

CENTRE FOR RURAL HEALTH

PGDSI SYLLABUS ***(With effect from June 2019)***



GANDHIGRAM RURAL INSTITUTE
(Deemed to be University)
GANDHIGRAM - 624 302

Post Graduate Diploma in Sanitary Inspectors' Course
Revised Syllabus Presented to the Board of Studies held on 22.03.2019
For Academic Year 2019-2020
Level: Post Graduate Diploma-

FIRST SEMESTER

Category	Course Code	Course Title	No of Credits	Marks		
				CFA	ESE	Total
Core Courses	19PSIP0101	Biological Science I Anatomy and Physiology	3	40	60	100
	19PSIP0102	Biological Science II Medical Entomology and Parasitology and Microbiology	4	40	60	100
	19PSIP0103	Epidemiology of Communicable and Non Communicable Diseases Control	4	40	60	100
	19PSIP0104	Environmental Sanitation	4	40	60	100
	19PSIP0105	Behavioural Sciences and Health Promotion	4	40	60	100
	19PSIP0106	Biological Science I Anatomy and Physiology-Practical	*1	60	40	100
	19PSIP0107	Biological Science II Medical Entomology and Parasitology and Microbiology-Practical	*1	60	40	100
	19PSIP0108	Epidemiology, Communicable and Non Communicable Diseases Control - Practical	*1	60	40	100
C N C C	19EXNP00V1	Village Placement Programme	2	50		50
	19GTPP0001	Gandhi in Everyday Life	2	50		50
		Total	26	480	420	900

CNCC: Compulsory Non Credit Course

SECOND SEMESTER

Category	Course Code	Course Title	No of Credit	Marks		
				CFA	ESE	Total
Core Courses	19PSIP0209	Special Sanitation Problems	4	40	60	100
	19PSIP0210	Public Health Administration	4	40	60	100
	19 PSIP0211	Food& Nutrition &MCH	3	40	60	100
	19PSIP0212	Environmental Sciences	3	40	60	100
	19PSIP0213	Environmental Sanitation - Practical	*2	60	40	100
	19PSIP0214	Food& Nutrition &MCH – Practical	*1	60	40	100
E M	19PSIP02EX & EY	Electives	4	40	60	100
	19PSIP 0215	Concurrent Field Training (CFT)	#2	100		100
	19PSIP 0216	Supervised Field Training (SFT)	#2	100		100
		Total	25	520	380	900

Electives for 19PSIP02EX & 19PSIP02EY

Category	Course Code	Course Title	No of Credit	Marks		
				CFA	ESE	Total
Elective Major	19PSIP02EX	Solid Waste Management	4	40	60	100
	19PSIP02EY	Emergency Care in Disasters and First Aid theory	3+1	24+24	36+16	100

***Practical**

#CFT= Concurrent Field Training

Supervised Field Training

FIRST SEMESTER

Course Code	Course Title	Credit
19PSIP0101	Biological Science – I Anatomy and Physiology	3
19PSIP0102	Biological Science – II Medical Entomology and Parasitology and Microbiology	4
19PSIP0103	Epidemiology of Communicable and Non Communicable Diseases Control	4
19PSIP0104	Environmental Sanitation	4
19PSIP0105	Behavioural Sciences and Health Promotion	4
19PSIP0106	Biological Science – I Anatomy and Physiology - Practical	1
19PSIP0107	Biological Science - II Medical Entomology and Parasitology and Microbiology-Practical	1
19PSIP0108	Epidemiology, Communicable and Non Communicable Diseases Control - Practical	1
19EXNP00V1	Village Placement Programme	2
19GTPP0001	Gandhi in Everyday Life	2

PGDSI- FIRST Semester

Paper I - Biological Science - I Anatomy and Physiology

Credit: Theory -3 & Practical - 1

Objective: The students will be able to explain the structure and Functions of various systems of human body.

Specific objectives of learning: At the end of the course the students will be able to

1. Describe structure and function of cells.
2. Describe structure and function of Digestive ,Skeletal , Muscular, Nervous, Respiratory, Cardiac, Endocrine, Excretory and Reproductive systems

Unit 1 - Introduction to Anatomy and Physiology

Cells and Tissues - Functions of cell – Mitosis – Meiosis – Determination of Sex - **The Tissues** – Epithelial tissue – Connective tissue – Muscular tissue – Nervous tissue – Membranes and Glands

Blood – Functions and compositions – RBC – WBC – Platelets – Clotting of Blood – Blood groups – Disorders of blood

Lymphatic System – Compositions and functions – Lymph nodes – Spleen – Tonsils

The Skeletal system – Classification and Structure of bone – Bones of the Skull – Cranial fossae – The Fontanelles – Sinuses of the skull – Bones of the face – Bones of the upper limb – Bones of wrist and hand - Bones of thorax – Vertebral column – Bones of the pelvic girdle – Bones of lower limb - Bones of foot.

Joints of the skeleton – classification and movements – Joints of upper limb and lower limb – joint disorders

The Muscular system – Muscles of Head, Face and Neck - Muscles of shoulder girdle - Muscles of upper limb - Muscles of thorax - Muscles of abdomen - Muscles of back - Muscles of perineum - Muscles of pelvis - Muscles of lower limb, buttock, thigh, foot – Diseases of muscles

Physiology of Muscles - Properties of skeletal Muscles - Physiology of muscle contraction - Oxygen debt – Heat production

Unit II

The Digestive System – The Structure and functions of mouth – Tongue – Teeth – Salivary glands – Pharynx – Oesophagus - Stomach.

Small intestine – Large intestine – Rectum, Anus and defecation – Digestion and absorption of food – Peritoneum

Accessory Organs of Digestion – The structure and functions of liver – Gall bladder – Pancreas, Metabolism - Diet and vitamins

The Cardio Vascular System – Structure and functions of Heart – Arterial and Venous system – Branches of arteries and veins – Blood circulation – Cardiac cycle – Conduction system – Properties of cardiac muscles – Heart sounds - Pulse – ECG – Cardiac output – Blood Pressure – Factors affecting BP – Disorders of Heart and Blood vessels – Disorders of BP

The Respiratory- System – Structure and function – Upper respiratory tract - Lungs – Mechanism of respiration – Regulation of respiration – Respiratory volumes – Exchange of gases – Disorders of respiration and artificial respiration

Unit III

The Nervous System – Structure and function – Cerebrum – Basal ganglia – Thalamus - Hypothalamus – Cerebellum – Midbrain – Pons – Medulla oblongata. Spinal cord – Meninges – Ventricles of brain - Cerebrospinal fluid – Cranial nerves – Spinal nerves – Sensation – Sensory organs – Sensory path – Motor path – Reflex action.

Autonomic Nervous System – Sympathetic and parasympathetic nervous system.

Organs of Special Senses - The Eye and sense of sight – Accessory structures of eye – The eye ball – Mechanism of sight – Accommodation – Diseases of the eye – **The Ear, Sensation of Hearing and Equilibrium** - External ear – Middle ear – Internal ear – Mechanism of hearing and equilibrium – **Sensation of Taste (Gestation)** – the taste buds - **Sensation of Smell (Olfaction)**

Skin – Structure and functions of skin – Regulation of body temperature & Physiology of pain

UNIT IV

The Excretory System – Structure and function - Kidney – Formation of urine – Ureter – Urinary bladder – Urethra – Micturition – Composition of urine – Diseases of the urinary system – Classification of oedema

Endocrine system – Structure and function – Pituitary gland –Thyroid gland – Parathyroid gland – Adrenal gland – Pancreas – Sex glands – Thymus – Pineal gland.

The Reproductive System – Structure and functions – Male reproductive system – Female genital organs – Puberty in female – Ovulation – Menstruation – Menopause – Process of reproduction - Fertilization – Placenta – Umbilical cord.

Unit V

First Aid: First Aid- Definition- scope- Management of diseases, Golden rules of First Aid, Safety Consciousness. Wounds and Bleeding, Shock and unconsciousness, Asphyxia, Injuries to bones, muscles-joints-dislocation, Splint, Bandages, Slings, Burns and Scalds, Poison, Transport of injured persons and stretcher bearing. Snakebite, Dog bite, Bee sting and other allergies, First Aid box, recent update and other advances. Ambulance Services, Prevention of Accidents and injuries, Emerging challenges and issues in First Aid care

Emergency care in Disaster: Introduction, Definition, Classification of Disaster, Scopes, Objectives and Principles of Disaster Management, Strategies and Skill during Disaster Management, Current updates about Disaster, Organizations to handle the Disaster. Emerging challenges and issues in Disaster Management

Practical Demonstrations: The students will be able

- To locate anatomical position of the human body and important organs.
- To identify the bones and Joints in the human body
- To identify the types of blood cells – Total Count, Differential Count.
- To measure the HB level
- To collect blood samples for investigation and transmission for blood screening.
- To measure the visual acuity using Snellen's chart.
- To detect sugar and albumin in the urine.

Reference Books:

- 1, Anatomy and Physiology for Nurses - Evelyn & Bearce
2. Hand book of Human Physiology - Vidyaradan
3. Anatomy and Physiology - Ross and Wilson
4. First Aid - L.G.Gupta & A.Gupta
5. Anatomy and Physiology and Health Education - N.Murugesan

Biological Science II-Medical Entomology and Parasitology and Microbiology
Credit: Theory 4 & Practical 1

OBJECTIVES: At the end of the course the students will be able:

- To explain the role of vectors in transmitting the diseases and their control measures
- To explain the role of parasites in relation to human health and their control measures
- To recognize microbes and their role in disease and control measures

Unit-I: MEDICAL ENTOMOLOGY

Introduction to entomology, classification of insects; Metamorphosis, Vectors, Main and intermediate hosts etc. - General characteristics of mosquitoes-types - Life cycle of Anopheles, Culex, Aedes and Mansonia mosquitoes, and their public health importance - Insecticides and their classification, spray techniques - Integrated Management of Vector control - Control and preventive measures of vector borne diseases

Unit-II: MEDICAL ENTOMOLOGY

- 1 Sand fly: Morphology, Bionomics, Life cycle, PH importance and control measures
- 2 House fly: Morphology, bionomics, life cycle, PH importance and control measures
- 3 Flea: Different species, Morphology, bionomics, Life cycle, Public Health importance, control measures.
- 4 Louse and Bed bug: Morphology, Bionomics, Lifecycle, Public Health importance and control measures.
- 5 Ticks and Mites: Morphology, Bionomics, Lifecycle, Public Health importance and control measures.
- 6 Cyclops: Morphology, Bionomics, Life cycle, Public Health importance and control measures.
- 7 Rodents- Rats and their control measures

Unit-III: PARASITOLOGY

- 1 Introduction to Parasitology- Protozoan parasites: Entamoeba histolytica- Life cycle, Mode of transmission and control measures.
- 2 Blood parasite: Malarial parasites, Types, Morphology, Life cycle, Mode of transmission, control measures, Retracts endothelial system, leishmonia donovani.
- 3 Platy helminthes worms: Tape worms.-Taenia solium, T. saginata, Echinococcus granulosus -Morphology, Life cycle, Mode of transmission and control measures.
- 4 Helminthes –round worms: Hookworm, Round worm, Pin worm, Guinea worm, whip worm and Filarial worm- Morphology, Life cycle Mode of transmission and Control measures.
- 5 Flukes-Liver- lungs-blood
- 6 Skin parasites: Itch mite Morphology, life cycle, Mode of transmission and control Measures.

Unit-IV: GENERAL MICROBIOLOGY

- 1 Introduction to microbiology-Historical development of the field microbiology- Louis Pasteur, Edward Jenner, Robert Koch, Alexander Fleming, S.A.Waksman, Tswart, Robert Koch and Ronald Ross
- 2 Study of different Microscope: Simple, compound, Electron and Dark-field Classification, structure, Reproduction of organisms of microbes - Bacteria, fungi, virus, bacteriophages, Rickettsia, Mycoplasma, spirochetes, Diseases, control measures, lab diagnosis.
- 3 Study of bacteria, Distribution, Morphological groupings
- 4 Sterilization, Autoclaving, Disinfection, Disinfectants, Antibiotics, Antiseptic, Micro-waving and Incineration
- 5 Milk microbiology: Milk spoilage, Milk borne pathogens, Methylene blue test and other Milk tests – Pasteurization – LTH, HTST, OHT methods, Efficiency UHT
- 6 Methods of blood test – Spot / Rapid tests, Elisa, Western-blot and PCR.

Unit-V: SPECIAL MICROBIOLOGY

- 1 Study of different a) Bacterial, b) Viral, c) Rickettsial, d) Spirochete disease causing organisms and their a) Etiological causative agent, b) Shape, c) Size d) Staining properties (Spore staining, Gram staining and Acid Fast staining with grading) e) Mode of transmission f) Normal habitat g) Incubation period of diseases and h) Control measures
Immunology-:a) Immunity – Immune System – Mechanism – Innate Immunity – Inflammation fever -active, passive- Immune responses: Antibodies, Primary Secondary immune responses, - Hypersensitivity, Allergy, Herd immunity Vaccine, Adjuvant, Sera, immunoglobins, immunological test – Precipitation – Agglutination – Compliment Fixation tests.
Water Microbiology. Coli form group (Presumptive Confirmed and Completed test) MPN- Sampling of water for bacteriological analysis
Food Microbiology
 - a. Food poisoning-preventive measures ,
 - b. Food borne infections- preventive measuresBacteria Genetics, Structure of DNA, RNA
Transcription, Translation, Mutation.
Gene transfer, Transformation, Transduction, Conjugation. Genetic Engineering.
DNA probe. Application of DNA Probe.

Practical: ENTOMOLOGY AND PARASITOLOGY

- 1 Preparation of thick and thin smear of blood and night blood smear for filarial cases
- 2 Demonstration and identification of different vectors and their immature forms
- 3 Demonstration and identification of
 - a) Protozoan parasites,
 - b) Helminthes worms and their eggs.
 - c) Demonstration of insecticides used in the vector control including larvicides (adult larvicides).
 - d) Collection of larvae, pupae of different species of mosquitoes'

Practical: MICROBIOLOGY

- To identify different types of Microscopes and its component
- To identify Cocci and Bacilli by using gram staining & Acid Fast staining
- To identify pathogenic microbes
- To prepare Hanging drops to show the motility of bacteria
- To demonstrate media for preparation of Fungi
- To prepare the media preparation Coliform test
- To demonstrate Sterilization and disinfection methods
- To demonstrate Methylene blue test to identify the microorganisms
- To prepare media for Bacteriological analysis
- To demonstrate sterilization and disinfection methods

Field visit to

District Entomology Microbiology Lab to observe Vector & Fly control programmes.

References:

1. Text Book of Medical Parasitology, Dr.S.Subhash Chandra Par, All India Publishers & Distributors, N.Delhi,2008
 2. Text book of Microbiology(7th edition), R.Ananthanarayanan & C.J Panicker, University Press, Hyderabad,2008
 3. Immunology, Ashim K.Chakaravarthy, TataMcgraw hills Pub.co. NewDelhi,1996
 4. Text book of Entomology, Md. Sulaiman, Himalaya Publishing House,1992
 5. General and applied Entomology, KK.Nair, TN.Ananda Krishnan and BV David, Tata McGraw hills Pub.co. New Delhi, 2000.
 6. Text Book of Medical Parasitology, E.K.Jayaram Panicker, Jaypee Bros., medical publication,1993.
 7. Textbook of Entomology and Elementary Parasitology, by G.K.Rathnaswamy.
 8. A Text book for Preventive and social Medicine, J.E. Park
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EPIDEMIOLOGY OF COMMUNICABLE AND NON COMMUNICABLE DISEASES CONTROL

Credit: Theory 4 & Practical 1

Objective: At the end of the course the students will be able

- To define communicable and non communicable diseases
- To explain epidemiology triad
- To list communicable and non communicable diseases
- To explain the causative organisms, mode of transmission, incubation period, sign and symptoms of various communicable diseases
- To explain the preventive measures of communicable diseases
- To list non communicable diseases
- To identify the risk factors of non communicable diseases
- To explain preventive measure of non communicable diseases
- To describe the relevant National Health Programmes with objective and strategies.

UNIT I General Epidemiology

- 1 Concepts of Health and Diseases- Definition and Philosophy of Health
- 2 Dimensions of Health, Concept of Well-being- PQLI & HDI - Spectrum of Health
- 3 Determinants and Indicators of Health
- 4 Concept of Disease- Concept of Causation, Risk factors - Risk groups Disease cycle
- 5 Spectrum of Disease, Iceberg of Disease
- 6 Concept of Control and Concept of Prevention

UNIT II Principles of Epidemiology

- 1 Definition- Aims- Epidemiological approach- Epidemiological triad
- 2 Investigation of cases with standardized format. [Imported/indigenous cases]
- 3 Measurements in Epidemiology, Measurement of Mortality- Measurement of Morbidity
- 4 Incidence and Prevalence
- 5 Terminology used in Infectious disease Epidemiology
- 6 Uses of Epidemiology
- 7 Dynamics of Disease Transmission
- 8 Immunity, immunizing agents- Hazards of Immunization, Cold-chain, Vaccine Vial Monitor, and National Immunization Schedule
- 9 General Measures of Control of Infectious diseases- Disinfection. Investigation of an Epidemic

UNIT III Control of Communicable Diseases

- 1 **Control of Airborne Respiratory Infections:**
Small pox, Chicken pox, Measles, Mumps, Influenza, Diphtheria, Whooping Cough.
Acute Respiratory Infection, Tuberculosis, Asthma
National Tuberculosis Control Programme -RNTCP
- 2 **Control of Waterborne Intestinal Infections:**
Poliomyelitis, Viral Hepatitis, Acute, Diarrhoeal Disease, Cholera, Food Poisoning- Role of HI/ SI, Form 1 & 2 and case sheet, Typhoid Fever, Roundworm- Hookworm National Diarroheal Diseases Control programme

UNIT IV Vector borne and other Communicable Disease control

- 1 **Control of Arthropod borne infections** Dengue Syndrome, Malaria, Lymphatic Filariasis, Chikungunya- Kala Azar- Scrub Typhus – Yellow fever-Integrated disease surveillance project, National Anti Malarial Health Programme
National Filaria Control Programme, National Dengue Fever Control Programme

- National Kala Azar Control Programme
- 2 **Control of Zoonosis:**
Rabies, Plague, Japanese Encephalitis, Anthrax, Rickettsial Diseases, KFD- Brucellosis- SARS , National Japanese Encephalitis Control Programme
 - 3 **Control of Scabies, Pediculosis, Trachoma, Tetanus, and Leprosy**
National Leprosy Control Programme
 - 4 Control of Sexually Transmitted Diseases [Syndromic Treatment and management], AIDS [Syndrome], Control of Hospital Acquired Infections -Universal Precautions and Post Exposure Prophylaxis, National STDs Control Programme
National AIDS Control Programme
 - 5 Emerging and Re-emerging Diseases, recent updates and other advancement

UNIT V Control of Non-Communicable diseases

- 1 Coronary Heart Diseases, Obesity, Hypertension Stroke,
Emerging Challenges and issues in the NCD
- 2 Control of Cancer, National Cancer Control Programme
- 3 Control of Diabetes Mellitus, Disease and stroke
- 4 Blindness, National Blindness Control Programme
- 5 Control of Accidents and Injuries
- 6 Survey of NCD / Case findings

Practical: Identify and describe the following spottus

Vaccines
Cold chain equipments
Antiseptics and disinfectants
Addicting agents and Habituating
Cancer causing chemicals
Devices to prevent accidents and injuries
Syringes
Pathology specimens
Disease photos and pictures
Photo graphs of patients showing sign and symptoms
ORS
Drugs - Albendazole, FST
Nutritional drugs
Identify the food adulteration
Food sample
Diabetic diets, Food fortification –iodized salt

Field visits

1. To observe cold chain maintenance at CHC , PHC, HSC
2. To visit malaria clinic programme
3. To visit isolation ward in Govt. Hospitals
4. To visit ICTC, VCT Centers in NACP
5. To visit the District TB centers

Reference Books:

1. Essentials of Community Health Nursing - By K. Park
2. A Short Book of Public Health - By V. K. Muthu
3. A Text Book for Preventive and Social Medicine - By J. E. Park

PAPER IV - ENVIRONMENTAL SANITATION

Credit: Theory 4 & Practical 2

Objectives: At the end of the course the students will be able

- To discuss man's physical environmental factors in relation to health and sanitation
- To provide potable water supply, safe water supply
- To motivate the people for safe disposal of excreta
- To ensure Safe disposal of waste water and sewage

UNIT-I SMALL SCALE [RURAL] WATER SUPPLY

Introduction- History –Definition- Scope of environmental sanitation – Relationship of environmental sanitation and health and its importance -Water and Health - Sources of water and characteristics - Diseases transmitted through water and channels of transmission of infection – Protected water supply - estimating the quantity of water supply to the community - Community wells - selection of site for a wells-renovation of an existing wells - Study of various types of wells- Disinfection for Tank and well - Water sample collection for water quality test - National Rural Drinking Water Programme - National Water supply and sanitation programme -Water Quality Monitoring

UNIT-II LARGE SCALE [URBAN] WATER SUPPLY

Urban water supply -Difference between a pumped system and gravity system - components of water treatment plant –different types of filtration: Disinfection methods - Fluoridation and defluoridation – desalinization – Reverse Osmosis System – Duties of sanitary inspectors in relation to water supply

UNIT-III HUMAN EXCRETA DISPOSAL

Public health aspects of Human excreta disposal - Requirements of a sanitary latrine-selection of site for latrines- Types of latrines and construction methods – leach pit - Sanitary Toilet Complexes - Definitions - Planning for Sanitary Toilet Complexes - Key Steps Involved in Planning of Sanitary Toilet Complexes - Construction of a Sanitary Toilet Complex - Operation and Maintenance Arrangements for Sanitary Toilet Complexes - Technology Options for Sanitary Toilet Complexes - Toilet Seat with Superstructure - Waste Disposal Systems – Total sanitation Campaign

Septage Management – Current Scenario in TamilNadu – the need for Decentralized Septage management System in TamilNadu – Design and Construction of Septic tank – Pumping and desludging – Septage Transportation – Treatment and final Disposal - Zero waste excreta disposals

UNIT-IV WASTE WATER DISPOSAL

Sullage water or house-hold waste water - Public health importance and methods of disposal of waste water - Zero waste water disposals - Types of liquid waste - Different methods of waste water disposal -soak pits, seepage pit-dispersion trench - kitchen garden.

Municipal Swage Management – Sewage – Objectives – Sewer – Components of Sewer – Sewage Treatment plant – components – parameter for sewage treatment water – Activated Sludge Process – Trickling Filter – Oxidation pond – Sludge Digester – Food establishment waste water disposal system

UNIT –V SAFETY ASPECTS AND MEASURES FOR SANITARY WORKERS

Preventive Measures Hazard-specific Preventive Measures Confined Space Hazards - Chlorine Poisoning – fall – slip – Electric shock – fire - Personal Protection and Protective Devices - Head Protection - Face and Eye Protection - Hands and Lower Arms - Body Protection - Legs and Feet – Mask - Ear Protection - Safety Belt - Portable Lighting Equipment -Portable Blowers / Ventilating Fan - Safety Fences - Safety Signs - Workplace-specific Preventive Measures - On-site - Sewer System - Pumping Station - Sewage Treatment Plant - Sewage Treatment Plant

Health Aspects and Measures- Preventive Measures - Personal Hygiene against Pathogen - Maintaining Cleanliness - Health Check - Welfare Measures - Corrective Measures - SAFETY PERSONNEL (ORGANISATION) - Institutional Arrangement - Human Resources

Corrective Measures - Emergency Contact- Emergency Measures - First Aid Tools – Extinguisher - Emergency Lighting - Searching out Hazards.

Practical:

- 1 Water Supply- Sanitary Well, Shallow Well, Deep well, Horrock's Apparatus, Water Sample Collection For Water Quality Test, Residual Chlorine by using Chloro-scope, To find out the available chlorine in water, Water Quality Test by using Water Test Kit, Sanitary Survey of Well
- 2 Construction of Toilets- Simple pit Latrine, Lid cover Latrine, Direct pit water seal toilet, Single offset pit water seal toilet, two pit water seal toilet, and Eco and VIP latrine.
- 3 Leach Pit and Septic Tank
- 4 Solid Waste Management- Household level Manure pit by underground, Windrow Method, Vermi-compost at community level
- 5 Waste Water Disposal- Soak pit, Soakage pit, Dispersion Trench

Observation visits

1. Drinking water treatment plants
2. Sewerage Treatment Plant

Reference Books:

1. Preventive and Social Medicine by J.E Park and K.Park.
2. Municipal and Rural Sanitation by Ehlers and Steel.
3. Public Health Engineering by GS Bajwa.
4. Waste water engineering, treatment and reuse by Metcalf and Eddy,5th Edition,Tata Mc graw hill
5. Environmental sanitation –Ehlers, V.M., add steel,E.W.,McGraw-Hill Book Co

BEHAVIOURAL SCIENCES AND HEALTH PROMOTION

Credit: 4

OBJECTIVES:

- To identify the role of behavioural sciences and its importance in community health.
- To Plan, organize, conduct and evaluate health education activities in a given area
- To identify health education needs in a given community
- To Prepare health education points for given community health programme
- To Select and use suitable educational methods and prepare educational aids for health education activities
- To Prepare a report of health educational activities for a community

UNIT I: INTRODUCTION TO BEHAVIOURAL SCIENCES AND HEALTH

Behavioral Sciences: Disciplines; Scope and role in community Health; Sociology; Anthropology; Psychology - **Health Education:** Health Promotion; interventions; principles; Difference between Health Education; Health Promotion - **Sociology of health:** factors influencing health; social-cultural; economic and its role in health behaviour - **Role of Social institutions:** Family; Marriage; Kinship; Groups; Religion in health behavior - **Types of community health:** Primary, secondary, tertiary Health care and prevention.

UNIT II: TEACHING, LEARNING AND COMMUNICATION PROCESS

Teaching, Learning: Learning situation; Principles of Adult learning; Learning theory; Kurt Lewin; Kelman - **Educational methods:** Individual Contact/Family visit; Group discussion; Lecture discussion; Demonstration; Work shop; Panel discussion; Role play; Case study; Campaign - **Motivation**-Kurt Lewin; Force Field analysis; Rosen Stock Principles of Motivation - **Communication:** Characteristics; Principles; Overcoming barriers in communication; Types; Interpersonal and Mass communication; Rumour; process; Checking of rumours; Audio-Visual aids: Classification; Importance; Limitation of AV aids; Selection criteria- Steps- in using AV Aids-Preparation of IEC materials - **Behavioural Change:** Communication Model - Information – Education- Communication-(IEC) Organizing and Conducting the IEC program on health care delivery - **Counselling-** steps- qualities of a counselor

UNIT III: COMMUNITY AND COMMUNITY ORGANIZATION

Community: Characteristics; Differences between Rural and Urban communities - **Leadership:** Source; type; Importance of working through community leader; Methods of identification of informal leader; Sociogram; importance - **Training Camp for community leaders:** Agenda; Organizing; conducting; evaluating training camp - **Community organization:** Principles of community organization; Importance of community participation; Identifying the stake-holders / leaders / adopters / volunteers / peer educators and social organizations / associations. Inter-sectoral Co ordination in community health programme Role of a professional Health Worker in community organization - **PRA Tools for community organization:** Venn diagram; Seasonality diagram; Transect; Social Mapping; Time line.

UNIT IV: Programme planning for health educational activities:

Programme planning: Need; Principles; Criteria; Steps in Programme Planning; Community Health and Educational diagnosis - **Method of data collection for Health Education**

programme: Interview; Survey; Observation; Discussion; Identification of KAP; (knowledge-Attitude- Practice), Baseline; Family Health / Household; Socio economic; Rapid survey (Advantage and limitation) - **Tools for data collection:** Schedules; Questionnaire; checklists
Assessing barriers to health education- Felt needs; assessment of felt needs and its prioritization - Health programme planning

UNIT V: School Health Education

School Health Education: importance; Elements of school health programme; Suggested steps and routine health education; Health education opportunities available in schools;

Communities Celebration: Observation of National; International important health days

Evaluation: objectives; Types; Steps; Format of evaluation, - **Report:** Characteristics of report; Format of a report; Preparation and writing a report for a health education activity carried out in a community

Field visits

1. Identification of leaders in a community
2. Conduct of Group discussion, Demonstration and Interview on given health and sanitation topic
3. Application of PRA techniques related to community health
4. Visit to community/ICDS centre/ primary school and providing health and hygiene education

Learning outcomes of Field visits

1. Acquiring skills in interview techniques
2. Developing skills in identifying leaders
3. Developing skills in organizing and conducting educational programmes in different settings
4. Preparing educational points for health and sanitation programmes
5. Equip Demonstrate PRA methods

Reference Books:

1. Health Education: A New Approach, L.Ramachandran, T.Dharmalingam.
2. Teaching for better Learning: A Guide for Teachers of Primary Health care Staff, F.R.Abbatt
3. Management Training Modules for Medical Officers, Primary Health Centre, Somanath Roy, et al, NIHFV
4. A Text book for Preventive and social Medicine, J.E. Park.
5. Health Education, Cyril Bibby, William Heinemann Ltd., London, 1951
6. Population, Health, Nutrition & Development, Hector Correa, Lexington Books, London, 1975
7. Elements of Social Psychology, B.Kuppusamy, Vikas Publishing House, New Delhi, 1977
8. Data collection and analysis Rodger Sapsford & Victor Jupp, Sage Publications, New Delhi, 1966
9. How to communicate Evaluation Finding, LL.Morris et al, Sage Publications, New Delhi, 1987.
10. Effective Teaching Methods, SR.Vashist, Mangal Deep Publications, Jaipur, 1997
11. Rural Health Education, Dr.S.L.Goel, Deep & Deep Publications (P) Ltd. New Delhi, 2008

GANDHI IN EVERYDAY LIFE (CNCC)

Credit 2

Objectives:

1. To explain the principles and practices of Gandhi and their relevance in the contemporary times.
2. To acquire character and attitude and cope up with the challenges of daily life.

Specific Objectives: To enable students to:

- To discuss the life and message of Gandhi.
- To describe the Gandhian way of Management.
- To practice the Gandhian model of conflict reduction.
- To lead a humane life on Gandhian lines.
- To become a Gandhian constructive worker.

Unit.I. **Understanding Gandhi:** Child hood days, Student days, influence of Books and Individuals, Religion, Family, and Social factors. Gandhi as rebel, acquaintance with vegetarianism, as lawyer, encountering and transforming humiliation: in India, in south Africa- train incident, Coach incident, on path way, at court, attack by protesters. Gandhi as political leader and reformer

Unit.II. **Management:** Gandhi's experiments in managing family- Eleven vows, non-possession and sacrifice begin at home – Managing Ashram - community living, service and financial ethics – Managing Social movements- Transvaal March and Salt Satyagraha and nonattachment to position (Nishkama Seva).

Unit.III. **Conflict Reduction:** Pursuance of truth and nonviolence ends and means, openness, transparence, love and kindness in handling relationship, nonviolent communication, practicing nonviolence in social and political issues (Satyagraha), conflict resolution practices, art of forgiveness and reconciliation and Shanti sena.

Unit.IV. **Humanism:** Trust in goodness of human nature, respect for individual and pluralistic nature of society, dignity of differences, equal regard for all religions (Sarvadharmā Samabhava), castes, races, colours, languages etc., simple and ethical life, swadeshi and unity of humankind.

Unit.V. **Constructive programmes** and contemporary issues: Concept of Sarvodaya, poverty, terrorism, environmental degradation, problems in sharing common resources, health systems and education, science and technology and centralization of power and governance.

Films. Richard Attenborough, **Gandhi**.-Syam Benegal, **the Making of Mahatma**. Anupam P. Kher, **Mine Gandhi Ko Nahin Mara**.-Peter Ackerman and Jack Duvall, **A Force More Powerful**

References:

- M.K. Gandhi, (2012) An Autobiography or The Story of My Experiments with Truth, Navajivan Publishing House, Ahmedabad.
- . (2003) Satyagraha in South Africa, Navajivan Publishing House, Ahmedabad.
- . (1945) Constructive Programme: Its Meaning and Place, Navajivan Publishing House, Ahmedabad.
- . (2003) Key to Health, Navajivan Publishing House, Ahmedabad
- . (1949) Diet and Diet Reform, Navajivan Publishing House, Ahmedabad.
- . Basic Education, Navajivan Publishing House, Ahmedabad.
- . (2004) Village Industries, Navajivan Publishing House, Ahmedabad.
- . (1997) Hind Swaraj, Navajivan Publishing House, Ahmedabad.
- . (2004) Trusteeship, Navajivan Publishing House, Ahmedabad.

- . (2001) *India of my Dreams*, Navajivan Publishing House, Ahmedabad.
- K.S.Bharathi (1995) *Thought of Gandhi and Vinoba*, *Shanti Sena*, Sarva Seva Sangh Prakashan, Varanasi.
- V.P.Varma, (1999) *Political Philosophy of Mahatma Gandhi and Sarvodaya*, Lakshmi Narain Agarwal, Agra.
- Louis Fisher (2010) *Gandhi: His Life and Message*.
- B.R. Nanda. (2011) *Mahatma Gandhi: A Biography*, Allied Publishers Private Ltd., New Delhi.
- N.K. Bose. (2008) *Studies in Gandhism*, Navajivan Publishing House, Ahmedabad.
- Gopinath Dhawan, (2006) *The Political Philosophy of Mahatma Gandhi*, Navajivan Publishing House, Ahmedabad.
- N. Radhakrishnan, (2006) *Gandhi's Constructive Programmes: An Antidote to Globalized Economic Planning*, Gandhigram Rural Institute, 2006.

Lecture Schedule

Unit	Content
1	Child hood days, Student days, influence of Books and Individuals. Religion, Family, and Social factors. Gandhi as rebel, acquaintance with vegetarianism, As lawyer. Encountering and transforming humiliation: in India in south Africa- Train incident, Coach incident, on path way, at court, attack by protesters- Gandhi as political leader and reformer.
2	Gandhi's experiments in managing family Eleven vows, non-possession and sacrifice begin at home. Managing Ashram - community living, service and financial ethics. Managing Social movements: Transvaal March and Salt Satyagraha Nonattachment to position (Nishkama Seva).
3	Pursuance of truth and nonviolence, ends and means, Openness, transparency, love and kindness in handling relationship. Nonviolent communication, practising nonviolence in social and political issues (Satyagraha). Conflict resolution practices, art of forgiveness and reconciliation and Shanti sena.
4	Trust in goodness of human nature, Respect for individual and pluralistic nature of society, dignity of differences. Equal regard for all religions (Sarvadharm Samabhava), castes, races colours, languages etc. Simple and ethical life, swadeshi and unity of humankind.
5	Concept of Sarvodaya, Poverty, Terrorism, Environmental degradation, problems in sharing common resources. Health systems and education. Science and technology and centralization of power and governance Group Discussion - Quiz -Screening film on Gandhi

SECOND SEMESTER

Course Code	Course Title	Credit
19PSIP0209	Special Sanitation Problems	4
19PSIP0210	Public Health Administration	4
19PSIP0211	Food & Nutrition & MCH	3
19PSIP0212	Environmental Sciences	3
19PSIP0213	Environmental Sanitation - Practical	2
19PSIP0214	Food & Nutrition & MCH - Practical	1
19PSIP02E1	Solid Waste Management	4
19PSIP02E2	Emergency Care in Disasters and First Aid theory	4
19PSIP02E3	Emergency Care in Disasters and First Aid Practical	1
19PSIP0215	Concurrent Field Training (CFT)	2
19PSIP0216	Supervised Field Training (SFT)	2

Second Semester

Paper I - SPECIAL SANITATION PROBLEMS

Credit: Theory 4

Objectives: At the end of the course the students will be able

- To describe the Standards of Housing, Lodging House, lighting, and ventilation
- To explain the importance of city ,town planning and master plan
- To discuss the importance of food sanitation, inspection of food establishment and market
- To explain characteristics of a slaughter house
- To explain characteristics of food establishment sanitation
- To identify the man's physical environmental factors in relation to health and sanitation
- To explain the importance of school sanitation
- To discuss the importance of occupational health and safety measures of workers
- To recognize the sanitary importance of places of public resorts

Unit - I

Housing- Village and Town planning

Housing: Characteristics of house - Relationship of Housing and Health-and its Problems
Housing Requirement for Healthful Housing - Types of Houses - Basic Principles of Healthful
Housing-Rural housing - Smokeless Chula –Indoor House Pollution- housing standard -Survey
of Houses - Importance of Planning for Villages and Towns - Existing and New - Master Plan-
Lodging House- Ventilation- Lighting –Detail House Survey

Unit - II

Food Establishment and Milk Hygiene

Diseases Transmitted Through Food - Essentials of Food Establishments sanitation - Utensils
Used Washing and Sanitizing Vessels - Food Handlers training-Sample Collection - Slaughter
House-Markets (Vegetable, Mutton, Fish) - Bakery, Aerated Water factory - Milk Born
Diseases- Dairy Inspection -Pasteurization

Unit - III

Occupational Health

Introduction to Occupational Health and Diseases-Occupational Hazards-Physical, chemical,
Biological, Mechanical and psychosocial hazards - Occupational Diseases- due to physical,
chemical, biological agents - Health problems due to industrialization – Diseases – Accidents -
Confined Space Hazards - Risk of Oxygen Deficiency - Risk of Hydrogen Sulphide Poisoning
in Confined Space - Risk of Combustible Gas in Confined Space - Risk of Chlorine – Fall –
Slip - Electrical Shock – Fire - Risks in a Sewage Testing Laboratory - Toxic Substances -
Alkali / Acid - Glass Appliances – Preventive measures of Occupational Diseases.

Unit - IV

School Sanitation

Introduction to school sanitation – Objectives – need and importance of school sanitation – role
of HI/SI in school sanitation - Essentials components of sanitation in schools-class room
structure- physical facilities in a class room –furniture- lighting- ventilation- flooring- roofing -
water supply- toilet facilities- Safe Disposal of waste water and solid waste in school premises

- Camps-Fairs and Festivals - Classification of fairs and festivals - objectives of public health arrangements - preventive measure to be made, in relation to lay out of accommodation, lighting, water supply, conservancy-food control, medical relief and isolation, Immunization, staff finance, reporting of festivals, enroute arrangements, Refugees, evacuee camps-provision of food investigation of out breaks – Hospital Sanitation.

Unit - V

I) Importance of Sanitary arrangements of Cinema house, Barber shops/ Beauty parlour - dhobi-khana, - Laundry, - Swimming pool, - Community hall - marriage/Meeting hall

II) National Urban Sanitation Policy – Key Sanitation policy issues – Components of national Urban Sanitation policy - Steps for Achieving 100% Sanitation – Awareness generation and Launch of 100% Sanitation – Technical Options – Reaching the unserved population and the urban poor – Evaluation 100% sanitation Status – Monitoring of 100% sanitation Status – city reward scheme – Concept of total Sanitized Cities – Rating and Categorization of cities.

Field visits

To Lodging House to observe sanitation facilities - Ventilation- Lighting –
To conduct Detail House Survey
To Food Establishments to observe sanitation facilities
To Slaughter House to observe sanitation facilities -Markets (Vegetable, Mutton, Fish) -
Bakery, Aerated Water factory
To Dairy plants to observe Pasteurization
To Cattle Shed
To industrial establishments to observe sanitation facilities and control and prevention of occupational hazards
To schools and Noon meal centres to observe sanitation facilities
To observe sanitation facilities and arrangements made during fairs and festivals
To Cinema house, Barber shops/ Beauty parlour ,dhobi-khana, Laundry, Swimming pool, Community hall, Marriage/Meeting hall and shopping complex to observe sanitation facilities

Reference Books:

1. Preventive and Social Medicine by Park and Park.
2. Municipal and Rural Sanitation by Ehlers and Steel.
3. Public Health Engineering by GS Bajwa.

Public Health Administration

Credit: 4 Objective: At the end of the course the students will be able

- To explain Public Health administrative set up in Centre- State-District-Block- PHC- village levels
- To discuss the importance of management at different levels
- To play a role of supervisor and birth & death registrar
- To discuss the role and responsibilities of HI/SI working at different levels
- To describe Public Health Laws to be executed at various levels
- To maintain records and reports related to their job function

UNIT I Introduction to Public Health Administration

- 1 Historical development of public health-Modern medicine in India- Changing concepts of public health
- 2 Various committees on health development in India
- 3 Health care delivery system- Public-private-voluntary-indigenous
- 4 Levels of Health care –primary-secondary-tertiary levels-PRI amendments
- 5 Five year Plans –related to Health –Family welfare-and water and sanitation programmes- Planning Commission-NITI Aayog- National Health Policy
- 6 Millennium Development of Goals (MDG) related to health and sanitation

UNIT II Public health organization

- 1 Public Health set up at National -State level-organization-functions
- 2 Public Health set up at District-Block-Sector -Village level-organization-function- Job responsibilities of HI/SI in ULBs and PHCs
- 3 Primary Health Care-Definition-components-principles
- 4 Recent trends in Health care delivery systems - National Health Mission -National Rural Health –Urban Health Mission- ASHA and USHA
- 5 Urban health system -Urban health facilities-organization set up- functions
- 6 Health insurance schemes

UNIT III Introduction to Management

- 1 Introduction to Management-POSDCORB-Administration
- 2 Programme planning- steps- evaluation of health programmes
- 3 Supervision-qualities of a supervisor
- 4 Team work- importance
- 5 Records – reports- Need and importance-report submission
- 6 PPP-Public Private Partnership in Health care--importance

UNIT IV Public Health Laws

- 1 Waste Management Rules - Plastic Waste Management Rules 2016
e-waste (Management) Rules, 2016 - Bio-Medical Waste Management Rules,2016 -
Construction and Demolition Waste Management Rules, 2016
Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 -
Solid Waste Management Rules, 2016
- 2 Public Health Laws -Definition – importance – Statutory laws (Epidemics & PH practices-
by law)- various PH Acts
- 3 The Tamil Nadu Public Health Act, 1939- The TN District Municipalities (MDM) Act
1920- The Tamil Nadu Panchayat Act 1994-
- 4 The Tamil Nadu Births and Deaths Rules 2000- The Registration of Birth and Death

- registration Act, 1969 [Central Act 18 of 1969]
- 5 The Tamil Nadu Educational Rules
 - 6 The Tamil Nadu Town Nuisance Act 1889
 - 7 COTPOA Act,2003
 - 8 International Health Regulations, 2005
 - 9 Port Health Regulations, 1955
 - 10 **Legal Procedures:**
Power of Entry / Inspection / Investigation [examination] Procedures.
 - 11 Nature of Inspection and frequency of Inspection
 - 12 Preparation of notices / service of notices- Power of arrest- Compounding of offences- Appeal Procedures- Cognizance of offence – Criminal Proceeding procedures
Filing of Charge Sheets in the court and attending Proceedings- Waste water disposal.

UNIT V Health Management Information System (HMIS) - Voluntary Agencies related to Health Care Delivery Systems.

- 1 HMIS- Components-Uses- Importance – Application of computer programmes
- 2 Sources of health information -Census-Registration of Vital events- SRS-MRS- Health surveys-
- 3 National Family Health Survey (NFHS) - District Level Health Survey (DLHS)
- 4 Health Statistics – Rates, Ratio and Proportion- statistics Mean, Median, Mode
- 5 Presentation of data – diagrammatic- graphic
- 6 Voluntary Agencies- International- Ford Foundation-The Rockefeller Foundation-Red Cross Society
- 7 National – Indian Red Cross Society- Family Planning Association of India- Bharat Sevak Samaj-Tuberculosis Association of India
- 8 International Organizations-related to Health- WHO- UNICEF- FAO- USAID- UNFPA-World Bank- Colombo Plan

Field visits

1. Visit to CHC, PHC, HSC to identify the organization structure and functions
2. Visit to Urban Health facilities to identify the organization structure and functions
3. Visit to CHC/PHC/HSC to discuss the Job responsibilities of HI/SI in a public health set up in PHC/ Municipalities/ Town Panchayats and records to be maintained by HI/SI

References:

- | | | |
|---|---|---|
| 1 | An Introduction to Public Health | Harry S. Mustard, The Macmillan Co., New York, 1960 |
| 2 | Preventive & Social Medicine | Park & Park, Bhanarsidas Bharot Publish, Jabalpur 21 Edn |
| 3 | Teaching Health Statistics | S.K.Lwanga & CHO Yook tye, WHO, Geneva, 1986 |
| 4 | Organizational Behavior (9th edition), | Hellnegel, Slocum & Woodman, South Western College Publications, US |
| 5 | Health System Support for Primary Health Care | Bogdon M.Kleczkow Ski et al, WHO, Geneva, 1984 |
| 6 | A Short Book of Public Health, | V.K.Muthu, JAPEE Brother Medical Pub.(P)Ltd New Delhi,2005 |

FOOD & NUTRITION, MATERNAL & CHILD HEALTH

Credit: Theory 3 + Practical 1

Objectives: At the end of the course the students will be able

- To define proximate principles of food
- To explain the importance of nutritional assessment survey in a community and identify the nutritional status of the community
- To discuss methods of Prevention of Food Adulterations
- To explain components of MCH care
- To explain importance of school health programme in India
- To describe contraceptive methods
- To explain the contra indications and limitation of various contraceptive methods
- To explain MTP Act and PCPNDT Act

Unit I – Introduction to Nutrition

- 1 Definitions of common terms in Nutrition, Changing concepts, Relation of Nutrition to Health, Functions of food, Constituents of Food, Classification of foods, Nutrients. Proximate principles
- 2 Proteins - Functions, Sources, Requirements, Effects of deficiency
- 3 Fats - Sources, Vanaspathi, visible and invisible fats, refined oils, requirements, Fats and disease, Carbohydrates - Sources and Functions
- 4 Vitamins, Classification, Functions, Sources Daily Requirements Recommended allowances, Effects of Deficiency and Storage of vitamin. Fat soluble vitamins, vitamin A, D, E, K. Water soluble vitamins Vitamin B1, B2, B3, B5, B6, B12, Folic acid, Ascarbic acid
- 5 Minerals – Major minerals Calcium, Phosphorus, Sodium, Potassium, Iron, Magnesium etc. Trace-elements Iodine, Fluorine, Zinc, Cobalt. Functions, Sources, Deficiency, Requirements of Minerals and Trace elements and fiber content foods. Testing of iodine in salt
- 6 Water – Requirement, Functions, Sources and distributions. Nutritive value of Foodstuffs: Cereals and millets, Pulses and nuts, Vegetables, Fruits, Milk and milk products, Meat, fish and eggs, Fats and oils, Sugar and jiggery, condiments and spices, Beverages
- 7 Nutritional Requirements – Recommended daily allowance (RDA), Energy measurement, Reference man and woman, Energy requirements, Vulnerable groups, Nutritional individuality, Protein, Amino acid score, Net protein utilization (NPU), Protein Energy ratio, Dietary intakes, Amino acid requirements

Unit II

- 1 Balanced Diet. Food Guide Pyramid. Dietary Goals, Nutritional Requirements of special groups, infants/ Pre-school children [Survey of 0 – 5 Years Children with Growth monitoring Chart], School children, Pregnancy and Lactation, Food Hygiene.
- 2 Milk Hygiene – Sources of infection, milk borne diseases, Clean and safe milk, Boiling of milk, Pasteurization and its methods. Tests of pasteurized milk.
- 3 Meat Hygiene – Meat-borne diseases, Meat inspection, Signs of good meat.
- 4 Fish Hygiene – Fish borne diseases, Signs of fresh fish and Tinned fish
- 5 Eggs – Testing its freshness

- 6 Fruits and vegetables, vegetable-borne diseases
- 7 Sanitation of eating places – food handlers, Food-borne diseases, intoxication and infections, Malnutrition, Definition classification, Preventive and Social measures, Nutrition problems in public health, Preventive measures
- 8 Cooking – methods, effects, effects on different type of foods, Preservation and storage of food – House hold method, commercial method.
- 9 Assessment of the nutritional status – Anthropometric measurements - Nutritional Assessment survey. National Nutrition Policy

Unit III Food Safety & Food Chemistry and School Health Programme

- 1 Introduction to Food Safety & Food Chemistry, Food standard, FSSAI, Act, AGMARK - ISI.-Consumer Protection ACT 1986
- 2 Adulteration of Food – Prevention of Food Adulteration Act, Food additives, Pigments, Aerated waters, Food quality, Fortification of foods
- 3 Planning the meals, Community Nutrition Programmes, Kitchen gardens, Role of HI/SI in educating about good nutrition and Balanced Diet.
- 4 Historical development School Health services in India- Importance - Functions of School Health Services - objectives-components- Elements -- -School health Team- Organizing school health Programmes- Modified School Health programme- Recent School Health Schemes - Role of HI/SI in School Health programme
- 5 Personal Hygiene – Maintenance and Promotion of Health. Physical Health – care of skin, hair, teeth, eyes, ears, hands, feet.
- 6 Menstrual hygiene, Rest and sleep, exercise, Recreation, Posture, Nutrition, Elimination, Mental Health and Personality development

Unit IV: Mother & Child Health, Reproductive & Child Health

- 1 MCH : Definition – Historical Review, Maternity cycle, Signs and symptoms of Pregnancy, Maternal Health services, Antenatal Care, Antenatal Clinic, High risk Pregnancy, Antenatal visits, Prenatal advice, Mother craft, Home visits, Maintenance of records
- 2 Intra-natal Care. Normal labour, Domiciliary midwifery, Postnatal care, Postnatal visits, Care of the children, Neonatal Examinations, Measuring the baby, Breast feeding, Artificial Feeding, Supplementary feeding, Immunization, Causes of IMR , MMR
- 3 CSSM Programme, Essential obstetric care, Empowered Action Group,
- 4 RCH Phase I & II. Emergency obstetric care, New Initiatives, ASHA package, Safe abortion service, Village Health and Nutrition day, Pregnancy tracking. Child health components
- 5 Nutrition Rehabilitation Centre. Integrated management of neonatal and childhood illness (IMNCI), Facility based IMNCI (F-IMNCI), Sick new born care units (SNCU), quality indicators of RCH programme. BMONC, CMONC.

Unit V: Demography & Family Welfare:

- 1 Demography cycle, population trends in India, Age composition, Sex ratio, Dependency ratio, Density of population, Family size, Literacy and Education, Life Expectancy
- 2 National Population policy
- 3 Contraceptive methods-Fertility, Birth control, Family planning, Family welfare, Operational goals of the Family planning programme, Small Family size, Spacing of children, Eligible couples. Unmet needs of Family Planning, Birth Control Vaccine and Sociology of Family Planning
- 4 Abortion Services -MTP Act 1972 , PCPNDT Act 1994
- 5 Family planning services. Community needs assessment approach. National Family Welfare Programme (NFWP), All India Post Partum Programme (AIPPP), and Evaluation of Family Planning Programme.

Credit – 1

Food & Nutrition & MCH – Practicals

1. Testing of Iodine in edible salt
2. Label Interpretation of composition of packaged food material & Nutraceuticals
3. Confirmation of freshness of Egg with water Floating test
4. Finding Decomposition of Fish
5. Inspection of Meat for its quality
6. Identification and Nutritional value of Green leafy vegetables and medicinal plants
7. Identification of Calorie and Energy value of fruits & vegetables
8. Simple evaluation of food adulteration
9. Milk testing (Lactometer based)
10. Quality test for Confirmation of pasteurization
11. Educating and evaluating different types of Milk Additives and Pasteurization methods for shelf life prolongation
12. Analyzing and explain in the Nutritional value of junk food,
13. Analyzing and explain in the Nutritional value of Natural and artificial beverages
14. Identifying and analyzing different types of Food labels of in Indian and international standards.
15. Analyzing the calorie value, Energy value and adulteration of and with Honey
16. Identifying the IEC materials of the Government against the Tobacco product & Alcohol product
17. Identifying the parboiled rice, unmilled rice and also Identifying the traditional paddy varieties
18. Identifying the nutritive value of raw food materials
19. Justifying the value of various edible oils, nuts, cereals and millets
20. Spotting the Weaning Foods and Milk Substitute
21. Analyzing the Growth Chart and Anthropometric Measurements
22. Spotting the Contraceptives
23. Food Sampling as per FSSAI
24. Identifying Permissible Food Additives and Coloring agents as per FSSAI

Food and Nutrition & MCH - Observation visit & Field Work Exposure

1. Observation visit to the Following places

- 1.1 Food preparation and distribution in Educational institutions
- 1.2 Government and Private medical college and Hospital Kitchen
- 1.3 Tourism places in all over India
- 1.4 Religious places – TamilNadu Hindu Religious and Charitable Endowment Act controlled Temples for their nutrition scheme

2. Field work exposure to the following industries

- 2.1 Railway Catering Services - IRCTC:
- 2.2 Hotels & Hospitality Industry
- 2.3 Bakery Unit
- 2.4 Live Stock Industry & animal food production & distribution
- 2.5 Medicinal Plant & Nursery Unit
- 2.6 Food Processing Industry – Indian Institute of Food Processing Technology
- 2.7 Type of Wealth creation from waste products: organic foods production – Mushroom cultivation production – Vermi compost Production
- 2.8 Milk Processing unit (End To end)

3. Evaluation visit: Community Nutrition Programme at public Places

- 3.1 Sikh Gurdwara (Langar) feeding programme
- 3.2 Help age India Sponsored old age home
- 3.3 Government Shelter home for Urban Poor in Corporation
- 3.4 Amma canteen programme in TamilNadu
- 3.5 Community Kitchen in NGO like Vivekannada College at Thiruvedagam, Aravind Ashram Pondicherry, Brahma Kumaris at Mount Abu

4. Evaluation of Food safety, Hygiene and Distribution

- 4.1 Fairs and festivals food arrangements
- 4.2 Kalyana Mandapam Kitchen
- 4.3 Refugee Rehabilitation centers – Ramanathapuram Mandapam Camp
- 4.4 Mass Feeding Programmes during Natural Calamity
- 4.5 Preparation of Prasadham in pilgrimage centre Ex.; Tirupathi; Palani; etc.

References:

1. Essentials of Community Health Nursing, K.Park, 6th Edition, M.s Banarsidas Bhanot Publications.
2. Preventive & Social Medicine, Park & Park, Bhanarsidas Bharot Publish, Jabalpur.
3. Food & Nutrition Vol.1, M.Swaminathan,1984.
4. Principles of Nutrition & Diets, M.Swaminathan, BAPPCO, Bangalore, 1995
5. Health & Nutritional Status in India,G.Kamamma, APH Publishing Corporation, Delhi,1996.

PAPER IV - ENVIRONMENTAL SCIENCES

Credit: Theory 3

Objective: At the end of the course the students will be able:

- To explain the importance of environment on health
- To identify the pollutants in air, water, land/soil
- To discuss industrial pollutants
- To explain the current environmental issues
- To discuss Renewable Energies
- To explain environmental issues and relevant Public Health ACT

Unit I: Ecology

- 1 Ecosystem, Structure of Atmosphere, Structure of Ecosystem, A biotic components of Ecosystem, Biotic components of Ecosystem, Energy flow, Dynamics – Functions of Ecosystem, Food Web and Food Chain, Types of Ecosystem.
- 2 Renewable Energies – Solar/ Wind-mill / Bio Gas / Bio – methanization / Hydraulic/ Tidal powers
- 3 Rules under the Environmental (Protection) Act 1986 (Central Act 29 of 1986)
4. Bio geo chemical cycles, C, N₂,o,PO₄,S cycles

Unit II: Introduction to Environmental Microbiology

- 1 Origin – Scope and Importance –diversity of Micro organisms –Three domains of life-prokaryotes vs Eukaryotes- Eukaryotic and prokaryotic cell
- 2 General characters- important uses and harmful effects of -Protozoa, fungi, algae, bacteria and virus
- 3 **Growth of Micro Organisms**
Isolation ., cultivation(aerobic& an aerobic) and preservation of microbes
Nutritional types of Microbes , Nutrient media(selective, differential, enriched and enrichment) and growth conditions, physiology of growth, bacterial growth curve,- (exponential growth and generation)
- 4 methods for determining bacterial numbers , bacterial growth and continuous culture(chemo stat and turbid stat)
- 5 Cell constituent of bacterial cell.

Unit III: Microorganisms and their Environment:

- 1 Effect of environmental conditions on survival and growth of microorganisms factors that influence the growth and adaptations.
Temperature, oxygen, desiccation, extreme cold, ionic effect, osmotic pressures, radiant energy, hydrostatic pressures and surface forces.
- 2 **Control of microorganisms:** sterilization and disinfection, physical (moist and dry heat, radiation and filtration), chemical agents (disinfectants, antiseptics, antibiotics and other chemotherapy agents). Characteristics of an antimicrobial agent; mode of action of antimicrobial agent.

Unit IV - Current Environmental Issues

- 1 Ozone depletion – Green House Effects – Green house gases and Global warming
- 2 Photochemical smog – PAN –Acid Rain
- 3 Noise Pollution- Measurement of noise level – Hazards & Effects on Health and the Control measures

Unit V: Environment Pollution

- 1 Air Pollutants: Organic air pollutants- Persistent Organic Pollutant - Hydrocarbons – tobacco smoke – Methyl Iso Cyanate (Bhopal incident) –Particulates- Effects on health and (Relevant Public Health ACT) control of particulate
- 2 Water pollution- Classification of water pollutants,
- 3 Algal blooms & Eutrophication
- 4 Soaps and detergents – Oil spills
- 5 Agriculture Pollutants: Pesticides and Fertilizers, Relevant Public Health ACT
- 6 Radio activity – Natural sources, manmade sources, Accidents

Field visit

To pollution control board office to observe the rating of emissions

Reference Books:

- | | |
|---|---|
| 1 Environmental Pollution | Indirajit Sethi |
| 2 Environmental Chemistry | A.K.De. |
| 3 Fundamental Concepts of Environmental Chemistry | S.Sodhi. |
| 4 Text Book of Preventive and Social Medicine | K.Park. |
| 5 Ecology | Eugene, odum. |
| 6 Applied Microbiology | Moshroffuddin Ahmed & SK.Basumatory |
| 7 Environmental Science and Engineering | Dr. A. Kulandaisamy, M.Vigneswari, Dr.S.Anbu sumitha. |
| 8 The microbial world | Stainer, PR.Ingraham, |
| 9 Microbiology | Pelzar, Reid and Chan |
| 10 Microbiology | Lansing M Prescott, John P.Harley and Donald A.Klein |
| 11 General Microbiology | Schlegel. |

Elective Major Solid Waste Management

Credit Theory - 4

Objectives:

- Safe disposal of solid waste in local bodies, collection methods, Segregation, Process and Technologies, Manure Making Methods and Safe Disposal
- Make cities and town filth and Garbage free and enhance Cleanliness
- To achieve Swachh Bharat Mission

Unit – I

Introduction to Municipal Solid Waste Management – Plan – Policies – Programme & Legal frame work – Assessment of current Situation – Stakeholders Consultation for planning - Preparation of Draft – Schedule for implementation – Public Private Partnership – Action Points.

Technical Aspects – Segregation, Collection, Solid Waste Management Rules -2016 – for waste Minimization – Waste Minimization Strategies

Unit – II

Source Segregation – SWM rules-2016 – requirements for Source Segregation – House hold level – Onsite Storage – Public place – garden waste – Industrial waste(with in Municipal limit) – collection and transportation – SWM rules- 2016 for Primary & Secondary Collection for transportation – Primary Collection – Vehicle, Equipments, & Staff required , Secondary Collection: Concept of bin less Cities or Places – Secondary Storage – Transportation.

Unit –III

Street Sweeping – Street Sweeping Rules -2016 – Planning – Manual Street cleaning – Mechanized Street Cleaning – Cleaning of Surface Drains – Transfer Station. SWM rules – 2016 for Composting: Biological Process, Chemical Process, Physical Process, Pre processing of mixed municipal Solid waste – Composting technologies –types of household composting – Micro composting - Monitoring of Compost plants

Unit –IV

Recycling & recovery – Waste to energy – waste to energy rules 2016- Incineration – Bio-Methanization - Refused derived fuel – Pyrolysis – Gasification – Construction Demolition Waste – Sanitary Landfills – Sanitary landfills rules-2016- Environmental impact – Site Selection- Sanitary land fill operation.

Unit –V

Monitoring Municipal solid waste management – Operation and maintenance plan for municipal solid waste service – Environmental Monitoring

Management of special waste including domestic hazardous waste – plastic waste – bio medical waste – Slaughter house waste – Electric and Electronic E -Waste – Waste tyres – LED Battery Waste - Star Ratings of the Garbage free Cities.

Observation visits:

1. Compost yard
2. Biomedical waste disposal

References:

1. **Swachh Bharat Mission solid waste management manual**
cpheeo.nic.in/WriteReadData/Cpheeo_SolidWasteManagement2016/Manual.pdf
2. Guidebook - Swachh Bharat
swachhbharaturban.gov.in/writereaddata/sbm-newsletter-Nov.pdf
3. Swachh Bharat Mission - Urban
www.swachhbharaturban.in:8080/sbm/content/writereaddata/SBM_Guideline.pdf
4. Solid and liquid Waste management in rural areas –A technical Note-
Unicef,
GOI, Ministry of Rural Development.

Elective Major

Elective Major -Emergency Care in Disaster Management & First Aid Services

Credit: Theory 3+1

Objectives: At the end of this course the students will be able

- To explain the need and importance of disaster management
- To identify the Disaster Management Agency in the community
- To mobilize the community in disaster management
- To explain the objectives of First aid care
- To provide the first aid care for the injured

UNIT – I Introduction to Emergency Care in Disasters and First Aid

- 1 Introduction To Disasters, – Classification of the disasters – Flood – Drought – Cyclone – Hurricane – Earth quake – Volcanic eruption
- 2 Epidemic. Fire- Explosion, accidents of trains, aircrafts and ships
- 3 Ordinary bombing, atomic bombing, biological warfare, chemical warfare
- 4 Relief work during disaster. Pre disaster and Post disaster management. Post disaster stress syndrome

Community organization for disaster management

- 5 Disaster management Agency - NDRF – SDRF - DDRF –
- 6 Role of NGOs in Disaster management -Rehabilitation – Community resources
- 7 International agencies - WHO – UNICEF – FAO – Rock fellar foundation – Ford foundation – CARE – International Red Cross.
- 8 Current updates and other advancement

Unit II

- 1 **First aid care:** Introduction- objectives – limitations – principles – golden rules.
- 2 **Casualty Management:** Introduction – Handling and Transport – Loading a stretcher – Blanket lift – Manual lift- carrying a stretcher – Ambulance - loading and unloading
- 3 **Promoting Safety Consciousness:** Safety in the home – Smoke and smoking, Safety outside the home – Safety in agriculture, industries & hospitals.
- 4 **Supplies and Equipments for First Aid Procedure:** Description of First aid box - Bandages and slings – types and usage – Special bandages – Plaster of Paris
- 5 Carrying a loaded stretcher – Lifting and carrying an injured person – Different type of stretchers -
- 6 Avoiding accidents on the road- Current updates and recent advances.

Unit - III

- 1 **Burns and Scalds:** Causes – First aid – classification of burns – scalds – minor burns – general rules for treatment – corrosive chemicals – Chemical burns.
- 2 **Injuries to Bone, Joints and Fractures:** Causes – classification – sign and symptoms – first aid treatment – bandages – Splints – managing the upper limb &

- lower limb fractures – injuries to skull, rib, pelvis, spine – crush injuries – multiple fractures
- Road accidents – wounds and bleeding – Hemorrhage – Bleeding from nose, stomach, lung, gum, bowel, ear, kidney – classification of wounds — Fire accidents, electrical injuries. Emerging challenges and issues

Unit - IV

- Cardiac Emergency:** Introduction – Cardio pulmonary arrest – Cardio pulmonary resuscitation – CPR for small children and infants
- Poisoning:** Introduction – classification – management of poisoning – bites and stings – snake bites – dog bites – insect bites and stings – stings of bees, rasps, fleas and hornets – Household poisons – specific poisons – drug poison – plant poison – Alcohol poison – Industrial poisons – Antidotes. Current updates and recent advances

Unit - V

- Loss of Consciousness:** Introduction – causes – Asphyxia – Heat stroke – Fainting – Stupor – coma – Epilepsy – Drowning – Choking –Strangulation and Hanging - Artificial Respiration.
- First Aid and Emergency Management of Special Organs:** Different types of injury to the eye, ear, throat – Haemoptysis – Haemetemesis – Haematuria – Haemorrhage from the rectum – Uterine Haemorrhage
- Frost bite:** Heat Exhaustion – Sun burn – Shock – Definition – classification – General treatment. Current updates and recent advances

Practical:

- Demonstration of First Aid procedures
- Making of First Aid Box
- Demonstrate of splint -sling- Plaster of Paris
- Demonstration of Cardio pulmonary resuscitation
- Demonstration of bandages
- Demonstration of stretcher and carrying the injured
- Demonstration of loading and unloading of injured
- Essential equipments in Ambulance
- Demonstration of assisting the patients

Field visits

- Visiting the following health care institutions for getting the exposure about the emergency care set up and first air procedures.
- Community Health Centre -Primary Health Centre
- Government General hospital causality, Blood Bank
- The emergency department of medical colleges
- Private nursing homes

. Reference Books:

- First Aid and Emergency Nursing - N.N Yalayyaswamy, CBS Publishers.
- Manual of First Aid - LC.Gupta & Abitabh Gupta, Jaypee Pulishers.
- First Aid (Tamil edition) - Kalavai. M.Mubarak Ali, NCBH (p) Ltd.
- First Aid (Tamil edition) - Vandu mama, Gangai Book Store.
- Basic Anatomy, Physiology & Health Education` - Dr. N. Murugesh.

Concurrent Field Training

Credit 2

General objective: The students to be able to apply and test the theory learned in the class room, to the field situation and develop self confidence as a SI/HI

Specific objective: To be able to study the community with special reference to duties and responsibility of SI/HI

➤ Collection of general information and Introduction with local leaders
➤ Village / Ward mapping
➤ Household Survey
➤ Study of vital statistics Registration
➤ Well survey, water sample collection and chlorination
➤ Identification of leaders
➤ Analyzing of data, preparation of report and presentation
➤ Detailed House Survey
➤ School Sanitation Survey
Inspection of Dangerous and offensive trades
➤ Hotel
➤ Lodging House
➤ Cinema Theatre/Community Halls/ Marriage Halls/ shopping malls
➤ Market
➤ Barbershop
➤ Bakery
➤ Aerated water factory/Water plants
➤ Rice and flour mill
➤ Dhobikhana
➤ Slaughter House
Food sampling technique
To visit Regional Food Laboratory
To observe cold chain maintenance at CHC , PHC, HSC
To visit malaria clinic programme, District Entomology Microbiology Lab to observe Vector & Fly control programmes.
To visit isolation ward in Govt. Hospitals
To visit ICTC, VCT Centers in NACP
To visit the District TB centers
Drinking water treatment plants
Water quality monitoring unit
Zero waste excreta disposals / Eco – friendly Bio Toilet
Solid waste management at different levels
Bio medical waste management
Sewerage Treatment Plant
To conduct Group discussion, Demonstration and interview technique on given health and sanitation topic
To apply PLA techniques in a community
Visit to community/ICDS centre/ primary school for health and hygiene education

To Dairy plants to observe Pasteurization
To industrial establishments to observe sanitation facilities and control and prevention of occupational hazards
To schools and Noon meal centres to observe sanitation facilities
To observe sanitation facilities and arrangements made during fairs and festivals
Visit to CHC, PHC, HSC to identify the organization structure and functions / RCH and Family Welfare Programmes.
Visit to Urban Health facilities to identify the organization structure and functions
Visit to CHC/PHC/HSC to discuss the Job responsibilities of HI/SI in a public health set up in PHC/ Municipalities/ Town Panchayats and records to be maintained by HI/SI
To Anganwadi centre to observe the growth monitoring charts
To Noon meal centre's to observe nutritional status and feeding of children
To pollution control board office to observe the laboratory related to all kinds of pollution
Observe the town planning
Observe the Underground drainage /sewerage
Observe water supply in urban areas
Observe city sanitation plan
Visiting the following health care institutions for getting the exposure about the emergency care set up and first aid procedures.
Government General hospital causality, Blood Bank
The emergency department of medical colleges
Private nursing homes

Learning Outcomes:

This training helps them to acquire the right skill sets needed for their work place /Field / Profession, enhances their employability skills and places them on the right professional path by placing them in the real life field eco system to practice and learn.

At the end of the training the students will be able to

- Understand villages and wards, rural and urban areas and other local bodies.
- Source out various information about the areas in relation to health and general demography
- identify the local leaders, important persons and skilled person and the way to develop rapport with them
- Conduct a survey and a house hold survey in a particular area allotted to them by approaching the people for health and sanitation related particulars, analyse the data, make interpretation, prepare a report and present them for suitable solution.
- Practice PRA and PLA techniques to understand and gather various particulars about the communities
- Understand the vital statistics registration system and work as a birth and death registrar.
- Understand and diagnose various sanitation related problems in the area and plan for the remedy to the problems.
- Carry out various sanitation related inspection and surveillance activities; make well survey, water sample collection and chlorination of water sources.

- Identify the conditions for healthful housing, make a detailed house survey and building survey and certify regarding the sanitary arrangements.
- Inspect Balwadies, Schools and Colleges regarding sanitary arrangements as per public health act.
- Collect food samples from hotels and shops and other food and beverage industries.
- Understand the role of Sanitary inspector in inspecting and licensing for various dangerous and offensive trades
- Understand the importance of cold chain maintenance at CHC, PHC and HSC and the practical difficulties in maintaining the cold chain
- Understand the activities and role of district hospital, malaria clinic, district entomology and micro biology laboratories, isolation wards in government hospitals and district TB Centre for the maintenance of the public health
- Handle various solid and liquid waste management problems, water, air, land and noise pollution related issues effectively for the clean environment
- Handle human (waste) excreta disposals problems effectively
- Prioritize bio medical waste segregation and safe disposal
- Understand the importance of sanitation and public health and the role of sanitary/health inspector in a community and acquire the confidence to perform as a sanitary inspector when they appointed.

Supervised Field Training (SFT)

Credit: 2

Supervised Field Training is a field placement programme of PGDSI course students for Two Months in Corporation/ Railways/ Municipality/ Town Panchayat. It is organized and carried out in a real work situation, where students are assigned field work under the supervision of the host agency – The student will undertake a Project work on Sanitation/Health related issues recommended by the agency.