



# NATIONAL PUBLIC HEALTH ENTOMOLOGY PROGRAMME

2023 - 2025

**icmr VCRC**  
INDIAN COUNCIL OF MEDICAL RESEARCH VECTOR CONTROL RESEARCH  
CENTRE, PUDUCHERRY

**icmr NIRTH**  
INDIAN COUNCIL OF MEDICAL RESEARCH NATIONAL INSTITUTE OF  
RESEARCH IN TRIBAL HEALTH, JABALPUR

**icmr RMRCGKP**  
INDIAN COUNCIL OF MEDICAL RESEARCH REGIONAL MEDICAL RESEARCH  
CENTRE, GORAKHPUR

**icmr RMRCNE**  
INDIAN COUNCIL OF MEDICAL RESEARCH REGIONAL MEDICAL RESEARCH  
CENTRE, DIBRUGARH

**icmr RMRIMS**  
INDIAN COUNCIL OF MEDICAL RESEARCH RAJENDRA MEMORIAL RESEARCH  
INSTITUTE OF MEDICAL SCIENCE, PATNA

# **M. Sc. Public Health Entomology**

## **2 Year Course**

(Fulltime Semester Pattern)

**(Affiliated with Pondicherry University)**

**Offered By**

The following FIVE ICMR Institutes

1. **ICMR-Vector Control Research Centre, Puducherry**
2. **ICMR-Regional Medical Research Centre, Gorakhpur**
3. **ICMR- Regional Medical Research Centre, Dibrugarh**
4. **ICMR-National Institute for Research in Tribal Health, Jabalpur**
5. **ICMR-Regional Medical Research Institute of Medical Sciences, Patna**

# Prospectus

## 2023-25

### Scope of the Course:

There is a growing need for entomologists in the field of Public Health in view of emerging and re-emerging vector-borne diseases in India and other tropical countries. Apart from the State Health Departments, National Centre for Vector-Borne Diseases Control (NCVBDC), National Centre for Disease Control (NCDC), National Health Mission (NHM), and ICMR Institutes (VCRC, NIRTH, RMRIMS, NIMR and RMRCs) require personnel with knowledge and expertise on entomology, epidemiology and prevention/control of vector-borne diseases for their programmes pertaining to vector-borne diseases. In view of this felt need, a two-year M.Sc. Public Health Entomology (PHE) course has been started at VCRC in 2011. In this academic year, the Indian Council of Medical Research (ICMR) initiated a National Public Health Entomology Programme and M.Sc. PHE will also be offered at four of its permanent Institutes viz., Regional Medical Research Centre, Dibrugarh, Assam, Regional Medical Research Centre, Gorakhpur, Uttar Pradesh, ICMR-National Institute for Research in Tribal Health, Jabalpur, Madhya Pradesh and ICMR- Rajendra Memorial Research Institute of Medical Sciences, Patna, Bihar.

### Course Description

This is a unique course in India catering to national as well as global needs. The course will provide an opportunity for students to gain in-depth knowledge of Public Health Entomology and intense training on the modern approaches for epidemiology, prevention and control of vectors and vector-borne diseases.

Arthropods affect the health and well-being of human beings in a wide variety of ways, by transmitting several of the most devastating infectious diseases. This course provides an overview of the ways in which arthropods impact public health, laying greater emphasis on insect vectors and vector-borne diseases prevention and control. The course will focus on vectors of local as well as global importance. An epidemiological perspective will be integrated throughout the course. Biology, ecology and application of modern tools in the management of vectors and vector-borne diseases will be discussed in detail. Finally, attention will be given enabling students to develop skills needed for operational programmes.

## Learning Objectives

By the end of this course, students will be able to:

- i) Describe the basics of arthropods of public health importance
- ii) Identify vector - host - pathogen relationships in arthropod-borne diseases
- iii) Conduct studies on the epidemiology of vector-borne diseases
- iv) Apply modern tools for surveillance and diagnosis of vector-borne diseases
- v) Design appropriate prevention and control measures including rationalization of the use of pesticides in Public health programmes
- vi) Promote Integrated Vector Management

## Duration of the Course

The duration of the course is TWO academic years (4 Semesters, Full time).

## Medium of Instruction

English shall be the medium of instruction for all subjects of study and examinations of the Course.

## Admission Procedure

Admission to the above course shall be made by following the admission related procedures prescribed by the Pondicherry University from time to time.

## No. of Seats: 60

Open Competition - 30 (General 40.5%, EWS 10%, OBC 27%; SC 15% & ST 7.5%)

In-service/Sponsored - 30 (Indian 28; Foreign 2)

## Eligibility for Admission

Candidates who have obtained a degree in B.Sc. in the discipline of Zoology / Botany / Life Sciences / Medical Laboratory Technology / Microbiology / Ecology/ Environmental Science / Biochemistry / Agriculture, or B.V.Sc., or M.B.B.S., or B.E., / B.Tech., degree with Biotechnology as one of the subjects from any University, accepted as equivalent by the academic council of the Pondicherry University will be eligible. A minimum of 50% mark is essential for General/Unreserved/OBC and 40% for SC/ST candidates in their Under Graduate Degree examination, the qualifying examination for admission to the course. The requirement for differently-abled candidates will depend on the category they belong to. Candidates who are appearing for the qualifying exam in the year 2022 and are awaiting their results are also eligible to apply. However, they should submit the relevant certificates at the time of admission.

## **Reservation**

The rule of reservation set in force by the Government of India and Pondicherry University, Puducherry shall apply from time to time while allocating seats during admission.

## **Criteria for Admission**

### **Category I: Open Competition**

Candidates seeking admission under this category should have passed any one of the following examinations of any University accepted by the Academic Council of Pondicherry University, Puducherry - B.Sc., in the discipline of Zoology / Botany / Life Sciences / Medical Laboratory Technology / Microbiology / Ecology / Environmental Science / Biochemistry / Agriculture, or B.V.Sc., or M.B.B.S., or B.E., / B.Tech., degree with Biotechnology as one of the subjects.

### **Category II**

#### **A. Indian Nationals**

In-service candidates either in Central or State Health Department and candidates sponsored by the Public Health Sectors should have passed the Degree examination in any of the disciplines indicated under Category I from a recognized University accepted by the Academic Council of Pondicherry University. The candidates should send their application with a "**No Objection Certificate**" / "**Certificate of Sponsorship**" from their Employer.

#### **B. Foreign Nationals**

The applicants under this category possessing qualification as mentioned under the Category I or the qualification for which Equivalence Certificate obtained from Association of Indian Universities, New Delhi are eligible to apply. They will be required to produce Eligibility Certificate from Pondicherry University, subsequently for recognition of their qualification. Applications should be routed through the employer or sponsoring/nominating authority/organization. Applicants with valid visa for the entire duration of the study, only, will be considered.

## Method of Selection

### I. Category I

- Selection of the candidates will be based on the performance in the Common Entrance Test [CET] for two-hour duration held in Cities where the above ICMR Institutes are located. There will be no negative marking. Minimum /cut-off mark fixed to qualify in CET is 35%.
- Overall merit list and Selection list for admission will be published in the websites of all the five designated ICMR Institutes based on CET score.

### II. Category II A

- Selection will be based on the qualification, experience and performance during oral interview conducted by the Admission Committee.
- The allotment of seats will be made depending on the availability of seats among the five designated ICMR institutes

### III. Category II B

- Admission will be based on a letter of recommendation/ reference from the Head of Department/Institution, last studied, if the candidate is a student or the Employer, if he/she is in service.

**Note:** Vacant seats if any that arise under any of the above categories will be filled in from the overall merit list (CET Score)

### Registration with Pondicherry University

A candidate admitted into the M.Sc. Public Health Entomology Course shall submit the prescribed application form for registration duly filled in along with prescribed fee and declaration in the format, to the Academic Officer of this University through the affiliated institution within 60 days from the cut-off date prescribed for admission.

### Stipend

All the candidates selected under Category-I will be paid a stipend of Rs. 20,000/- per month. The candidates selected under Category-II will be eligible for a stipend of Rs. 10,000/- per month (awaiting ICMR approval).



## Course Structure

The M.Sc. Programme is divided into two parts. Each part consists of two Semesters as given below.

Part	Year	Semester-Odd	Semester-Even
I	First	Semester -1	Semester -2
II	Second	Semester -3	Semester -4

Semesters 1-3 (two odd semesters and one even semester) consist of four papers each. Semester 4 comprises of Dissertation. It is mandatory for each student to complete a Dissertation at the end of 4<sup>th</sup> Semester.

The List of Papers prescribed for various semesters shall be as follows:

### **PART I: Semester– 1**

- 1 MPHE 101 Biology & Ecology of Arthropods of Public Health Importance
- 2 MPHE 102 Morphology, Taxonomy and Bio-diversity of Vectors
- 3 MPHE 103 Physiology and Bio-chemistry of insects of Public Health Importance
- 4 MPHE 104 Biostatistics

### **PART I: Semester– 2**

- 5 MPHE 201 Vector-Borne Parasites and Pathogens of Public Health Importance
- 6 MPHE 202 Application of Molecular Biology, Immunology and Bioinformatics in Public Health Entomology
- 7 MPHE 203 Pesticides used in Public Health
- 8 MPHE 204 Control of Vectors of Public Health Importance

### **Field Training**

### **PART II: Semester– 3**

- 9 MPHE 301 Epidemiology of Vector Borne Diseases
- 10 MPHE 302 Environment and Public Health
- 11 MPHE 303 Integrated Vector Management
- 12 MPHE 304 Vector-Borne Diseases Control Programme

### **PART II: Semester– 4**

- 13 MPHE 401 Dissertation

### **Field Training**

At the end of Semester II, students will be visiting various ICMR Institutes, Field Stations, National Centre for the Vector-Borne Diseases Control and other National laboratories for

observational training in the R& D activities and hands on training in the operational aspects of vector borne disease control.

At the completion of field visits, the students are required to submit a report and make a presentation of their field training.

### **Dissertation**

All the students must undertake dissertation work at the final semester (IV semester). Each student is individually placed under a faculty at their respective Institutes to work on the dissertation.

This process includes:

- (a) the conceptualization of the independent research that will comprise the dissertation
- (b) the preparation of and satisfactory defense of the dissertation proposal
- (c) the collection, analysis and interpretation of data
- (d) presentation of findings in the dissertation format and oral defense of the dissertation

Dissertation activity must be completed within the prescribed time frame for the semester.

### **Attendance required for appearing for examination**

A candidate shall be permitted to appear for the terminal examination in any particular subject only if the candidate secures not less than 80% of the attendance (reckoned in terms of the total number of lectures and seminars conducted in each semester, during the course of study). Condonation of shortage of attendance in aggregate up to 15% (for those with  $\geq 65\%$  and  $\leq 79\%$ ) during the academic year may be recommended by the College Academic Committee and as per the regulations of University. The candidates with less than 65% of attendance have to redo the course.

### **Scheme of Examinations**

Examinations shall be conducted at the end of each semester as per the Academic Calendar notified by the Pondicherry University.



## SCHEME OF EXAMINATION

Semester	Subject	Subject Code	Theory				Practical		Total Min.	Total Max.
			UE Min	UE Max.	IA Min.	IA Max.	UE Min.	UE Max.		
I	Biology & Ecology of Arthropods of Public Health Importance	MPHE 101	50	100	25	50	25	50	100	200
	Morphology, Taxonomy and Bio-diversity of Vectors	MPHE 102	50	100	25	50	25	50	100	200
	Physiology and Bio-chemistry of Insects of Public Health Importance	MPHE 103	50	100	25	50	25	50	100	200
	Biostatistics	MPHE 104	50	100	25	50	25	50	100	200
II	Vector-Borne Parasites and Pathogens of Public Health Importance	MPHE 201	50	100	25	50	25	50	100	200
	Application of Molecular Biology, Immunology and Bioinformatics in Public Health Entomology	MPHE 202	50	100	25	50	25	50	100	200
	Pesticides used in Public Health	MPHE 203	50	100	25	50	25	50	100	200
	Control of Vectors of Public Health Importance	MPHE 204	50	100	25	50	25	50	100	200
Field Training										
III	Epidemiology of Vector-borne Diseases	MPHE 301	50	100	25	50	25	50	100	200
	Environment in Public Health	MPHE 302	50	100	25	50	25	50	100	200
	Integrated Vector Management	MPHE 303	50	100	25	50	25	50	100	200
	Vector Borne Diseases Control Programmes	MPHE 304	50	100	25	50	50	25	100	200
IV	Dissertation, Viva-voce and Field Training	MPHE 401	Dissertation		Viva-voce		Field training		100	200
			150		20		30			
Total									1300	2600

UE – University Examination; IA – Internal Assessment

## The system of evaluation shall be as follows:

### A. Each paper carries 200 marks& will have the following components:

	Marks
<b>(i) Internal Assessment</b>	<b>50</b>
(a) Assignment	10
(b) Seminar	10
(c) Attendance	05
(d) Theory Internal Examination	25
<b>(ii) Final Examination</b>	<b>150</b>
(a) Theory	100
(b) Practical (40), Record (5) & viva-voce (5)	50
	-----
<b>Total marks for 12 papers (theory &amp; practical) 200 x12</b>	<b>2400</b>
<b>B. Field Training (Report: 20; Presentation: 10)</b>	<b>30</b>
<b>C. Dissertation (150), viva-voce (20)</b>	<b>170</b>
	-----
<b>Grand total</b>	<b>2600</b>
	-----

Internal assessment will be broadly based on attendance in Theory and Practical classes (5 marks), assignments (10 marks), seminars (10 marks) and tests in the theory (25marks).

The end semester examinations will comprise theory examination (100 marks), practical examination (40 marks), record (5 marks) and viva-voce (5 marks). These criteria are tentative and could be modified based on guidelines approved by the Pondicherry University, Puducherry.

Field training will be evaluated for 30 marks based on the field report (20 marks) and presentation (10 marks).

As regards the Dissertation, the scheme of evaluation shall be as follows:

Dissertation work would be assigned after the completion of Semester III. This component would be evaluated for 150 marks. There shall be a viva-voce examination conducted by a Board of Examiners at the end of Semester IV on the Dissertation that shall be assessed for 20 marks.

Examinations for courses shall be conducted only in the respective odd and even Semesters as per the Scheme of Examinations. Regular as well as Supplementary students shall be permitted to appear/reappear in courses of Odd Semesters only at the end of Odd Semesters and courses of Even Semesters only at the end of Even Semesters respectively.

No student shall be allowed to avail more than two chances to pass a paper inclusive of the first attempt.

### **Pass Percentage**

Minimum marks for pass in the examination shall be 50% separately in Internal Assessment, University Final Theory examination, Practical examination, Dissertation and Field Training.

### **Award of the degree**

Degree will be awarded based on the overall marks secured by the student as given below,

- A candidate who secures an overall average of not less than 75% shall be declared to have passed the examination in First class with Distinction, provided he/she has passed the examination in every subject in the very first appearance.
- A candidate who secures an overall average of not less than 60% shall be declared to have passed the examination in First class provided he/she has passed all the subjects at the first appearance/before the completion of the final semester.
- All other successful candidates shall be declared to have passed in second class.

### **Span Period**

No student shall be permitted as a candidate for the examination for any of the Parts/Semesters after the lapse of three years from the date of admission to the Part-I/Semester-I of the M.Sc. Public Health Entomology Course.

### **Conduct and Discipline**

Students enrolled at the 5 institutes must realize their responsibilities to the faculty. Failure to maintain appropriate standards of conduct will attract disciplinary action. Students should always wear the ID card provided to them and should not bring mobile phone to the class rooms.

Ragging in any form is strictly prohibited. If any incident of ragging comes to the notice of the authority, the concerned student shall be given liberty to explain and if the explanation is not found satisfactory, he/she will be expelled from the institution.

Alcohol, narcotic drugs, cigarettes, and other tobacco products are strictly prohibited within the premises of the Institutes, and use of any of the above is an offence and punishable, leading to even eviction from the course.

Students should abide by the rules and regulations stipulated by the individual institutes and Pondicherry University, from time to time.

### ACADEMIC FEE

Sl. No.	Particulars	Indian Nationals		For NRI/OCI/ SAARC Nationals (US \$/INR)		Other Foreign Nationals (US \$/INR)	
		I Year	II Year	I Year	II Year	I Year	II Year
1.	Tuition fee (p.a.)	10000	10000	US \$ 2000 INR 154320	US \$ 2000 INR 154320	US \$ 3000 INR 231480	US \$ 3000 INR 231480
2.	Registration fee	500	-	500	-	500	-
3.	Caution deposit [refundable]	5000	-	5000	-	5000	-
4.	Corpus Fund (p.a.)	500	500	5000	5000	6000	6000
5.	Library fee (p.a.)	500	500	500	500	500	500
6.	Wet Laboratory Fee (p.a.)	10000	10000	10000	10000	10000	10000
7.	Computer Lab Fee (p.a.)	5000	5000	5000	5000	5000	5000
8.	Alumni Fund	2000	-	4000	-	4000	-
9.	Field training Fee (p.a.)	5000	5000	10000	10000	15000	15000
10.	Academic Amenity Fee (p.a.)	3000	3000	6000	6000	6000	6000
11.	Sports/Recreation Fee (p.a.)	1000	1000	2000	2000	2000	2000
12.*	Matriculation fees for UG/PG qualified candidates (to be collected from all students except those who have qualified from Pondicherry University) *	100	-	100	-	100	-
13.*	University Fee: Recognition Fee: For UG/PG qualified students * (i) (except students qualified from Pondicherry University) (ii) For candidates from outside India	500	-	500  US \$ 25 INR 1800	-	500  US \$ 25 INR 1800	-
14.*	Sports fee One-time payment at the time of admission for all students) *	150	-	150	-	150	-
15.*	University Development Fund (Onetime payment at the time of admission for all students) *	100	-	100	-	100	-
	<b>Total</b>	<b>43,350</b>	<b>35,000</b>	<b>2,04,470</b>	<b>1,92,820</b>	<b>2,87,630</b>	<b>2,75,980</b>

Subject to revision from time to time as per the University notification.

\* US Dollar conversion to Indian Rupee will be based on the day of payment

**HOSTEL FEE**

Sl.No.	Particulars	Indian Nationals (INR)		Foreign Nationals (US \$/INR)	
		I year	II year	I year	II year
1.	Caution Deposit (Refundable)	5000	-	12500	-
2.	Room Rent (p.a.)	6000	6000	6000	6000
3.	Establishment (p.a.) (EB & Others)	5000	5000	10000	10000
4.	Amenities (p.a.)	5000	5000	10000	10000
	<b>Total</b>	<b>21,000</b>	<b>16,000</b>	<b>38,500</b>	<b>26,000</b>