**THE TAMIL NADU Dr. M. G. R. MEDICAL UNIVERSITY, CHENNAI-600 032.**

**Regulations for the P.G. Diploma Course in Public Health Entomology (DPHE)**

**(MODIFIED UPTO 31ST MAY 1999)**

**In exercise of the powers conferred by section 44 of The Tamil Nadu Dr. M.G.R. Medical University, Chennai, Act, 1987 (Tamil Nadu Act 37 of 1987), The Standing Academic Board of The Tamil Nadu Dr. M.G.R. Medical University, Chennai hereby makes the following regulations.**

## 1. SHORT TITLE AND COMMENCEMENT

These regulations shall be called **"THE REGULATIONS FOR THE POST-GRADUATE DIPLOMA COURSE IN PUBLIC HEALTH ENTOMOLOGY (DPHE) OF THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY, CHENNAI."**

They shall come into force from the Academic Year 2013-2014

The Regulations framed is subject to modifications from time to time by the Standing Academic Board.

## 2. ELIGIBILITY FOR ADMISSION

Candidates for admission to the **One year Post-Graduate Diploma course** shall be required to possess the following qualifications.

a) He/she having qualified UG/PG Degree of Zoology from any recognized University under regular stream

## 3. ELIGIBILITY CERTIFICATE

The candidate who has passed any qualifying examination as stated in Regulation No.2 above other than the Tamil Nadu Dr. MGR Medical University shall obtain an "Eligibility Certificate" from this University, by remitting the prescribed fee along with the application form and required documents before seeking admission. The application form is available in the University website (www.tnmgrmu.ac.in)

## 4. REGISTRATION

A candidate admitted to the course shall register his / her name with this university by submitting the prescribed application form for registration duly filled, along with the prescribed fee and a declaration in the format to the Controller of Examination of this University through the affiliated institution within 30 days from the cut-off date prescribed for the course for admission. The applications should have date of admission of the course.

## 5. DURATION OF THE COURSE

The duration of the course is one year full time course (preference wilol be given to the service candidates) with 3 years experience in the field of Public Health in a Govt. Institution. In case service candidates are not available that seats will be filled up with open candidates total duration for the completion. The Candidates should complete this course in 2 years (double the duration) from the date of joining the course.

## 6.COMMENCEMENT OF THE COURSE

The course shall commence from 1st September of the academic year. (Resolved in 48th SAB )

## 7. MEDIUM OF INSTRUCTION

English shall be the medium of instruction for all the subjects of study and for examinations of the Post Graduate Diploma in Public Health Entomology course under Allied Health Sciences.

## 8. CURRICULUM

The curriculum and the syllabus for the course shall be as prescribed in these regulations and are subject to modifications by the Standing Academic Board from time to time.

## 9. RECOGNITION FEE

Candidates who have passed the UG/PG degree in Zoology from any other University under regular stream shall remit a recognition fee as prescribed along with the stipulated registration fees.

## 10. WORKING DAYS IN THE ACADEMIC YEAR

Each academic year shall consist of not less than 270 working days.

| | |
|---|---|
| Total No. of days in a year | - 365 |
| a) No. of weekly off (Sundays) | -52 |
| b) No. of Government Holidays | -22 |
| c) No. of Holidays | -21 |
| | --- |
| Total | - 95 |
| | --- |
| Total No. of Working days Including Examination Period | - 270 days |

## 11. CUT – OFF DATES FOR ADMISSION TO EXAMINATIONS

- 1st September to 30th September of the academic year concerned.
- The candidates admitted in 30th September of the academic year shall be registered to take up the 1st year examination during October of the next year.
- All kinds of admission shall be completed on or before 30th September of the academic year. There shall not be any admission after 30th September even if seats are vacant. (Resolved in 48th SAB )

## 12. COMMENCEMENT OF EXAMINATIONS

- April 15th / October 15th
- If the date of commencement of examination falls on Saturdays / Sundays or declared Public Holidays, the examination shall begin on the next working day.
  (Resolved in 43rd SAB held on 19.12.2011)

## 13. ATTENDANCE REQUIREMENTS FOR ADMISSION TO EXAMINATIONS

- No candidate shall be permitted to appear for the Examination unless he/she has attended the course in the subject for the prescribed period in an affiliated institution recognized by this University and produce the necessary certificate of study, attendance and satisfactory conduct from the Head of the Institution by maintaining Log book.

- A candidate is required to put in a minimum of 85% of attendance in both theory and practical separately in each subject before admission to the examinations.

## 14. CLASSIFICATION OF A SUCCESSFUL CANDIDATE

Qualifying marks for pass shall be 50% each in Theory, Viva + Practical 50%, Internals 35% and 50% of the aggregate.

- (Revaluation / Retotalling of answer paper is not permitted).

## 15. MAINTENANCE OF LOG BOOK

1. Every Post-graduate Diploma candidate shall maintain a record of skills he has acquired during the one year training period.
2. The Head of the Department shall scrutinize the Log Book once in every three months.
3. At the end of the course, the candidate should summarise the contents and get the Log Book certified by the Head of the Department.
4. The Log Book should be submitted at the time of practical examination for the scrutiny of the Board of Examiners.

## 16. MIGRATION/TRANSFER OF CANDIDATES

Transfer of candidate from one institution to other are not allowed after admission to the course.

## 17. RE-ADMISSION AFTER BREAK OF STUDY

Candidates having a break of study will not be permitted to continue the course since he / she will be furnish only after twice the number of years of the course.

The details are available in the University's Web Site www.tnmgrmu.ac.in for the revised regulation for re – admission after break of study for all the Under Graduates and Post Graduates in Medical, Dental, Indian Medicine & Homeopathy, and Allied Health Science courses approved by the Standing Academic Board in the XXIX held on 21.06.2010.

## SYLLABUS FOR ONE YEAR POST GRADUATE DIPLOMA IN PUBLIC HEALTH ENTOMOLOGY COURSE (PGDPHE)

**Paper I** - **Microbiology, Parasitology and related Entomological aspects**

**Paper II** - **Epidemiology, Health Education and Biostatistics**

**Paper III** - **Medical Entomology including Acarology**

**Paper IV** - **Vector Control principles and Practices**

**PRACTICALS**

**Paper I** - **Microbiology, Parasitology and related Entomological aspects**

**Paper III** - **Medical Entomology including Acarology**

## SCHEME OF EXAMINATIONS FOR ONE YEAR POST GRADUATE DIPLOMA IN PUBLIC HEALTH ENTOMOLOGY COURSE (PGDPHE)

| Sl. No. | Subject (Paper) | Marks |
|---|---|---|
| I | **Paper I (Written)**<br>• Microbiology, Parasitology and related Entomological aspects | 100 |
| | a. Practical | 50 |
| | b. Viva Voce (Oral) | 25 |
| | c. Internal Assessment | 25 |
| II | **Paper – II (Written)**<br>• Epidemiology, Health Education and Bio-statistics | 100 |
| | α. Practical | 50 |
| | b. Viva Voce (Oral) | 25 |
| | c. Internal Assessment | 25 |
| III | **Paper III (Written)**<br>• Medical Entomology including Acarology | 100 |
| | a. Practical | 50 |
| | b. Viva Voce (Oral) | 25 |
| | c. Internal Assessment | 25 |
| IV | **Paper – IV (Written)**<br>• Vector Control Principles and Practices | 100 |
| | a. Practical | 50 |
| | b. Viva Voce (Oral) | 25 |
| | c. Internal Assessment | 25 |

**Note: The minimum marks required for a pass is 50% of Theory ,**
**Viva + Practical 50%,**
**Internal 35%**
**And 50% of the Aggregate.**

| Sl. No. | Subject | Marks |
|---|---|---|
| 1 | **Paper I Practical** | |
| | Peripheral Blood Smear Collection and Staining | 10 |
| | Blood Smear Examination | 10 |
| | Spotters | 20 |
| | Record | 10 |
| 2 | **Paper II Practical** | |
| | Epidemiological Exercises | 20 |
| | Investigation of Positive Cases | 20 |
| | Preparation of Health Education Materials | 10 |
| 3 | **Paper III Practical** | |
| | Mosquito Survey | 10 |
| | Mosquito Identification | 10 |
| | Mosquito Dissection for Gut and Gland | 10 |
| | Spotters | 10 |
| | Record | 10 |
| 4 | **Paper IV Practical** | |
| | Field Evaluation of Vector Control Measures | 15 |
| | Survey of Public Health Pests | 15 |
| | Spotters | 20 |

**SCHEME OF PRACTICAL EXAMINATIONS FOR ONE YEAR POST GRADUATE DIPLOMA IN PUBLIC HEALTH ENTOMOLOGY COURSE (PGDPHE)**

**SYLLABUS OF POST GRADUATE DIPLOMA COURSE IN**

**PUBLIC HEALTH ENTOMOLOGY (ONE YEAR)**

**PART – I - PAPER I**

**MICROBIOLOGY, PARASITOLOGY AND RELATED ENTOMOLOGICAL ASPECTS**

## a) MICROBIOLOGY

| SL.NO. | COURSE CONTENTS | HOURS |
|---|---|---|
| 1. | Scope of Microbiology-Causation of disease- Major characteristics of Micro-organisms-classification and Identification of Microorganisms. | 1 hour |
| 2. | Light Microscopy- Bright field Microscopy, Phase contrast Microscopy- Interference contrast Microscopy- Dark field illumination-Fluorescence Microscopy- Electron Microscopy. | 3 hrs |
| 3. | Preparation for light Microscopy examination- The wet mount and hanging-drop technique- Fixed- stained smears- Microbiological stains- Simple staining- differential staining- gram staining- other staining technique. | 3 hrs |
| 4. | Morphology of Bacteria- Quantitative measurement of bacterial growth | 2 hrs |
| 5. | Cultivation of bacteria- Nutritional requirements- Bacteriological media- Physical conditions required for culture | 3 hrs |
| 6. | Bacteriology – Bacteria of public health importance. And emerging and re-emerging bacterial disease-Salmonella typhi, Vibrio cholerae, Hepatitis, Clostridium tettani | 10 hrs |
| 7. | Fungi of public health importance | 3 hrs |
| 8. | Algae of public health importance | 2 hrs |
| 9. | Control of Micro-organisms by physical methods sterilization- moist heat-boiling, water- pasteurization- steam under pressure- dry heat- Hot air sterilization- incineration- Low temp. Desiccation- osmotic pressure- radiation UV lights- X-rays- Gamma rays- cathode rays surface tension- interfacial tension- filtrations. | 3 hrs |
| 10. | Anti- Microbial chemical agents: Disinfectant. Antiseptic- germicide-bactericide- bacteriostasis – Anti Microbial agent- Selection of a chemical agent- different chemical agents | 2 hrs |
| 11. | Virology:- General properties<br>Viruses of public health importance and emerging and re-emerging viruses | 3 hrs |

| | | |
|---|---|---|
| 12. | Immunity | 2 hrs |
| 13. | Bacteriology of Air, Water, Milk and food | 3 hrs |
| 14. | Collection and transport of specimens | 2 hrs |

## b) PARASITOLOGY

| SL.NO. | COURSE CONTENTS | HOURS |
|---|---|---|
| 1. | General Introduction- parasites- parasitism- classes of parasites- classes of hosts- sources and mode of infection –pathogenesis- pathogenic effects- Laboratory diagnosis- methods. | 3 hrs |
| 2. | Protozoa- General features- Classification of protozoa | 1 hr |
| 3. | Amoebae- Entamoeba histolytica- Morphology- Life cycle- pathogenicity Intestinal amoebiasis- Extra intestinal amoebiasis- difference between Amoebic dysentery and Bacillary dysentery- Laboratory diagnosis- Epidemiology- prophylaxis and treatment- Entamoeba coli. | 4 hrs |
| 4. | a. Flagellates: Intestinal flagellates- Typical example- Morphology Life cycle- Diagnosis and treatment. | 3 hrs |
| | b. Haemoflagellates: T.gambiense, T.rhodisiense, Morphology- Life cycle, Diagnosis, treatment- vectors and reservoirs. | 3 hrs |
| | c. Leishmania- Morphology- Life cycle- ecological types- pathology diagnosis- treatment. | 5 hrs |
| 5. | Malaria parasites- Life cycle and Morphology- human plasmodia- pathogenesis diagnosis- treatment | 6 hrs |
| 6. | Flukes- Blood flukes- Morphology and life cycle- pathogenicity- Diagnosis treatment. Lung flukes- Morphology and life cycle- pathogenicity Diagnosis treatment. | 5 hrs |
| 7. | Nematodes- Hook worms/ Round worms- Morphology and Life cycle, pathogenesis- Diagnosis and treatment. | 8 hrs |
| 8. | Filaria- Different human species- distribution- Morphology and Life cycle- pathogenesis- clinical manifestations- Diagnosis and treatment. | 3 hrs |
| 9. | Guinea worm- Life cycle- distribution pathogenicity- clinical features- Diagnosis-treatment. | 3 hrs |

| | | |
|---|---|---|
| 10. | Diagnostic methods in parasitiology- Examination of faeces, Wet mount, blood smears, concentration method, sedimentation methods- egg count- culture methods- Animal inoculation- xenodiagnosis- Immunological diagnosis. | 7 hrs |
| 11. | Transmission and control of protozoans, trematodes, nematodes and parasites of PH importance- control measures in detail for each parasite. | 8 hrs |

## ZOONOTIC DISEASES

| | | |
|---|---|---|
| 1. | Introduction to Zoonoses: Classification- Zoonoses- Public Health problem- factors influencing prevalence of Zoonoses. Zoonoses as occupational hazard socio economic status. | 1 hr |
| 2. | Anthrax: Introduction- Distribution- Morphology- Epidemiology- pathogenisity- Diagnosis- prevention- treatment and control measures pertaining to public Health. | 2 hrs |
| 3. | Brucellosis- Introduction- Morphology- Epidemiology- pathology- Diagnosis- Therapy- prevention- control measures- Health Education of the Public in programmes for prevention and control of Brucellosis | 2 hrs |
| 4. | Leptospirosis- Introduction- Morphology- Epidemiology- pathogenisity- Diagnosis- control and prevention- Health Education to the public. | 3 hrs |
| 5. | Rabies- Introduction- Epidemiology- pathogenisity- Diagnosis- treatment control measures- Health Education by Mass media. | 2 hrs |
| 6. | J.E. Introduction- Epidemiology- pathogenisity- Treatment- control measures- Epidemiology- symptoms- collection of specimens- control- Differential- Diagnosis with reference to West Nail fever- Dengue fever. | 4 hrs |
| 7. | KFD-Introduction- Aetiology- pathogenisity- Diagnosis- Treatment control measures and Epidemiological surveillance. | 2 hrs |
| 8. | Salmonellosis- Introduction- Aetiology- Clinical features in Animals- Carrier Animals- Epidemiology- Diagnosis- control and treatment. | 1 hr |
| 9. | Tick borne diseases: Introduction- Aetiology- Clinical features in Animals- Carrier Animals- Epidemiology- Diagnosis- control and treatment. | 4 hrs |

| | | |
|---|---|---|
| 10. | Plague: Introduction- Aetiology- Clinical features in Animals- Carrier Animals- Epidemiology- Diagnosis- control and treatment. | 4 hrs |
| 11. | Hydatidosis: T. solium- T. saginata. Introduction- Aetiology- Epidemiology- pathogensity- clinical features- Diagnosis- control measures- treatment. | 3 hrs |
| 12. | Food and Food borne diseases | 1 hr |
| 13. | Toxoplasmosis- Introduction- Aetiology- Epidemiology- treatment- control. | 1hr |

## PAPER II - EPIDEMIOLOGY, HEALTH EDUCATION, BIOSTATISTICS

### a) EPIDEMIOLOGY

| SL.NO. | COURSE CONTENTS | HOURS |
|---|---|---|
| 1. | Epidemiology- History- Definition- Scope- principles of epidemiology uses of epidemiology- descriptive epidemiology | 1 hr |
| 2. | Measuring health and disease- Defining a case- Prevalence and incidence- case fatality- mortality- morbidity- disability- Attributable risk. | 2 hrs |
| 3. | Cause of disease- risk factors- cause and outcome- study design to prove causation. | 2 hrs |
| 4. | Prevention of disease- Levels of prevention-Screening tests- Validity of screening test. | 2 hrs |
| 5. | Epidemiology of communicable disease- epidemics and endemic disease-claim of infection- Infection agent- Host- environment- transmission. | 1 hr |
| 6. | Natural history and progress of disease- Diagnostic tests- effectiveness of treatment. | 1 hr |
| 7. | Environmental and occupational epidemiology- Exposure and dose- Dose- Effect relationship. Dose-response relationship. | 1 hr |
| 8. | Epidemiology- Health care planning and evaluation- Health status of community- Preventable causes- Intervention strategies – implementation- monitoring reassessment- of the health status of the community | 2 hrs |

| | | |
|---|---|---|
| 9. | Epidemiological knowledge and skills- Epidemiological information about disease planning a research project- conducting the project. | 1 hr |
| 10. | Epidemiological studies- Observation. Descriptive- Analytical Experimental Ethical issues. | 3 hrs |
| 11. | Health indicators- Types of indicators- Health status indicators. | 1 hr |
| 12. | Demographic data- sources of information- Accuracy of data variable- Age- Sex- Ethnic group- Marital status- occupation other variables. | 1 hr |
| 13. | Health status assessment- important diseases- source of epidemiological information- Morbidity patterns- Mortality patterns- seasonality- Morbidity and mortality rates- Death registration and certification- District health information check list. | 1 hr |
| 14. | Reporting and surveillance system- Routine health information System- Surveillance- Definition of cases- Reporting cases- Routine sources of information- Additional sources of information- Analysis and preservation of data, communication and using the information- Effectiveness of surveillance system- Reporting systems checklist. | 2 hr |
| 15. | Epidemic- Definition- Diagnostic criteria- Investigation- Describing the epidemic- Epidemic incidence curve- case control analysis- Environmental assessment- control of epidemics- Reporting on the epidemic- district epidemic checklist. | 2 hrs |
| 16. | Epidemiological surveys- uses of surveys- cross sectional and longitudinal surveys- survey objectives- selecting the sample- sample size- questionnaires- variables- Repeatability- validity- Ethical issues. | 2 hrs |
| 17. | Organizing investigations and surveys- preliminary plans- organizing the field work. Logistics and support Investigation and survey checklist. | 1 hr |
| 18. | Recording Forms- coding- Data processing- Data analysis. | 1 hr |

## b) BIOSTATISTICS

| SL.NO. | COURSE CONTENTS | HOURS |
|---|---|---|
| 1. | Introduction- scope and importance of statistics | 1hr |
| 2. | Importance of Biostatistics- merits and demerits of statistics Importance of Biostatistics in PH Department | 2 hrs |
| 3. | Presentation of data-uses of charts and diagrams- simple bar-subdivided bar-multiple bar- pie diagram. | 2 hrs |
| 4. | Graphical representation of data- histogram | 2 hrs |
| 5. | Frequency curve- classification of data | 1 hr |
| 6. | Frequency distribution | 2 hrs |
| 7. | Measures of central tendency mean- Three methods | 2 hrs |
| 8. | Median- Mode | 1 hr |
| 9. | Measures of dispersion- standard deviation- Relative measures of dispersion | 2 hrs |
| 10. | Correlation | 1 hr |
| 11. | Regression | 2 hrs |
| 12. | Probability- normal distribution | 2 hrs |
| 13. | Sampling- types of sampling | 2 hrs |
| 14. | Non- sampling errors | 1 hr |
| 15. | Tests of significance | 2 hrs |
| 16. | Chi square test- one sample test and two samples test | 1 hr |
| 17. | Vital statistics- definition of different rates | 1 hr |
| 18. | Population estimation | 2 hrs |
| 19. | Application of statistical (packages) in vector Biology | 6hrs |

## c) HEALTH EDUCATION

| SL.NO. | COURSE CONTENTS | HOURS |
|---|---|---|
| 1. | Health- illness- behavior- understanding behavior- people- resources- culture- changes in behaviour. | 1 hr |
| 2. | KAP- Motivation Decision making- Adoption process- Helping people to improve their behaviour | 1 hr |
| 3. | Health Education- communication principles- methods Distortion- Rumours | 1 hr |
| 4. | Education and educational method Media and tools | 1 hr |
| 5. | Individual approach and group approach. Different groups. | 1 hr |
| 6. | Community organization and community participation- Health committees- campaign projects- partnership with people. | 1 hr |
| 7 | Planning health education - collecting information- understanding problems- deciding on priorities- objectives and action Identifying and obtaining resources- Action and follow up- selecting appropriate methods- Evaluating results- Reviewing the progress of planning. | 1 hr |
| 8. | Evaluation of Health Education | 1 hr |
| 9. | Health education in National Malaria Eradication Programme | 1 hr |
| 10. | Health education-Exercises- Demonstration and field visit | 2 hrs |

## PG DIPLOMA IN PUBLIC HEALTH ENTOMOLOGY COURSE

## PART – II - PAPER I- ENTOMOLOGY INCLUDING ACAROLOGY

| Sl.No. | Course contents | Hours |
|---|---|---|
| 1 | Entomology – Commonly used Nomenclature | 1 |
| 2 | History of Medical Entomology – Definition and Scope | 1 |
| 3 | Arthropods : General Classification with characters | 1 |
| 4 | Arthropods of Public Health importance – Taxanomy-classification – order- family – general characters | 3 |
| 5 | Insect Morphology – General structure and metamorphosis | 3 |
| 6 | Insects Digestive System and Nervous System | 2 |
| 7 | Insects – Reproductive System | 1 |
| 8 | Insects – Circulatory System | 1 |
| 9 | Insects- Excretory System | 1 |
| 10 | Insects – Visual organs and Olfactory System | 1 |
| 11 | Insects – Physiology in brief | 3 |
| 12 | Insect Ecology | 4 |
| 13 | Morphology, Life History, Bionomics, PH importance and identification of anophelines | 8 |
| 14 | Morphology, Life History, Bionomics, PH importance and identification of culicines (Filaria Vectors) | 3 |
| 15 | Morphology, Life History, Bionomics, PH importance and idenfication of phlebotomine sandflies | 5 |
| 16 | Morphology, Life History, Bionomics, PH importance and identification of Fleas | 3 |
| 17 | Morphology, Life History, Bionomics, PH importance and identification of Houseflies | 3 |
| 18 | Morphology, Life History, Bionomics, PH importance and identification of Blackflies, biting, midges, lice, bed bugs and Triatomine bugs | 5 |

| | | |
|---|---|---|
| 19 | Morphology, Life History, Bionomics, PH importance and identification of cockroaches and culicines (JE & Dengue vectors) | 7 |
| 20 | Morphology, Life History, Bionomics, PH importance and identification of Ticks (soft and Hard ticks), mites | 12 |

## PG DIPLOMA IN PUBLIC HEALTH ENTOMOLOGY COURSE

## PAPER II VECTOR BIOLOGY, VECTOR CONTROL PRINCIPLES AND PRACTICES

| Sl. No. | Course contents | Hours |
|---|---|---|
| 1 | Vector surveys (Mosquito, Sand Fly, House Fly, Flea and Cyclops) | 6 |
| 2 | Entomological Parameters | 4 |
| 3 | Control of Arthropod Vectors – Source Reduction | 2 |
| 4 | Control of Arthropod Vectors – Chemical control | 4 |
| 5 | Control of Arthropod Vectors – Biological Control | 4 |
| 6 | Control of Arthropod Vectors – Genetic Control | 3 |
| 7 | Control of Arthropod Vectors – Personal Protection and other measures | 2 |
| 8 | Pheromones and Insect Growth Regulators | 3 |
| 9 | Integrated Pest Management (IPM) | 2 |
| 10 | Integrated Vector Control (IVC) and Comprehensive Vector Control (CVC) | 3 |
| 11 | Insects pathogens and parasites | 2 |
| 12 | Insecticides – types, formulations, dosages, uses, mode of action, precaution and antidotes | 3 |
| 13 | Insecticides Resistance –types, causes, consequences and method of combating | 3 |
| 14 | Insecticidal applications – types of spray, ULV and fogging equipments and spray techniques | 5 |
| 15 | Antilarval measures – definition, principle and types | 3 |

**PG DIPLOMA IN PUBLIC HEALTH ENTOMOLOGY COURSE**

# PART – I - PAPER I PRACTICAL

# MICROBIOLOGY AND PARASITOLOGY

| Sl. No. | Topic | No. of Hours |
|---|---|---|
| 1 | Equipments of a laboratory – Maintenance of a laboratory – Collection of Clinical Specimens – Safety Measures in laboratory – Disposal of Specimens and Infected Materials | 6 |
| 2 | Microscopes – Care of Microscopes – Calibrating the microscope for measurement | 3 |
| 3 | Faecal specimens – Collection – Macroscopic examination – Anal swabs for pin worms – Microscopic examination of wet mounts – Saline and iodine – Identification of parasites – Helminthes – Round worm – Tape worm – Hook worm- Whip worm – Eggs and Larvae – Protozoa – Entamoeba histolytica – E. Coli – Giardia lamblia – Trichomonas hominis – Balantidium coli – Cysts – Recording results of stool specimens –– Concentration technique<br><br>Transport of Stool specimens for bacterial examination | 12 |
| 4 | Preparation of Gram stain, Leishman, and Ziehl-Neelsen, Wayson stains | 9 |
| 5 | Staining Techniques – Gram staining – Giemsa staining – Wayson's staining – Examination and Identification of bacteria | 8 |
| 6 | Sputum – Collection of Sputum specimens – Appearance of Sputum – Preparation of Sputum smears – Ziehl-Neelsen staining – Examination and identification | 6 |
| 7 | Examination of skin smears and Nasal smears – Modified Ziehl Neelsen method – Examination and identification | 3 |
| 8 | Hanging Drop Preparation and Examination | 6 |
| 9 | Study of liquid media in respect of their contents, identification and uses – Peptone water – Broth – Sugar Media – Hiss's Serum Broth – Mac-Conkey's liquid medium – Robertson's cooks meat medium | 6 |

| | | |
|---|---|---|
| 10 | Study of solid media in respect to their contents, identification and uses – Blood agar, Chocolate agar, Mac Conkey's medium– Nutrient agar<br>Examining growth on Blood agar, Mac Conkey and Nutrient agar plates<br>Inoculation of Bacterial suspension on Nutrient agar by streak method | 12 |
| 11 | Collection, Storage and Transport and Examination of water sample | 4 |
| 12 | Agglutination reaction –Widal, Enterocoombi test | 6 |
| 13 | Spotters Identification | 9 |
| 14 | Blood smear collections, and Staining using JSB stain and for both Malarial and Filarial parasites | 21 |
| 15 | Spotters and Identification of *Anophelines* | 36 |
| 17 | Identification of *Culicines* | |
| 18 | Preparation of stains JSB stain | 9 |
| 19 | Demonstration of DFM | |
| 20 | Demonstration of IgM antibody assay (Dry dot for leptospirosis) | |
| 21 | Wild rodent survey | 12 |
| 22 | Demonstration of rodent dissection and bleeding for sero diagnosis | |
| 23 | Preparation of organ smears ( LSL ) for *Y. pestis* | |
| 24 | Demonstration of REP survey and combing of fleas | |
| 25 | Demonstration of Weil-Felix test for Rickettsial infection sero diagnosis by Elisa | 12 |
| 26 | Identification of Ticks and Mites | |

**PG DIPLOMA IN PUBLIC HEALTH ENTOMOLOGY COURSE**

# PART – II - PAPER I - PRACTICAL – MEDICAL ENTOMOLOGY

| Sl. No. | Course contents | Hours |
|---|---|---|
| 1 | Materials and techniques for collection, transportation,preservation, mounting, rearing of insects | 6 |
| 2 | Microtomy, fixation, fixatives, embedding, sectioning and staining techniques for history | 6 |
| 3 | Susceptibility test for mosquito – adult and larvae | 6 |
| 4 | Mounting of different types of wings and antennae | 6 |
| 5 | Dissection / mouth parts of mosquitoes, sandflies, housefly, cockroach and bed bug | 6 |
| 6 | Identification of Anophelines – larvae and adults | 36 |
| 7 | Identification of Culicines – larvae and adults | 36 |
| 8 | Dissection of mosquitoes – Gut and Salivary gland | 36 |
| 9 | Age determination technique | 12 |
| 10 | Mounting the genetalia of sand fly | 12 |
| 11 | Different types of cells in the haemolymph of cockroaches | 3 |
| 12 | Determination of cholinesterase | 3 |
| 13 | Chloroquine estimation in urine | 2 |
| 14 | Precipitin test – Blood meal analysis | 6 |
| 15 | Cytotaxanomy – preparation of polytene chromosomes | 2 |
| 16 | Identification of medically important insects (other than mosquitoes and sand flies), Fleas, Houseflies, Black flies, Biting midges, Lice, Bed bugs, Triatomine bugs, Cockroaches | 6 |
| 17 | Ticks (Soft ticks and hard ticks) | 6 |
| 18 | Identification of Predators of Mosquitoes and Bio control agents | 3 |
| 19 | Demonstration of spray equipments – parts, operations, discharge rate, maintenance etc. | 3 |
| 20 | Demonstration of fogging equipments – parts, operations, maintenance etc., | 3 |

**DETAILS OF SUBJECTS, CREDIT HOURS FOR POST GRADUATE**

**DIPLOMA IN PUBLIC HEALTH ENTOMOLOGY**

**(DURATION: 1YEAR)**

| Sl.No. | Subject | Theory (Hours) | Practical (Hours) | Total (Hours) |
|---|---|---|---|---|
| 1 | Microbiology | 42 | 84 | 126 |
| 2 | Parasitology | 59 | 180 | 269 |
| 3 | Zoonoses | 30 | | |
| 4 | Epidemiology | 27 | 24 | 51 |
| 5 | Health Education | 11 | 18 | 29 |
| 6 | Biostatistics | 35 | 36 | 71 |
| 7 | Field Visit | 0 | 60 | 60 |
| 8 | Medical Entomology including Acarology | 68 | 199 | 267 |
| 9 | Vector Control Principles and Practices | 51 | 60 | 111 |
| 10 | Dissertation | 0 | 250 | 250 |
| 11 | Field Practice | 0 | 144 | 144 |
| | **Total** | **323** | **1055** | **1378** |