEXT BOOKS

1. API- Text book of Medicine, 5th edition
2. Medicine-- P.J. Mehta
3. Principles & Practice of Medicine -- Davidson

MEDICINE-II
(Neurology and Paediatrics)

L/T/P/C
4/-/-/4

SUBJECT DESCRIPTION:

This subject intends to familiarize students with medical terminology & abbreviations for efficient & effective chart reviewing & documentation, It also explores select systemic diseases, focusing on epidemiology, etiology, pathology, histology as well as primary &secondary clinical characteristics & their management. It discusses & integrates subsequent medical management of Neurological & Paediatric conditions to formulate appropriate intervention, indications, precautions & contraindications.

SYLLABUS

UNIT-I

NEUROLOGY:

1. **Introduction to Nervous System**
    a. Applied anatomy
    b. Applied physiology
2. **Cerebro Vascular Accidents**
    a. Thrombosis, Embolism, Haemorrhage
    b. Level of Lesion & symptoms
    c. Management
3. **Extra Pyramidal lesions – BasalGanglia**
    a. Parkinsonism
    b. Athetosis, Chorea, Dystonia
4. **Differential diagnosis of musclewasting**
    a. Approach to neuropathies

b. Myopathies and neuromuscularjunction disorders.

UNIT-II

1. Disorders of Anterior Horn cell with differential diagnosis of Motor NeuronDisease, S.M.A., Syringomyelia, Peroneal Muscular Atrophy, and Poliomyelitis.
2. Multiple Sclerosis
3. Infections of the nervous system: Encephalitis, Neurosyphilis, H.I.V. infection, Herpes, Meningitis, TabesDorsalis
4. Tetanus
5. Epilepsy

UNIT-III

1. Alzheimer's Disease, Dementia
2. Disorders of cerebellar function
3. Disorders of cranial nerves & SpecialSenses
4. Disorders of Spinal cord: Syndromes, Bladder dysfunction, Autonomic dysfunction

UNIT-IV

1. Normal intra-uterine development of foetus with special reference to CentralNervous System, Neuromuscular System, Cardiovascular Respiratory System
2. Normal development & growth
3. Immunization and breast-feeding
4. Sepsis, Prematurity, Asphyxia Hyperbilirubinemia and birth injuries
5. Cerebral Palsy- Medical Management including early intervention
6. Developmental disorders associated with spinal cord: Spinal Dysraphism,Spina Bifida, Meningocele, Myelomeningocele, hydrocephalus

UNIT-V

1. Common infections
    a. C.N.S.& Peripheral Nervous System
    b. Typhoid, Rubella, Mumps, Measles,Diphtheria, Chicken gunia, Malaria

2. Epilepsy
3. Mental Retardation and Down's syndrome
4. Genetically transmitted neuro-muscular conditions
5. Malnutrition and Vitamin deficiencyconditions
6. Juvenile R. A. & other Rheumatologic conditions ofmusculoskeletal system
7. Common diseases of the Respiratory system: Asthma, Bronchitis, Bronchiectasis, T.B.,
8. Pneumonia, Lung collapse, Pleuraleffusion.
9. Respiratory distress in neonate
10. Rheumatic & Congenital Heartdisease

RECOMMONDED TEXT BOOKS:

1. Essentials of Paediatrics – O.P. Ghai-Inter Print publications
2. Clinical Paediatrics - Meherban Singh

Clinical training

L/T/P/C
-/-/12/4

Students will undergo clinical training of 12 hours per week in various wards and out-patient department of physiotherapy. They will be evaluated on the basis of the case presentation.

Semester VI

1. Physiotherapy in Orthopaedics-I
2. Physiotherapy in Neurology-I
3. Community Medicine
4. Obstetrics & Gynaecology
5. Physiotherapy in Orthopaedics-I Practicla
6. Physiotherapy in Neurology-I Practical
7. VAC (Art of Being a Better Person)

PHYSIOTHERAPY IN ORTHOPEDICS-I

L/T/P/C

4/-/-/4

SUBJECT DESCRIPTION:

This course includes a study of applied anatomy and physiology of the musculo-skeletal system along with pathological changes and patho-mechanics of the system.It discusses relevant tests and measures for determining impairment and differentiating the diagnosis based on the specificity and sensitivity of the assessment instruments as related to patients with disorders of the musculo-skeletal system.

Musculo-skeletal Physiotherapy focuses on maximizing functional independence and well-being. The course uses a patient-centered model of care with multi- system assessment, evidence based interventions and a significant patient education component to promote a healthy, active lifestyle and community-based living.The candidate will have a sound understanding of theory, scientificevidence and best practices in the areas of the Musculo-skeletal System including Movement Sciences, Psychosocial Sciences and Physiotherapy.

SYLLABUS

UNIT-I

Manifestations of trauma and their complications:

1. Bones – fractures & fracture-dislocations of upper extremities & cervicalthoracic spine and their complications & management.

2. Soft tissues injuries of upper extremities & cervical-thoracic spine and their complications & management, contused lacerated wounds (CLWs) Burns complications and management, Crush injuries and its conservative and post-surgical management.
3. Cumulative trauma disorders- Tennis elbow, carpal tunnel syndrome, tendinopathies

UNIT-II

Degenerative Arthritis with associated conditions:

Physiotherapy management of common shoulder , degenerative conditions of cervical Spine - Spondylosis, Spondylolysis, Spondylolisthesis, and Spinal Canal Stenosis, Cord compression syndrome

UNIT-III

1. **Inflammatory conditions:**

Arthritis (including seronegative) – Rheumatoid arthritis, Gout, Septic arthritis Cellulitis and its complications.

Post incisional inflammation and infection.

2. **Infectious Diseases of bones & joints of upper extremity and cervicalthoracic spine:**

Osteomyelitis, Tuberculosis

3. **Metabolic & Hormonal Disorders:**

Osteoporosis, Osteomalacia

UNIT-IV

1. **Congenital & Acquired Deformities of upper extremity and cervical - thoracic spine:**

Cervical rib, kyphosis, sprengel's shoulder, cubitus varus/valgus

2. **Peripheral Nerve Injuries & Plexus Injuries of upper extremity and Brachial plexus:**

Complications & Management

3. **Soft tissue injuries during sports and as a result of over-use of upper extremity and cervical-thoracic spine:**

Conservative and Operative management

UNIT-V

1. **Vascular disorders affecting musculoskeletal system:**

Volkmann's ischemic contracture, Complex Regional Pain Syndrome, Compartment syndrome, Vertigo. Thoracic outlet syndrome, Vertebrobasilar artery syndrome

2. **Traumatic Amputation of upper extremity:**

Types, Complications and management inclusive of prosthetic prescription & training

RECOMMENDED TEXT BOOKS

1. Therapeutic Exercise - O'Sullivan
2. Orthopaedic Physical Therapy - Donatelli
3. Cash's Textbook of Orthopedics & Rheumatology for Physiotherapists
4. Tidy's Physical Therapy
5. Manual Mobilization of Extremity Joints - Kaltenborn
6. Therapeutic Exercise: Foundations and Techniques - Kolby & Carolyn Kisner
7. Physical Rehabilitation - Susan O'sullivan

PHYSIOTHERAPY IN NEUROLOGY-I

L/T/P/C

3/-/-/3

SUBJECT DESCRIPTION:

This subject includes a study of applied anatomy and physiology of the neuromuscular system along with the pathological chang';es and patho-mechanics of the system. It discusses relevant tests and measures for determining impairment and differentiating the diagnosis based on the specificity and sensitivity of the assessment instruments as related to patients with disorders of the neuromuscular system.

Neurophysiotherapy curriculum emphasizes the selection and use of measurement tools and management techniques based on the best available evidence. Physiotherapy strategies for assessment and treatment address structural & functional impairments and activity limitations of individuals and population (both adults & paediatric) in the context of their personal needs/goals including participation restrictions and the environment they live in. The permanence of many neurological impairments mandates that, where possible, emphasis is placed on prognosis and criterion – referenced outcomes to establish realistic goals.

The therapeutic approach is patient and family focused with a biopsychosocial emphasis that embraces inter professional collaboration and requires ongoing communication, education and negotiation with the client, family, care giver and healthcareteam.

SYLLABUS

UNIT-I

1. Plasticity of the intact brain

i. motor learning
ii. training
iii. Plasticity following brain lesion
   - nature of spontaneous recovery
   - effect of environment behavior andrecovery
   - adaptation of motor performance

- muscle adaptation

2. Strength training and physical conditioning inneuro rehabilitation to optimize functional performance

3. Skill acquisition in restoration of functionalperformance

- information, instruction, demonstration
- feedback
- practice

UNIT-II

1. Theoretical basis of motor control and learning to understand various neurophysiotherapeuticapproaches.
2. Quality of Life scales & Independence Measures
3. Evidence-based analysis of tools and techniques, (including Quality of Life questionnaires), and planning, prescription & implementation of short term & long term goals of Physiotherapy with appropriate documentation of the same.

UNIT-III

Manifestation of movement dysfunction following disease or trauma of the central or peripheral nervous system

a. Bed mobility
b. lying to sitting
c. standing up and sitting down
d. walking
e. balance
f. reaching
g. manipulation

UNIT-IV

Physiotherapy management – paediatric

1. Cerebral palsy
2. Down's syndrome
3. Neural tube defects : Spina Bifida and Hydrocephalus
4. Brachial plexus injuries

UNIT-V

Physiotherapy management – paediatric

1. Infectious disorders
2. Post Poliomyelitis Residual Paralysis
3. D.M.D. & other Myopathies
4. S.M.A. / H.S.M.N.
5. Pediatric extra pyramidal disorders

COMMUNITY MEDICINE

L/T/P/C

3/-/-/3

SUBJECT DESCRIPTION:

This subject follows the basic science subjects to provide the knowledge about conditions the therapist would encounter in their practice in the community. The objective of this course is that after the lectures and discussion the student will be able to demonstrate an understanding of various aspects of epidemiology, list the epidemiological methods, identify the environmental & occupational hazards and understand the principles of health education in relation to the community.

SYLLABUS

UNIT – I

1. Principles of Epidemiology & Epidemiologic methods: Definition and Aims of Epidemiology, Basic tools of measurements - Rate, Ratio & Proportion; Epidemiological methods -Classification of epidemiological studies, Cross sectional study, Case control study, Cohort study, Randomized controlled trial; Dynamics & Modes of disease transmission.

UNIT – II

1. Epidemiology of Non-communicable diseases and conditions: Cardio vascular diseases, Hypertension, Cancer, Diabetes, Obesity, Accidents and Injuries.
2. Screening for Disease: Concept of screening, Screening and Diagnostic tests differences, Concept of lead time, Aims and Objectives, Uses and types of screening, Criteria for screening.
3. Nutrition and Health: Definition of Nutrition, Nutritional problems in public health, Community nutrition programmes.

UNIT – III

4. Demography and Family Planning: Demographic cycle, Demographic indicators – Age pyramid, Sex ratio, Life expectancy; Fertility – Definity & factors affecting the fertility;Familyplanning- Definition, objectives of national family

planning programme, Eligible couple, Couple protection rate, Family planning methods, A general idea of advantages and disadvantages of the methods.

5. Preventive Medicine in Obstetrics, Paediatrics and Geriatrics: Maternal & Child health – Definition of MCH, MCH problems, Health problems of the aged, potential for disease prevention in the elderly.

UNIT – IV

6. Environment and Health: Components of environment, Water Pollution – Sources of water supply, Water related diseases, Household purification of water; Air pollution – Sources & effects of air pollution, monitoring of air pollution & Prevention and control of air pollution; Disposal of solid waste, Methods of disposal.
7. Disaster Management: Introduction, Classification of disasters – Natural & Man made, Disaster management cycle - Disaster impact and response, Relief phase, Epidemiologic surveillance and disease control, Rehabilitation, Disaster mitigation in health sector, Disaster preparedness.

UNIT – V

8. Occupational Health: Introduction, Occupational hazards, Classification of occupational diseases, Pneumoconiosis, Lead poisoning, Prevention of occupational diseases – Medical measures.
9. Mental Health: Types of mental illness, Causes of mental ill health, Prevention.
10. Health Education: Definition, Aims and objectives, Models of health education, Practice of health education.

Recommended Books Recent Editions:

1. Park K. Park's Text book of Preventive and Social Medicine. 27th edition, Jabalpur: Banarsidas Bhanot Publishers.
2. AH Suryakantha, Textbook of Community Medicine with recent advances. 6th edition; Jaypee publishers
3. Community Medicine simplified – Sreejith P.S; Paras publishers 2nd edition.
4. Community Medicine Preparation Manual for Undergraduates – Bhalwar Rajvir, 2nd edition, Elsevier publishers

OBSTETRICS & GYNAECOLOGY

L/T/P/C

2/-/-/2

COURSE DESCRIPTION:

This course intends to provide introduction to women`s health which includes problems related to pregnancy, osteoporosis, and other disorders specific to women. Topics will focus on medical terminology, clinical examination, evaluation, comparing contemporary, traditional interventions and the impact of evolving technology in this area. It alsoemphasises on evaluation & medical treatment of pelvic floor dysfunctions.

SYLLABUS

UNIT-I

1. **PHYSIOLOGY OF PUBERTY & MENSTRUATION**: Abnormalities &common problems of Menstruation
2. **PRE, PERI & POST MENOPAUSE:** Physiology, Complications & Management
3. **INFERTILITY:** Management with emphasis on PCOS/PCOD

UNIT-II

PHYSIOLOGY OF PREGNANCY :

1. Development of the foetus, Normal/Abnormal / multiple gestations,
2. Common Complications duringpregnancy:
   a. Anaemia,
   b. P I H
   c. Eclampsia
   d. Diabetes,
   e. Hepatitis,
   f. TORCH infection or HIV

UNIT-III

PHYSIOLOGY OF LABOUR:

a. Normal – Events of Ist, IInd & IIIrdStages of labour

b. Complications during labour &management

c. Caesarean section- elective/ emergency& post operative care

POST NATAL PERIOD:

a. Puerperium & Lactation

b. Complications of repeated child bearingwith small gaps

c. Methods of contraception

UNIT-IV

1. *URO-GENITAL DYSFUNCTION:*

Uterine prolapse – Classification & Management (Conservative / Surgical) Cystocoele, Rectocoele, Enterocoele,Urethrocoele

2. **GYNAECOLOGICAL SURGERIES:** Pre and post surgical management

3. **PELVIC INFLAMMATORY DISEASES:** with special emphasis to backache due to Gynaecological / Obstetrical conditions

RECOMMENDED TEXT BOOKS

1. Text book of Gynaecology – Datta – New Central Book Agency
2. Text book of Obstetrics --Datta – New Central Book Agency
3. Geriatric Physical therapy- Andrew A.Guccione

Clinical training

L/T/P/C

-/-/12/3

Students will undergo clinical training of 12 hours per week in various wards and out-patient department of physiotherapy. They will be evaluated on the basis of the case presentation.

Physiotherapy in Orthopedics-I Practical

L/T/P/C

-/-/4/2

Practicals shall be conducted for all the relevant topics discussed in theory in the following forms.

1. Lab sessions consisting of demonstration and practice of components of orthopaedic physiotherapy assessment and special test on student models.
2. Lab sessions consisting of demonstration and practice of orthopaedic physiotherapy treatment techniques.
3. Bed side case presentations and case discussions.

Physiotherapy in Neurology-I Practical

L/T/P/C

-/-/4/2

Practicals shall be conducted for all the relevant topics discussed in theory in the following forms.

1. Lab sessions consisting of demonstration and practice of components of neurology physiotherapy assessment and special test on student models.
2. Lab sessions consisting of demonstration and practice of neurology physiotherapy treatment techniques.
3. Bed side case presentations and case discussions.

FOURTH YEAR

Semester VII

1. Physiotherapy in Orthopedics-II
2. Physiotherapy in Neurology-II
3. Physiotherapy in Cardio thoracic diseases and Surgical Conditions – I
4. Research methodology & Biostatistics
5. Physiotherapy in Orthopedics-II Practical
6. Physiotherapy in Neurology-II Practical
7. Physiotherapy in Cardio thoracic diseases and Surgical Conditions – I Practical
8. VAC (Healthy Eating for Healthy Living)

PHYSIOTHERAPY IN ORTHOPEDICS-II

L/T/P/C

3/-/-/3

SUBJECT DESCRIPTION:

This subject is the continuation of Physiotherapy in orthopedics-I which was studied in the previous semester. The course includes a study of applied anatomy and physiology of the musculo-skeletal system along with pathological changes and patho-mechanics of the system. It discusses relevant tests and measures for determining impairment and differentiating the diagnosis based on the specificity and sensitivity of the assessment instruments as related to patients with disorders of the musculo-skeletal system.

Musculo-skeletal Physiotherapy focuses on maximizing functional independence and well-being. The course uses a patient-centered model of care with multi- system assessment, evidence based interventions and a significant patient education component to promote a healthy, active lifestyle and community-based living.

SYLLABUS

UNIT-I

Physiotherapy evaluation and treatment for following condition:

1. Outline the pathology, clinical features, indications, associated problems, prosthesis type, surgical reconstruction and complications of: joint replacement of hip and knee. The physiotherapy assessment, aims and management including a detailed home programme.
2. Amputation - Review the indications and principles of amputation of the upper and lower limbs. The physiotherapy management and training of amputees before and after prosthetic fitting.
3. Upper limb orthoses and prosthesis - Types of upper limb orthoses and prosthesis. Review the principles, functions, indications and contraindications, advantages and disadvantages of each.
4. Lower limb orthoses and prosthesis - Types of lower limb orthoses and prosthesis. The principles and functions of each.List indications and contraindications, advantages and disadvantages of each.

UNIT-II

Physiotherapy evaluation and treatment for spine and pelvis condition:

1. Cervico-Thoracic Spine - Spondylitis, spondylosis, spondylolisthesis, whiplash injury, radiculopathy, myelopathy, Thoracic Outlet Syndrome, IVDP, fractures.
2. Lumbo-Sacral - Spondylitis, spondylosis, spondylolisthesis, radiculopathy, myelopathy, IVDP, fractures, SI joint dysfunction.
3. Pelvic fractures and deformities
4. Postural deformities - Kyphosis, lordosis, scoliosis.
5. Ankylosing Spondylitis, TB spine.

UNIT-III

Physiotherapy evaluation and treatment for peripheral nerve injuries related to MSK condition:

1. Brachial plexus injuries
2. Peripheral nerve injuries of upper limb - median nerve, radial nerve, ulnar nerve
3. Peripheral nerve injuries of lower limb - sciatic nerve, common peroneal nerve

UNIT-IV

Miscellaneous in Musculoskeletal physiotherapy:

1. Burns - The different degrees of burns and review relevant first aid measures. Outline the PT assessment of burns as follows: degree and percentage of burns, presence of edema and aberrant skin, ROM of involved joints, muscle power, contractures, deformities altered posture and chest movements. Review Medical and Surgical management including skin grafting. the PT aims and management of a patient with burns along with a home programme.
2. Tendon transfers, tendon repairs, nerve repairs
3. Congenital deformities
4. Rheumatoid arthritis, Osteomyelitis, Poliomyelitis, Leprosy
5. Metabolic and connective tissue disorders

UNIT-V

Sports Physiotherapy:

1. Sprain & Strain - Background, classification, evaluation and management
2. Principles of assessment in on-field and off-field sports injuries
3. Principles of management in on-field and off-field sports injuries
4. Sports nutrition
5. Sports psychology

Recommended textbooks:

1. Netter's Orthopaedic Clinical Examination - Joshua Cleland, Shane Koppenhaver (2nd Edition)
2. Orthopedic Physical Assessment - David J. Magee
3. Kinesiology, The mechanics and pathomechanics of human movement - Carol A. Oatis (2nd Edition)
4. A practical approach to orthopedic medicine - Elaine Atkins (3rd Edition)
5. Brunnstorm's Clinical Kinesiology - Peggy A. Houglum (6th edition)
6. Essentials of orthopaedics and applied physiotherapy - Joshi and Kotwal
7. Essentials of orthopaedics for physiotherapists - John Ebnezar

PHYSIOTHERAPY IN NEUROLOGY-II

L/T/P/C

3/-/-/3

SUBJECT DESCRIPTION:

This subject is the continuation of Physiotherapy in orthopedics-I which was studied in the previous semester. This subject includes a study of applied anatomy and physiology of the neuromuscular system along with the pathological chang';es and patho-mechanics of the system. It discusses relevant tests and measures for determining impairment and differentiating the diagnosis based on the specificity and sensitivity of the assessment instruments as related to patients with disorders of the neuromuscular system.

Neurophysiotherapy curriculum emphasizes the selection and use of measurement tools and management techniques based on the best available evidence. Physiotherapy strategies for assessment and treatment address structural & functional impairments and activity limitations of individuals and population (both adults & paediatric) in the context of their personal needs/goals including participation restrictions and the environment they live in. The permanence of many neurological impairments mandates that, where possible, emphasis is placed on prognosis and criterion – referenced outcomes to establish realistic goals.

SYLLABUS

UNIT – I

Paediatric Neurology:

- Paediatric Examination, Developmental milestones, developmental reflexes, Neuro developmental screening tests
- High Risk infants,
- Cerebral palsy,
- Autism,
- Down's Syndrome,
- Hydrocephalus,

- Spina bifida,
- Syringomyelia

UNIT – II

Evaluation and Management of Cerebrovascular diseases, Neuro degenerative diseases and Tumors:

- Stroke
- Parkinson's disease
- Alzheimer's disease
- Multiple sclerosis
- Brain Tumors & spinal tumors

UNIT – III

Evaluation and Management of Infective conditions/Muscle Disorders/Disorders of neuro muscular junction:

- Muscular dystrophy
- Myasthenia Gravis
- Eaton- Lambert Syndrome
- Meningitis
- Transverse myelitis
- GBS
- Poliomyelitis, Post-Polio Syndrome
- Amyotrophic lateral sclerosis
- Motor neuron disease

Cerebellar disorders.

UNIT – IV

Evaluation and Management of Peripheral Nerve Injuries and Disorders:

- Brachial plexus palsy
- Median nerve palsy

- Ulnar nerve palsy
- Radial nerve palsy
- Musculocutaneous nerve palsy
- Axillary nerve palsy
- Long thoracic nerve palsy
- Suprascapular nerve palsy
- sciatic nerve palsy
- Tibial nerve palsy
- Common peroneal nerve palsy
- Femoral nerve palsy
- Diabetic neuropathy

UNIT – V

1. Evaluation and Management of traumatic brain and spinal cord injuries
2. Vestibular disorders
3. Management of unconscious patient

Physiotherapy in Cardio thoracic diseases and Surgical Conditions - I

L/T/P/C

3/-/-/3

SUBJECT DESCRIPTION:

This comprehensive course is designed to equip physiotherapy students with the knowledge and skills necessary to manage cardiothoracic diseases and surgical conditions. This course provides an in-depth exploration of the principles and practices involved in the physiotherapy management of cardiothoracic diseases and surgical conditions. It focuses on the comprehensive assessment and evidence-based treatment approaches tailored to patients with conditions affecting the cardiovascular and respiratory systems.

SYLLABUS

UNIT-I

Cardiovascular and Pulmonary Assessment:

1. Subjective assessment
2. History taking.
3. Objective assessment-
4. Inspection: posture (recumbent, erect orthopneic) breathing pattern (rate, rhythm and pattern, use of accessory muscles), chest movement (symmetry, intercostals and diaphragmatic components), chest deformity (barrel chest, pigeon chest); spinal deformity (scoliosis, kyphosis, kyphoscoliosis); sputum (colour, type, volume, consistency); cough (types, productive / non-productive, presence of a normal cough reflex).
5. Palpation: Tactile and vocal fremitus, mobility of cervical and thoracic spine, shoulder girdle, rib cage.
6. Percussion: dullness and hyperresonance.
7. Auscultation: Normal and abnormal breath sounds. Heart sound.
8. Measurement: Chest expansion at different levels (axiliary, nipple, xiphoid); exercise tolerance (six minute walking test).

9. Cardiac dysfunction: evaluation of risk factors, respiratory system evaluation, heart rate rhythm.
10. Physical assessment in post-operative lung and cardiac conditions: surgery details, date, duration, events, types and extent, incision, vitals, drains, pain, ROM, thoracic cavity, neck, shoulder girdle, thoracic spine, chest excursion, air entry, sputum, posture, neurological complications, exercise tolerance.

UNIT-II

ICU instrumentation:

1. . Endotracheal tube
2. central lines
3. Nasogastric tube.
4. Catheter.
5. ECG-leads.
6. Drains
7. Peripheral lines.
8. temperature probe
9. Tracheostomy.
10. Humidifier.
11. Nebulizer
12. Suctioning
13. Ventilator- . Define the following terms a) respirator b) lung ventilator c) resuscitators d) body ventilator e) electrosimulator f) IPPB g) PEEP h) CPAP i) SIMV j) NEEP. Classify ventilators by their cycling control (volume cycling, pressure cycling, time cycling and mixed cycling). Describe the principles of operation of commonly used ventilators and outline the use of the following types: I) bear II) Bennett III) Emerson IV) Bird.

UNIT III

1. ECG
2. Pulmonary function tests

3. Spirometer
4. ABG- analysis
5. Chest x- ray evaluation
6. Basic life support
7. Advanced life support
8. Exercise testing

UNIT IV

Bronchial hygiene therapies:

1. Passive bronchial hygiene therapies-
    a. Describe indications, goals and procedure of breathing exercise. Describe diaphragmatic breathing, localized basal expansion, apical expansion, specific segmental exercise raising the resting respiratory level.
    b. Describe techniques of postural drainage, including indications, general precautions and contra indications, preparation of drainage of individual broncho-pulmonary segments, modified postural drainage and continuing postural drainage as a home program.
    c. Describe relaxation positions for the breathless patient: high side, lying, sitting, relaxed sitting, forward lean, standing, relaxed standing.
    d. Describe controlled breathing during walking and during functional activity.

2. Active manual bronchial hygiene therapies-

a. Active cycle of breathing technique.
b. Autogenic drainage.
c. Percussion, vibration, shaking.
d. Huffing and coughing techniques.

UNIT-V

1. ***Devices/ mechanical bronchial hygiene therapies-***
    a. Outline the principles of humidification therapy and methods of correcting humidity deficits. Describe the principles of operation of pass – over humidifiers and bubble.

b. Describe the physical properties of aerosols and their deposition in the alveoli. Describe the principles of operation of nebulizers.
c. Suctioning
d. Incentive spirometry.
e. Manual hyper-inflation.
f. Flutter and acapella.
g. High frequency chest wall compression.

2. Cardiac rehabilitation.
3. Pulmonary rehabilitation.

RESEARCH METHODOLOGY & BIOSTATISTICS

L/T/P/C

2/-/-/2

SUBJECT DESCRIPTION:

This course provides an introduction to the fundamental principles of biostatistics and research methodology, with a focus on their application in health sciences and clinical research. Students will learn essential statistical concepts, including data collection, organization, and analysis, as well as various research designs and methodologies. Topics will include descriptive and inferential statistics, probability distributions, hypothesis testing, and the use of statistical software. The course also covers ethical considerations in research, sampling techniques, data management, and the critical evaluation of research literature. By the end of the course, students will be able to design research studies, analyze and interpret data, and effectively communicate research findings in the healthcare and biomedical fields.

SYLLABUS

UNIT-I

RESEARCH METHODOLOGY

- **Introduction to Research:**
  - Definition, purpose, and importance of research
  - Types of research: Basic, Applied, Descriptive, Analytical, Experimental
- **Research Process:**
  - Steps in conducting research
  - Formulation of research problem
  - Literature review
  - Hypothesis formulation
  - Designing a research study: Cross-sectional, Case-control, Cohort studies

UNIT-II

RESEARCH ETHICS

- Informed consent

- Ethical approval and Institutional Review Board (IRB)

SAMPLING AND SAMPLE SIZE ESTIMATION

- Types of sampling techniques: Probability and non-probability sampling
- Sample size calculation for various study designs

DATA COLLECTION AND DATA MANAGEMENT

- Tools for data collection: Questionnaires, surveys, interviews
- Reliability and validity of data collection tools

UNIT-III

DATA ANALYSIS AND INTERPRETATION

- Introduction to statistical software (e.g., SPSS, R, Excel)
- Interpretation of statistical results in health sciences
- Writing results and discussion in research papers

RESEARCH WRITING AND PRESENTATION

- Structure of a research paper: Title, Abstract, Introduction, Methodology, Results, Discussion, Conclusion, References
- Referencing styles (APA, Vancouver)

UNIT-IV

INTRODUCTION TO BIOSTATISTICS

- Definition, scope, and applications of biostatistics in health sciences
- Types of data: Qualitative and Quantitative
- Scales of measurement: Nominal, Ordinal, Interval, and Ratio
- Sampling methods: Random, stratified, cluster sampling

DESCRIPTIVE STATISTICS

- Measures of Central Tendency: Mean, Median, Mode

- Measures of Dispersion: Range, Variance, Standard Deviation, Interquartile Range
- Graphical Representation of Data: Bar charts, Histograms, Pie charts, Box plots
- Data tabulation: Frequency distribution tables

PROBABILITY AND PROBABILITY DISTRIBUTIONS: Basic concepts of probability and its rules

UNIT-V

INFERENTIAL STATISTICS

- Hypothesis testing: Null and Alternative hypotheses
- Type I and Type II errors
- Confidence Intervals
- P-value and its significance
- Parametric and Non-parametric tests

STATISTICAL TESTS

- **Parametric Tests:**
  - t-test (one-sample, independent, and paired)
  - Analysis of Variance (ANOVA)
  - Pearson's Correlation Coefficient
  - Simple Linear Regression
- **Non-parametric Tests:**
  - Chi-Square Test
  - Mann-Whitney U Test
  - Wilcoxon Signed-Rank Test
  - Spearman's Rank Correlation

Recommended Textbooks

- **Biostatistics: A Foundation for Analysis in the Health Sciences** by Daniel, Wayne W.
- **Research Methodology: Methods and Techniques** by C.R. Kothari
- **Principles of Biostatistics** by Pagano, Marcello & Gauvreau, Kimberlee

Clinical training

L/T/P/C

-/-/15/5

Students will undergo clinical training of 18 hours per week in various wards and out-patient department of physiotherapy. During clinical rotations in hospitals, the students are exposed to a variety of clinical scenarios, patient populations, and rehabilitation techniques, allowing them to develop their clinical reasoning, assessment, and therapeutic skills. They will be evaluated on the basis of the case presentation.

Physiotherapy in Orthopedics-II Practical

L/T/P/C

-/-/4/2

Practicals shall be conducted for all the relevant topics discussed in theory in the following forms.

1. Lab sessions consisting of demonstration and practice of components of orthopaedic physiotherapy assessment and special test on student models.
2. Lab sessions consisting of demonstration and practice of orthopaedic physiotherapy treatment techniques.
3. Bed side case presentations and case discussions.

Physiotherapy in Neurology-II Practical

L/T/P/C

-/-/4/2

Practicals shall be conducted for all the relevant topics discussed in theory in the following forms.

1. Lab sessions consisting of demonstration and practice of components of neurology physiotherapy assessment and special test on student models.
2. Lab sessions consisting of demonstration and practice of neurology physiotherapy treatment techniques.
3. Bed side case presentations and case discussions.

Physiotherapy in Cardio thoracic diseases and Surgical Conditions – I Practical

L/T/P/C

-/-/4/2

Practicals shall be conducted for all the relevant topics discussed in theory in the following forms.

1. Lab sessions consisting of demonstration and practice of components of cardiology physiotherapy assessment and special test on student models.
2. Lab sessions consisting of demonstration and practice of physiotherapy treatment techniques.
3. Bed side case presentations and case discussions.

Semester VIII

1. Physiotherapy in Cardio thoracic diseases and Surgical Conditions – II
2. Physiotherapy in Women's health
3. Rehabilitation medicine
4. Physiotherapy in Cardio thoracic diseases and Surgical Conditions – II Practical
5. Physiotherapy in Women's health- Practical
6. Dissertation
7. VAC (Professionalism in the Workplace)

PHYSIOTHERAPY IN OBSTETRICS & GYNECOLOGY

L/T/P/C

2/-/-/2

COURSE DESCRIPTION:

This course aims to provide students with the knowledge and skills necessary to assess, manage, and treat women in different stages of pregnancy, childbirth, postpartum, and gynecological conditions. The course will focus on the role of physiotherapy in promoting women's health, preventing complications, and improving quality of life.

SYLLABUS

UNIT-I

Antenatal Physiotherapy:

- Assessment of pregnant women.
- Role of exercise during pregnancy (benefits and contraindications).
- Antenatal exercises: Postural correction, breathing exercises, pelvic floor muscle training, relaxation techniques, core strengthening.
- Prevention and management of common antenatal conditions: Low back pain, pelvic girdle pain, varicose veins, edema.
- Lifestyle advice: Ergonomics, daily activities, posture, diet, and mental health.

UNIT-II

Labor & Childbirth:

- Stages of labor and role of physiotherapy.
- Breathing techniques, relaxation methods, and positioning during labor.
- Pain management strategies: TENS, massage, hydrotherapy, etc.
- Pelvic floor muscle training during labor and post-delivery.
- Role of physiotherapy in assisted delivery (caesarean section, forceps, etc.).

UNIT-III

Postnatal Physiotherapy:

- Assessment post-delivery (normal and cesarean).
- Early mobilization and prevention of complications (DVT, urinary incontinence).
- Postnatal exercises for regaining strength, posture, core stability, and pelvic floor recovery.
- Managing common postnatal conditions: Diastasis recti, pelvic organ prolapse, postpartum depression, etc.
- Postnatal advice for returning to normal activities, exercise, and sexual health.

UNIT-IV

Physiotherapy in Gynecological Conditions:

- Role of physiotherapy in managing menstrual disorders, urinary incontinence, pelvic organ prolapse, and chronic pelvic pain.
- Physiotherapy for post-hysterectomy recovery.
- Introduction to pelvic floor dysfunction and rehabilitation techniques (manual therapy, biofeedback, electrotherapy).
- Physiotherapy for gynecological surgeries and conditions (e.g., fibroids, cysts, pelvic inflammatory disease).

UNIT-V

Women's Health and Wellness:

- Importance of exercise for women's health across the lifespan (menarche to menopause).
- Physiotherapy for menopausal women: Management of osteoporosis, cardiovascular changes, and musculoskeletal health.
- Lifestyle modifications for healthy aging in women.
- Preventive health education and awareness.

Physiotherapy in Cardio thoracic diseases and Surgical Conditions - II

L/T/P/C

3/-/-/3

SUBJECT DESCRIPTION

The subject will familiarize the students the different Cardiovascular and Pulmonary physiotherapy techniques and its comprehensive understanding to enhance better management of cardiovascular and pulmonary patients. This course focuses on the integration between evidence-based practice and current clinical practice. Clinical reasoning is fundamental to all assessment, treatment, management and rehabilitation for both cardiovascular and pulmonary disorders. It is designed to enhance knowledge, skill and clinical competencies in clinical practice, research and issues related to cardiovascular and pulmonary related problems. Cardiac rehabilitation, pulmonary rehabilitation, bronchial-hygiene therapies, mechanical ventilation are integrated into clinical practice.

Objectives:

- Assess and Diagnose Cardiovascular and Pulmonary Conditions
- Design and Implement Treatment Plans.
- Manage Acute and Chronic Conditions.
- Promote Cardiovascular and Pulmonary Health.
- Apply Rehabilitation Techniques.
- Evaluate Outcomes and Modify Interventions.
- Engage in ongoing education to stay informed about the latest advancements in cardiovascular and pulmonary physiotherapy.

SYLLABUS

Student should learn the physiotherapy assessment, interventions and recent advances in the physiotherapy management of following conditions.

(Preoperative & Postoperative)

UNIT-I

CARDIOVASCULAR CONDITIONS

1. Ischaemic heart diseases[ANGINA PECTORIS , MI, HEART FAILURE, ARRHYTHMIAS]
2. Rhumatic heart disease and Valvular heart disorders.[STENOSIS AND REGURGITATION OF ALL THE 4 VALVES]
3. Cardiomyopathies.[DCM,HCM,RCM,]
4. Congenital heart disorders
5. Tumors of the heart
6. Cardiopulmonary medication and their effects on activity performance.

UNIT-II

PULMONARY CONDITIONS-

1. ***Chronic obstructive lung disorders-***
    - Chronic bronchitis.
    - Emphysema.
    - Bronchiectasis.
    - Asthma.
    - Cystic fibrosis (early stages)
2. ***Restrictive lung disorders.***
    - Cystic fibrosis.
    - Lung abscess.
    - Broncho pneumonia.
    - Destroyed lung.
    - Carcinoma of lung.
    - Pulmonary embolism.

UNIT III

1. ***Infectious lung disorders:***
    - Pneumonia (Bacterial, Viral, Fungal ,Aspiration Pneumonia)
    - Tuberculosis
    - Bronchitis
    - Pulmonary aspergillosis

- Pertussis
- Pulmonary abscess

2. *Interstitial lung diseases:*

- Idiopathic intestitial pneumonias
- Auto immune or connective tissue disease related ILD.

3. Occupational lung disorders

4. Trauma to the chest.

5. Tumors of the lung

6. Pulmonary medication and their effects on activity performance

UNIT-IV

1. *Pleural disorders:*

- Pleurisy
- Pleura effusion
- Pneumothorax
- Hemothorax
- Empyema

2. *Chest wall deformities:*

- Pectus excavatum
- Pectus carinatum
- Barrel chest
- Kyphoscoliosis
- Sternal defects

3. *Peripheral vascular disorders:*

- Arterial pathological conditions.
- Venous pathological conditions.
- Lymphatic pathological conditions.

4. Hypertension

5. Obesity

6. Syncope

7. Burns: Cardiopulmonary complications in burns, Debridement & Wound care

8. Amputation: Cardiopulmonary complications in amputation.

UNIT V

Surgical conditions: Surgical procedure, complications, assessment and physiotherapy intervention for the following

- Thoraco plasty.
- Empyema thoracis.
- Rib resection.
- Decortication Window operation.
- Omento plasty.
- Surgeries to thoracic wall
- Surgeries in Cardiac conditions.
- Surgeries in Vascular conditions.
- Surgeries for Pulmonary conditions.
- Bariatric surgery.
- General surgery.

Reference books:

1. Physiotherapy in respiratory care-Alexander hough.
2. Davidson Principle of Medicine-Ian D Penman.
3. Physiotherapy for respiratory and cardiac problems - Jenifer Pryor Barbara Webber.
4. Physiology of exercise and sports- W Larry Kenny Jack H Willmore.
5. Essential of Cardiopulmonary Physiotherapy-Ellen Hillegass.
6. ACSM guidelines for exercise testing and prescription.
7. Physiotherapy in respiratory care-Alexander hough.
8. Davidson Principle of Medicine-Ian D Penman.
9. Physiotherapy for respiratory and cardiac problems - Jenifer Pryor Barbara Webber.
10. Physiology of exercise and sports- W Larry Kenny Jack H Willmore.
11. Essential of Cardiopulmonary Physiotherapy-Ellen Hillegass.
12. ACSM guidelines for exercise testing and prescription

REHABILITATION MEDICINE

L/T/P/C

3/-/-/3

SUBJECT DESCRIPTION:

This course will enable the students to understand their role in the management of disability. The objectives of this course are that after 100 hours of lectures & demonstrations, in addition to clinics, the student will be able to demonstrate an understanding of dciagnostic features in physical conditions (practised through clinical demonstration), medical and surgical aspects of disabling conditions (explained in relation to rehabilitation), the concept of team approach in rehabilitation, Residual potentials in patients with partial or total disability and appropriate goals (long and short term) in treatment & rehabilitation.

SYLLABUS

UNIT-I

1. ***Introduction to Rehabilitation Medicine***
    - Definition, scope, and principles of rehabilitation medicine
    - Rehabilitation team and physiotherapy's role
    - IBR and CBR
2. ***Disability and Impairment***
    - WHO's International Classification of Functioning, Disability, and Health (ICF)
    - Assessment of disability and impairment

UNIT-II

3. **Rehabilitation Technology** (4 hours)
    - Assistive devices, orthotics, and prosthetics
    - Adaptive equipment and accessibility
4. ***Rehabilitation Ethics and Professionalism***
    - Ethical principles in rehabilitation
    - Professionalism and communication skills
5. ***Rehabilitation Process***
    - Assessment, goal setting, intervention, and evaluation
    - Rehabilitation planning and documentation

UNIT-III

INDUSTRIAL HEALTH:

- Job analysis
- Ergonomics: Definition, principles/elements, mechanical stresses
- Psychological hazards
- Role of PT in industrial health

UNIT-IV

REHABILITATION IN VARIOUS CONDITIONS

- Spinal cord injuries
- Stroke and neurological disorders
- Amputations and prosthetic rehabilitation
- Musculoskeletal disorders and sports injuries
- Pediatric rehabilitation

UNIT-V

GERIATRIC REHABILITATION AND PALLIATIVE CARE:

Geriatric rehabilitation:

Physiotherapy Assessment in Geriatric Patients:

- Principles of assessment in geriatrics
- Tools and outcome measures (e.g., Berg Balance Scale, Timed Up and Go Test)
- Identifying risk factors for falls and immobility

Physiotherapy Interventions for Geriatric Patients:

- Exercise prescription (strength, balance, flexibility, endurance training)
- Mobility aids and assistive devices
- Pain management techniques
- Role of manual therapy and electrotherapy

Palliative care:

- Define the term palliative care

- Role of team members in palliative care
- Explain briefly the role of each team member
- Palliative care in terminal illness.

CLINICAL TRAINIG

L/T/P/C

-/-/18/6

Clinical training for physiotherapy students is essential to bridge the gap between theoretical knowledge and practical skills. It provides hands-on experience, develops critical thinking, and ensures competence in patient care. Students will undergo clinical training in various wards and out-patient department of physiotherapy. They will be evaluated on the basis of the case presentation.

DISSERTATION

L/T/P/C

-/-/4/2

Every candidate pursuing B.P.T. course is required to carry out research work on a selected research topic under the guidance of a recognized postgraduate teacher. Students are assessed on the basis of dissertation evaluation report given by the external evaluators and viva voce.

Physiotherapy in Cardio thoracic diseases and Surgical Conditions – II Practical

L/T/P/C

-/-/4/2

Practicals shall be conducted for all the relevant topics discussed in theory in the following forms.

1. Lab sessions consisting of demonstration and practice of components of cardiology physiotherapy assessment and special test on student models.
2. Lab sessions consisting of demonstration and practice of cardiology physiotherapy treatment techniques.
3. Bed side case presentations and case discussions.

Physiotherapy in Women's health- Practical. L/T/P/C

-/-/4/2

Practicals shall be conducted for all the relevant topics discussed in theory in the following forms.

1. Lab sessions consisting of demonstration and practice of components of women's physiotherapy assessment and special test on student models.
2. Lab sessions consisting of demonstration and practice of women's physiotherapy treatment techniques.

Value Added Courses

L/T/P/C
1/-/-/1

1. Interpersonal Communication
2. Stress Management
3. Soft Skills Development
4. Health and Well-being
5. Environmental Awareness
6. Art of Being a Better Person
7. Healthy Eating for Healthy Living
8. Professionalism in the Workplace

1. Interpersonal Communication

Course Description:
This course explores the fundamental principles, theories, and techniques of interpersonal communication. Students will examine both verbal and non-verbal communication strategies and apply these skills to improve personal and professional interactions. Through class discussions, role-playing, and group activities, students will develop a better understanding of effective communication in various social contexts.

Course Objectives:
By the end of the course, students will:

1. Understand the theories and principles of interpersonal communication.
2. Develop effective verbal and non-verbal communication skills.
3. Analyse and enhance communication in various interpersonal relationships (e.g., friendships, family, workplace).
4. Improve listening, empathy, and conflict-resolution skills.
5. Understand cultural and gender influences on communication.
6. Apply communication skills in real-world scenarios.

Unit 1
Introduction to Interpersonal Communication
Overview of interpersonal communication theory.
Key principles: sender, message, receiver, feedback, noise.
Importance of communication in daily life.

Unit 2
Verbal Communication
The role of language in communication.
Choosing words carefully: Clarity, precision, and ambiguity.
Influence of culture and context on verbal communication.

Unit 3
Non-Verbal Communication
Body language, facial expressions, and gestures.
Space, posture, and touch in communication.
The role of non-verbal cues in conveying emotions

Unit 4
Listening Skills
Types of listening: Active, passive, reflective.
Barriers to effective listening.
Developing empathy through listening.

Unit 5
Self-Disclosure and Relationship Development
The importance of self-disclosure in relationships.
The Johari Window model.
How self-disclosure affects trust and intimacy.

Unit 6
Conflict in Interpersonal Communication
Types of conflict: Productive vs. destructive.
Conflict management styles.
Strategies for resolving conflict in healthy ways.

Unit 7
Cultural and Gender Differences in Communication
Cultural influences on communication styles.
Gender communication differences.
Strategies for effective cross-cultural communication.

Unit 8
Communication in Close Relationships
Communication patterns in romantic relationships, family, and friendships.
Managing expectations and maintaining healthy communication in intimate relationships.

Unit 9
Communication in the Workplace
Interpersonal communication in professional settings.
Navigating professional relationships and maintaining boundaries.
Communication and leadership.

Unit 10
Digital Communication
The role of technology in interpersonal communication.
The impact of social media on relationships.
Pros and cons of digital communication tools.

The Ethics of Communication
Ethical dilemmas in communication.
Honesty, transparency, and privacy in conversations.
Balancing openness with respect for others' boundaries.

Evaluation and Grading:
Assignments:50
Final exam (internal 50 marks)

Reference Textbook:

"Interpersonal Communication: Everyday Encounters" (Author: Julia T. Wood, 9th Edition)

2. Stress Management

Course Objectives:

By the end of the course, students will:
1. Understand what stress is and how it affects the body and mind.
2. Learn how to recognize personal stressors and individual responses to stress.
3. Explore various coping strategies to manage stress effectively.
4. Understand how lifestyle changes can reduce overall stress.
5. Learn how to manage stress in academic and professional settings.
6. Equip students with tools to build long-term resilience against stress.

Unit 1
Introduction to Stress and Its Effects
Definition of stress: Eustress vs. Distress
Types of stress: Acute vs. Chronic
The biology of stress (fight-or-flight response, hormones)
Short-term and long-term effects on physical and mental health
The role of perception and coping mechanisms

Unit 2
Identifying Stressors and Personal Stress Responses
Internal vs. external stressors (work, relationships, environment)
Identifying stress patterns (thoughts, behaviours, physical reactions)
Emotional regulation and its role in stress management
The Stress Process: How stress develops and escalates

Unit 3
Coping Strategies and Stress Relief Techniques
Problem-focused vs. emotion-focused coping
Cognitive Behavioral Therapy (CBT) techniques for stress
Relaxation techniques (deep breathing, progressive muscle relaxation)
Time management and organization as stress-relief tools
Developing a personal coping plan

Unit 4
Lifestyle Changes for Managing Stress
The role of physical activity and exercise
Sleep hygiene and its connection to stress
Nutrition and its impact on mental health
Social support and healthy relationships
Mindfulness and meditation practices

Unit 5
Stress Management at Work and School
Managing work and school stress: Time management, prioritization
Dealing with high-pressure environments and deadlines
Building resilience and avoiding burnout
The importance of taking breaks and practicing self-care

Unit 6
Building Long-Term Stress Resilience
Resilience theory and how to bounce back from adversity
Developing a growth mindset to handle challenges
Building emotional intelligence to cope with stress
Integrating stress management into daily life

Assessment & Evaluation
Participation: 20 (Engagement in group discussions and exercises)
Assignments: 30
Final Exam (Internal) : 50 marks

Reference Textbook
Stress Management: From Basic Science to Best Practice" by C. L. Cooper and Philip L. Merritt

3. Soft Skills Development

Course Objectives:

By the end of the course, students will:

1. Improve their communication and interpersonal skills.
2. Develop emotional intelligence (EQ) and conflict resolution strategies.
3. Enhance their ability to work in teams and exhibit leadership qualities.
4. Gain confidence in public speaking and professional writing.
5. Master time management and personal organization strategies.

Week 1
Introduction to Soft Skills
Definition of soft skills vs. hard skills
The importance of soft skills in the workplace
Key soft skills: communication, teamwork, adaptability, problem-solving, leadership, etc.

- **Activities:** Icebreakers, group discussions on soft skills in the workplace
- **Assignment:** Self-assessment on current soft skills

Week 2
Communication Skills
The communication process: sender, message, receiver, feedback
Active listening techniques
Body language and non-verbal cues
Effective speaking: tone, clarity, and pacing
Email and phone communication etiquette

- **Activities:** Role-playing scenarios (e.g., client interaction, conflict resolution)
- **Assignment:** Practice active listening and send an email incorporating effective communication principles.

Week 3
Emotional Intelligence (EQ)
What is emotional intelligence? (Self-awareness, self-regulation, motivation, empathy, and social skills)
Recognizing and managing your emotions
Understanding others' emotions and building empathy
Developing emotional resilience

- **Activities:** Emotional intelligence quizzes, group discussion on handling emotions in stressful situations
- **Assignment:** Journaling emotional responses and reflection on EQ practices.

Week 4
Teamwork and Collaboration
Roles and dynamics within teams
Effective communication in teams
Conflict resolution in teams
Building trust and fostering a collaborative environment

- **Activities:** Team exercises, problem-solving tasks, and brainstorming sessions
- **Assignment:** Work on a team project or task, and present it in class.

Week 5
Conflict Resolution
Sources of conflict (miscommunication, differing priorities, etc.)
Conflict resolution strategies (e.g., negotiation, mediation, compromise)
The role of active listening in resolving conflicts
Managing personal emotions during conflict

- **Activities:** Case studies, role-playing conflict resolution scenarios
- **Assignment:** Reflect on a personal or professional conflict and propose a resolution strategy.

Week 6
Time Management and Personal Organization
The importance of time management in personal and professional success
Prioritization techniques (e.g., Eisenhower Matrix, ABCDE method)
Tools for time management (digital calendars, to-do lists, Pomodoro technique)
Setting SMART goals
Managing procrastination and avoiding distractions

- **Activities:** Time-blocking exercises, goal-setting workshop
- **Assignment:** Create a personal time management plan and track daily productivity for a week.

Week 7
Leadership and Influence
Types of leadership (e.g., transformational, transactional, servant leadership)
Leading by example: qualities of effective leaders
Building and maintaining team morale
The art of persuasion and influence

- **Activities:** Leadership style assessment, group discussions on leadership challenges
- **Assignment:** Write a reflection on a leader you admire and why.

Week 8

Public Speaking and Presentation Skills

Overcoming fear of public speaking
Structuring a presentation (opening, body, conclusion)
Effective use of visual aids (PowerPoint, etc.)
Engaging the audience through storytelling, eye contact, and body language

- **Activities:** Group presentations, peer feedback sessions, impromptu speaking exercises
- **Assignment:** Prepare and deliver a short presentation (5-7 minutes) on a topic of choice.

Assessment and Evaluation:

Class Participation :20
Assignments: 30
Final: 50

Reference Textbook

The 7 Habits of Highly Effective People" by Stephen R. Covey

4. Health and Well-being

Course Description:

This course explores the holistic approach to health and well-being, focusing on physical, mental, and social aspects. Students will learn about health promotion strategies, the importance of physical activity, nutrition, mental health awareness, and stress management. The course also addresses the impact of lifestyle choices and societal factors on overall health.

Course Objectives:

By the end of the course, students will be able to:

1. Understand the physical, mental, and social determinants of health.
2. Apply strategies for improving and maintaining physical health.
3. Recognize the importance of mental well-being and stress management techniques.
4. Understand the relationship between nutrition and overall health.
5. Develop practical skills for managing time, stress, and emotions.
6. Cultivate a balanced approach to achieving long-term health and well-being.

Unit 1

Introduction to Health and Well-being

Overview of health and well-being concepts
Dimensions of health: Physical, mental, social, and emotional
The impact of lifestyle choices on health

Unit 2

Physical Health and Fitness

Importance of physical activity for overall health
Types of exercise: Aerobic, strength, flexibility, and balance
Creating a personal fitness plan

Unit 3
Nutrition and Healthy Eating
Basics of nutrition: Macronutrients and micronutrients
Healthy eating habits and food groups
Impact of nutrition on physical and mental health

Unit 4
Mental Health and Emotional Well-being
Understanding mental health: Definitions, stigma, and myths
Key aspects of emotional well-being
Building emotional resilience

Unit 5
Stress Management Techniques
Understanding stress and its effects on health
Mindfulness and relaxation techniques
Time management for stress reduction

Unit 6
Sleep and Recovery
Importance of sleep for physical and mental health
Sleep hygiene and healthy sleep habits
Impact of sleep deprivation on overall well-being

Unit 7
Social Health and Relationships
The role of social connections in well-being
Healthy relationships: Communication, boundaries, and support
Community involvement and social well-being

Unit 8
Substance Use and Addiction
The impact of alcohol, tobacco, and drugs on health
Understanding addiction and treatment options
Preventive measures and harm reduction strategies

Unit 9
Chronic Diseases and Prevention
Common chronic diseases (e.g., diabetes, heart disease)
Risk factors and lifestyle modifications for prevention
Screening, early detection, and health monitoring

Unit 10
Building Healthy Habits
The psychology of habit formation
Strategies for adopting and maintaining healthy habits
Overcoming barriers to healthy behaviour changes

Assessment and Evaluation:
Class Participation :20
Assignments/ case study presentations: 30
Final: 50

Reference Textbook

Health and Wellness" by S. L. Kaskutas & K. A. A. Nielson

5. Environmental Awareness

Course Description:

This course introduces students to the fundamental concepts of environmental awareness, examining the relationship between humans and the environment. It emphasizes the impact of human activities on the planet and promotes sustainable practices. Students will explore key environmental issues, such as climate change, biodiversity, pollution, and resource conservation, and develop practical knowledge for contributing to environmental protection.

Course Objectives:

By the end of the course, students will be able to:

1. Understand the basic concepts of environmental science and sustainability.
2. Identify the major environmental challenges facing the world today.
3. Analyze the impact of human activities on ecosystems, biodiversity, and natural resources.
4. Explore global environmental policies and local solutions to environmental problems.
5. Implement sustainable practices in everyday life.

Unit 1
Introduction to Environmental Awareness
What is environmental awareness?
The importance of environmental education.
Key environmental concepts: ecosystems, biodiversity, sustainability.
Historical perspective on environmental awareness.

Unit 2
Earth's Ecosystems and Biodiversity
What are ecosystems?
Types of ecosystems: forests, oceans, wetlands, etc.
Importance of biodiversity.
Threats to biodiversity: habitat loss, invasive species, climate change.
Unit 3
Pollution and Its Impact
Types of pollution: air, water, soil, noise, and light pollution.
Causes and effects of pollution on health and ecosystems.
Case studies of major pollution events.

Unit 4
Climate Change and Global Warming
The science of climate change.
Greenhouse effect and human contributions.
Impacts of climate change: rising temperatures, sea levels, extreme weather.
Mitigation and adaptation strategies.

Unit 5
Resource Conservation
Renewable vs. non-renewable resources.
The importance of conserving water, energy, and other resources.
Techniques for conservation: recycling, energy efficiency, and water-saving practices.

Unit 6
Sustainable Agriculture and Food Systems
Environmental impact of conventional farming practices.
Sustainable agriculture: organic farming, permaculture, and agroecology.
The role of diet in environmental sustainability.

Unit 7
Waste Management
Types of waste: municipal, industrial, hazardous, electronic.
The 3 Rs: Reduce, Reuse, Recycle.
Landfills, incineration, and composting.
Zero waste lifestyle.

Unit 8
Water Conservation and Management
The global water crisis: causes and consequences.
Water management practices and policies.
The importance of clean water for all living organisms.

Unit 9
Environmental Policy and Legislation
Global environmental treaties: Paris Agreement, Kyoto Protocol.
National environmental policies and regulations.
Role of NGOs, governments, and individuals in policy development.

Unit 10
Green Technologies and Innovations
Introduction to renewable energy sources (solar, wind, hydro, etc.).
Electric vehicles and sustainable transportation.
Innovations in waste-to-energy and sustainable agriculture.

The Role of Individuals in Environmental Protection
How individual actions impact the environment.
Eco-friendly lifestyles: reducing waste, sustainable consumption, green travel.
Community action and grassroots movements.

Assessment and Evaluation:
Class Participation :20
Assignments/ case study presentations: 30
Final: 50

Reference Textbook
Environmental Science: A Global Concern" by William P. Cunningham & Mary Ann Cunningham

6. Art of Being a Better Person

Course Description:

This course explores what it means to live ethically, compassionately, and meaningfully as a human being. Students will engage in discussions about moral philosophy, empathy, self-awareness, and how to cultivate kindness, responsibility, and social engagement in everyday life.

Course Objectives:
By the end of the course, students will:

1. Understand foundational ethical principles that guide human behavior.
2. Cultivate emotional intelligence and empathy.
3. Learn practical strategies for self-improvement and kindness.
4. Understand their role in society and how to make a positive impact.
5. Reflect on personal actions, relationships, and contributions to the community.

Unit 1
Introduction to Being a Good Human
Defining "goodness" and ethical living
Overview of moral philosophies: Utilitarianism, Deontology, Virtue Ethics
The role of self-awareness in personal growth
Activity: Reflective journaling on what "being good" means to you.

Unit 2
The Power of Empathy
Understanding empathy vs. sympathy
The science behind empathy and its benefits for social connections
Techniques for cultivating empathy in everyday life
Activity: Empathy-building exercises and discussions.

Unit 3
Emotional Intelligence (EQ)
What is Emotional Intelligence? (Self-awareness, self-regulation, motivation, empathy, and social skills)
The role of EQ in personal and professional relationships
Strategies to improve emotional intelligence
Activity: Self-assessment of emotional intelligence and EQ development exercises.

Unit 4
Compassion and Kindness
The science of kindness: How kindness benefits us and others

Practicing kindness in small, everyday actions
Overcoming barriers to kindness (e.g., stress, biases, indifference)
Activity: "Random Acts of Kindness" challenge.

Unit 5
Personal Integrity and Honesty
The importance of integrity in personal and professional life
Consequences of dishonesty and lack of integrity
How to align actions with values
Activity: Case study discussion on ethical dilemmas and decision-making.

Unit 6
Building Positive Relationships
Communication skills for healthy relationships
Setting boundaries and respecting others' boundaries
Conflict resolution and forgiveness
Activity: Role-playing scenarios to practice healthy communication.

Unit 7
Responsibility and Accountability
The concept of personal responsibility in life
Accountability in both personal and community contexts
How to take ownership of mistakes and learn from them
Activity: Reflect on past mistakes and plan for growth.

Unit 8
Contributing to the Community and Society
The role of individuals in building strong communities
Volunteering, activism, and social responsibility
The impact of small, positive actions on a larger scale
Activity: Brainstorming session on potential ways to contribute to the local community.

Unit 9
Practicing Gratitude and Contentment
The psychological and emotional benefits of gratitude
Practicing contentment in a consumer-driven world
Techniques for cultivating a mindset of abundance
Activity: Gratitude journal and daily reflection.

Unit 10
Living with Purpose and Meaning
Discovering personal values and purpose
The intersection of passion, skills, and service
Creating a life plan that aligns with core values
Activity: Create a personal mission statement.

Week 11
Overcoming Negative Traits: Greed, Anger, and Envy
The psychology behind negative emotions and traits
How greed, anger, and envy affect our well-being
Strategies for managing and transforming negative emotions

Activity: Mindfulness meditation and reflection exercises.

Bringing It All Together: A Life of Goodness
Review of key learnings from the course
Creating a vision for continuous personal growth
How to maintain a positive and ethical life in a challenging world
Activity: Final reflection paper or presentation on how students will apply the course's principles to their life.

Assessment and Evaluation:
Class Participation :20
Assignments/ case study presentations: 30
Final: 50

Reference Textbook
1. How to Win Friends and Influence People" by Dale Carnegie
2. The Seven Habits of Highly Effective People" by Stephen R. Covey

7. Healthy Eating for Healthy Living

Coure Description:

This course is designed to teach students the foundational principles of nutrition, the relationship between food and health, and practical strategies for making sustainable, healthy eating choices. Students will learn how to create balanced meals, understand dietary guidelines, and navigate the modern food environment to support long-term health and well-being.

Unit 1
Introduction to Nutrition and Healthy Eating
What is nutrition?
Overview of macronutrients (carbohydrates, proteins, fats) and micronutrients (vitamins, minerals).
The importance of hydration.
Understanding energy balance: Calories in vs. Calories out.
Introduction to MyPlate (or other dietary guidelines).

Unit 2
Building a Balanced Plate
The principles of meal planning.
Portion control and serving sizes.
Healthy fats vs. unhealthy fats.
Carbohydrates: Simple vs. complex sugars.
Protein sources: Animal vs. plant-based.

Unit 3
Reading Food Labels and Understanding Food Marketing
How to read food labels (nutritional facts, ingredients list, serving sizes).
Decoding food claims (low-fat, organic, non-GMO).
Understanding food marketing and its impact on consumer choices.

Navigating grocery stores and making informed decisions.

Unit 4
The Role of Fruits and Vegetables in Healthy Eating
The importance of fruits and vegetables in the diet.
Health benefits of fiber, antioxidants, and phytochemicals.
Incorporating more plant-based foods into your meals.
Seasonal and local produce: Why it matters.

Unit 5
Special Diets and Nutrition for Different Lifestyles
Overview of popular diets (e.g., Mediterranean, vegetarian, vegan, paleo, ketogenic).
Nutrition for athletes and active individuals.
Special considerations for children, seniors, and pregnant women.
Managing food allergies and intolerances (e.g., gluten, lactose).

Unit 6
Mindful Eating and Emotional Health
What is mindful eating?
The connection between emotions and eating habits.
Managing stress and emotional eating.
Developing a healthy relationship with food.

Unit 7
Sustainable Eating and Environmental Impact
The environmental impact of food choices (e.g., food miles, carbon footprint).
Sustainable eating practices: Local, seasonal, and organic foods.
Reducing food waste: Practical tips.
The role of plant-based eating in sustainability.

Unit 8
Putting It All Together: Creating a Sustainable, Healthy Eating Plan
Review of key concepts: Macronutrients, micronutrients, balanced eating, mindful eating.
Goal setting: How to set achievable health goals.
Meal prep and planning for a busy lifestyle.
Long-term strategies for maintaining a healthy diet.

Assessment and Evaluation:
Class Participation :20
Assignments/ case study presentations: 30
Final: 50

Reference Textbook
1. Nutrition and You" by Joan Salge Blake
2. Understanding Nutrition" by Eleanor Noss Whitney and Sharon Rady Rolfes

8. Professionalism in the Workplace

Course Description:
This course is designed to provide students with the foundational knowledge and skills required to demonstrate professionalism in a variety of workplace settings. Topics will include communication, ethics, accountability, time management, problem-solving, conflict resolution, and maintaining a positive and effective work ethic. Students will engage in practical activities that promote personal and professional growth.

Course Objectives:
By the end of this course, students will:

1. Understand the key elements of professional behavior in the workplace.
2. Demonstrate effective communication, both verbal and non-verbal, in a professional environment.
3. Learn to manage time effectively and handle workplace challenges with a positive attitude.
4. Cultivate emotional intelligence and adaptability in professional settings.
5. Understand workplace ethics, integrity, and how to make ethical decisions.
6. Develop skills for conflict resolution and teamwork in diverse work environments.

Unit 1
Introduction to Professionalism
What is professionalism?
Characteristics of a professional: Appearance, behaviour, and attitude
The importance of professional ethics and integrity

Unit 2
Effective Communication in the Workplace
Verbal and non-verbal communication
Active listening and responding
Communicating across cultures
Unit 3
Workplace Etiquette and Networking
Social etiquette in the workplace
Networking best practices
Building relationships with colleagues, managers, and clients

Unit 4
Time Management and Organization
Prioritizing tasks and setting goals
Managing deadlines and avoiding procrastination
Tools and techniques for effective time management

Unit 5
Accountability and Reliability
Taking responsibility for your actions
Being reliable and dependable in the workplace
How accountability affects professional reputation

Unit 6
Problem Solving and Decision Making
Approaches to critical thinking and decision-making

Strategies for solving workplace problems effectively
The role of creativity and innovation in problem-solving

Unit 7
Teamwork and Collaboration
Working with diverse teams
Building trust and collaboration in teams
Managing team conflicts and maintaining harmony

Unit 8
Conflict Resolution and Handling Difficult Conversations
Understanding conflict dynamics
Techniques for resolving conflicts professionally
Role-playing difficult conversations in the workplace

Unit 9
Ethical Dilemmas in the Workplace
Recognizing ethical challenges
Making decisions based on ethical principles
The role of transparency and honesty

Unit 10
Building Emotional Intelligence and Adaptability
What is emotional intelligence and why does it matter?
Developing self-awareness and self-regulation
Adapting to changing work environments

Assessment and Evaluation:
Class Participation :20
Assignments/ case study presentations: 30
Final: 50

Reference Textbook
1. Professionalism: Skills for Workplace Success" by Deborah C. Dillon
2. The Professional Workplace: The Skills You Need to Succeed" by Ronald W. Holmes