

M. Sc., Public Health Entomology

2 Year Course
(Semester Pattern)

Prospectus

2021-22



icmr **VCRC**
INDIAN COUNCIL OF
MEDICAL RESEARCH | VECTOR CONTROL
RESEARCH CENTRE

ICMR-Vector Control Research Centre
Puducherry 605 006
Affiliated to
Pondicherry University, Puducherry



M.Sc., Public Health Entomology

(TWO YEAR-FULL TIME SEMESTER PROGRAMME)

The Master's degree programme in Public Health Entomology (M.Sc., PHE) of Pondicherry University is offered by Vector Control Research Centre, Puducherry.

About the Centre

Vector Control Research Centre (VCRC), established in Puducherry in July 1975, is one of the permanent institutes of the Indian Council of Medical Research, New Delhi, under the Department of Health Research, Ministry of Health & Family Welfare, Govt. of India. VCRC is engaged in basic and applied research with the primary objective of finding newer methods and developing strategies for the control of vectors and vector borne diseases. The World Health Organization (WHO) has designated the VCRC as a collaborating Centre for Research and Training in Lymphatic filariasis and Integrated Methods of Vector Control. It is recognized as a centre of excellence for research and training in vector-borne diseases and control by the Ministry of Health & Family Welfare, Govt. of India.

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. Most of the posts of Entomologists in many States of India are lying vacant. Apart from the State Health Departments, National Vector Borne Disease Control Programme (NVBDCP), National Centre for Disease Control (NCDC), National rural Health Mission (NRHM), National Urban Health Mission (NUHM) and ICMR Institutes (VCRC, CRME, NIMR and RMRC) require personnel with knowledge and expertise on 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 from 2011.

Course Description

This is a unique course in India catering to the national as well as global needs. The course will provide an opportunity for students to gain an in-depth knowledge on 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 being 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 to enable students to develop practical 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).

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.

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, 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, Puducherry with any of the specified groups of options shall be permitted to appear and qualify for the M.Sc. Public Health Entomology degree examination in non-clinical subjects under the School of Medical Sciences after a course of study of two

academic years. 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.

Reservation

The rule of reservation set in force by the Government of India and Pondicherry University, Puducherry shall be followed while allocation of seats during admission from time to time. Sixty Percentage of admission is through competitive examination and remaining each twenty percentage is for candidates from India (in-service) and abroad respectively. Wherever sufficient numbers of candidates are not available in a particular category interchanging will be done.

No. of Seats: 12

Open Competition - 8 (General 40.5%, EWS 10%, OBC 27%; SC 15% & ST 7.5%);

In-service/Sponsored - 4 (Indian 2; Foreign 2)

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, or B.V.Sc., or M.B.B.S., or B.E., / B.Tech., degree with Biotechnology as one of the subjects.

Category II: In-service (Self supporting / Sponsored)

A. Indian Nationals

In-service candidates employed either in Government or Non-government agencies and sponsored by the employer should have passed the Degree examination in any of the disciplines indicated under Category I from a recognized University. The in-service candidates without sponsorship should send their application with a "No Objection Certificate" from their employer.

B. Foreign Nationals

The applicants under this category possessing qualification as mentioned under the Category I or the qualification for which Equivalent Certificate obtained from Association of Indian Universities, New Delhi and Eligibility Certificate from Pondicherry University are

eligible to apply. Applications of in-service self-supporting as well as sponsored/nominated foreign applicants should be routed through the employer or sponsoring/nominating authority/organization. These applicants will be admitted only with valid **student visa** for the entire duration of the study.

Method of Selection

Selection of the candidates under **Category I** will be based on performance in the common entrance test (two hours duration), **Category II A:** Based on the oral interview and **Category II B:** 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.

Both common entrance test and oral interview will be held at ICMR-VCRC, Puducherry and the date will be intimated to the eligible applicants individually. The list of candidates selected for admission will be published in our website (<https://vcrc.icmr.org.in>).

For details, please see the prospectus in the website.

Registration

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.

Fellowship

All the candidates selected under Category-I will be paid a scholarship of Rs.6,000/- per month. The candidates selected under Category-II will be paid a stipend of Rs.3,000/- per month, with the approval of the Admission Committee.

Course Structure

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

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

The schedule of papers prescribed for various semesters shall be as follows:

PART I: Semester – 1

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|---|----------|---|
| 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

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|---|----------|---|
| 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

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|----|----------|---|
| 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

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| 13 | MPHE 401 | Dissertation |
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Field Training

At the end of Semester II, students will be visiting various ICMR Institutes, National Vector Borne Disease Control Programme 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 ICMR-VCRC 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 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 his/her 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

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

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 (25 marks).

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 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 of 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 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.

Internship

After the completion of two year M. Sc., course, one year paid optional internship programme will be available for the candidates on inter-se merit, subject to availability of funds.

Common Facilities

Library

Library meets the information needs of students, research scholars and faculty. The mission of the Library is to enhance learning and facilitating research. There are 12,947 books, 73 Journals (Indian: 12; Foreign: 13), Online Journals (subscribing Bio-One – 191, accessing Consortia – 23,794), 967 Research publications etc. available on vector borne diseases.

Resource Centre

A resource room is available for students to read magazines, News Letters, scientific reports, and other academic / research papers. Computers are provided, with internet

access. The Centre also provides 100 Mbps internet access through National Knowledge Network (NKN) on 24 x 7 basis.

Hostel

VCRC provides separate hostel for Men and Women students with all basic amenities.

Transport

VCRC offers free transport facilities to the students for field visits.

Clinic

The clinic available inside the VCRC campus provides basic facilities for common ailments for the benefit of students and staff.

Canteen

Canteen is available inside the campus.

Conduct and Discipline

Students enrolled at VCRC 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, cigarettes and other tobacco products are strictly prohibited within the premises of the Institute, and use of anyone is an offence and punishable.

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

ACADEMIC FEES*

Sl. No.	Particulars	For Indian Nationals (INR)	For NRI/OCI/ SAARC Nationals (US \$/INR)	Other Foreign Nationals (US \$/INR)
1	Tuition fee (p.a.)	2000	US \$ 500 INR 37000	US \$ 1000 INR 74000
2	Registration fee	200	200	200
3	Institution Application fee	200	200	200
4	Caution Deposit (Refundable)	4000	4000	4000
5	Corpus fund (5% of tuition fee) (p.a.)	100	1250	2500
6	Library fee (p.a.)	100	100	100
7	Laboratory Fund (p.a.) Computer Lab Fund Wet Lab Fund	1000 2000	1000 2000	1000 2000
8	Matriculation fees for UG/PG qualified candidates (to be collected from all students except those who have qualified from Pondicherry University)	100	100	100
9	University Fee: Recognition Fee: For UG / PG qualified students (i) except students qualified from Pondicherry University (ii) For candidates qualified from outside India	500	500 1800(\$25)	500 1800(\$25)
10	Sports fee (One time payment at the time of admission for all students)	150	150	150
11	University Development Fund (One-time payment at the time of admission for all students)	100	100	100
	Total	10450	48400	86650

* Subject to revision from time to time

HOSTEL FEES*

Sl.no	Particulars	Fee structure per annum for Indian Students(INR)	Fee structure per annum for Foreign Students(INR)
1	Hostel caution deposit at the time of admission (Refundable)	4000	10000
2	Hostel Room Rent (p.a)	4000	5600
	Total	8000	15600

