Government of Karnataka

PARA MEDICAL BOARD

Revised Syllabus
of
II & III Year Diploma in Health Inspector

(Previously first/second year certificate course/ I year DHI /II DHI)

2017

Second Year Diploma in Health Inspector

(DHI II)

Teaching hours II DHI

Teaching program – IInd year DHI : Max 400 hrs

- Theory – 04 hours per week
- Practicals – 06 hours per week
- Field visit –08 hours per week
- Tutorials & seminars- 02hours per week

Topic	**Theory (in hrs)**	**Practical (in hrs)**	Field visit **(in hrs)**
Elementary concepts of applied Anatomy and Physiology.	07		
Concept of health & disease	08		
Sociology, Types of family	10		
Behavioural Sciences	05		
Environment & health	15		
Microbiology	05		
Medical Entomology	10		
Principals of Epidemiology and Epidemiological methods	10		
Screening for diseases	05		
Nutrition & health	09		
Health Information and Basic Medical Statistics	04		
Vital statistics	02		
Tutorials/Seminar	80		
Total	**90**	**130**	**180**

Grand total – 400 hours

PAPER-I

SECTION A Q P Code : 5111

Teaching hours II DHI Max 15 hrs.

1	Elementary concepts of applied Anatomy and Physiology. *(Total Teaching – 07Hrs)*	
2	Concept of health & disease	Concept, definition, Dimension, Positive health, Determinants of health, Indicators of health. Concept of disease, Epidemiological triad, Quality of life Index, Natural H/O disease, Risk factors, Dynamics of disease transmission ,Concept of Prevention and Control, Concept of Modes of Intervention. (*Total Teaching – 08 Hrs)*

1)Elementary concepts of Anatomy

1. General anatomy
    a. Basic tissues of body terminology and nomenclature .
2. Systemic anatomy
    a. Locomotor system
    b. Digestive system – brief description about different parts of the system with brief functional and applied aspects.
    c. Cardiovascular system
    d. Respiratory system
    e. Excretory system
    f. Endocrine system
    g. Nervous system
    h. Reproductive system
    i. Special sense organs
3. Osteology – human skeleton -Basic.
4. Histology
    a. Study of microscopes
    b. Basic techniques in histology
    c. Study of microscopic anatomy and correlations of the structure of the following
5. Basic tissues

6. Organs – oesophagus, stomach, small intestine, colon, appendix, liver, pancreas, kidney, testis, ovary, uterus and skin.
7. Glands – salivary, endocrine

ELEMETS OF APPLIED ANATOMY AND PHYSIOLOGY

Understanding of the structure and functions of human body as a foundation to the principles underlying nutrition and disease process.

Practicals:

- models, charts and slides related to the structure and functions of the human body.
- How to take blood pressure, pulse rate and respiration rate
- Films showing the formation of human body.

- **Practicals (anatomy):**
- Gross anatomy of limbs, gastro-intestinal tract, cardiovascular system, respiratory system, reproductive system, urinary system, endocrine system, nervous system, special senses.
- **Histology:**
- Study of microscope, objective, basic techniques

2)Concept of health & disease

1. Concept, definition,
2. Dimension,
3. Positive health,
4. Determinants of health,
5. Indicators of health.
6. Concept of disease,
7. Epidemiological triad,
8. Quality of life Index
9. Natural H/O disease,
10. Risk factors,
11. Concept of Prevention and Control,
12. Concept of Modes of Intervention.

PAPER-I

SECTION B Q P Code : 5112

1	Sociology, Types of family	Social security, social concept in sociology, social organization, Problem family in health & disease, Cultural factors in health & disease, Medico- Social Worker (MSW)	10 hrs
2	Behavioural Sciences	Importance in health, disease, Personal hygiene	05 hrs

1) Elements of social sciences, rural community & characteristics

Contents:

- Family structures, relationships and responsibilities of individual
- Community structure, functioning of the community, its privileges and responsibilities
- Types of social institutions, religion, state, family, marriage, inheritance, social rites on marriage and death, regulated human behavior in society,
- Duties of responsible citizens, citizenship, development of desirable social attitudes, ideals and abilities, community organization for self-help, co-operative society.
- Comparative idea of the Indian and rural society, characterizations of the people and habitats, urban society in India, economic, educational and social difference between urban and rural society, caste, religion and nationality.
- Improvements in the standards of health and life expectancy, social customs and forums, resistance to adoption of new practices and things. Problems of social order, economic aspects of family life, income & budget.
- Rural community and characteristics

2) Behavioral Sciences

Importance in health, disease

Personal hygiene

Contents: Habits and customs affecting personal hygiene.

- Cleanliness of body, habits, diet, clothing, exercises, sleep, public baths, care of special senses.

PAPER-II

SECTION A **Q P Code : 5113**

1	Environment & health	Water- Pollution & treatment, Ventilation, Air pollution , Lighting, Noise pollution, Housing standards, Solid waste disposal. Climatology, Effects of Radiation	15 hrs

Environment and health

Objective: To acquire sufficient knowledge to understand the –

- Impact of environment on health
- Impact of sanitation on health and to take preventive/promotive measures

Contents:

Water Supply sources: Physical/chemical quality, bacterial indicators, conservation of sources, collection, storage and distribution.

Urban areas:-

Steps in purification of water, storage, filtration, chlorination, purification of water on large scale with particular reference to rapid sand filter.

Rural Areas:-

Sanitary well – concept, purification of water in small scale – borewell.

Ventilation,

Air pollution , Noise pollution

Lighting, , Housing standards,

Solid waste disposal.

Climatolgy:

- General affects of climate on health
- Prevention of effects of cold climate

- Prevention of effects of hot climate
- Demonstration
- Visit to materiological department

Practicals:

- Demonstration of purification of water on small scale
- Visit to water treatment plant and a brief report
- Collection of water samples
- Demonstration of chlorination of well water
- Demonstration to physical, chemical, bacterial quality of water.
- Estimating chlorine demand, steps in disinfection, estimating residual chlorine
- Interpreting a water analysis report.

Waste disposal & Excreta disposal

- Characterization
    - Solid/Liquid
    - General household/special circumference - including aspects of management with emphasis on points of generation, storage, collection, transportation and different options available for management (in terms of reducing, recycling, composing, landfill, soakage pit, sanitary latrine, septic tank, biogassification)
- Hazards due to improper/ inappropriate management
- Protective devices and universal precautions
- Sewage treatment methods

Practicals:

- Undertake waste survey in market area, hotel, health care settings (preferably a 30 bed institution)
- Demonstration of composting, sanitary landfill
- Demonstration of trench latrine, sanitary latrine, septic tank, bio-gas plant.
- Visit to a sewage treatment plant.

Residential environment

General principles of healthy housing in terms of:

- Walls, roof, floor, rooms, ventilators, lighting
- Facilities/methods for waste disposal both solid/liquid.

Practicals:

- Visit/observe at least 4 residences (2 urban and 2 rural), report and suggest practical solution.
- Interact with Corporation or municipal authorities regarding legislative provisions

Air and ventilation

- Concepts, importance of adequate ventilation
- Ill effects of inadequate ventilation
- Type of ventilation
- Indicators of air pollution
- Measures to reduce air pollution

Public gatherings

- Selection of place
- Provision of safe water supply, sanitary disposal of waste, construction of trench latrine
- Provision for emergency medical help

Practicals:

Visit/observe a weekly fair report with practical suggestions

PAPER-II

SECTION B **Q P Code : 5114**

1	Microbiology	Helminthiasis and Parasitalogy	05 hrs
2	Medical Entomology		10 hrs

1)Elements of Medical Microbiology & Parasitology

Objectives: To be able to understand by acquiring sufficient knowledge regarding microbiological aspects of infectious disease, lab and field methods of its diagnosis and principle of control of these infectious agents with particular reference to public health microbiology and parasitology.

Contents:

Introduction to microbiology
Characterization including classification, morphology, staining/cultural characteristics, viability virulence, pathogenicity, sensitivity resistance, lab-methods of diagnosis and field investigations.

Parasitology:

- Parasites of public health importance (locally relevant)
- Including life history, lab diagnosis, field investigations and control measures

Practicals:

- Use of microscope
- Demonstration of infectious agents and parasites as relevant locally
- Methods of field investigations
- Specimen collection – stool, urine, blood, sputum, etc
- Stool examinations – for ova/cysts,
- Blood smear collection, staining and examination
- Staining moths – Grams, , ZN,

2)Elements of Entomology

Objectives: To identify the insects of public health importance and its control.

Contents:

- Morphology: Life history, bionomics, public health importance and control of the following vectors:
    - House fly
    - Louse
    - Ticks / Mites
    - Sandfly
    - Mosquitoes

- Practicals:
    - Demonstration to different stages in life history of above mentioned vectors
    - Demonstration of breeding places of the above mentioned vectors
    - Demonstration of control measures for the different stages of above mentioned vectors
    - Collection of larva and adult mosquito

Methods: Life history, group discussions, group work, demonstrations

PAPER-III

SECTION- A **Q P Code : 5115**

1	Principals of Epidemiology an Epidemiological methods	Definition of Epidemiology, Measurements in Epidemiology Incidence/ Prevalence, Immunizing agents, UIP/NIP, Disinfection,.	10 hrs
2	Screening for diseases	Screening/ Diagnostic Tests, Types, Uses, Criteria, Sensitivity Specificity	05Hrs

General Epidemiology & Screening

General concepts of control:

- Selected definitions (eg. Endemicity, epidemic, epizootic, incubation period etc.)
- Concepts in disease causation, levels of prevention, modes of intervention, spectrum of illness, epidemiological triad, web of causation.
- Dynamics of disease transmission, including modes of transmission
- Identification of the weak link in chain of disease transmission

Different control measures (eg. Protection of susceptible, immunization, chemoprophylaxis, prompt treatment)

. Immunity:

- Immunizing agents
- Adverse reaction

Disinfection:

- Concepts / terminologies
- Principles
- Procedures

PAPER-III

SECTION B **Q P Code : 5116**

1	Nutrition & health	Classification of foods, Nutritional requirements, Balanced diet, Nutritional problems in public health, Food hygiene, Food adulteration & fortification, Food additives, Community nutritional programs, Milk-pasteurization, Milk borne diseases . Food sanitation.	09 hrs
2	Health Information and Basic Medical Statistics	Definition, Uses of health information, Sources of health information, Statistical averages, Data & Sampling methods . Basics of Demography.	04 hrs
3	Vital statistics	Definition, Population census, estimate of Rates ,Importance and use of vital statistics	02

NUTRITION

Objective: to acquire sufficient knowledge regarding:

- Nutritional requirement of the body in maintenance of health including those for special groups like infant, pregnant and lactating woman.
- Preventing nutritional deficiencies

Contents:

Concepts in nutrition like:

- Classification of food
- Nutrients – carbohydrates, proteins, fats, vitamins, minerals – their daily requirements.
- Nutritive values of common food articles
- Balanced diet – nutritional requirements for special group infants, weaning, pregnancy, lactation, pre-school, school going
- Assessment of nutritional status for family/individual
- Cultural factors/nutrition
- Nutrition education
- Malnutrition concepts
    - Characterization
    - Home management
    - Follow-up, therapeutic diet

Practical:

- Demonstration of food articles and their nutritive values
- Planning a balanced diet
- Demonstration of kitchen garden for mother in community
- Diet survey – 3 families with nutrition education

Practical:

- Visits and observation
- Dairy, market place, hotel, super market, whole-saler, retailer, slaughter-house, food-processing factory
- Common tests to detect food adulteration
- Procedure for food sampling, dispatching and interpreting of results.
- Inspect and report on food establishment, market place and slaughter-house
- Interaction with a food analyst

Visit to public health institute

Food sanitation

Objective:

- To acquire knowledge regarding the importance of maintenance and promotion of food sanitation.
- To acquire practical skills in detecting food adulteration of food articles
- To be conversant with legislative provisions

Contents:

- Diseases transmitted through food including milk
- Food poisoning, food adulterants, food toxins, food additives, food fortification, food safety.
- Concepts of food preservation – storage/transportation etc.
- Mass catering – concepts, hazards, preventive measures
- Legislations regarding promoting food sanitation with particular reference to PFA act and local bodies statutory requirements
- Food processing centres including slaughter houses, cottage industries in food (eg. Pickles, potato chips etc.), public hazards health importance, preventive measures.
- Food vending centres including markets, super markets, wholesale/retail outlets.

Practical:

- Visits and observation
- Dairy, market place, hotel, super market, whole-saler, retailer, slaughter-house, food-processing factory
- Common tests to detect food adulteration
- Procedure for food sampling, dispatching and interpreting of results.
- Inspect and report on food establishment, market place and slaughter-house
- Interaction with a food analyst

Visit to public health institute

Vital statistics

Contents:

- Definition, value and objectives
- Population census, estimate of population
- Rates – birth rate, death rate, infant mortality rate, still birth rate, neonatal rate – significance
- Importance and use of vital statistics – informants, collections, compilation and presentation.
- Registration – rural, urban, objects, machinery, checking
- Notifications records, use of record keeping and reporting, definitions, purpose, application, appreciation, classification, service, records, sanitation, village health records – sanitary survey forms, spot maps.

Practicals:

- Calculation of rates
- Presentation of vital statistics

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- **II DHI/Practicals/Field visits**

Practical's	**Hours**	**Field visits**	**Day**
Elementary Anatomy;	15 hrs		
Entomology	24 hrs		
First aid Demo.	6 hrs	Milk dairy	One Day
Microbiology stool examination & staining	30 hrs		
Water	20hrs	UHTC	Ten days
Statistics	10 hrs	Water Treatment plant	One day
Nutritional spotters & nutritional problems	23 hrs	Dist. Lab; Malaria/RNTCP	One Week
Protective Devices	1 hr	Visit to an industry	One Day
Meteorological Devices	1 hr		
Tutorials/Seminar	hrs		
Total	**130hrs**	**Total**	**20 days (180 hrs)**

SUBJECT	**SECTION**	**Question paper Code**	**MAX. MARKS**
Paper - I	Section A	**5111**	50
	Section B	**5112**	50
Paper - II	Section A	**5113**	50
	Section B	**5114**	50
Paper - III	Section A	**5115**	50
	Section B	**5116**	50
Practical			100

THEORY EXAMINATION -100 MARKS

Section A : 50 Marks

I. Short Notes:

1. 5 marks X 4 questions = 20 marks (Answer any 4 out of 5 questions)

II. **Short Answers**:

2. 3 marks X 10 questions = 30 marks (Answer All 10 Questions)

Section B : 50 Marks

I. Short Notes:

5 marks X 4 questions = 20 marks (Answer any 4 out of 5 questions)

II. Short Answers:

3 marks X 10 questions = 30 marks (Answer All 10 Questions)

Teaching hours III DHI

Teaching program – III[rd] year: Max 400 hrs

- Theory – 04 hours per week
- Practicals – 04 hours per week
- Field visit –10 hours per week
- Seminars & tutorials – 2hours per week

Topic	**Theory (in hrs)**	**Practical (in hrs)**	Field visit **(in hrs)**
Communicable Disease	13	10	
Investigation of epidemics	02		
Non-Communicable Disease	07	10	
National health programme	08		
Preventive obstetrics, Pediatrics	07	20	
Demography of family planning	08	30	
Health education, Communication	10	25	
First Aid ,Legal medicine and Essential drugs	05		
Occupational health & Disaster management	08	10	
Hospital waste Management	06	05	
International health	01		
Organization & delivery of health care services in India including principles of administration	08		
Health care of the community	07		
Tutorials/Seminar	80		
Total	**90**	**110**	**200**

Grand total – 400 hours

Third Year Diploma in Health Inspector

PAPER-I

SECTION A Q P Code : 6111

Sl. No	Chapter	Sub Topics	No of hours
1	Communicable Disease	Respiratory, Intestinal , Arthropod borne, Zoonosis, Contact Disease,	13 hrs
2	Investigation of epidemics	Types of Epidemic – Food/Vector borne diseases Steps in Investigation of epidemics .	02

Study of communicable diseases:

- Airborne droplet infections – chickenpox, measles, diphtheria, mumps, TB, ARI.
- Water-Food infections – diarrhoeal disease, polio, Hepatites
- Zoonotic – rabies,
- Contact – scabies, pediculosis
- Tetanus, leprosy
- Anthropod borne diseases like malaria, filarial and dengue should be discussed in detail

Practicals:

- Outbreak investigations/reporting/practical suggestions
- Visit to isolation hospital
- Demonstration of disinfectant procedures for body fluids/discharges of persons suffering from communicable diseases.
- Involve in planning, conducting of an immunization session, comment on cold chain, report and recommend practical solutions.
- Demonstration of ORS preparation.

PAPER-I

SECTION B **Q P Code : 6112**

1	Non-Communicable Disease	Diabetes Mellitus, Cancer, Blindness, Hypertension, Accidents, Obesity	08 hrs
2	National health programme	Include NHM	07 hrs

Non-Communicable Disease: Epidemiology, Risk factors and health education about CVS, DM,HTN, Obesity, Cancer, Blindness and Accidents

National health programmes- National Vector Borne Disease Control Programme, National Leprosy Eradication programme, Revised National Tuberculosis Control Programme , National AIDS Control Programme, National Programme for Control of Blindness, Iodine Deficiency Disorders Programme, National Immunization Programme, National Health Mission, Reproductive and Child Health Programme, National Programme for Prevention and Control of Cardiovascular Diseases and Stroke.

Field Visit

Health center, Anganwadi, Public Health Lab, Leprosy Hospital, RNTCP Cell ,DOTS Center, ICTC Centers, District Malaria Office, sewage treatment plant, water treatment plant.

PAPER-II

SECTION A Q P Code : 6113

1	Preventive obstetrics, Pediatrics	Antenatal, Intra natal & Post natal, Growth chart, under -5's Clinic, ICDS, Breast feeding weaning, Juvenile delinquency, Child abuse, street Children, Handicapped children, Gender bias, Child guidance clinic, Child welfare agencies, School health services, Health of adolescents	08 hrs
2	Demography of family planning	Demography cycle, Trend, Fertility,	07 hrs

Preventive obstetrics, Pediatrics ;

Antenatal, Intra natal & Post natal, Growth chart, under -5's Clinic, ICDS, Breast feeding weaning,

Juvenile delinquency, Child abuse, street
Children, Handicapped children, Gender bias, Child guidance clinic, Child welfare agencies, School health services,

Health of adolescents

Demography of family planning;

Demography cycle, Trend, Fertility.

Eligible couple, Population policy, Contraceptive methods, MTP, Unmet needs, Community Needs Assessment Approach, Field Visit with ANM.

PAPER-II SECTION B Q P Code : 6114

1	Health education, Communication	Types of Communication, Barriers of Communication, Content, Principles and Methods in Health education,	10 hrs
2	First Aid ,Legal medicine and Essential drugs	Indian Public health Acts	05 hrs

HEALTH EDUCATION

Contents:

- Introduction of health education, definitions, scope
- Education in relation to environmental sanitation programme.
- Sanitary inspectors approach to village health problems for organisaing educational programme
- Principles underlying use use of visual aids.
- Place of visual aids in education programme, importance of using visual aids
- Tools and techniques in health education
- Utilizing community resources for educational programme
- Education through primary health centre.

Practical:

- Demonstration of audio-visual aids: posters, flip-charts, flannel graphs, khaddar graphs, film strips, films, puppet shows etc.
- Preparing : bulletin boards, charts, flannel graphs
- Evaluating of teaching aids, organizing meetings
- Collecting information about resources available in the region
- Demonstration of group discussion and role play

Essential drugs & First Aid:

- Hazards in prescribing drugs without expert medical advise
- Drugs commonly used by health inspectors
- Anti-malarial and anti-filariasis , drugs for dysentery and diarrhea and deworming drugs
- Treatment of minor ailments and injuries
- Safely shifting of Injured victim etc,.

Legal medicine ;

- Basics of legal medicine, Indian Public health Acts ,
- Role of health centre in health program
- Role of health inspector in a PHC
- Legal considerations – public health acts- ESI act, Indian Factories Act, Food Adulteration Act, Juvenile Deliquency Act, Birth and death registration Act, MTP act, PNDT act, Disease notification Act.

PAPER-III

SECTION A Q P Code : 6115

1	Occupational health & Disaster management	Occupational hazards, Pneuconiosis, ESI acts. Disaster Preparedness, Mitigation in health Sector	9 hrs
2	Hospital waste Management	Public health importance of Bio Medical waste, Universal precautions	5 hrs
3	International health	UNECEF, WHO, Red cross, FAO	1 hrs

Occupational health & Disaster management;

Ergonomics, Occupational hazards,

Pneunoconiosis & its Prevention

The Factories act, ESI act

Industries and trade

- Localization, ventilation, water supply, sanitation, lighting
- Control of dust and other hazardous substances
- Occupational risk factor and safety measures
- Legislative provisions

Practicals:

Visit to an industry and report

Management of health care waste

- Public health importance
- Diseases transmitted due to improper waste management
- Definitions/classifications
- Concepts in waste management:
    - Point of generation
    - Segregation
    - Sanitary landfill
- Universal precautions to prevent HBV/HIV infections
- Methods of waste management

    - Different types of waste and their recommended methods of management
    - 3 hierarchies: reduction & recycling, final disposal including deep burial, sanitary landfill, incineration.
- Occupational hazards of waste handlers

Practicals:

Educating session: pourakarmikas/labourers regarding:

- Universal precautions
- Use of protective devices
- Hazards of improper waste managements

PAPER-III SECTION B Q P Code : 6116

1	Organization & delivery of health care services in India including principles of administration,	Centre, state and local organizations , panchayat, Health centre.	05 hrs
2	Health care of the community	Functions of Primary Health Care , Role of ASHA, ANM, Health Worker	10 hrs

Public health administration

Contents:

- Centre, state and local organisations
- Relationship with other departments – education, agriculture, communications.
- International organizations and their co-operation in the field of health
- Rural development, , organization, local self-government, panchayat, co-operatives
- Health centre – concept, definition, organization, functions.
- Role of health centre in health program
- Role of health inspector in a PHC

Health care of the community;

Levels of Health Care,
Principles /Functions of Primary Health Care ,
MDGs/SDGs, Health Care System,
Primary Health Care in India,
Role of ASHA,ANM,Health Worker- male /Female.
Health services at Sub center

No. of hours for field visits (topic wise)

Theory in hrs	**Practical (in hrs)**	**FIELD VISIT**	**(in hrs)**
		Market survey	10
		Hotel inspection	10
		Corporation posting(Swimmimg pool visit , slaughter house ,bakery,theatre & mall inspection)	5X20 (days)=100
		Industry	05
		Visit to isolation hospital	05
		Pilgrimage place	05
		(Microbiology Lab Posting for Stainin Technique)	5X6 (days)=30
		• (Sewage treatment plant) • (Milk dairy) School visit • Anganwad i • Counseling Center(ICTC) • RNTCP • Sub center • Water treatment plant	5X 7(days)=35
90	**110**		**200**

GRAND TOTAL – T 90 +P 110 +F 200 = 400 HOURS

Reference Books

1. K. Park, Park's Text Book of preventive and social Medicine.
2. Sunderlal et al, Text book of community medicine,
3. Community Medicine with Recent advances By AH Suryakantha,
4. Text Books on Community Medicine – G N Prabhakar.

5.Text Book of Community Health Inspectors H.I.T. (JP Publishers, Delhi)

6.Text Book of Community Health for Nurses – Nursing Course (Pee Pee Pub., Delhi)

7.Lab Manual for technical courses-Paras Publications

8.Text book of Sociology

9.Text book of behavioural Science

10 Community Medicine practical manual –by Rajkumar patil

SUBJECT	SECTION	Question paper Code	MAX. MARKS
Paper - I	Section A	**6111**	50
	Section B	**6112**	50
Paper - II	Section A	**6113**	50
	Section B	**6114**	50
Paper - III	Section A	**6115**	50
	Section B	**6116**	50
Practical			100

THEORY EXAMINATION -100 MARKS

Section A : 50 Marks

III. Short Notes:

3. 5 marks X 4 questions = 20 marks (Answer any 4 out of 5 questions)

IV. **Short Answers**:

4. 3 marks X 10 questions = 30 marks (Answer All 10 Questions)

Section B : 50 Marks

II. Short Notes:

5 marks X 4 questions = 20 marks (Answer any 4 out of 5 questions)

II. Short Answers:

2 marks X 10 questions = 30 marks (Answer All 10 Questions)

Practical examination- 100 marks

I. Viva voce- 20 marks
II. Board practical Exams- 80 marks

III. Grand total = 400 marks