

SEMESTER –IV

PAPER CODE	SUBJECT NAME	THEORY HOURS	PRACTICAL HOURS	THEORY MARKS	PRACTICAL MARKS
DPT401	COMMUNITY MEDICINE, INCLUDING PEDIATRICS AND PSYCHIATRY	45 Min	1 Hrs.	50	50
DPT402	HAND HYGIENE & PREVENTION OF CROSS INFECTION	45 Min	1 Hrs.	50	50
DPT403	PHYSIOTHERAPY IN ORTHOPAEDIC CONDITIONS, ORTHOTICS, AND PROSTHETICS	45 Min	1 Hrs.	50	50
DPT404	FOOD SCIENCE AND NUTRITION	45 Min	1 Hrs.	50	50

COMMUNITY MEDICINE, INCLUDING PEDIATRICS AND PSYCHIATRY

COMMUNITY MEDICINE / PUBLIC HEALTH

1. Introduction to Community Medicine

- Definition and scope of community medicine
- Concept of health and disease
- Determinants of health
- Levels of prevention (Primordial, Primary, Secondary, Tertiary)
- Indicators of health (morbidity, mortality, DALY)

2. Epidemiology

- Definition and types of epidemiology
- Modes of disease transmission
- Outbreak investigation
- Common epidemiological terms: incidence, prevalence, endemic, epidemic
- Surveillance and screening

3. Communicable Diseases (Basics & Prevention)

- Tuberculosis

- Malaria
- Dengue
- HIV/AIDS
- Hepatitis
- Diarrheal diseases
- COVID-19 (recent addition)

4. Non-Communicable Diseases (NCDs)

- Hypertension
- Diabetes
- Cancer
- Obesity
- Stroke
- Role of physiotherapy in prevention and rehabilitation

5. Environmental Health

- Water sanitation and purification
- Air pollution and health effects
- Waste disposal (biomedical waste management)
- Housing and health

6. Nutrition and Health

- Nutritional disorders (kwashiorkor, marasmus, anemia, obesity)
- Balanced diet
- Nutrition programs in India (ICDS, Midday Meal Scheme)

7. Health Education and Promotion

- Methods of health education (posters, talks, role plays)
- IEC (Information, Education, Communication) techniques
- Behavior change communication (BCC)

8. National Health Programs (Overview)

- National Tuberculosis Elimination Program (NTEP)
- National Leprosy Eradication Program (NLEP)
- Reproductive & Child Health (RCH)
- Universal Immunization Program (UIP)
- AYUSH and NRHM initiatives

SECTION B: PEDIATRICS (CHILD HEALTH)

1. Growth and Development

- Milestones: gross motor, fine motor, language, social
- Growth monitoring charts (weight, height, head circumference)

2. Common Pediatric Conditions

- Cerebral palsy
- Down syndrome
- Congenital muscular torticollis
- Spina bifida
- Developmental delay
- Neonatal jaundice
- Respiratory infections in children

3. Pediatric Rehabilitation (Basics)

- Early intervention programs
- Role of physiotherapy in cerebral palsy and developmental delay
- Pediatric orthoses and assistive devices
- Parent education and involvement

4. Immunization

- National Immunization Schedule
- Types of vaccines (live, killed, toxoid)
- Cold chain maintenance

5. Nutrition in Children

- Breastfeeding and complementary feeding
- Protein-energy malnutrition
- Micronutrient deficiency (Vitamin A, iron, iodine)

PSYCHIATRY / MENTAL HEALTH

1. Introduction to Mental Health

- Definition of mental health and illness
- Causes of mental illness: biological, psychological, social
- Stigma and myths about mental disorders

2. Common Psychiatric Disorders

- Depression
- Anxiety disorders
- Schizophrenia

- Substance abuse (alcohol, drugs)
- Bipolar disorder
- Somatoform disorders

3. Pediatric Psychiatric Disorders

- Autism Spectrum Disorder (ASD)
- Attention Deficit Hyperactivity Disorder (ADHD)
- Intellectual disability (mental retardation)

4. Role of Physiotherapy in Psychiatry

- Relaxation techniques: Jacobson's progressive muscle relaxation
- Breathing exercises for anxiety
- Exercise therapy in depression and schizophrenia
- Group therapy and recreational therapy basics
- Sensory integration techniques (for autism and ADHD)

5. Mental Health Services

- Psychiatric hospitals and community mental health
- Suicide prevention helplines
- Role of mental health professionals (psychiatrist, psychologist, social worker)

PRACTICAL

❖ COMMUNITY MEDICINE

❖ *Community-Based Health Survey*

- Conducting house-to-house surveys
- Collection of basic health data (age, weight, immunization, sanitation)
- Identification of high-risk individuals and families
- Preparation of health profile and reports

❖ *Health Education Activities*

- Preparation of posters/charts for health awareness
- Conducting health talks in community settings
- Role-plays and street plays on public health topics (e.g. hygiene, nutrition, vaccination)

❖ *Field Visits*

- Visit to Primary Health Centre (PHC) / Community Health Centre (CHC)
- Observation of immunization programs
- Visit to water purification plants / waste disposal units

- Interaction with Accredited Social Health Activists (ASHAs), ANMs, and Anganwadi workers

❖ *Basic Screening and Assessment*

- Measuring BMI, BP, pulse, respiratory rate
- Growth monitoring (height/weight)
- Identification of malnutrition or common disorders in a community
- Screening camps for lifestyle disorders (diabetes, hypertension, joint pain)

❖ *First Aid and Preventive Care*

- Demonstration of basic first aid techniques
- Demonstrating exercises for back pain, joint stiffness to community members
- Preventive physiotherapy education (posture correction, fall prevention in elderly)

B. PEDIATRICS – PRACTICAL TRAINING

❖ *Developmental Assessment*

- Assessment of developmental milestones (gross motor, fine motor, speech)
- Use of Denver Developmental Screening Test (DDST) or equivalent
- Documentation of developmental delays

❖ *Pediatric Physiotherapy Techniques*

- Positioning and handling techniques for children with CP
- Passive and active-assisted movements
- Neurodevelopmental treatment (NDT) basics
- Balance and coordination activities using play therapy
- Use of pediatric orthoses, assistive aids

❖ *Parent & Caregiver Training*

- Home exercise programs
- Family education and counseling for special children
- Demonstration of feeding and toileting techniques (if required)

❖ *Observational Training*

- Observation of pediatric physiotherapy sessions in clinics/hospitals
- Interaction with pediatricians, therapists, and caregivers

PSYCHIATRY

❖ *Patient Interaction & Observation*

- Observation of patients with psychiatric disorders
- Understanding patient behavior and communication challenges
- Attending psychiatric case discussions (if accessible)

❖ *Physiotherapy in Mental Health*

- Practicing relaxation techniques:
 - Deep breathing
 - Progressive muscle relaxation (PMR)
 - Guided imagery and meditation
- Group therapy-based exercises (walking, games)
- Basic yoga techniques for stress and anxiety relief

❖ *Case-Based Practice*

- Preparation of simple case reports of patients with depression, anxiety, or schizophrenia
- Planning a basic exercise/rehabilitation plan for patients with psychiatric disorders

❖ *Mental Health Awareness Activities*

- Mental health day campaigns
- Poster preparation and role plays on reducing mental health stigma
- Visit to mental health institutions (optional where feasible)

HAND HYGIENE & PREVENTION OF CROSS INFECTION

THEORY

1. Introduction to Infection Control

- Definition and importance of infection prevention
- Understanding healthcare-associated infections (HAIs)
- Chain of infection (Agent–Host–Environment model)
- Role of physiotherapists in breaking the chain of infection

2. Microbiology Basics for Infection Control

- Types of pathogens: Bacteria, viruses, fungi, parasites
- Modes of transmission:
 - Direct contact
 - Indirect contact
 - Droplet
 - Airborne

- Vector-borne
- Common infectious diseases in physiotherapy settings
- Role of surface contamination and fomites

3. Hand Hygiene

- WHO's "Five Moments for Hand Hygiene":
 1. Before touching a patient
 2. Before clean/aseptic procedures
 3. After body fluid exposure risk
 4. After touching a patient
 5. After touching patient surroundings
- Techniques:
 - Handwashing with soap and water
 - Hand rubbing with alcohol-based sanitizer
 - Duration and steps of effective handwashing (WHO 7-step method)
- Indications for hand hygiene
- Use of gloves: When and how
- Misconceptions about hand hygiene

4. Personal Protective Equipment (PPE)

- Types of PPE: Gloves, masks, gowns, face shields, goggles
- Donning and doffing procedures
- Proper disposal of PPE
- Limitations and correct use

5. Environmental Hygiene & Surface Disinfection

- Cleaning vs. disinfecting vs. sterilizing
- Common disinfectants used in physiotherapy clinics
- Disinfection protocols for therapy beds, machines, tools, and surfaces
- Laundry and linen hygiene practices
- Biomedical waste management basics

6. Aseptic Techniques in Physiotherapy

- Use of sterile equipment (e.g., for electrotherapy, dry needling, wound care)
- Preventive steps in treating open wounds or post-surgical patients
- Safety protocols in ICU/ward physiotherapy
- Footwear, clothing, and personal hygiene of physiotherapists

7. Cross Infection Control in Special Situations

- Infection control in outpatient clinics
- Infection control in community/home visits

- Dealing with patients having contagious diseases (e.g., TB, MRSA, COVID-19)
- Immunization for healthcare workers

8. Education, Audit, and Compliance

- Training and educating staff and patients
- Monitoring compliance through hand hygiene audits
- WHO Hand Hygiene Observation Form
- Reporting and managing exposure incidents

PRACTICAL

❖ Hand Hygiene

❖ *Handwashing Technique*

- Demonstration of correct handwashing using soap and water
- WHO 7-step handwashing technique
- Duration and effectiveness checks (20–40 seconds)
- Use of UV/fluorescent gel for training (if available)

❖ *Alcohol-Based Hand Rub*

- Application technique for alcohol-based hand rub
- When to use sanitizer vs. soap
- Practice on all WHO "5 Moments of Hand Hygiene"
- Timing and rubbing method (20–30 seconds)

. Hand Hygiene Compliance Drills

- Simulated patient interaction to practice when to perform hand hygiene
- Peer and instructor feedback sessions

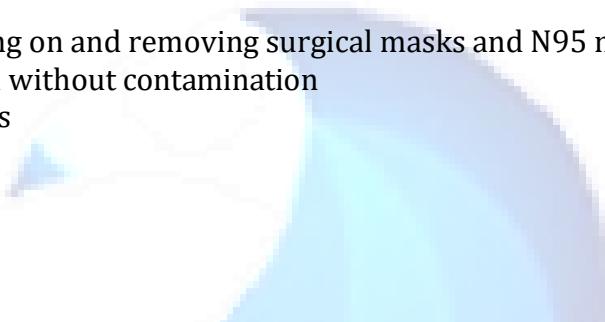
❖ Use of Personal Protective Equipment (PPE)

❖ *Gloves*

- Indications for sterile vs. non-sterile gloves
- Proper technique of donning and doffing gloves
- Safe disposal of gloves

❖ *Masks, Gowns, Face Shields*

- Demonstration of putting on and removing surgical masks and N95 masks
- Gown wearing/removal without contamination
- Eye protection protocols



- Full PPE protocol for high-risk procedures or airborne precautions

➤ **Surface & Equipment Disinfection**

❖ *Clinical Equipment Hygiene*

- Cleaning protocols for:
 - Electrotherapy machines
 - Treatment couches
 - Walking aids and exercise tools
- Use of appropriate disinfectants (e.g., sodium hypochlorite, alcohol-based sprays)

❖ *Environment Sanitization*

- Surface disinfection of door handles, chairs, floors
- Daily cleaning checklists
- Color-coded cleaning tools practice (optional)

➤ **Aseptic Precautions in Patient Handling**

- Precautions when treating patients with wounds, open skin, or catheters
- Demonstrating care during suctioning, dry needling, or ICU physio
- Barrier techniques for high-risk patients

➤ **5. Biomedical Waste Handling**

- Identification and segregation of biomedical waste

Use of color-coded bins for disposal

- Demonstration of needle and sharp disposal
- Handling and disposal of soiled linen and PPE

➤ **Infection Control Drills & Simulations**

- Role-play scenarios involving:
 - Contact with infected patients
 - Community physiotherapy with hygiene challenges
 - Treating patients with airborne/droplet precautions
- Emergency response during exposure incidents (e.g., needlestick injury)

PHYSIOTHERAPY IN ORTHOPAEDIC CONDITIONS, ORTHOTICS, AND PROSTHETICS

THEORY

1. Introduction to Orthopaedic Physiotherapy

- Definition, scope, and objectives
- Role of physiotherapy in orthopedic rehabilitation
- Healing process of bone and soft tissue

2. Fractures and Dislocations

- Classification of fractures
- Physiotherapy management during:
 - Immobilization phase
 - Mobilization phase
 - Post-operative phase
- Dislocations – common joints (shoulder, hip, patella)
- Complications and physiotherapy approaches

3. Post-Surgical Orthopaedic Conditions

- Total Hip Replacement (THR)
- Total Knee Replacement (TKR)
- Spinal surgeries (e.g., laminectomy, spinal fusion)
- Tendon repairs (e.g., Achilles, rotator cuff)

4. Common Orthopaedic Disorders and Physiotherapy

- Osteoarthritis, Rheumatoid arthritis
- Low back pain, cervical spondylosis
- Disc herniation and sciatica
- Frozen shoulder, tennis elbow, carpal tunnel syndrome
- Plantar fasciitis, flat foot, genu varum/valgum

5. Congenital and Pediatric Orthopaedic Conditions

- Clubfoot (CTEV)
- Congenital hip dislocation
- Scoliosis and kyphosis
- Rickets and bone deformities
- Physiotherapy goals for children

6. Orthotics

- Definition and purpose
- Classification: static vs. dynamic orthoses
- Types of orthoses:
 - Upper limb orthoses
 - Lower limb orthoses (KAFO, AFO, HKAFO)
 - Spinal orthoses (Taylor brace, Milwaukee brace)

- Foot orthoses (shoe inserts, heel cups)
- Principles of orthotic prescription
- Role of physiotherapist in orthotic training and adjustment

7. Prosthetics

- Introduction to amputation and types
- Levels of amputation: above elbow, below elbow, above knee, below knee
- Types of prostheses
- Gait training with prostheses
- Physiotherapy management post-amputation:
 - Stump care and bandaging
 - Strengthening, balance, and mobility training

8. Rehabilitation and Functional Training

- Functional evaluation tools
- Use of assistive devices: canes, crutches, walkers
- Home program design and ergonomic advice
- Return to work and ADL (Activities of Daily Living) training

9. Documentation & Patient Education

- SOAP notes and physiotherapy progress records
- Educating patients about posture, joint protection, and lifestyle changes

PRACTICAL

○ Patient Assessment and Evaluation

- History taking specific to orthopedic conditions
- Observation and palpation techniques
- Joint range of motion assessment (goniometry)
- Manual muscle testing (MMT)
- Functional mobility assessments (e.g., TUG, gait analysis)

➤ Therapeutic Techniques

❖ *Electrotherapy & Physical Agents*

- Ultrasound therapy for musculoskeletal conditions
- TENS and IFT for pain management
- Hot packs, cold packs, paraffin wax bath
- Shortwave diathermy (SWD) for deep heating
- Traction therapy (cervical and lumbar)

❖ *Exercise Therapy*

- Passive, active, active-assisted exercises
- Strengthening protocols for post-fracture and joint replacement cases
- Mobilization techniques (Maitland, Kaltenborn – basic level)
- Stretching of tight muscles and soft tissues
- Proprioceptive and balance training

➤ **Management of Specific Orthopaedic Cases**

- TKR and THR rehabilitation protocols
- Post-fracture rehab (e.g., Colles' fracture, femur shaft, etc.)
- Rehabilitation for soft tissue injuries (ligament sprains, tendinitis)
- Scoliosis and kyphosis corrective exercises
- Clubfoot (CTEV) stretching and bracing assistance

➤ **Orthotics Practical Training**

- Identification and application of:
 - Upper limb orthoses (wrist cock-up, dynamic splints)
 - Lower limb orthoses (AFO, KAFO, HKAFO)
 - Spinal braces (LS corset, Milwaukee brace)
 - Measuring and fitting orthotic devices
- Patient education and gait training with orthoses
- Inspection and maintenance of orthotic devices

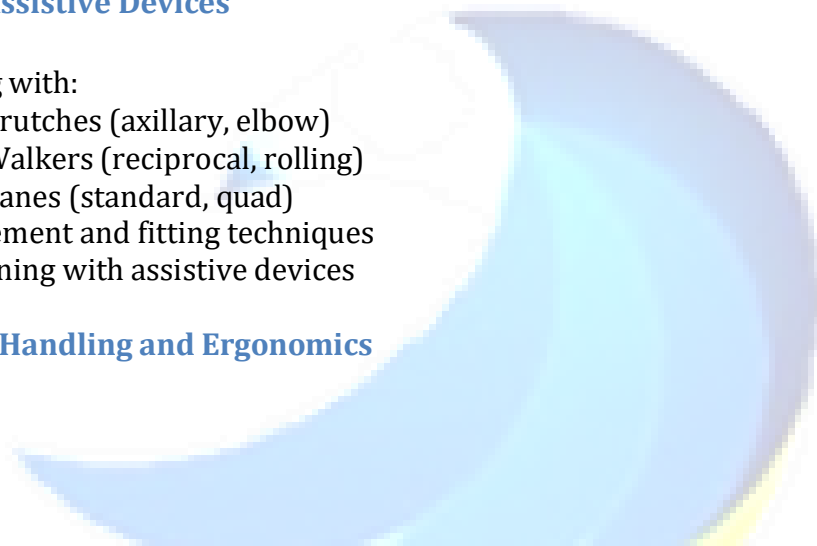
➤ **Prosthetics Practical Training**

- Demonstration of:
 - Below knee and above knee prosthetic parts
 - Upper limb prosthesis fitting
- Stump care, bandaging techniques
- Gait training with prosthesis:
 - Parallel bar walking
 - Use of assistive devices post-amputation
- Balance and strength training for amputees

➤ **Use of Assistive Devices**

- Training with:
 - Crutches (axillary, elbow)
 - Walkers (reciprocal, rolling)
 - Canes (standard, quad)
- Measurement and fitting techniques
- Gait training with assistive devices

➤ **Patient Handling and Ergonomics**



- Safe transfer techniques (bed to wheelchair, walker use)
- Ergonomic training for post-surgical and injury patients
- Training on ADLs (Activities of Daily Living)

FOOD SCIENCE AND NUTRITION

THEORY

1. Introduction to Nutrition

- Definition and importance of nutrition
- Classification of nutrients: Macronutrients and Micronutrients
- Basic concepts of:
 - Balanced diet
 - Recommended Dietary Allowances (RDA)
 - Nutritional requirements across life stages

2. Macronutrients

A. Carbohydrates

- Sources, types (simple & complex)
- Digestion and metabolism
- Role in energy production

B. Proteins

- Essential and non-essential amino acids
- Biological value of proteins
- Sources and requirements

C. Fats

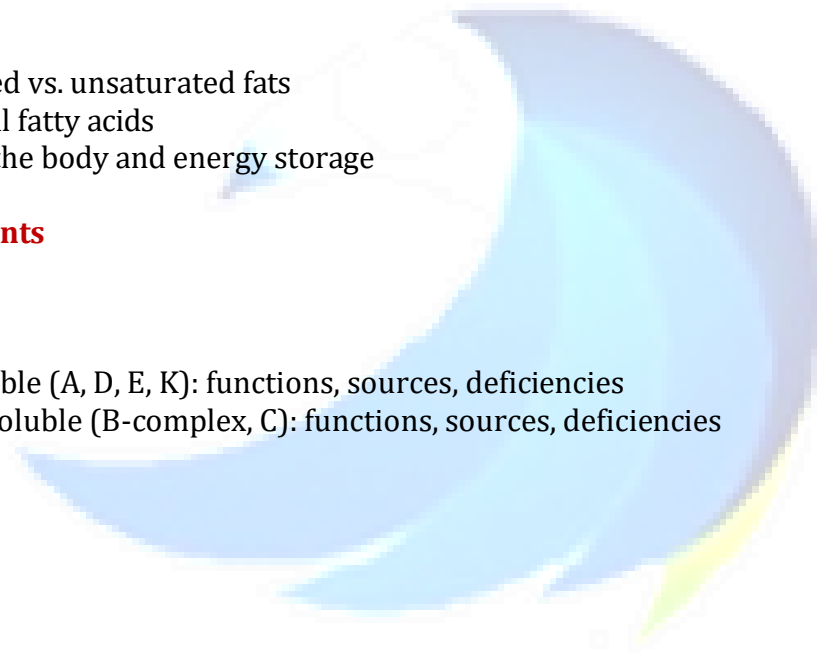
- Saturated vs. unsaturated fats
- Essential fatty acids
- Role in the body and energy storage

3. Micronutrients

A. Vitamins

- Fat-soluble (A, D, E, K): functions, sources, deficiencies
- Water-soluble (B-complex, C): functions, sources, deficiencies

B. Minerals



- Calcium, Iron, Zinc, Iodine, Sodium, Potassium
- Role in bone health, muscle function, and metabolic pathways

4. Water and Electrolyte Balance

- Importance of water in the body
- Electrolyte functions (sodium, potassium, chloride)
- Signs and effects of dehydration and fluid overload

5. Diet and Disease

- Nutritional management in:
 - Obesity and weight control
 - Diabetes mellitus
 - Hypertension and cardiovascular diseases
 - Osteoporosis
 - Anemia
- Role of diet in injury healing and recovery in physiotherapy

6. Nutrition in Special Conditions

- Nutrition during:
 - Pregnancy and lactation
 - Infancy and childhood
 - Elderly age
 - Post-surgical rehabilitation
 - Athletes and physically active individuals

7. Food Science Basics

- Food groups and classification
- Cooking methods and nutrient losses
- Food additives and preservatives
- Food hygiene and safety
- Reading food labels (calories, ingredients, expiry)

8. Therapeutic Nutrition

- Concept of therapeutic diet
- Soft, liquid, high-protein, low-fat diets
- Enteral and parenteral nutrition basics
- Role of dietitian and interdisciplinary team

9. National Health & Nutrition Programs (India)



- ICDS (Integrated Child Development Services)
- Mid-Day Meal Scheme
- Anemia Mukht Bharat
- WHO/UNICEF initiatives related to nutrition

10. Role of Physiotherapists in Nutrition

- Counseling patients for healthy eating
- Nutritional advice in rehabilitation settings
- Preventing malnutrition and promoting recovery

PRACTICAL

➤ Identification & Classification

- Identification of food items by group:
 - Cereals, pulses, vegetables, fruits, dairy, fats, etc.
- Classification of foods based on function:
 - Bodybuilding, energy-giving, protective foods

➤ Calculation of Nutritional Requirements

- Calculation of:
 - Basal Metabolic Rate (BMR)
 - Total Energy Requirement
 - Recommended Dietary Allowance (RDA) for various age groups
- Macronutrient and micronutrient calculation based on activity level (sedentary, moderate, heavy)

➤ Diet Planning and Menu Preparation

- Preparation of a **balanced diet plan** for:
 - Children, adolescents, adults, elderly
 - Pregnant and lactating mothers
 - Athletes and physically active individuals
- Preparation of therapeutic diet charts for:
 - Diabetes
 - Hypertension
 - Obesity
 - Osteoporosis
 - Anemia

➤ Nutritional Assessment Techniques

- Anthropometric measurements:

- Height, weight, BMI calculation
 - Waist-hip ratio
 - MUAC (Mid-upper arm circumference)
- Dietary surveys using:
 - 24-hour dietary recall method
 - Food frequency questionnaire

➤ **Food Preparation Demonstrations**

- Basic food preparations using healthy methods:
 - Boiling, steaming, grilling
- Demonstrating low-fat cooking techniques
- Healthy snacks and high-protein meal prep
- Demonstrating nutrient preservation during cooking

➤ **Food Label Reading & Analysis**

- Understanding nutritional labels on packaged food
- Identifying calorie, protein, fat, sugar, and sodium content
- Identifying food additives and preservatives

➤ **Observation of Food Safety and Hygiene Practices**

- Personal hygiene in food handling
- Safe food storage practices
- Identification of adulterated foods (basic household tests)
- Handwashing and kitchen sanitation protocols

➤ **Case-Based Activities**

- Developing a diet plan based on clinical case studies
- Nutritional counseling role-play or demonstrations for:
 - Weight management
 - Post-operative recovery
 - Lifestyle modification

