PGDSI

SYLLABUS

(with effect from June 2015)

FACULTY OF RURAL HEALTH AND SANITATION
The Gandhigram Rural Institute – Deemed University
Gandhigram – 624 302 Tamil Nadu

Post Graduate Diploma in Sanitary Inspectors' Course
Revised Syllabus Presented to the Board of Studies held on 16-12-2015
For Academic Year 2016-2017
Level: Post Graduate Diploma-First Semester

Category	Course Code	Course Title	No of Credits	Marks		
				CFA	ESE	Total
Core Courses Core Courses	16PSIP0101	Biological Science I Anatomy and Physiology	3	40	60	100
	16PSIP0102	Biological Science II Medical Entomology and Parasitology and Microbiology	3	40	60	100
	16PSIP0103	Epidemiology of Communicable and Non Communicable Diseases Control	4	40	60	100
	16PSIP0104	Environmental Sanitation	4	40	60	100
	16PSIP0105	Behavioural Sciences and Health Promotion	5	40	60	100
	16PSIP0106	Biological Science I Anatomy and Physiology-Practical	1	60	40	100
	16PSIP0107	Biological Science II Medical Entomology and Parasitology and Microbiology-Practical	1	60	40	100
	16PSIP0108	Epidemiology, Communicable and Non Communicable Diseases Control - Practical	1	60	40	100
CNCC	16EXNP00V1	Village Placement Programme	2	50		50
	16GTPP0001	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	16PSIP0209	Special Sanitation Problems	4	40	60	100
	16PSIP0210	Public Health Administration	5	40	60	100
	16 PSIP0211	Food& Nutrition &MCH	4	40	60	100
	16PSIP0212	Environmental Sciences	3	40	60	100
	16PSIP0213	Environmental Sanitation - Practical	*1	60	40	100
EM	16PSIP02EX	Elective Major Theory	3	40	60	100
	16PSIP02EY	Elective Major Practical	1	60	40	100
	16PSIP 0214	Concurrent Field Training (CFT)	#2	100		100
	16PSIP 0215	Supervised Field Training (SFT)	#2	100		100
		Total	25	520	380	900

Category	Course Code	Course Title	No of Credit	Marks		
				CFA	ESE	Total
	List of courses for 16PSIP02EX					
Elective Major	16PSIP02E1	Urbanization and Health Theory	3	40	60	100
	16PSIP02E2	Emergency Care in Disasters and First Aid theory	3	40	60	100
	List of courses for 16PSIP02EY					
	16PSIP02E3	Urbanization and Health Practical	*1	60	40	100
	16PSIP02E4	Emergency Care in Disasters and First Aid Practical	*1	60	40	100

***Practical**
#CFT= Concurrent Field Training
 # Supervised Field Training

First Semester

Course Code	Course Title	Credit
16PSIP0101	Biological Science I Anatomy and Physiology	3
16PSIP0102	Biological Science II Medical Entomology and Parasitology and Microbiology	3
16PSIP0103	Epidemiology of Communicable and Non Communicable Diseases Control	4
16PSIP0104	Environmental Sanitation	4
16PSIP0105	Behavioural Sciences and Health Promotion	5
16PSIP0106	Biological Science I Anatomy and Physiology-Practical	1
16PSIP0107	Biological Science II-Medical Entomology and Parasitology and Microbiology-Practical	1
16PSIP0108	Epidemiology, Communicable and Non Communicable Diseases Control - Practical	1
16EXNP00V1	Village Placement Programme	2
16GTPP0001	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

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

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

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

4 **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.

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

6 **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

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

Unit II

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

2 **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

3 **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

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Unit III

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

2 **Autonomic Nervous System** – Sympathetic and parasympathetic nervous system.
3 **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)**
4 **Skin –**Structure and functions of skin– Regulation of body temperature. Physiology of pain.

UNIT IV

1 **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
2 **Endocrine system –** Structure and function – Pituitary gland –Thyroid gland – Parathyroid gland – Adrenal gland – Pancreas – Sex glands – Thymus – Pineal gland.
3 **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

1 **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.
2 **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

Learning objectives

At the end of UNIT I the students will be able

To list the functions of the cells and tissues
To describe the functions and compositions of blood
To list the blood groups
To explain the disorders of blood
To explain lymphatic system
To describe the skeletal system and classification and structure of bone
To describe classification and movements joints of the skeleton
To list joint disorders
To describe the muscular system, Physiology of muscles, properties of skeletal muscles.
To describe the physiology of muscle contraction, oxygen debt and heat production
To explain the diseases of muscles

At the end of UNIT II the students will be able

To describe the accessory organs of digestion
To explain the structure and functions of liver, gall bladder and pancreas.
To explain the metabolism
To explain the cardio vascular system
To describe the structure and functions of heart
To explain the blood circulation
To identify the factors affecting blood pressure
To list the disorders of heart, blood vessels and blood pressure
To explain structure and function of the respiratory and system
To describe the mechanism of respiration
To list the disorders of respiration and artificial respiration

At the end of UNIT III the students will be able

To describe the structure and function of the nervous system.
To identify the parts of the brain.
To explain the reflex action.
To describe the autonomic nervous system.
To list the sensory organs and sensation.
To describe the structure of organs of special senses-Eye, Ear and Nose.
To explain the structure and functions of skin.
To describe the mechanism of regulation of body temperature.
To identify the physiology of pain.

At the end of UNIT IV the students will be able

To describe the structure and function excretory system.
To list the problems of the urinary system.
To explain the structure and function of endocrine system.
To describe the structure and functions of the reproductive system.
To identify the different parts of the male and female reproductive system.
To explain the process of fertilization.

At the end of UNIT V the students will be able

To define the first aid.
To explain the importance of management of injured.
To describe the golden rules of first aid.
To list the emerging challenges and issues in first aid care.
To explain the important care to be given for the injured person.
To define the emergency care in disaster management.
To explain the objectives, principles and strategies of disaster management.

Biological Science II-Medical Entomology and Parasitology and Microbiology
Credit : Theory 3 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

1 Introduction to entomology, classification of insects;
Metamorphosis, Vectors, Main and intermediate hosts etc.,
2 General characteristics of mosquitoes-types
3 Life cycle of Anopheles, Culex, Aedes and Mansonia mosquitoes, and their public health importance
4 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 and malaria drug policy
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, T.Wart, Robert Koch and Ronald Ross
2 Study of different microscope: Simple, compound, Electron and Dark-field Classification, structure and reproduction of organisms of microbes
3 Study of bacteria, Distribution, Morphological groupings etc.
4 Sterilization, Autoclaving, Disinfection, Micro-waving and Incineration.
5 Milk microbiology: Milk spoilage, Milk borne pathogens, Methylene blue test.
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
2 Fungal- Structure, Reproduction, Diseases, Control Measures
3 Immunology- Immunity - active, passive- Immune responses: Antibodies, Primary Secondary immune responses, - Hypersensitivity, Allergy, Herd immunity Vaccine, Sera, immunoglobin
4 Water Microbiology. Coli form group (Presumptive Confirmed and Completed test) MPN- Sampling of water for bacteriological analysis
5 Food Microbiology
   a. Food poisoning-preventive measures ,
   b. Food borne infections- preventive measures

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

4 Laboratory demonstration of Cocci, Bacilli and Spirochete.
Slides showing the pathogenic microbes
Hanging drops preparation to show the mobility of bacteria
5 Demonstration of Fungi-Preparation of media
6 Collection of blood smears for Dengue, Chick-un-Gunya
7 Collection of faecal specimen for identifying the E. coli and V. Cholera

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

Learning outcomes: Entomology Parasitology and Microbiology:

At the end of unit I the students will be able

To classify Insects, vectors and identify public Health importance of Mosquitoes sand fly, Cyclops

To explain control measures including integrated vector control measures

At the end of unit II the students will be able

To explain lifecycle of Housefly, Flea, Louse, Bed bug, Ticks and Mites

To discuss public Health importance of Housefly, Flea, Louse, Bed bug, Ticks and Mites

To describe control measures of Housefly, Flea, Louse, Bed bug, Ticks and Mites

To classify insecticides of spray techniques for anti larval measures.

To explain spray techniques for anti larval measures

To explain the control and preventive measures of vector borne diseases

At the end of unit III the students will be able

To explain life cycle of protozoan parasites warms, Fluke and skin parasites.

To discuss mode of transmission of protozoan parasites worms, Fluke and skin parasites

To recognize control measures of protozoan parasites warms, Fluke and skin parasites

At the end of unit IV the students will be able

To discuss Historical development in the field Microbiology

To explain structure of different Microorganisms- Bacteria, virus and Fungi

To discuss reproduction of Microorganisms- Bacteria, virus and Fungi

To describe modes of transmission of disease through micro organisms

To discuss control measures of organisms by Sterilization (Physical method) and disinfection (chemical method)

At the end of unit V the students will be able

To discuss Bacteriological quality of Milk, Water and Food.

To explain protective role of Immune system and also deleterious effect such as allergy by Immune system.

To write important vaccines and types of sera and Immunoglobulin

To explain Coli form group

To discuss Sampling of water for bacteriological analysis

To explain food poisoning and its preventive measures

To discuss Food borne infections and its preventive measures

Learning outcomes Practical: Entomology and Parasitology

To prepare thick and thin smear of blood

To identify different vectors and their immature forms

To identify Protozoan parasites

To identify Helminthes worms and their eggs

To identify insecticides used in the vector control including larvicides (adult larvicides)

To demonstrate spray techniques

Learning outcomes 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

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 identify 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, Ricketsial 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 spotters

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

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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

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Learning objectives

At the end of unit I the students will be able to

To explain the Concepts and Philosophy of Health and disease.
To describe the Dimensions of Health
To explain PQLI & HDI - Spectrum of Health.
To list Determinants of Health Indicators of Health.
To identify the Risk factors - Risk groups of communicable and non communicable Disease cycle
To recognize Spectrum of Disease, Iceberg of Disease.
To explain the Concept of Control and Concept of Prevention of disease

At the end of unit II the students will be able to

To define the term Epidemiology and Epidemiological triad and Definition- Aims- Epidemiological approach
To explain Investigation procedure
To describe Measurements in Epidemiology, Measurement of Mortality- Measurement of Morbidity
To differentiate Incidence and Prevalence of disease
To describe Terminology in Infectious disease Epidemiology
To explain uses of Epidemiology of diseases
To explain Dynamics of Disease Transmission
To describe importance of cold chain maintenance Immunity, immunizing agents- Hazards of Immunization, Vaccine Vial Monitor, and National Immunization programme and Schedule.
To describe general measures of control of infectious diseases and Disinfection.
To describe the investigation procedure of an epidemic.

At the end of unit III the students will be able to

Control of Communicable Diseases

To explain the Control and preventive measures Airborne Respiratory Infections (Small pox, Chicken pox, Measles, Mumps, Influenza, Diphtheria, and Whooping Cough. Acute Respiratory Infection, Tuberculosis, Asthma and relevant National Health Programmes)
To explain Control and preventive measures Waterborne disease and 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 and relevant National Health Programmes.
To explain the Emerging and Reemerging Diseases, recent updates and other advancement.
National Diarroheal Diseases Control programme

At the end of unit IV the students will be able to

To explain Vector borne and other Communicable Disease control
Control of Arthropod borne infections (Dengue Syndrome, Malaria, Lymphatic Filariasis, Chikungunya- Kala Azar- Scrub Typhus – Yellow fever and relevant National Health Programmes.) National Malaria Eradication Programme, National Filaria Control Programme
To describe control measures of Zoonosis(Rabies, Plague, Japanese Encephalitis, Anthrax, Ricketsial Diseases, KFD- Brucellosis- SARS and relevant National Health Programmes.)
To explain the Control and preventive measures of Scabies, Pediculosis, Trachoma, Tetanus, and Leprosy- Control of Sexually Transmitted Diseases [Syndromic Treatment and management], AIDS [Syndrome], Control of Hospital Acquired Infections and relevant National Health Programmes.
To explain the Emerging and Re-emerging Diseases, recent updates and other advancement
National vector borne disease control Programme
National Leprosy Control Programme
National STDs Control Programme
National AIDS control Programme

At the end of unit V the students will be able to

Control of Non-communicable diseases:
To list Non-communicable diseases (Coronary Heart Diseases, Obesity, Hypertension Stroke, Control of Cancer, Control of Diabetes Mellitus, Blindness, Control of Accidents and Injuries.)
To explain the case finding method NCD
To explain Emerging Challenges and issues in the NCD.
To describe objectives and strategies of
National Cancer Control programme
National Diabetes Control programme
National blindness control programme and prevention of blindness

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PAPER IV - ENVIRONMENTAL SANITATION

Credit: Theory 4 Practical 1

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 keep the villages and cities filth free and clean.
To provide potable water supply, safe water supply
To motivate the people for safe disposal of excreta
To ensure Safe disposal of solid waste and dead
To ensure Safe disposal of waste water and sewage

UNIT-I SMALL SCALE [RURAL] WATER SUPPLY

1 Introduction- History –Definition- Scope of environmental sanitation
2 Relationship of environmental sanitation and health and its importance
3 Water and Health-Sources of water and characteristics
4 Diseases transmitted through water and channels of transmission of infection
5 Protected water supply-estimating the quantity of water supply to the community
6 Community wells-selection of site for a wells-renovation of an existing wells
7 Study of various types of wells-infiltration gallery- pond water supply
8 House hold and small scale disinfection of water supply
9 Water sample collection for water quality test
10 National Rural Drinking Water Programme
11 National Water supply and sanitation programme

UNIT-II LARGE SCALE [URBAN] WATER SUPPLY

1 Components of urban water supply system
2 Difference between a pumped system and gravity system
3 Different types of treatment of drinking water methods-slow sand filtration- Rapid sand filtration, pressure filtration
4 Disinfection of large scale units, different kinds of disinfection methods
5 Different types/ methods of chlorination – well, river, ponds, multi-storied buildings, etc
6 Fluoridation and de-fluoridation- desalination
7 Duties of sanitary inspector in relation to water supply
8 National Drinking Water Mission -water quality monitoring

UNIT-III HUMAN EXCRETA DISPOSAL

1 Public health aspects of Human excreta disposal
2 Requirements of a sanitary latrine-selection of site for latrines
3 Public and house hold latrines-decomposition of excreta
4 Types of latrines and construction features- Travel of pollution from latrine pits
5 Originations of latrine program in rural and urban areas-Community Toilet
6 Machineries used in cleaning works, Low Cost Sanitation Programs- Prevention of Manual Scavenging
7 Zero waste excreta disposals / Eco – friendly Bio Toilet

.UNIT-IV REFUSE COLLECTION AND DISPOSAL/ SOLID WASTE MANAGEMENT

1 Definition - Solid Waste Management –
Sources and classifications of Solid Waste –
Generations of Solid Wastes –
Norms for waste generations –
Characteristics of Municipal Solid Wastes [Physical and Chemical]
Solid Waste Management systems

2 **House Hold Refuse Disposal**:
Collection-segregation- disposal and disposal of rubbish-
various methods-
House hold level disposal by using manure pit-
kitchen garden-
concept of zero waste management

3 **Municipal Solid Waste Disposal:**
Objectives and Principals of Municipal solid waste management-
Tools, equipments –
Methods of collection-transporting / Vehicles –
site selection of compost yard-different kinds of processing methods-
Manure making technologies (wind row method and vermin compost).
Public –Private – Partnership [PPP].
Final disposal of solid wastes (land filling methods) different types and methods-
Rules related with Solid Waste Management

4 **PLASTIC WASTE MANAGEMENT**
Different Types of Plastics and their usages – Conditions for plastic manufacture and usage.
Food grade plastics and coloring matters
Marking and labeling on the plastics
Refuse -Reduce – Reuse – Recycle of Plastics
Plastic Waste Management (Handling and Management) Rules and its relevance

5 **DISPOSAL OF DEAD / BIO MEDICAL WASTE MANAGEMENT**
Bio Medical Waste Management (Handling and Management) - Sources, types and different categories of Bio Medical Waste –
Treatment and disposal options
Labeling the containers / bags [Color coded bins]
Standard treatment and disposal of Bio Medical Waste –
Incineration and other techniques.
Need for safe disposal, various methods, burning, and burial, electric cremation-
Public health aspects - disposal during the Emergencies, Natural calamities and disasters
Disposal of dead bodies of HIV/AIDS, Swine-flu & Rabies affected persons.
Bio Medical Waste Management (Handling and Management) Rules

6 Total Sanitation Campaigns – Swachh Bharat Abhiyan Clean India / Clean city, - Rural Sanitary Mart

UNIT-V WASTE WATER DISPOSAL

V	**Sullage water or house-hold waste water**
1	Public health importance and methods of disposal of waste water
2	Zero waste water disposals
3	Types of liquid waste
4	Different methods of waste water disposal -soak pits, seepage pit-dispersion trench kitchen garden drawings
5	Role of HI/SI in safe disposal of waste water
	DRAINS
6	Under Ground Drainage System
7	Construction-different types of drain-methods of disposal
8	Sewerage: objectives- of sewerage definition of terms types of sewers, sewer maintenance and precautions to be taken by cleaning sewerage treatment plant etc
9	Oxidation pond, sewage farm, trickling filter, *imhoff* tank
10	Zero waste water disposal- Septeage Management plan

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
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 toilets, 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

Field visits to observe

1. Drinking water treatment plants
2. Water quality monitoring unit
3. Zero waste excreta disposals / Eco – friendly Bio Toilet
4. Solid waste management at different levels
5. Bio medical waste management
6. 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,5 th Edition,Tata Mc graw hill
5. Environmental sanitation –Ehlers, V.M., add steel,E.W.,McGraw-Hill Book Co

Learning outcomes

At the end of unit-I: The students will be able

1. To explain- introduction- history- definition and scope of environmental sanitation
2. To explain water and health- sources of water and their characteristics
3. To explain diseases transmitted through water and channels of infection
4. To discuss- protected water supply- estimating the quantity of water supply to community
5. To explain the community wells- selection of site for well-renovation of existing wells
6. To explain the study of various types of wells-infiltration gallery-pond water supply
7. To define the disinfection and the explain various methods of disinfection of water supply
8. To discuss the sample collection for testing the water quality
9. To discuss the National rural drinking water programme

At the end of unit-II: Urban water supply the students will be able

1. To explain the components of urban water supply system-difference between a pumped system and gravity system
2. To explain the Different types of treatment methods
3. To explain the slow sand infiltration- rapid sand infiltration
4. To define the fluoridation and defluoridation-domestic treatment of water-desalination
5. To discuss the duties of sanitary inspector in relation to water supply
6. To discuss the National Drinking Water Mission

At the end of unit-III: Human Excreta Disposal the students will be able

1. To discuss the Public health aspects of Human excreta disposal-requirements of a sanitary latrine
2. To explain the Selection of site for latrines
3. To explain the Public and house hold latrines
4. To explain the Decomposition of excreta-types of latrines and construction features
5. To discuss the travel of pollution from latrine pits and originations of latrine programme in rural and urban areas

At the end of unit-IV: Refuse Collection and Disposal the students will be able

1. To define refuse and explain-collection and segregation
2. To explain the Disposal of rubbish various methods-(Dumping, composting, incineration, sanitary land fill-waste recycling)
3. To explain and define solid waste- planning for refuses collection and disposal-Bio Medical- collection and Disposal- Machineries used in cleaning works- Vermi-compost
4. To explain disposal of dead

At the end of unit-V: Waste water Disposal the students will be able

1. To explain Public health importance and methods of disposal of waste water
2. To explain what are the liquid waste- disposals, different method
3. To explain the soak pits , seepage pit-dispersion trench kitchen garden drawings etc.
4. Drains**:** Different types of drain-methods of disposal
5. To define sewerage, objectives of sewerage and types of sewers.
6. To explain maintenance and precautions to be taken by cleaning sewer
7. To explain and detail discuss about the Sewage treatment plant
8. To discuss and explain oxidation pond, sewage farm, trickling filter, imhoff tank-Zero waste water disposal

BEHAVIOURAL SCIENCES AND HEALTH PROMOTION

Credit: 5

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

- ❖ Identify the role of behavioural sciences and its importance in health promotion
- ❖ Plan, organize, conduct and evaluate health education activities in a given area
- ❖ Find out health education needs in a given community
- ❖ Prepare health education points for given health programme
- ❖ Select and use suitable educational method and prepare educational aids for health education activities
- ❖ Prepare a report of health educational activities carryout in a community

UNIT I: Introduction to Behavioural Sciences and Health Promotion

1. Behavioral Sciences- Scope and Disciplines- Sociology- Anthropology- Social Psychology-role of behavioral Sciences in Health Promotion
2. Health Education – Principles- Health Promotion-interventions-principles
3. Difference between Health Education- Health Promotion -Propaganda
4. Sociology of health-factors influencing health -Determinants of health -social-cultural- economic and its role in health behaviour-
5. Role of Social institutions-Family-Marriage- Groups-Religion- Education-Government in health behaviour

UNIT II: Teaching and Learning -Communication process

1. Teaching - Learning- Learning situation –Principles of Adult learning- Learning theory- Kurt Lewin-Kelman
2. Educational methods- Individual Contact/Family visit – Group discussion - Lecture discussion, Demonstration, Work- shop, Panel discussion- Role play- Case study-Campaign
3. Adoption- Diffusion - Stages - Roger's Model-Classification of adopters
4. Motivation-Kurt Lewin-Force Field analysis- Rosen Stock Principles of Motivation
5. Communication-Characteristics - Principles –Overcoming barriers in communication Types-Interpersonal and Mass communication
6. Rumour –process- Checking of rumours
7. Behaviuoral Change Communication Model - IEC- Information – Education-Communication-strategy- in health care delivery
8. Counselling- steps- qualities of a counsellor
9. Audio-Visual aids: Classification-Importance- Limitation of AV aids -Selection criteria- Steps- in using AV Aids-Preparation of IEC materials
10. Organizing and Conducting the IEC program

UNIT III: Community-Community Organization

1. Community Characteristics- Differences between Rural and Urban communities
2. Power structure - leader - source-type- Importance of working through community leader-Methods of identification of informal leader - Sociogram-importance.
3. Orientation Training Camp for community leaders - Agenda- Organizing-conducting-evaluating training camp
4. Community organization Principles of community organization

5 Importance of community participation- Inter-sectoral Co ordination
6 Role of a professional Worker in community organization
7 Participating Learning For Action/Participatory Rural Appraisal - steps - Venn diagram-Seasonality diagram-Relative ranking-Fish Bowel technique-Transect-Participatory Mapping
8 Identifying the stake-holders / leaders / adopters / volunteers / peer educators and social organizations / associations

UNIT IV: Programme planning for health educational activities:

1 Programme planning-Need- Principles-Criteria -Steps in Programme Planning-
2 Community and Educational diagnosis
3 Method of data collection for Health Education programme- advantage- Limitation of each method -interview
4 Survey-Observation-Discussion- KAP - (knowledge- Attitude- Practice)
5 Baseline-Family Health /Household -Socio economic -Rapid survey
6 Tools for data collection –Schedules- Questionnaire-checklists
7 Assessing barriers to health education-Identifying resources
8 Felt needs- assessment - steps in determining needs- setting priorities
9 Criteria for Selection of responsive communities -Intersectoral planning -Sustenance of a programme at community level

UNIT V: School Health Education -Evaluation of Health Education activities

1 School Health Education: importance -Aspects of school health programme
2 Suggested steps and routine health education
3 Health education opportunities available in schools –communities
4 Celebration-Observation of National –International important health days
5 Evaluation-objectives -Types – Steps - Format of evaluation
6 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. To identify the leaders in a community
2. To conduct Group discussion, Demonstration and interview technique on given health and sanitation topic
3. To apply PLA techniques in a community
4. Visit to community/ICDS centre/ primary school for health and hygiene education

Learning outcomes of Field visits

1. To acquire skills in interview techniques
2. To develop skills in identifying leaders
3. To develop skills in organizing and conducting educational programmes in different settings
4. To prepare educational points for health and sanitation programmes
5. To demonstrate PLA 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, NIHFW
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

Learning Outcomes

At the end of the unit I the students will be able

To differentiate Health education, Health promotion and propaganda
To discuss principles of health education and health promotion
To describe the various interventions in health promotion
To define community, social stratification, social control, customs, Habit, tradition, norms, values, attitude and culture
To determine the factors that determine the health behaviour of an individual
To recognize the importance of social control in health behaviour
To identify the importance of habit, tradition, values, attitudes, and culture in health behaviour
To explain the role of social institutions in health behaviour of individual

At the end of the Unit II the students will be able

To define the term learning, learning situation, adoption, motivation and communication process
To discuss learning theories of Kurt Lewin-Kelman
To explain principles of Adult leaning
To list various educational methods available for health education
To explain various steps, advantages and limitation of each educational method
To discuss selection criteria of an educational method
To explain various steps in adoption process
To classify various categories of adopters
To recognize the importance and elements in communication process
To identify the barriers and overcome these barriers in health education activities
To identify process of rumours and overcome the rumours in health education
To plan IEC strategy to implement any health programme in a community
To explain selection criteria, advantage and limitation of A.V aids for health education programme
To prepare simple IEC materials
To organize IEC programme

At the end of the unit III the students will be able

To compare rural and urban communities
To discuss the importance of working with community leaders
To identify the leaders of a community and utilize their services in health promotional activities
To prepare an agenda for orientation training camp of leaders in a community
To discuss the importance of community organization principles
To list various roles to be played by a health worker in community organization
To use suitable of method of PLA menu for identifying health needs of a community
To enumerate the importance of Intersectoral co ordination in health programme

At the end of the unit IV the students will be able

To explain various steps in programme planning
To recognize the importance of educational and community diagnosis for health education
To prepare KAP schedule for any health educational programme and identify the health educational needs
To formulate educational objectives for given health education programme with reference to SMART criteria
To identify responsive community and sustain it for health programme
To plan health education programme for by using programme planning steps
To differentiate felt needs from unfelt needs
To formulate educational objectives for given health education programme with reference to SMART criteria
To identify responsive community and sustain it for health programme
To plan health education programme for by using programme planning steps

UNIT V: At the end of this unit School Health Education - Evaluation of Health Education activities - the students will be able

To list various elements in school health programme
To identify opportunities available for health education in school, PHC, HSC and community
To discuss types of evaluation
To prepare evaluation report for health education activities carried out in a community
To prepare a report of health education activity carried out in a community

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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 (Sarvadharma 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.

Second Semester

Course Code	Course Title	Credit
16PSIP0209	Special Sanitation Problems	4
16PSIP0210	Public Health Administration	5
16PSIP0211	Food& Nutrition &MCH	4
16PSIP0212	Environmental Sciences	3
16PSIP0213	Environmental Sanitation - Practical	1
16PSIP02E1	Urbanization and Health Theory	3
16PSIP02E2	Emergency Care in Disasters and First Aid theory	3
16PSIP02E3	Urbanization and Health Practical	1
16PSIP02E4	Emergency Care in Disasters and First Aid Practical	1
16PSIP0214	Concurrent Field Training (CFT)	2
16PSIP0215	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 a 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

II **Food Establishment and Milk Hygiene**

Diseases Transmitted Through Food - Classification of Food Borne Diseases
Infections and food poison
Essentials of Food Establishments-Protection of Food from Insects, Rodents-
Dangerous Chemicals Involved- 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

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
Measures of health protection of workers
Preventive measures of Occupational Diseases -Medical Measures-Engineering Measures
Legislation –The Factories Act,1948, The Employees' State Insurance Act, 1948

IV **School Sanitation** Introduction to school sanitation – Objectives – need and ortance of school sanitation
Rashtriya Bal Swasthya Karyakram (RBSK) comprehensive school health programme –role of HI/SDI 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- Noon meal centres
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
Institutional sanitation: Sanitation of a training centre-evaluation-hospital sanitation

V Places of Public resorts

Importance of Sanitary arrangements of Places of Public resorts –
Cinema house,
Barber shops/ Beauty parlour
dhobi-khana,
Laundry,
Swimming pool,
Community hall
Marriage/Meeting hall and shopping complex

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.

Learning outcomes

At the end of unit I the students will be able

To define Housing
To list characteristics of good housing
To discuss healthful housing
To identify different types of housing
To explain the relationship between housing and health
To explain sanitation facilities to be made in housing and lodging
To discuss the importance of village and town planning

At the end of unit II the students will be able

To classify food and food borne diseases
To explain essentials of food establishments
To discuss dangerous chemicals involved- utensils used washing and sanitizing vessels
To discuss sanitation facilities to be made available in food establishing-slaughter house-markets (vegetable, meat/mutton, fish) - bakery, aerated water - dairy inspection pasteurization plant and cattle shed

At the end of unit III the students will be able

To discuss the importance of occupational health
To explain the industrial hygiene in relation to health-engineering safety measures
To list occupational hazards
To explain sanitation-building toilet facilities to be made available in industrial establishment
To describe control and preventive measures of occupational hazards
To explain PH Act related to industrial establishment

At the end of unit IV the students will be able

To explain the objectives of school sanitation
To classify the fairs and festivals
To discuss the sanitation facilities to be made available during fairs and festivals
To explain Institutional sanitation arrangements to be made

At the end of unit V the students will be able

To explain importance of the maintenance of sanitation in places of public resorts
To discuss the sanitation facilities in Cinema house,
Barber shops/ Beauty parlour
dhobi-khana,
Laundry,
Swimming pool,
Community hall
Marriage/Meeting hall and shopping complex
To discuss the role of HI/SI in maintenance of sanitation in places of public resorts

Public Health Administration

Credit: 5

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

1. To explain Public Health administrative set up in Centre- State-District-Block- PHC-village levels
2. To discuss the importance of management at different levels
3. To play a role of supervisor and birth & death registrar
4. To discuss the role and responsibilities of HI/SI working at different levels
5. To describe Public Health Laws to be executed at various levels
6. 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. Public Health Laws -Definition – importance – Statutory laws (Epidemics & PH practices- by law)- various PH Acts
2. The Tamil Nadu Public Health Act, 1939- The TN District Municipalities (MDM) Act 1920- The Tamil Nadu Panchayat Act 1994-
3. The Tamil Nadu Births and Deaths Rules 2000- The Registration of Birth and Death registration Act, 1969 [Central Act 18 of 1969]

4 The Tamil Nadu Educational Rules
5 The Tamil Nadu Town Nuisance Act 1889
6 COTPOA Act,2003
7 International Health Regulations, 2005
8 Port Health Regulations, 1955
9 **Legal Procedures:**
Power of Entry / Inspection / Investigation [examination] Procedures.
10 Nature of Inspection and frequency of Inspection
11 Preparation of notices / service of notices- Power of arrest- Compounding of offences- Appeal Procedures- Cognizance of offence – Criminal Proceeding procedures
12 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, Jabalpur21 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	Bogdon M.Kleczkow Ski et al, WHO, Geneva,

	Health Care	1984
6	A Short Book of Public Health,	V.K.Muthu, JAPEE Brother Medical Pub.(P)Ltd New Delhi,2005

Learning Outcomes:

At the end of the UNIT I the students will be able

To discuss Historical development of public health and modern medicine in India
To discuss the changing concepts of health
To explain various committees on health development in India
To recognize the importance of Five year Plans –related to Health –Family welfare-and water and sanitation programmes
To compare Planning commission and NITI Aayog
To discuss National Health Policy of India

At the end of the UNIT II the students will be able

To explain Public Health set up at National -State level-organization-functioning
To discuss Public Health set up at District-Block-village level-organization-function
To list Job responsibilities of HI/SI working in Corporation/ Municipalities/Town Panchayat/PHC
To recognize the importance of Primary Health Care principles
To enumerate recent trends in Health care delivery systems in India
To describe NRHM/UNHM/NHM
To list role of a ASHA in health care delivery
To explain the importance various Health Insurance Schemes in India
To familiarize with Millennium Development of Goals (MDG) related to health and sanitation

At the end of th UNIT III the students will be able

To differentiate management from Administration
To list various steps in Programme planning
To list qualities of supervisor
To recognize the importance Team work in health care delivery
To identify various sectors for Inter sectoral co ordination
To list various Records to be maintained by a Health/ Sanitary inspector
To enumerate the importance of record keeping and submission
To understand the importance of Public Private Partnership in Health care

At the end of the UNIT IV the students will be able

To discuss various PH Acts and Laws executed at various levels
To identify various statutory bodies for implementing PH ACT
To explain Tamil Nadu Public Health Act, 1939 -The TN District Municipalities (MDM) Act 1920- The Tamil Nadu Panchayat Act 1994
To describe The Tamil Nadu Births and Deaths Rules 2000- The Registration of Birth and Death registration Act, 1969 [Central Act 18 of 1969]
To discuss the Tamil Nadu Educational Rules
To explain the Tamil Nadu Town Nuisance Act 1889

To discuss COTPOA Act,2003
To describe International Health Regulations, 2005 and Port Health Regulations, 1955

Legal Procedures:

To describe the steps in legal procedures for implementation of PH Acts

At the end of the UNIT V the students will be able

To discuss the importance Health Management Information System
To explain various sources of data collection
To explain various rates and ratios related to health
To define Mean, Median and Mode
To prepare various diagrammatic presentations of reports related to health
To identify various National and International voluntary organization related to health

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FOOD & NUTRITION, MATERNAL & CHILD HEALTH

Credit: 4

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

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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.

Field Visit

1. To CHC.PHC.HSC to observe various programmes related to RCH and FWP
2. Visit to PPC
3. To Anganwadi centre to observe the growth monitoring charts
4. To Noon meal centre s to observe nutritional status and feeding of children

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.Kamalamma, APH Publishing Corporation, Delhi,1996.

Learning Outcomes

At the end of the unit I Introduction to Nutrition the students will be able

To define common terms in Nutrition, Changing concepts, Relation of Nutrition to Health, Functions of food, Constituents of Food, Classification of foods, Nutrients. Proximate principles

To list Functions, Sources, Requirements of Proteins and its effects of deficiency

To identify sources and functions of fats and carbohydrates

To recognize the role of fats in disease

To classify Vitamins

To discuss Daily Requirements Recommended allowances

To differentiate Fat soluble vitamins

To explain the importance of major minerals, Folic acid and Ascarbic acid

To identify the daily requirement of Minerals and Trace elements and fiber content foods

To explain the importance and requirement of water for an individual

To list 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

To explain Nutritional Requirements – Recommended daily allowance (RDA), Energy measurement, Energy requirements of reference man and woman

To recognize Nutritional Requirements for Vulnerable groups

At the end of the unit II the students will be able

To define balanced diet

To explain 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

To recognize the importance of Food Hygiene

To explain the need and importance of Sanitation of eating places and food handlers,

To describe the Food-borne diseases

To define intoxication ,infections and Malnutrition

To recognize common Nutrition problems in India

To explain Preventive measures of food borne disease

To list methods of preservation and storage of food at House hold and commercial levels

To explain the nutritional Assessment survey methods

To describe National Nutrition Policy

At the end of the unit III the students will be able

To describe Food Safety ,Food Chemistry, Food standard, FSSAI Act, AGMARK - ISI

To explain the importance of prevention of food Adulteration

To identify Food additives, Pigments, Aerated waters, Food quality, Fortification of foods

To explain Community Nutrition Programmes

To explain Importance , Functions , objectives, components and Elements of School Health Services

To identify the Role of HI/SI in School Health programme

At the end of the unit IV the students will be able

To list the components of MCH care and services

To explain the importance of exclusive breast feeding

To recognize the importance of Artificial Feeding, Supplementary feeding ,weaning and Immunization

To list the causes of IMR and MMR

To identify the paradigm shift of MCH to RCH

To explain the objectives of different phases of RCH

To explain the role of ASHA in MCH and FW services under NRHM

To identify the role of Nutrition Rehabilitation Centre

To explain 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 and CMONC

At the end of the unit V the students will be able

To explain Demography cycle, population trends in India

To explain National Population policy

To explain Contraceptive methods

To explain Eligible couples, Unmet needs of Family Planning, and Sociology of Family Planning

To explain MTP Act 1972 , PCPNDT Act 1994

To explain Community needs assessment approach

To explain the objectives of National Family Welfare Programme (NFWP)

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, Abiotic components of Ecosystem, Biotic components of Ecosystem, Energy flow, Dynamics of Ecosystem, Food Web and Food Chain
2 Renewable Energies – Solar/ Wind-mill / Bio Gas / Bio – methanization / Hydraulic/ Tidal powers
3 Carbon rating
4 Rules under the Environmental (Protection) Act 1986 (Central Act 29 of 1986) framed rules under sections 3,6 & 25

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

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 condition, physiology of growth, bacterial growth curve, methods for determining bacterial numbers
Mass and cell constituents, exponential growth and generation time, bacterial growth in batch and continuous culture(chemo stat and turbid stat)

Unit III: Microorganisms and their Environment:

1 Effect of environmental conditions on survival and growth of microorganisms and adaptations.
Temperature, oxygen, desiccation, extreme cold, ionic effect, osmotic pressures, radiant energy, hydrostatic pressures and surface forces.
2 **Control of microorganisms:** inhibition of growth and killing, 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
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

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	Principles of Environmental Science and Engineering	T.Meenambal & R.N.Uma.
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.

Learning outcomes

At the end of the unit I the students will be able

To define Ecosystem, Structure of Atmosphere
To differentiate Abiotic and Biotic components of Ecosystem
To explain Energy flow, Dynamics of Ecosystem
To discuss Food Web and Food Chain
To discuss the importance of Renewable Energies
To explain Carbon rating

At the end of the Unit II the students will be able

To discuss the scope and importance of Micro organisms
To differentiate three domains of life
To describe the Eukaryotic and prokaryotic cell
To list important uses and harmful effects of --Protozoa, fungi, algae, bacteria and virus
To explain Isolation , cultivation(aerobic& an aerobic) and preservation of microbes
To identify Nutritional types of Microbes , Nutrient media
To explain Mass and cell constituents, exponential growth and generation time, bacterial growth in batch and continuous culture(chemo stat and turbid stat)

At the end of the Unit III the students will be able

To explain Effect of environmental conditions on survival and growth of microorganisms and adaptations
To discuss Temperature, oxygen, desiccation, extreme cold, ionic effect, osmotic pressures, radiant energy, hydrostatic pressures and surface forces
To explain Control measures of microorganisms
To list Characteristics of an antimicrobial agent; mode of action of antimicrobial agent.

At the end of the unit IV the students will be able

To describe Ozone depletion
To explain Green House Effects
To identify the importance of Green house gases
To explain the preventive measures of Global warming
To discuss Photochemical smog – PAN –Acid Rain
To explain Measurement of noise level
To describe effects of noise pollution on Health
To describe the control and preventive measures of noise pollution

At the end of the unit V the students will be able

To identify air pollutants
To discuss the importance prevention of water pollution
To classify water pollutants
To discuss Algal blooms – Eutrophication
To list the effects of Soaps and detergents – Oil spills in environment
To identify Agriculture Pollutants
To list the control and preventive measures of Agriculture Pollutants
To discuss Relevant Public Health ACT

Elective Major URBANIZATION AND HEALTH

Credit Theory 3 Practical 1

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

To explain the importance of Urbanization and health
To recognize the population growth over the years
To discuss the meteorological environment and its impact
To identify the environmental issues in urban areas in relation to solid waste, waste water and Flood control
To explain environmental impact assessment in cities
To explain urban sanitation policy

UNIT I

1 Introduction to Urbanization – Population-population Growth-restriction of urbanization-human population explosion-natural resource degradations-concept of conservation –value system-equitable resource use for sustainable life system
2 Meteorological environment – atmospheric pressure measurement – effects of Atmospheric pressure on health- air temperature- heat stress indices- effects of heat Stress - preventive measures- effect of cold stress- global warming – humidity- air Velocity

UNIT II

1 **Air pollution** control methods-sources-correction methods-particulate emission control-gravitational settling chamber-cyclone separator-fabric filters-electrostatic precipitators-wet scrubbers control of gaseous emissions –
2 Adsorption by solids-absorption by liquid-combustion, condensation-control of sulphur dioxide- emission-desulphurization of flue gases-dry methods-
3 Wet methods-wet scrubbing methods-control of nitrogen oxides-effluent gas treatment methods-carbon monoxide control-control of hydrocarbons-mobile sources
4 **Land pollution:** Water and air in soil –water logging-components in soil-exchange reaction in Soil –nutrients –trace on soil-waste disposal on land –some typical toxic waste etc

UNIT III

1 Current environmental issues related to cities- municipal solid waste
2 Water pollution-municipal sewage waste- physical unit operation- chemical unit-
3 Operation and biological treatment process-Classification of biological treatment process- waste minimization-
4 waste minimization-Programme - cleaner production or cleaner technology- options for clean Technology- good housekeeping

UNIT IV

1 **City environment management**
2 Environmental impact assessment - environmental impact statement
3 Steps in environmental impact assessment - elements- stages - and procedures of environmental impact assessment - content of environmental impact assessment-notification in India
4 The polluted pay principles- scope of the polluted pay principles- different approaches of polluted pay principle-

5 Role of local body in sustainable development- manufacture, storage and import of hazards chemical rules 1989

UNIT V

1 **National Urban Sanitation Policy**
2 Vision- key sanitation policy issues- policy goals- implementation support strategy- components of national sanitation policy
3 **City Sanitation Plan**
4 Draft framework for a city sanitation plan- steps for achieving 100% sanitation- city sanitation task force- baseline data collection and creating database (GIS) - Awareness generation and launch of 100% sanitation campaign-
5 Specifying legal and regulatory institutional responsibilities- planning and financing- technical options- reaching the un-served population- and the urban poor- operation and maintenance and service delivery system-
6 Capacity building and training- implementation management and monitoring and evaluation- monitoring and evaluation and super vision of progress
7 Evaluation of 100% sanitation status- monitoring of 100% sanitation status- city reward schemes- cities with special institutions and characteristics - Rating the Cities.

Practical:

1 Pollution analysis lab
For estimation of particulate matter
2 Water , Waste water analysis lab to assess
1.pH and electrical conductivity
2. Turbidity
3.Colour and odour
4.Hardness
5.alkalinity
6.Nitrate and Nitrogen
7.Ammoniacal – Nitrogen
8.Phosphate
9.Sulphate
10.Residual Chlorine
11.Chlorine demand
12.Dissolved oxygen, biological oxygen demand
13.Chemical oxygen demand
14.Fluoride
3 Solid Waste Characterization
1.Moisture content and
2.pH
3.Pottasium
4.Nitogen
5.Organic Matter
6.Nitrate
7.Chlorides
8.Total phosphorous

9.Sulphate
10.Phosphate
11.Alkalinity
12.Calcium
13.Volatile Organic Matter
14.Chemical Oxygen demand

Learning outcomes and practicals

At the end of the practical session the students will be able

To estimate particulate matter in air

To carry out the chemical parameters in water

To estimate solid waste characterization

Field visit to

Observe the town planning

Observe the Underground drainage /sewerage

Observe water supply in urban areas

Observe city sanitation plan

LEARNING OUTCOMES

At the end of the Unit I the students will be able to

To explain the causes and consequences of urbanization

To explain demographic cycle and population growth in urban areas

To explain the environmental degradation of resources due to population growth

To discuss the impact of environment on health

To discuss the control and preventive measures of effects of environment on health

To identify the causes of global warming

At the end of the Unit II the students will be able to

To explain the control and correction methods of Air pollution

To explain particulate emission control-gravitational settling chamber-cyclone separator-fabric filters-electrostatic precipitators

To discuss dry methods-wet methods- wet scrubbing methods

To explain control of nitrogen oxides-effluent gas treatment methods-carbon monoxide control-control of hydrocarbons-mobile sources

To discuss land pollution

To identify the effects of exchange reaction in Soil nutrients

To explain the impact of toxic waste in land

At the end of the Unit III the students will be able to

To list Current environmental issues related to cities

To discuss the impact of solid waste-sewage on environment

To describe the cleaner environment and good house keeping

At the end of the Unit IV the students will be able to

To discuss Environmental impact assessment and Environmental impact statement

To explain steps in environmental impact assessment

To discuss operation and biological treatment process-Classification of biological treatment process- waste minimization-

To explain cleaner production or cleaner technology- options for clean Technology

To describe the qualities of good housekeeping

At the end of the Unit V the students will be able to

To explain key sanitation policy issues- policy goals

To discuss implementation support strategy- components of national sanitation policy

To recognize the importance of City sanitation plan-draft

To explain steps for achieving cent present sanitation in urban areas

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

Credit Theory 3 Practical 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

II Unit

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.

III Unit

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
3 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

IV Unit

1 **Cardiac Emergency:** Introduction – Cardio pulmonary arrest – Cardio pulmonary resuscitation – CPR for small children and infants

2 **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

V Unit

1 **Loss of Consciousness:** Introduction – causes – Asphyxia – Heat stroke – Fainting – Stupor – coma – Epilepsy – Drowning – Choking –Strangulation and Hanging - Artificial Respiration.

2 **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

3 **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:**

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

Learning Outcomes

Unit I: At the end of the Unit I students will be able

To define and classify the disasters.
To describe the health hazards of the disasters.
To describe the first aid care during flood, drought, cyclone, hurricane and earth quake.
To explain the first aid care during fire and explosion.
To describe the first aid care during different types of transportation accidents \
To explain the first aid care during bombing, atomic bombing, biological warfare and chemical warfare.
To describe the relief work during disaster, pre disaster and post disaster management.
To describe the disaster rehabilitations, mobilizing the community resources, national and International agencies for relief work.

Unit- II: At the end of the Unit II students will be able

To define the objectives, limitations, principles and golden rules of the first aid care.
To describe the casualty management handling and transport, loading a stretcher, blanket lift, Manual lift, carrying a stretcher.
To describe ambulance and loading and unloading procedure.
To explain the promotion of safety consciousness, safety in the home, smoke and smoking & safety outside the home.
To describe the safety in agriculture, safety in industries, & safety in hospitals.
To describe first aid procedure, supplies equipments & description of first aid box.
To classify the Bandages and slings, types and usage.
To explain the Special bandages, plaster of paris, bandages.
To plan a carrying a loaded stretcher, lifting and carrying an injured person.
To enumerate the different type of stretchers.
To explain the avoiding of accidents on the road.

Unit –III: At the end of the Unit III students will be able

To explain the first aid for burns and scalds.
To explain the first aid for corrosive chemicals and chemical burns
To describe the first aid for bones and joints fractures.
To classify the splints and its usages.
To describe the first aid for managing the fractures of upper limb & lower limb, injuries to skull, rib, pelvis, spine, crush injuries and multiple fractures.
To explain the first aid for road accidents, wounds with bleeding and hemorrhage.
To describe the first aid for bleeding from nose, stomach, lung, gum, bowel, ear, and kidney.
To classify the wounds.
To describe the first aid for fire accidents & electrical injuries.

Unit –IV: At the end of the Unit IV students will be able

To describe the first aid for cardiac emergency, cardio pulmonary arrest and cardio pulmonary resuscitation.
To explain the first aid for CPR for small children and infants.
To describe the first aid for poisoning.
To describe the first aid for bites and stings, snake bites, dog bites, insect bites and stings.

To describe the first aid for household poisons, specific poisons, drug poison, plant poison.
To describe the first aid for alcohol poisoning, industrial poisons & explaining the antidotes.

Unit- V: At the end of the Unit V students will be able

To define and classify the loss of consciousness
To describe the first aid for asphyxia, heat stroke, fainting, stupor & coma.
To describe the first aid for epilepsy, drowning.
To explain the first aid for strangulation, choking, hanging.
To describe the artificial respiration
To describe the first aid for the injury to the eye, ear, throat.
To explain the first aid care for haemoptysis, haemetemesis, haematuria, and haemorrhage from the rectum and uterus.
To describe the first aid for frost bite, heat exhaustion, sun burn, and shock.

Credit 2 **Concurrent Field Training**

Collection of general information and Introduction with local leaders
Village / Ward mapping
Household Survey
Household Survey
Study of vital statistics Registration
Well survey, water sample collection and chlorination
Identification of leaders
Analysing of data and Preparation of report and Presentation
Detailed House Survey
School Sanitation Survey
Inspection of Dangerous and offence trades
Hotel
Lodging House
Cinema Theatre/Community Halls/ Marriage Halls/ shopping malls
Market
Barbershop
Bakery
Aerated water factory/Water plants
Rice mill
Dhobikhana
Collection Food sampling technique
To visit Regional Food Laboratory
Slaughter House
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 Lodging House to observe sanitation facilities - Ventilation- Lighting
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 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
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
Visit to PPC
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.
Community Health Centre -Primary Health Centre
Government General hospital causality, Blood Bank
The emergency department of medical colleges
Private nursing homes

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.