



MK UNIVERSITY



Campus: Deesa -Highway, Opp. Hngu, Matarvadi Part, Gujrat-384265
Established by the Gujarat Govt. Recognized by UGC under Section 2(f) of UGC Act, 1956

Syllabus

Diploma in SANITARY INSPECTOR'S COURSE

Programme Structure

COURSE PERIOD: 1 Year

TOTAL SEMESTER: 2

SEMESTER I

Sr. No	Course Type	Course Code	Course Name	Hours Per Week			credit	Max Marks		Total
				L	T	P		T	P	
1	MAJOR	DHSI101	Human Anatomy and Physiology	4	0	0	4	30	70	100
2	MAJOR	DHSI102	Medical Microbiology Entomology and Parasitology	4	0	0	4	30	70	100
3	MAJOR	DHSI103	pidemiology of Communicable disease, Non communicable diseases Prevention and Control	4	0	0	4	30	70	100
4	MAJOR	DHSI104	Environmental Sanitation and Hygiene	4	0	0	4	30	70	100
5	MAJOR	DHSI105	Behavioral Science and Health Promotion and Education	4	0	0	4	30	70	100
6	MINOR	DHSI106	Practical -I	0	0	2	2	20	30	50
7	MINOR	DHSI107	Practical-II	0	0	2	2	20	30	50
Total				20	0	4	24	190	410	600



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SEMESTER II

Sr. No	Course Type	Course Code	Course Name	Hours Per Week			credit	Max Marks		Total
				L	T	P		T	P	
1	MAJOR	DHSI101	Food and Nutrition Program, Reproductive Child Health and Family Planning	4	0	0	4	30	70	100
2	MAJOR	DHSI102	Public Health Administration, National Health Programs and Vital Statistics	4	0	0	4	30	70	100
3	MAJOR	DHSI103	Special Sanitation Problem, Public Health Act.	4	0	0	4	30	70	100
4	MAJOR	DHSI104	Environmental Science, First Aid and Disaster Management	4	0	0	4	30	70	100
5	MAJOR	DHSI105	PRACTICAL-1 Environmental Science and First AID	0	0	2	2	20	30	50
6	MINOR	DHSI106	Field Training and Industrial Visit: Concurrent Field Training (CFT) and Field Observation Visits	0	0	2	2	20	30	50
7	MINOR	DHSI107	Supervisory Field Training (SFT)- Project and Viva Voce	0	0	2	2	20	30	50
Total				16	0	6	22	180	370	550



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DETAILED SYLLABUS

SEMESTER I



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Semester I

COURSE NAME : Human Anatomy and Physiology

COURSE CODE : DHSI101

CREDIT : 4

MARKS (30 +70) =100

Objectives: To enable the student to understand the elementary structure and function of various systems of human body.

Unit -I: Blood and Circulatory Systems: The Cardiovascular System (Parts of the system, Cardiac cycle and General Cycle) The Cardiovascular System (Different circulation and blood pressures), Blood (Composition, Functions of the Blood, Different types of Blood cells) Blood (Blood Cells Functions coagulations blood groups).

Unit - II: Digestive and excretory systems: Anatomy and functions of digestive systems - Oral cavity, stomach, small intestine, large intestine, pancreases, liver, Saliva composition, absorption and assimilation. Excretory systems- excretory organs, locations, structures and functions, urinary tracts urine formation and composition of urine. structure and function of kidney.

Unit - III: Skeletal, Muscular and Nervous Systems: Cell and Tissues, The Skeletal System-classification and structure of bones classification and movements of joints, The Muscular System Muscles of head Face, Neck, Shoulder girdle, upper limb thorax, Muscles of back, Pelvis the Nervous Systems, Spinal Cord, Reflex action, Autonomous Nervous Systems
Sensory Organs, Eye, Nose, Ear, Skin, tongue. Structure and function of Brain Cerebrum, Cerebellum, Medulla oblongata. Structure and function of Spinal cord. Function of Autonomic nervous systems. Reflex action-reflex arc.

Unit - IV: Respiratory systems: Anatomy - respiratory pathway, lungs unit Lungs, Mechanism of respiration Gas exchanges in tissues, transport of O₂ and CO₂. Artificial Respiration- Types-Mouth to Mouth, Schafer's method, Holger Neilson's method, Drinker's mechanical method.

Unit -V: Reproductive and Endocrine systems: Anatomy of male and Female reproductive organs- Menstrual cycles, process of reproduction and lactation, conception and contraception. Structure and function of Pituitary, thyroid and adrenal glands.

Reference Books

1. Evelyn Pearce, Anatomy & Physiology for Nurses, Jaypee Brothers, 16th Edition, 1993.
2. Anne Waugh/ Allison Grant, Anatomy and Physiology in Health and Illness,



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Churchill Livingstone Elsevier 2007.

3. Gosling, Human Anatomy (colour Atlas and Textbook)5th edition 2002.

4. UNEP/ILO/WHO, Guidelines for Poison Control, WHO, Geneva1999.

5. B.D. Chaurasia Human Anatomy - Upper Limb & thorax (Vol. I)CBS Publishers & Distributors, 4th Edition, 2005.

6. B.D. Chaurasia Human Anatomy - lower Limb abdomen & Pelvis (Vol. II) CBS Publishers & Distributors,4th Edition, 2005.

7. B.D. ChaurasiaHumanAnatomy - Head, Neck & Brain (Vol. III)CBS Publishers &

Distributors, 4th Edition, 2005.

8. Inderbir Singh, Atlas of Human Anatomy,Jaypee Brothers1st edition, 2003. 9.

Churchill Livingston Anatomy and Physiology in Health and Illness, 9th Edition, 2004.

10. Murugesh N Anatomy Physiology and Health education, Sathya publishers Madurai, 6 Edition, 2010.

11. S.Subramanian and S.M.Kumar,Text book of Physiology, Orient Longman,1971

SEMESTER I

COURSE NAME : Medical Microbiology, Entomology and Parasitology

COURSE CODE : DHSI102

CREDIT : 4

MARKS (30+70)=100

Objective: To enable the student to understand microorganism related to health, its Classification- identification and control and the role of insects in transmitting diseases and its control measures and parasites of human being that infect on the host.

Unit I: Medical Microbiology: Definition and Scope of Microbiology. Historical development of the Field Microbiology-Louis Pasteur, Edward Jenner, Robert Koch

Alexandar Fleming, and Ronald Ross. Introduction of bacterial, Viral, Fungal and other disease caused by microorganisms.

Study of various Microscope -Simple, Compound, Electron, dark field.

Stains and staining - Principles of staining, simple staining, negative staining, differential staining, Gram and acid fast staining, flagella staining, capsule and endospore staining. Classification, Structure and reproduction of microorganism.

Control of microbes - Sterilization, disinfection, antiseptic, tyndallisation, pasteurization: Physical- dry heat, moist heat, UV light, ionizing radiation, filtration, HEPA filter, Chemical- phenol and phenolic compounds, (halogen aliphatic alcohol, formaldehyde, ethylene oxide, heavy metals) anionic and cationic detergents.

Growth of bacteria - Definition, growth phases, kinetics of growth, direct and indirect

measurement of growth, factors affecting growth (pH, temperature, oxygen).Air microbiology -Microorganisms in the air, sampling techniques, air borne pathogens(sewage), BOD, COD (definitions), general outline of water treatment. process: septic tank, sedimentation Activated sludge and trickling filter process.

Important water borne diseases- cholera, typhoid, (name of pathogen, preventive measures). Outlines of method for detection of microorganisms in drinking water (presumptive, confirmatory and completed tests Distinction between fecal and non-fecal coliforms, IMVIC tests.



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Unit - II

Food microbiology -Microbial flora of fresh foods: Milk as a growth medium of bacteria, normal micro flora of milk, undesirable microorganisms in milk and normal micro flora of meat, poultry, eggs, fruits and vegetables Microbial spoilage of food- Fresh food, fresh milk, canned food and stored grains, Food poisoning, Food Borne infections.

Microbiological examination of food: microscopic examination and culture, phosphatase test of Pasteurized milk.

Preservation of food - High temperature (boiling, pasteurization, appertization), low temperature (freezing), dehydration, osmotic pressure, chemical preservations, radiation. Study of different causative agents of diseases: Bacteria, Fungi and Virus

Unit - III:

Immunity and Immunization: Immunity active, passive, immune response antibodies, primary, secondary immune response, hypersensitivity, allergies, Vaccines, sera, Immunoglobulin Trypanosoma gambiense, Giardia. Trichomonas, Balantidium coli, Echinococcus granulosus.

Unit- IV:

Medical Entomology: Introduction - Classification of insects-definition of metamorphosis, vectors, main and intermediate host. General characters of mosquitoes and different types. Public health importance, life cycle of Anopheles, Culex, Aedes,

Mansonia mosquito, important species and control measures. Legal measures of mosquito control, integrating vector control with primary health care promotion Morphology, life cycle and public health importance of -Sandflies, Cyclops, housefly flea, rat, bedbug, louse, ticks, mites, Tsetse fly-leishmania- trypanosoma gambiense, Giardia lamblia, Trichomonas hominis, balantidium coli, Trematoda, Cestoda, Nematoda.

Unit-V:

Parasitology: Parasitological blood parasites- Malarial parasites, Filaria,

Endamoebahistolytica, helminthes- Life cycle and morphology of hook worms and pin worms, tape worms Guinea worms, Dracanculusmedinensis, Wouchereriebancrafti and Brugiamalayi.

Different developmental stages in the life cycle skin parasite: itch mite morphology and life cycle. Trypanasomagambiense, Giardia. Trichomonas, Balantidium coli, Echinococcusgranulosis

Reference Books

1. Judith Collier/Murry/peter Scally, Oxford Handbook of Clinical Specialties, Sixth Edition, Oxford University Press, 2003
2. K.D. Chatterjee, Parasitology, Protozoology and Helminthology, 12th Edition 1997.
3. WHO/Geneva, Basic Malaria Microscopy - Part II Tutor's Guide, WHO, Geneva 1994.
4. MC Gupta / BK Mahajan, Textbook of Preventive and Social Medicine, Jaypee Brothers 3rd Edition, 2005.
5. Chandler and Reid, Introduction to parasitology.
6. Chatterjee, Introduction to parasitology.
7. Public Health and preventive Medicine - Bedi.
8. K. Park, Park's Textbook of Preventive and Social Medicine, Banarsidas Bhanot, 25th Edition, 2018.
9. Kanai L. Mukherjee, Medical Laboratory Technology, Tata McGraw-Hill PCL2 (3 Vol) 2007.
10. Text Book of Microbiology Ananth Narayan & Panikar
11. Field Public Health Entomology Field Training guide S. G. Jagadeesh, 2015.
12. Modern Entomology D.B. Tembhare, 2013, Himalaya Publishing House.
13. Text book of Entomology, Md. Sulaiman, Himalaya Publishing House, 1992.
14. Text book of Entomology and elementary Parasitology, G.K. Rathinaswamy.



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SEMESTER I

COURSE NAME : Epidemiology of Communicable Diseases, Non

Communicable diseases, Prevention and Control

COURSE CODE : DHSI103

Objective: To have an understanding of: Communicable diseases & its Classification 2.

General methods of prevention and control of Communicable disease; and Non communicable diseases.

Unit - I

Classification of Communicable Diseases: According to Causative agent, according to Methods of communication, Factors: Essential for development of infectious process. Host parasite environmental relationship in transmission of any communicable disease.

Unit-II:

General principles of control of communicable diseases: Increasing resistance of new host. Minimizing ill effects of cases that have not been prevented. Control of Communicable Diseases in Schools Schematic Study of communicable diseases. Essential factors to development communicable diseases: Identification, occurrence, infective agents, reservoir and source of infection and mode of transmission incubation period, period of communicability, susceptibility and resistance, immunity, preventivemeasures, control measures of various communicable diseases. Definition and meaning of the words communicable and non-communicable diseases Infectious disease, host parasites, environment general methods of control epidemiology, legal basis of communicable diesis control.

Unit- III:

Intestinal Infections: Cholera, Diarrhoeal Diseases, ORS preparation- Management

Typhoid, Dysenteries, Polio, Infectious Hepatitis, Roundworm, Hookworm, Guinea worm, Tapeworm, food Poisoning.

Respiratory Infections: Epidemiological factors that helped in eradication of small pox, Chickenpox, Measles, Mumps, Diphtheria, Whooping Cough, Tuberculosis, Viral Infections like Birds' flu, swine flu, influenza, Viral Infections like Birds' flu, swine flu, influenza

Arthropod infections :Malaria, Filariasis, Dengue, Chickungunia Kala Azar, Plague, Japanese

encephalitis, Scabies, pediculosis, Guinea worm disease, Zika, Yellow fever.

Zoonosis: Rabies Protective Measures,, Plague, Japanese encephalitis, Anthrax, Rickettsial diseases, KFD, Brucellosis diseases Nipha Swine flu.

Surface Infections: Scabies, Tetanus, Leprosy, Trachoma, Pediculosis. Control of Sexually Transmitted Diseases, HIV/AIDS & Hepatitis B.

Unit - IV:

Non communicable Diseases: Control of infectious diseases, Parasitology, viral infections, hospital infections, immunology of infection. Epidemiology and control of infectious diseases in developing countries for individual diseases like Aids, tuberculosis, Malaria, Communicable disease control. Environmental epidemiology. Disinfection and Disinfectants, Food microbiology, water and sanitation, diagnostic methods, Environmental sanitation, for water, air, solid waste disposal, liquid waste disposal, night soil disposal, burial or funeral grounds, soil sanitation, housing, sanitation measures in fairs festivals, and natural calamities- mass casualty disposal. Personal factors in Public Health, certain basic principles of supervision Supervisory responsibility.

Reference Books :

1. K. Park, Park's Textbook of Preventive and Social Medicine, Banarsidas Bhanot, 25th Edition, 2018.
2. S. Kamalam, Essentials in Community Health Nursing Practice, Jaypee 2005.
3. Joydeep Das Gupta, Hospital Administration and Management - A Comprehensive Guide Jaypee 2009.
4. P.K. Dave et.al. Emergency Medical Services & Disaster Management - a Holistic Approach Jaypee Brothers 2008.
5. Parthasarathy, Immunization Digest Jaypee 2005.

SEMESTER I

COURSE NAME : Environmental Sanitation And Hygiene

COURSE CODE : DHSI104

CREDIT 4

MARKS (30+70)=100

Objective: To have an understanding of man's physical environmental factors in relation to health and sanitation. Students to have an understanding of Factors that influence the behaviors of people Various tools available for educating the people about health.

Unit - I:

Environmental Sanitation: Rural Water Supply-Small-scale: Water & Health

Sources of water and their characteristics (Rain water - surface water, ground water) Diseases transmitted through water and channels of transmission of infection - protected water supply - Estimating the quantity of water required by a community wells as a source of water supply for rural areas - selection of site for a well - Classification of wells - renovation of citing of wells - Study of Various types of hand pumps - Infiltration galaxy - Pond water supply Disinfection of water supply - water quality collection of water samples.

Unit - II:

Urban Water Supply- Large scale: Components of Urban water supply system -

Difference between a pumped system and a gravity system - Different types of treatment (Aeration, Sedimentation Rapid & Slow sand filters, Disinfection, PH adjustment, etc.,) Fluoridation and de fluoridation - Domestic treatment of water - duties of a Sanitary Inspector in relation to water supplies - Desalination.

Unit- III:

WASTE MANAGEMENT: Exereta Disposal: Public Health aspects of Excreta disposal requirements of a Sanitary Latrine - Selection of site for latrines - Public & Latrines and their constructional features - Travel of pollution from latrine pits. - Organization of Latrine Programme in Rural and Urban area - Low cost sanitation programs, Disposal of Fecal sludge Different types of latrines and public health importance.

Unit- IV:

Refuse collection and Disposal: Definitions - Collection and Disposal of Rubbish various methods - (Dumping, Composting, Incineration, Sanitary land fill), Disposal of biomedical and Plastic wastes waste recycling - Planning for refuse collection & Disposal.

Disposal of Dead: Need for proper disposal, various methods, burning, burial, committal to sea or river, Silent Tower, electric cremation - Public health aspects - emergency disposal during..

Unit- V:

Waste water Disposal: Public Health Importance and methods of disposal of waste water - What are liquid wastes - situations that a sanitary inspector will come across in waste water disposal Different methods. Soak pits, Seepage pit - dispersion trench kitchen garden drawings etc.

Drains: Construction - Different types of drain - Methods disposal of drained water.

Unit- VI: Sewerage: Object of sewerage - Definition of terms types of sewers, Bod, Cod sewer appurtenances - sewer maintenance and precaution to be taken by cleaning crew sewage treatment primary, secondary etc., Oxidation pond, sewage farm - trickling filter - imhoff tank.

Plumbing: Various fixtures used in plumbing - scope of plumbing - water system waste system cross connections in plumbing - tools and materials used in plumbing.

Hygiene: Personal Hygiene: Skin care, cleanliness, clothing, care of the hair, prevention of pediculosis, Dental care and oral hygiene, care of nails, hand

washing and its importance, toilet hygiene, Mental hygiene, Menstrual hygiene.

Reference BOOKS

1. S.L.Tripathy & Sunakar Panda, Fundamentals of Environment Studies, Vrindha Publication, 2005.
- 2.R.K.Jain/ Sunil S.Rao, Industrial Safety, Health and Environment Management Systems, Khanna Publishers, Delhi 1st edition,2006.
- 3.AM Michael, SD.Khepar, S.K Sondhi, Water wells and Pumps, Tata McGraw- Hill PCL 2008.
- 4.Jayshree Suresh/BS Ragahavan, Professional Ethics, S.Chand& Company, 1st Edition, 2005.
- 5.N.Vasudevan, Essential of Environmental Science, Narosa Publishers House, 2006.
- 6.K.Park, Essentials of Community Health Nursing, Banarsidas, Bhanot, 5th edition



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SEMESTER I

COURSE NAME :Behavioral Science, Health promotion and Education

COURSE CODE : DHSI105

Unit - I:

Introduction to Behavioral Sciences and Health Promotion Factors affecting

Health behaviors, Inborn and acquired characteristics, Characteristics of Rural and Urban Community. Characteristics of Rural and Urban Continuum.

Unit - II:

Teaching and Learning -Communication process andpreparation of audio

visual aids Teaching - Learning- Learning situation-Principles of Adult learning-
Learning theory- Kurt Lewin-Kelman.

➤ Educational methods- Individual Contact/Family visit - Groupdiscussion –
Lecture discussion, Demonstration, Work- shop, Paneldiscussion- Role play- Case
study1 Campaign.

➤ Adoption- Diffusion - Stages - Roger's Model-Classification of adopters.

Motivation-Kurt Lewin-Force Field analysis- Rosen Stock Principles of Motivation.

➤ Communication-Characteristics - Principles -Overcoming barriers in
communication Types-Interpersonal and Mass communication.

➤ Rumour-process- Checking of rumours

➤ Behavioural Change Communication Model IEC- Information -
EducationCommunication-strategy- in health care delivery.

Counselling- steps- qualities of a counsellor Definition - Concept - Objective -
Principle, Role of health education in Health Promotion.

Unit - III:

Community: Definition - importance of studying of community for health

promotion. Dimensions of community population characteristics social stratification

Characteristics - of Rural and urban community Customs - Norms - Values systems



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– Attitudes culture Folkways - Mores and its role in Health behavior.

Social Institutions - Government - Family - Religion. Education - Economic system
Group Formal and informal group. Organization - Mathar Sangam - Youth Farmers
- Club.

Unit - IV:

Principles of Communication: Field black smiths, Barbers - Tradesmen, etc.

For one village to other - Newspaper - Radio - Gathering at Market, Melas,
Wedding, Festivals, Relatives. Power structure - Definition of leader - source of
leader - Type of leader – Functional types - working through community leader.

IEC- Media (Audio visual aids) -Definition-Media-Mass Media - Audio Aide; Visual
Aid Importance of aids - specific importance of mass media - classification of audio
visual aids, films, T.V. - film strips – flash card - flannel graph - poster - pamphlet
and leaflet.- Practical - preparation of simple aids - flash card or flannel graph and
handling of TV and video – slide project Community organization - definition -
nature - concepts and basic assumptions.- Principles and process of community
participation.- Importance of community organization and community participation -
Participatory Learning for Action (PLA)

Unit - V: Community Participation: Learning process Definition - Factors affect
learning

principles of learning - Adult learning Adoption process - stages of adoption
process - types

of adopters Motivation definition principles of motivation process. Communication -
definition process, elements and principles of communication - Interpersonal and
Mass communication serial communication - Rumour.

Unit - VI: Programme Planning: Objective Programme Planning - Definition - Steps
in

Programme Planning Survey to collect information essential for planning - method
of collecting

information source of information in the community - rapid survey and how to
conduct it.

Participatory Learning for Action. Establishment of objectives.

Health Education: Definition, -Concept -Objective -Principle .Role of health education in Health promotion. Assessing barriers to Health education: ,Identifying Resources organization personnel - material and equipment for the educational phase of the Programme -funds. Felt needs and setting priorities. Selection of community for work - Need for the Selection of Community for work - Criteria for selection of responsive communities Planning the programme concerned Government Agencies and people. - The plan of action should be developed. Need for planning people's representative. -Suggested role responsibilities. Planning and carrying out programmes at community level - general - administrative educational activities in community level involving people in organizing.

Unit VII:

School Health Promotion: General importance of School health education,

Elements of school health Programme. School health education in relation to community, Suggested steps in organizing a school health education. School health education in relation to community, Suggested steps in organizing a school health education. How to involve the school in a community health education Programme, Suggested routine health education activities in school. Health education opportunities in the primary health center. Health education in fairs and festivals and celebration of National Days.

Evaluation: Definition of evaluation-purpose of evaluation-objectives of evaluation - types of evaluation - steps in evaluation. Sustenance of Programme at village level. Report - purpose of report. Characteristics of a good report. How to prepare and write a report. Types of report. The organization and form of a report and budget preparation.

Concurrent field visit

- To conduct community health survey and analysis To identify the leaders in a community
- To conduct Group discussion and Demonstration in a community.
- To apply PLA techniques in a community
- Visit to community/ICDS center, / school to conduct health education



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References

1. Keval J. Kumar, Mass Communication in India, Jaico Publishing House, 32nd Edition, 2008.
2. A Text book on health education by Dr. Dharmalingam and Dr. L. Ramachandran. GIRH & FWT Gandhigram.
3. K. Park, Essentials of Community Health Nursing, Banarsidas, Bhanot, 5th Edition 2008
4. K. Park Park's Textbook of Preventive and Social Medicine Banarsidas Bhanot 25th Edition 2018.
5. Public Health Engineering by GS Bajwa.
6. Waste Water Engineering, Treatment and Reuse by Metcalf and Eddy, 5th Edition, Tata McGraw Hill.

SEMESTER I

COURSE NAME : Practical – I

COURSE CODE DHSI106

CREDIT : 2

Practical Anatomy and Physiology

The student will be able

- > To locate anatomical position of the body and important organs.
 - > To identify bones and joints in the human body. To identify the blood cells (TC, DC) to measures the HB level.
- To identify the blood samples investigation and transportation
- To measures visual acuity using snellen's chart.
 - To detect sugar albumin in the urine.

First Semester –

COURSE NAME : Practical – II

COURSE CODE :DHSI107

CREDIT : 2

Practical Microbiology, Medical Entomology Parasitology and Communicable Disease Control

1. Practical Parasitology:

- Preparation of thick and thin blood smear
 - Demonstration of Helminthes worms
 - Demonstration of motion test to see the ova or egg of intestinal worms
 - Demonstration protozoan parasites.

2. Practical Entomology

Collection of mosquitoes, different stages egg, larva, pupa and adult.

Identification of them under microscope

Different insecticides used in control

Different sprayers and demonstration of spraying techniques

Collection of cyclopes and identification under microscope

Collection of various stages of fly- identification of them under microscope.

Identification of different species of flea, survey and demonstration

Identification and de lousing operations

Identification of ticks and mites under microscope.

3. Practical Microbiology

Microscope - Demonstration of various parts of Simple and Compound



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Microscopes

Sterilization - Operation of autoclave, hot air oven, membrane filtration (demonstration only), room fumigation using formalin, surface sterilization by phenol.

Culture media preparation -Nutrient broth, nutrient agar slant, potato dextrose agar.

Aseptic techniques -Culture transfer from solid to solid, solid to liquid and liquid to liquid: Checking of possible contamination.

Culture techniques- Streak plate, pour plate and spread plate (stab culture only

demonstration) Isolation of pure culture by streak plate method. Viable count of bacteria by serial dilution and pour plating. Bacteriological examinations of drinking water (presumptive, confirmatory and completed tests). Turbid metric measurement of bacterial growth (colorimetric measurement of O) versus time).

Staining techniques -Gram staining, spore staining and Acid Fast staining Sputum staining, identification of gram positive, gram negative and acid -fast bacilli under the microscope, Identification of various disease causing organisms with their description Communicable Disease Control: Diarrheal diseases and ORS preparation and management, Practical related to the following illness : Tuberculosis, Malaria, Leprosy infection, Plague Cold chain maintenance, inoculation / immunization practice, Visit to infectious disease hospitals radical treatment -Malarial drugs, Demonstrate methods of tuberculin testing, reading reaction and BCG inoculation of negative reactor -Visit to TB Hospitals. Visit Infectious disease hospitals, radical treatment -malarial drugs. Visit to leprosy hospital to study the case identification program. Epidemiological study of epidemics

SEMESTER II

COURSE NAME - Food and Nutrition Program and Reproductive Child

Health and Family Planning

COURSE CODE :DHSI201

CREDIT : 4

Unit - I:

Introduction to Public Health Nutrition: Concept of Nutrition and Health - adequate Nutrition, Malnutrition. Basic elements of foods- Proximate principals and protective foods. Food groups and their Nutrient contribution. Nutrients required for a balanced diet, recommended daily food requirements for a balanced Indians diet. Factors influencing Nutrition Balanced Diet for different age and sex groups including vulnerable groups planning a low-cost balanced diet, dietary requirement for certain diseases and for convalescents, geriatric nutrition. Problems of malnutrition common in India and their prevention. Interaction of nutrition and Infection, Nutrition and Family Planning. Food Borne Diseases and food hygiene. Food Adulteration, Introduction to food safety and standards. Consumer production Acts. FSSAI, AGMARK, ISI. Assessment of the nutrition status of the community nutrition and diet surveys (Theory).

Unit - II:

FAMILY WELFARE & POPULATION EDUCATION: Introduction What is Family planning? Population growth of India and the world Need for Family Planning Individual reasons family reasons community reasons. Social and Economic implications of population growth in India. Anatomy of the Reproductive System. Physiology of the Reproductive System. Barriers to Family Planning Cultural and social barriers Administrative Harriers. Eligible Couples in family 'planning methods of Family Planning. Extended Family Planning Programme Operational Organizational set up Duties of personal.

Unit- III:

REPRODUCTIVE CHILD HEALTH/ NRHM: Reasons for special attention in the vulnerable groups. Maternal Mortality, Predisposing causes. Infant Mortality: Pathological causes Predisposing causes Natal Service and Its Objectives Post- natal service and its objectives infant and pre-school Programme Pre- School Health Programme Organization of maternal and child health services.

Unit - IV:

SCHOOL HEALTH SERVICE: Function of School Health Service Measures for Promoting positive health which should include. Reasons for the special consideration of the group. School Medical Inspection Control Of communicable Diseases Immunization School Sanitation School Meal Programmes Health Education in School Need of health education in schools Health education at home. Health education at Community Level.

Reference Books:

- 1.A.M.Chalkley, A Textbook for the health worker, New Age International Publishers, 2008
2. Dr.M.Swaminathan, Hand Book of Food and Nutrition, The Bangalore Press,2006
3. A.S Narasimhan S.Mohammed Shabeer Manual of Tamilnadu Acts and Rules(Civil,Criminal, Labour and Revenue) Deccan Publications 2007.
4. S.P.SenGupta,Indian Trusts Act Kamal Law House 4th Edition, 2009.
- 5 Dr. NirajKumar Bharat's Treatise on Right to Information Act Bharath law House,2nd Edition,2005 2009.
- 6.Dr.Awasthi, The Constitution of India Dwivedi Law Agency,4th Edition, 2008.
- 7.K.S Mahalingam, The tamil Nadu Panchayats Act, C. Pvt.Ltd, 1994, 2007.Siteraman&Co
8. K.J.AiyarJudicial Dictionary, Bufferworth India,13th Edition,2001



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9. P/K Majumdar, law Of Consumer protection in India, Orient Publishing company, 5th Edition, 2009

10. Dr.S.B.N. Prakash, Mental Health & Law, Lawyaer's Law Book.

11. B.Vijayakumar, The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act 1995, C. Sitaraman & Co. Pvt. Ltd., Edition 2006.

12. Prevention of food Adulteration Act 1954 with prevention of food Adulteration Rules, 1955 Law Publishers(India) Pvt. Ltd. Edition 2008, 2nd Edition.

SEMESTER II

COURSE NAME : Public Health Administration, National Health Programs and Vital Statistics

COURSE CODE : DHSI102

CREDIT : 4

Objective:

Students to have an understanding of 1. Public Health Administrative set up in national-state-district PHC, 2) Laws to be educated at various levels, 3) Importance of birth and death registration, 4) Nutrition and health, and 5) Mother and child health.

Unit - I:

Introduction of Public Health: Administration - Definition of Public Health – scope of Public Health Activities - Definition of Administration and Public Health -

Administration - Difference between Therapeutic Medicine, Preventive Medicine and Public Health. Historical Development of Public Health in India: Public Health in ancient India; Public Health in British days; Public Health in India after Independence; Public Health Development of Tamil Nadu State Health Problems in India compared with other developed countries: What is health problems? Magnitude of health problems in India. Health problems in India compared with other foreign countries.

Unit- II: Health services: Board Committee report and major recommendation. The

in public committee reports, conducting of village health services. Organizational consideration health Component functions involved in public health Definition of organizational and Organizational purpose of structure; organization; General principles of organization; Levels of organization; Supervision Decentralization; Coordination Personal factors in Public Health and Supervisory Personal factors in Public Health, certain basic principles of supervision. responsibility.

Unit - III:

Programme planning Planning and Evaluation: Principles of Programme Planning; Steps control level Union ministries Evolution, Method of evaluation Present organisation public health health, Organization and responsibilities, Setup and organization of the union ministry of the District Health Office functions Duties of the state ministry of health Organisation and functions of organization. Health of the District Health Officer, Setup of, the District Health municipalities facilities in urban area, Definition of urban area-corporation, organizational setup and town



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for public panchayats ;organizational setup for public health in corporations, personal. Organizational health in municipalities and duties of the various public health health personal; setup for public health in town panchayats and duties of the various Duties of a Sanitary Inspector in urban area.

Unit IV:

Principles behind Primary Health Centers: Background and justification and development; the establishment of Primary Health Centre; Setup and function; Duties of different personnel with special reference to that of a sanitary inspector; Budget for a primary health centre Team work Development; Record within the staff of the PHC and also with that of the Community keeping and reporting at the PHC level. Re organized patterns of PHC- Integration of malaria maintains and family planning with general health services-functions of the various personal in the reorganized pattern.

Unit -V: International Health organizations and National Health

Programs: World Health Organization(WHO), functions of WHO, approach in control of disease, WHO assisted projects in India, UNICEF,FAO,ILO. Objectives and organization- Categories of aid- UNICEF assisted projects in India-Colombo plan-TCM are US Aid –Ford of Foundation. Rockefeller Foundation -Public The health- law . Public Health laws - Definition of law - characteristics law-Act- Central Act- State Act- Rule- Bye Law- Standing Order- Need covered for public by health law Statutory Law laws for normal conditions and epidemics public health practices normal conditions -Law applicable to epidemics- Medical relief and public health measures-Sanitation- General establishment

Unit VI: Priority for public in dealing with the health problems: What is priority? - Need for priority health programme-Priority plan Priority for programmes in for health programme in the five year environmental sanitation. Voluntary agencies - their functions and activities. The Five year Plans: What is a plan?-Health schemes provided in the five year plan- Expenditure in health in the five year plan-Achievements of the previous plan period- Budgeting.

Unit - VII: VITAL STATISTICS AND BASIC COMPUTER TRAINING: Introduction - To Enable the student to have an understanding on the terms like statistics and Bio-Statistics and their applicably and relation to public health. Vital Statistics to enable the students to have an understanding. Registration Importance of V.S Registration.

Defects in this System. Introduction - To Enable the student to have an



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understanding on the terms like statistics and Bio-Statistics and their applicably and relation to public health. Vital Statistics to enable the students to have an understanding. Registration Importance of V.S Registration. Defects in this System. Specific Methods of improving the system etc. Averages: Mean, Median, Mode Indices in Health: What is Health? Indices for measurement of health mortality and morbidity Census and Population: Understanding of census - Problem in V.S rates- Like CBR, CDR, IMR, MMR, NMR, FR, Vital index etc

Acts: Various acts-PH Act 1939, Factories act 1948 PF Act 1956 and So On.

References

1 Lloyd F. Novick, Cynthia B. Morrow "Principles for Population based management Jones and Bartlett Publication 2008.

2. Seal, S.C "Health Administration in India, Dawn Books, Calcutta 1975.

3 Geal, S.L "Public Health Administration "New Delhi, Sterling Publication Privates, 1984.

4 K. Park, Park's Textbook of Preventive and Social Medicine, Banarsidas Bhanot, 25th edition, 2018.

SEMESTER II

COURSE NAME : Special Sanitation problems and Public Health Act

COURSE CODE DHSI203

SPECIAL SANITATION PROBLEMS

Objective: Students to have an understanding of the occasions and places where special sanitary arrangements needed.

Unit – I : 1. (a) Housing (b) Village and Town Planning: Housing : Relationship of housing survey of houses – smokeless Chula etc. types of houses - basic principles of villages and town -existing and new master.

Unit - II: 2. Food and Milk Sanitation: diseases transmitted through food- classification of food borne diseases - infection and poisonings. Essentials of food establishments – production of food from insects, rodents etc. - dangerous chemicals involved - utensils used washing and sanitizing vessels - food handlers classes - sample collection etc. - introduction of food establishing - slaughter house - markets (Vegetables, mutton, and fish) Bakery, aerated water etc., - milk borne diseases - pasteurization, dairy inspection of cattle shed etc.

Unit - III: 3. School Sanitation: As a part of an overall school health programme - importance selection - location - standards of lighting - arrangement of class room – Furniture - water supplies - drainage - refuse collection and disposal - factories etc.

Unit-IV: 4. Industrial sanitation and Occupational Health: Industrial hygiene in relation to health - Engineer safety - occupational hazards plant sanitation - building toilet facilities water supply - ventilation separation of process - refuse collection and disposal factories etc.

5. Camps - Fairs and Festivals: Classification of fairs and festivals - objectives of public health arrangements preventive measures 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, enroll arrangements N.C.C camp, Scout camp. Refuge, evaue camps.

6. Institutional Sanitation: Sanitation of a training Centre-evaluation - hospital sanitation etc.

Unit - V: 7. Places of public resorts: Cinema house, barber shops, Dhobikhana, laundry, swimming pool etc.

Unit - VI: Public health Acts: Public Health Act, Mosquito Control Regulations, Public Health (Slaughter of Animals) Regulations, Private Hospitals And Nursing Homes(Registration Control) Regulations, Public Hospital Regulations, Schedule of Fees, Community Health Nerveces Regulations, Public Health (Collection And Disposal of Refuse) Regulations, Building And Sanitary Regulations, Infectious Diseases (Equine Encephalomyelitis) Regulations. Infectious Diseases (Prevention) Regulations. Chlorination of water source (at various levels) and testing of the residual chlorine every half-an-hour and plot; good and bad aspect of chlorination. Hydrogen Ion Concentration. H-ion concentration, Determination of pH, Litmus paper, pH paper disc, with practical demonstration, Indicator Solution Calorimetric method etc, Analysis without indicator.

References

- 1.A.S. Narasimhan / S. Mohammad Shabeer Manual of Tamil Nadu Act and Rules(Civil, Criminal, Labour and Revenue) Deccan Publication 2007.
- 2.S.P. Sen Gupta, Indian Trusts Acts Kamal Law House, 4th Edition, 2009.
- 3 Dr. Niraj Kumar Bharat's Treastise on Right to information Act Bharath Law House, 2nd Edition, 2005, 2009.
- 4.Dr. Aswathi, The constitution of India Dwivedi Law Agency, 4th Edition, 2008.
- 5.K.S. Mahalingam, The Tamil Nadu Panchyats Act, C. Sitaraman & Co. Pvt. Ltd, 1994, 2007.
6. K.J. Aiyar Judicial Dictionary, Butterworth India, 13th Edition, 2001.
7. P.K. Majumdar, Law of Consumer Protection in India, Orient Publishing Company, 5th Edition, 2009.
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10. Rights and Full Participation) Act 1995, C. Sitaraman & Co. Pvt. Ltd, Edition 2006

11 Prevention of Food Adulteration Act 1954 with Prevention of Food Adulteration Rules,

12. Publishers (India) Pvt. Ltd. edition 2008, 2nd Edition.

13. Mamta Rao, Laws relating to Woman & Children, Eastern Book Company, 2008.

14. Ravi Subramaniam, Tamil Nadu District Municipalities Act, 1920, Company Law Institute of India Pvt. Ltd., Edition 2008.

15. R.K. Jain/ Sunil S. Rao, Industrial Safety, Health and Environment Management Systems,

16. Khanna Publishers, Delhi, 1st Edition, 2006.

17. Benny Joseph, Environmental Studies, The McGraw Hill Companies, 2nd Edition, 2009.

18. First Aid St. John's Ambulance Manual of First Aid by Gupta, L.C & Gupta, A., Jaypee Publishers First Aid and Emergency Nursing by Yalayyaswamy, N.N. CBS Publishers.



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SEMESTER II

COURSE NAME : Environmental Science, First Aid and Disaster Management

COURSE CODE : DHSI 204

CREDIT : 4

Unit - I: Environmental Biology: Brief history of General Microbiology, Morphology of Bacteria. Filamentous Bacteria, reproduction of bacterial Nutrition of Bacteria, chemical composition of Bacteria, Respiration of Bacteria, Effects of Environments on growth of Microorganisms, Main ways of infection Spreading, Indicating Role of Escherichia coli, Biological Factors of Water self-purification. Technical means of controlling Microbial population in water, Microbiology of drinking water and sewage. Phytoplankton, Zoo plankton, Infective forms of organisms present in water, N₂ transformation by bacteria, Iron manganese bacteria. Life of Microorganisms in water supply systems and sewerage treatment plants. Sewage/Fertilizers/Algal/Oxidation goods. Aerobic treatment of Sewage, Anaerobic Treatment of Sewage, Sludge Treatment Equipment. Discharge of Sewage into sea, Sewage Fertilizers. Their effect on Ecology system, designs, functions of stabilizing ponds/Oxidation goods. Definitions and application of the concepts in Public Health Osmosis, Diffusion, Flocculation, Coagulation, Colloidal solution, Capillary permeability, dehydration, Electrolysis, Surface Tension Specific gravity, Relative density

Unit - II:

Environmental Chemistry: Concept and scope of Environmental chemistry, Environmental segments. The oxygen cycle, the Nitrogen cycle, the phosphate cycle, the Sulphur cycle. Atmosphere: Oxygen and ozone chemistry, Sulphur dioxide, Nitrogenoxide, Organic compounds, Greenhouse effect /Global Warming, Ozone hole, Carbon monoxide, Nitrogen oxides, Sulphur dioxide, Acid rain, Radioactivity, Instrumental techniques for air pollutants, Hydrogen Sulphide, Aerosol, Asbestos dust. Water Pollution-Organic pollutants, Inorganic pollutants, pesticides, Monitoring techniques and methodology, pH, Dissolved oxygen, Total hardness, Chemical oxygen demand, Biochemical oxygen demand, tannin and lignin, Escherichia coliform and total bacteria. Water and aqueous solution: Water, the theory of solutions, General properties of Solutions, Fractional Distillation Acidity and Alkalinity of Solutions, Buffer Electrolytic Dissociation of water, Hydrolysis of salts, Hydrolysis of Chlorine.

Characteristics of Natural Water, Water pollutants, chemical analysis of natural water, requirements for water quality, summary of procedures for analysis of water quality parameters. Processes in water purification for small communities. Removal of coarse suspended particles, coagulation, disinfection of water, determining the stability and aggressiveness of water, corrosion of metals, action of sea water on concrete, removal of gas from water, removal of smack and odor from water. (De-odorization), Softening and Desilting of water, Acidifying, Removal of Iron, Manganese, Silica and Fluorine from water, Purification of water from radioactive substances, Magnetic treatment of water, De-fluoridisation Techniques and Iron removal-Minerals water etc. Water pollution: Algal blooms, Eutrophication, detergents, chemical pollutant, industrial disposal, environmental pollution industrial pollution, pesticides, oil spills.

Unit - III : Food Chemistry: Introduction: What is food chemistry? History of food chemistry. Quality and safety attributes, Chemical and Biological reactions. Pigments digenous to Foods: -a. Chlorophylls, b. Myoglobin and Hamnylabin, c. Anthocyanins, d. Flayonoids, e. Proanthocyanidins, f. Tannins, g. Betalins, h. Quinones and Xanthenes. i. Carotepoids, J. Miscellaneous Natural Pigments. Colorants added to foods: a. Regulatory aspects, b. Certified colorants, c. Colorants Exempt from certification. Pigments and other colorants: - Food additives: - Chelating agents: Antimicrobial Antibodies, Non-nutritive and Low-calorie sweeteners: Saccharin. Stabilizers and Thickeners, Firming Texturizers Preservation of food adulteration act: - Undesirable or potentially undesirable constituents of foods. Food safety, plant food stuffs, Animal Foodstuffs, Intentional Food Additives, Produces of Microbial Growth: Mycotoxins, Bacterial Toxins, Chemicals from processing, Accident contaminants. Principles of Preservation: - Principles of food processing, canning and bottling fruits and vegetables, washing balancing, can filling, processing, heat penetration in cans, Effect of Altitude on processing pressure and temperature, Cooling. Discoloration of Fruit Products, Metallic Contamination. Coloring Matter in Fruits and Vegetables, Discoloration in canned food products. Corrosion and perforation of tin plate. Spoilage by Microorganisms. Spoilage by fungi. Storage life of canned products. Hydrogen swells and perforations. Certified Colours. Banned Colours.

Unit- IV: First Aid, civil defense and Disaster management: Objectives: To enable students understand the outline of first aid civil defense and Disaster Management.

First Aid -Definition-Scope and management of Disease, Golden Roles of first

aids. Wound and bleeding, Shocks and unconsciousness, Asphyxia, Injuries to bones, muscles joints and dislocation, burns and scalds, poisons, transport of injuries persons structure bearing, Basic medicine and treatment, Civil defense - Principles of first aid in war and warfare problems.

Unit - V: Disaster management: During flood, fire, earth quack, cyclone, tsunami, drought, explosion, train accident, road accident, aircraft and ship accident biological and chemical warfare and Personal hygiene.

References

1. A.S. Narasimhan / S. Mohammad Shabeer Manual of Tamil Nadu Act and Rules (Civil, Criminal, Labour and Revenue) Deccan Publication 2007.
2. S.P. Sen Gupta, Indian Trusts Acts Kamal Law House, 4th Edition, 2009.
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6. K.J. Aiyar Judicial Dictionary, Butterworth India, 13th Edition, 2001.
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14. Benny Joseph, Environmental Studies, The McGraw Hill Companies, 2nd Edition, 2009 First Aid St. John's Ambulance.
15. Manual of First Aid by Gupta, L.C & Gupta, A., Jaypee Publishers.
16. First Aid and Emergency Nursing by Yalayyaswamy, N.N. CBS Publishers.

SEMESTER II

COURSE NAME : PRACTICAL -ENVIRONMENTAL SANITATION SCIENCE

COURSE CODE DHSI205

CREDIT 2

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. Study of various types of handpumps. Disinfection and domestic treatment of water supply, Sanitary Survey
2. Types of latrines and their construction - Pit Latrine, Lid cover Latrine, Direct pit water seal latrine t, Single offset pit water seal latrine, double pit water seal latrine, and Ecosan and VIP latrine. Leach Pit and Septic Tank
3. Solid Waste Management: Composting methods - Household level Manure pit, Windrow Method, Vermi-compost at community level and Biomedical waste management, sanitary land fill.
4. Waste Water Disposal- Leach Pit, Soakage pit, Dispersion Trench, Kitchen garden and drain
5. Sewage Disposal - Sewage Treatment Plant, aeration, sedimentation, Oxidation bond, Land Treatment.

SEMESTER II

COURSE NAME : PRACTICAL FIELD TRAINING AND

INDUSTRIAL VISIT: CONCURRENT FIELD TRAINING AND FIELD

OBSERVATION VISITS

COURSE CODE : DHSI206

1.Collection of general information and introduction on with local leader's

2.Village mapping

3.Household survey

4.Study of vital statistics registration

5. Well survey, water sample collection and chlorination

6. Identification of village leaders

7. Analyzing of data and preparation of presentation

8. Detailed house survey

9. School sanitary survey

10. Inspection of dangerous and offensive trade

11. Hotel-Lodging House-Cinema Theatre-Market-Barber Shop-Bakery-Aerated WaterFactory-Rice Mill-Dhobi Khana-Cattle Shed- Collection Food Sampling-Diet Survey Foods With Natural Colour Artificial Colorants

12. Equipment's and their functions

13. Chlorination of water source and testing of the residual chlorine

14. Determination of pH by several methods

15. Air pollution- instrumental techniques for air pollutants



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16. Estimation of Chemical Oxygen Demand and Biological Oxygen Demand.
17. Chemical analysis of Water Coliform test
18. Processes in water purification-Disinfection of water
19. Estimation of Fluorine, Removal of Fluorine
20. Estimation of Hardness, Total Dissolved Solids, Turbidity
21. Temperature effect of Microorganisms. Autoclaving use of hot air oven, flaming,boiling. Air velocity, air temperature
22. To study food sampling procedure
23. Auditory Meter for Noise Pollution

OBSERVATION VISITS DURING THE COURSE

1. Meteorological observatory
2. To study the urban Malaria scheme
3. Infectious Disease Hospital
4. Leprosy hospital
5. District Tuberculosis Centre
6. Immunization programme
7. Infiltration gallery
8. Slow sand filtration plantl
9. Rapid sand filtration plant
10. Compost yard
11. Burning & Burial ground
12. Rat proof godown
13. Sewage farm / oxidation pond



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14. To study the ventilation system - cotton mill
15. Milk pasteurization plant, Slaughter house
16. To inspect the Industry - Safety measures and canteen
17. Fairs & Festival arrangements
18. Hospital sanitation, Bio Medical Waste Management
19. Primary Health Centre & Health sub Centre, DDHS office
20. Nutrition programme-TINP, ICDS, Noon meal centre
21. Panchayat Raj Institutions Three Tier
22. To study sewerage from (observation visit)
23. Visiting Health Care Products manufacturing small scale and large scale industries



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SEMESTER II

COURSE NAME : Supervisory Field Training - Project and Viva Voce

COURSE CODE DHSI207

Supervisory Field Training(SFT) field placement for two months in Municipal Corporation /Municipality/ Town Panchayats, Primary Health Centre & Health sub Centre, and Government and Private Hospitals Project and viva voce.