



# M.Sc. Public Health Entomology

Affiliated to Pondicherry University  
(A Central University)

**Prospectus**  
2023 -2024

**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)

A Master's degree programme in Public Health Entomology (M.Sc., PHE) was introduced in 2011-2012 by ICMR-Vector Control Research Centre (VCRC), Department of Health Research, Government of India, Puducherry. It is now expanded nationwide as the National Public Health Entomology [NPHE] Program, started in 2022 – 2023 with four additional Regional Campuses at:

- ICMR - Regional Medical Research Centre, Dibrugarh, Assam
- ICMR - Regional Medical Research Centre, Gorakhpur, Uttar Pradesh
- ICMR - National Institute for Research in Tribal Health, Jabalpur, Madhya Pradesh
- ICMR - Rajendra Memorial Research Institute of Medical Sciences, Patna, Bihar

#### **ICMR-Vector Control Research Centre (ICMR-VCRC), Puducherry**

ICMR- Vector Control Research Centre (VCRC), established at Pondicherry (now Puducherry) in July 1975, is one of the permanent institutes of the Indian Council of Medical Research, Department of Health Research, Government of India. ICMR- VCRC has been engaged in basic and applied research with the primary objective of finding newer methods and developing strategies of vector control for the control of vector borne diseases. The World Health Organization (WHO) has designated the ICMR- VCRC as a



collaborating Centre for Research and Training in Lymphatic filariasis and Integrated Vector Management on 15th May 1985. The Ministry of Health and Family Welfare, Government of India in 2000 recognized the Centre as one of the Institutes of Excellence in India for Courses in Health Training.

#### **ICMR-Rajendra Memorial Research Institute of Medical Sciences (ICMR-RMRIMS), Patna**

Rajendra Memorial Research Institute of Medical Sciences (RMRIMS), Agamkuan, Patna is established in 1963. Its main thrust is research in different aspects of Visceral Leishmaniasis like Clinical, Vector biology and control, Immunological, Biochemical, Molecular biology, Pathological, Parasitological and Social. In recent years, RMRIMS, Patna is to provide technical support to the policy makers and implementers to combat the kala-azar disease at the ground level through conducting high quality research on diagnosis, treatment and control as well as capacity building to the different stakeholders. Besides Kala-azar, the Institute is rolling forward to broaden its research focus on HIV/AIDS, tuberculosis and other tropical diseases and come forward as a Centre of Excellence on the land of Bihar.



### **ICMR-National Institute of Research in Tribal Health (NIRTH), Jabalpur:**

ICMR-NIRTH established in 1984, conducts research on health issues of the tribal populations of the country, including nutritional disorders, common communicable and non-communicable diseases, environmental health problems, etc. ICMR-NIRTH works on diseases that are mostly prevalent in tribes, such as malaria, tuberculosis, haemoglobinopathies, hypertension, filariasis, fluorosis, dengue, chikungunya, and zoonotic diseases that are of importance to tribal populations. ICMR-NIRTH also takes up disease outbreak surveillance and research in tribal regions and help the state government to control such situations.



Apart from biomedical research, scientists of ICMR-NIRTH regularly provide trainings to state health professionals on modern techniques for diagnosis and diseases interventions. In addition, research on socio-economic, demographic and cultural aspects of the tribal population also have enabled in defining measures for disease prevention and control.

### **ICMR-Regional Medical Research Centre (RMRC), Gorakhpur:**

This Institute was established in Gorakhpur in 2008. The mandate of the Centre is to carry out basic, clinical as well as operational research on dominant diseases, suggest intervention methods for reducing disease burden. The institute undertake research on Acute Encephalitis Syndrome (AES), HIV and multi drug resistant (MDR) tuberculosis, vector borne diseases like JE, Dengue, and filariasis. Juvenile diabetes and myocarditis are diseases with probable infectious aetiologies. In addition, research to improve the child and maternal health is also a priority area of Centre.



### **ICMR- Regional Medical Research Centre,(ICMR-RMRC NE), Dibrugarh:**

The Centre was established in the year 1982. It covers the most remote and less developed eight states of the north-eastern region of India and is responsible for carrying out Biomedical Research in the region and runs with intramural grant from ICMR and extramural ad hoc projects from different funding agencies. Its current primary focus of research is on (i) Mosquito borne diseases (ii) HIV and drug abuse (iii) Trematode infection (iv) Haemoglobinopathies. The secondary focus of research of the center is on (i) Cancer nasopharynx, esophagus, stomach (ii) Cardiovascular diseases (iii) Medicinal plants of NE India (iv) Nutrition.



## 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 Indian Council of Medical Research (ICMR) require personnel with knowledge and expertise on entomology, epidemiology and prevention/control of vector-borne diseases for their programmes pertaining to vector-borne diseases.

## Course Description

This is a unique course in India catering to national as well as global needs. The course provides 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 focuses on vectors of local as well as global importance. An epidemiological perspective is integrated throughout the course. Biology, ecology, environment, surveillance and application of modern tools in the management of vectors and vector-borne diseases are dealt with in detail. Enormous attention is paid to develop skill-set of the students required for operational programmes.

## Learning Objectives

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

- (i) define the basics of arthropods of public health importance
- (ii) recognize vector - host - pathogen relationships in arthropod-borne diseases
- (iii) conduct epidemic / outbreak investigation 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 insecticides 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 provisionally allocated: 60

Among the total seats, 75% will be filled in through competitive examination [Category-I] and remaining shall be for candidates from India (In-Service) [Category-II A] and abroad [Category-II B]. When sufficient

numbers of candidates are not available under a particular category, interchanging will be done to fill the vacancies by the Admission Committee constituted for the purpose.

**Allotment of seats (provisional) in different ICMR Institutes is as follows:**

Sl. No.	Name of the ICMR Institutes	Number of Seats
1	ICMR-RMRCNE, Dibrugarh, Assam	6
2	ICMR-RMRCGKP, Gorakhpur, Uttar Pradesh	10
3	ICMR-NIRTH, Jabalpur, Madhya Pradesh	8
4	ICMR-RMRIMS, Patna, Bihar	16
5	ICMR-VCRC, Puducherry	20
<b>Total</b>		<b>60</b>

### Eligibility for Admission

Candidates who have obtained a recognized undergraduate degree related to Biological/Medical/Para-medical/Agriculture/Veterinary/Biotechnological disciplines 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 2023 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.

### Method of Selection

#### Common Entrance Test

#### Syllabus:

Syllabus for Common Entrance Test covers science subjects under the disciplines Biological, Medical, Para-Medical, Agriculture, Veterinary and Biotechnology. The multiple-choice questions from the above subjects shall be at the Undergraduate level.

#### Pattern of exam:

A common entrance test (CET) will be held in Cities where the above ICMR Institutes are located. The duration for the CET will be for two hours. There will be 100 multiple choice questions, each carrying one mark and there will be NO negative marking.

### Category I

- Selection of the candidates will be based on the performance in the Common Entrance Test [CET].
- Overall Merit list and Selection list for admission will be published in the websites of ICMR-VCRC, <http://www.vcrc.res.in>

- Vacant seats if any that arise after Institute-wise selection list, will be filled in from the overall merit list

## Category II

### 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 / Institution.

- Selection will be based on the qualification, experience and performance during oral interview conducted by the Admission Committee.
- The applicant should be below the age of 48.
- The allotment of seats will be made depending on the availability of seats among the five designated ICMR institutes

### II 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.

- 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

### 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

Candidates selected under Category-I will be paid a sum of Rs. 20,000/- per month. Candidates selected under Category-IIA will be eligible for Rs. 10,000/- per month (subject to approval of ICMR).

### 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

**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**

No student who has less than 70% attendance in any course shall be permitted to attend the end-semester examination and he/she shall be given FA grade— failure due to lack of attendance. He/she shall be required to repeat that course.

**Scheme of Examinations**

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

## CREDIT HOURS ALLOTTED TO DIFFERENT PAPERS INCLUDING DISSERTATION

Semester	Subject Code	Subject	Hours		
			Theory	Practical	Credit hours
I	MPHET 101	Biology & Ecology of Arthropods of Public Health Importance	65		4
	MPHET 102	Morphology, Taxonomy and Bio-diversity of Vectors	65		4
	MPHET 103	Physiology and Bio-chemistry of Insects of Public Health Importance	65		4
	MPHET 104	Environment and Public Health	65		4
	MPHEP 105	Practical – 1: Biology & Ecology of Arthropods of Public Health Importance		30	1
	MPHEP 106	Practical – 2: Morphology, Taxonomy and Bio-diversity of Vectors		30	1
	MPHEP 107	Practical – 3: Physiology and Bio-chemistry of Insects of Public Health Importance		30	1
	MPHEP 108	Practical – 4: Environment and Public Health		30	1
II	MPHET 201	Vector-Borne Parasites and Pathogens of Public Health Importance	65		4
	MPHET 202	Application of Molecular Biology, Immunology and Bioinformatics in Public Health Entomology	65		4
	MPHET 203	Epidemiology of Vector-borne Diseases	65		4
	MPHET 204	Biostatistics	65		4
	MPHEP 205	Practical – 1: Vector-Borne Parasites and Pathogens of Public Health Importance		30	1
	MPHEP 206	Practical – 2: Application of Molecular Biology, Immunology and Bioinformatics in Public Health Entomology		30	1
	MPHEP 207	Practical – 3: Epidemiology of Vector-borne Diseases		30	1
	MPHEP 208	Practical – 4: Biostatistics		30	1
	MPHEFT 209	Field Training			2
III	MPHET 301	Pesticides used in Public Health	65		4
	MPHET 302	Control of Vectors of Public Health Importance	65		4
	MPHET 303	Integrated Vector Management	65		4
	MPHET 304	Vector Borne Diseases Control Programmes	65		4
	MPHEP 305	Practical – 1: Pesticides used in Public Health		30	1
	MPHEP 306	Practical – 2: Control of Vectors of Public Health Importance		30	1
	MPHEP 307	Practical – 3: Integrated Vector Management		30	1
	MPHEP 308	Practical – 4: Vector Borne Diseases Control Programmes		30	1
IV	MPHERM 401	Research Methodology	65		4
	MPHED 402	Dissertation and Viva-voce		200	20
Total			845	560	86

## SCHEME OF EXAMINATION

Semester	Subject Code	Subject	Theory				Total Max
			IA Min	IA Max	UE Min	UE Max	
I	MPHET 101	Biology & Ecology of Arthropods of Public Health Importance	25	50	50	100	150
	MPHET 102	Morphology, Taxonomy and Bio-diversity of Vectors	25	50	50	100	150
	MPHET 103	Physiology and Bio-chemistry of Insects of Public Health Importance	25	50	50	100	150
	MPHET 104	Environment and Public Health	25	50	50	100	150
	MPHEP 105	Practical – 1: Biology & Ecology of Arthropods of Public Health Importance			25	50	50
	MPHEP 106	Practical – 2: Morphology, Taxonomy and Bio-diversity of Vectors			25	50	50
	MPHEP 107	Practical – 3: Physiology and Bio-chemistry of Insects of Public Health Importance			25	50	50
	MPHEP 108	Practical – 4: Environment and Public Health			25	50	50
II	MPHET 201	Vector-Borne Parasites and Pathogens of Public Health Importance	25	50	50	100	150
	MPHET 202	Application of Molecular Biology, Immunology and Bioinformatics in Public Health Entomology	25	50	50	100	150
	MPHET 203	Epidemiology of Vector-borne Diseases	25	50	50	100	150
	MPHET 204	Biostatistics	25	50	50	100	150
	MPHEP 205	Practical – 1: Vector-Borne Parasites and Pathogens of Public Health Importance			25	50	50
	MPHEP 206	Practical – 2: Application of Molecular Biology, Immunology and Bioinformatics in Public Health Entomology			25	50	50
	MPHEP 207	Practical – 3: Epidemiology of Vector-borne Diseases			25	50	50
	MPHEP 208	Practical – 4: Biostatistics			25	50	50
	MPHEFT 209	Field Training				30	30
III	MPHET 301	Pesticides used in Public Health	25	50	50	100	150
	MPHET 302	Control of Vectors of Public Health Importance	25	50	50	100	150
	MPHET 303	Integrated Vector Management	25	50	50	100	150
	MPHET 304	Vector Borne Diseases Control Programmes	25	50	50	100	150
	MPHEP 305	Practical – 1: Pesticides used in Public Health			25	50	50
	MPHEP 306	Practical – 2: Control of Vectors of Public Health Importance			25	50	50
	MPHEP 307	Practical – 3: Integrated Vector Management			25	50	50
	MPHEP 308	Practical – 4: Vector Borne Diseases Control Programmes			25	50	50
IV	MPHERM 401	Research Methodology			50	100	100
	MPHED 402	Dissertation and Viva-voce	Dissertation		Viva-voce		170
			150		20		
Total							2700

UE – University Examination; IA – Internal Assessment

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

The system of evaluation for (i) Internal Assessment, (ii) Practical Examination, and (iii) Field Training shall be as follows:

	<b>Marks</b>
(i) <b>Internal Assessment</b>	<b>50</b>
(a) Assignment*	10
(b) Seminar*	10
(c) Theory Internal Examination	30
* Any two Units of each theory paper to be chosen, one for Assignments and other for Seminar	
(ii) <b>Practical paper</b>	<b>50</b>
Practical (40), Record (5) & Viva-voce (5)	
(iii) <b>Field Training</b>	<b>30</b>
Report (20), Presentation (10)	

### **Pattern of question paper for End semester examination**

There will be three sections in the question paper.

Section A: 10 Marks (10 x 1) - 10 one-mark questions and all questions must be answered.

Section B: 30 Marks (5 x 6) – Five of Six questions to be answered and each carry 6 marks.

Section C: 60 Marks (4 x 15) – Four of Five questions to be answered and each carry 15 marks.

### **Pass Percentage**

Minimum marks for pass in the examination shall be 50% for all courses.

### **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**

Students who fail in the end semester examination shall be permitted to reappear in the following End Semester examination. The maximum period to complete the programme shall be FOUR years.

## Internship

After the completion of two-year M. Sc., course, one-year paid [Rs.30,000/-per month] optional internship programme will be available for the candidates on *inter-se merit*, subject to approval of ICMR.

## Academic Fees

The Academic fees indicated below is provisional, and is likely to be changed in line with the Pondicherry University guidelines and the Institutional norms, from time to time.

### ACADEMIC FEES

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	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	500	500	5000	5000	6000	6000
5.	Library fee	500	500	500	500	500	500
6.	Wet Laboratory Fee	10000	10000	10000	10000	10000	10000
7.	Computer Lab Fee	5000	5000	5000	5000	5000	5000
8.	Alumni Fund	2000	-	4000	-	4000	-
9.	Field training Fee	5000	5000	10000	10000	15000	15000
10.	Academic Amenity Fee	3000	3000	6000	6000	6000	6000
11.	Sports/Recreation Fee	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 candidate qualified from outside India	500	-	500 US \$ 25 INR 1800	-	500 US \$ 25 INR 1800	-
14.*	Sports fee Onetime 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>

**Refund Rules for academic fees:**

Fee refund policy of UGC, followed by Pondicherry University shall be applicable. If, after having paid the fees, a student desires to discontinue, he/she shall be refunded all fees after deducting Rs.1000/- provided he/she discontinues on or before the date notified by the University. Caution deposit money is refundable on his/her leaving the Institute, after deducting all dues against him/her.

**Hostel**

Hostel facilities are available in ICMR-VCRC, Puducherry, ICMR-RMRIMS, Patan, ICMR-NIRTH, Jabalpur and ICMR-RMRCNE, Dibrugarh. The fee structure shall vary from one place to the other based on the facilities, and fixed by the Institute concerned.

If, after having paid the fees, a student desires to discontinue the course/vacate the hostel, he/she shall be refunded the 'caution deposit'. Further, his /her stay in the hostel shall be calculated on pro-rata basis, and the remaining amount shall be paid to the student.

**Conduct and Discipline**

Students enrolled at the 5 institutes must realize their responsibilities to the Course, Faculty and their Institutes. 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 eviction from the course.

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

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