

SIR SYED COLLEGE, TALIPARAMBA

 (Affiliated to Kannur University) Re-accredited by NAAC with A Grade

Kannur, Kerala, India-PIN 670142

**ACFOR4 BUTTERFLY IDENTIFICATION**



**DEPARTMENT OF FORESTRY**

Course Co-Ordinator: Mr. Azhar Ali Ashraf

Assistant Professor

Department of Forestry

**Board of Studies Members**

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| Mrs. Sneha C. Assistant Professor Department of ForestrySir Syed CollegeTaliparamba | 1. Mr. Aneesh K.S.

 Assistant Professor Department of Natural Resource Management College of Forestry Kerala Agricultural University |
| 1. Mr. Azhar Ali Ashraf

Assistant Professor Department of Forestry  |

**Vision**

To inspire a deeper understanding and appreciation of the natural world by fostering expertise in butterfly identification, conservation, and ecological awareness.

**Mission**

* To develop employable skills among the students
* To build research interests in the field of lepidopterology
* To disseminate the knowledge on lepidopterans and their importance in the field of nature conservation
* To monitor the population changes in the context of climate change and environmental pollution

**Programme specific outcome**

* Develop the skills of butterfly identification and monitoring
* Understand the ecology and behavior of butterflies
* Know the importance of preserving butterfly populations and their habitats
* Develop deeper knowledge in different butterfly species and their host plants

**Methodology for Teaching, Learning and Evaluation**

**Teaching and Learning**

Lectures (Hybrid mode), Presentations, Assignments and Field visits.

**Evaluation Process**

The evaluation scheme for the course shall contain two parts

1. Internal assessment (Based on Internal test, assignment and Viva) – 20% Weight
2. External evaluation (Based on Theory and Practical exam) – 80% Weight

Each student should go through the evaluation process which is carried out in two sessions

1. Theory - 50% Weightage
2. Practical - 50% Weightage

The distribution of marks is given below

|  |  |
| --- | --- |
| **Theory** | **Practical** |
| Internal Test | External test | Assignment  | Viva Voce | External  |
| 10 | 40 | 5 | 5 | 40 |

|  |  |  |
| --- | --- | --- |
| **Component**  | **Internal evaluation** | **External evaluation** |
| **Theory** | 10 | 40 |
| **Practical** | 10 | 40 |

**Pass conditions:** The student should get a minimum of 15 marks (5 for internal and 10 for external evaluation) in both the theory as well as practical components.

|  |  |  |
| --- | --- | --- |
|  | **Marks per course** | **Pass Mark** |
| **Theory**  | 50 | 15 |
| **Practical**  | 50 | 15 |
| **Total**  | 100 | 30 |

**Detailed Syllabus (Theory and Practical) with references and model question paper**

**Name of Add on Course-: Butterfly Identification**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Duration of the course** | **Course Code** | **Hours per week** | **Credit and Modules** | **Exam Hours** |
| **30 hours** | **ACFOR4** | **2+3** | **V** | **3** |

**Course Outcomes**

* Understand the significance of butterflies in ecosystems and their role in pollination.
* Identify common butterfly families and species found in their region.
* Recognize butterfly life stages, including eggs, larvae (caterpillars), pupae (chrysalides), and adults.
* Understand the behavior and habitat preferences of different butterfly species.
* Participate in citizen science projects related to butterfly monitoring and conservation.
* Appreciate the cultural and ecological importance of butterflies.

**Module I: Insecta - The Most Diverse Class (3 Hrs)**

Introduction to Insects: General Characters, Morphology, Anatomy. The diversity of insect orders. Insect habitats and adaptability. Ecological role of insects and its impact in human life.

**Module II: Lepidoptera (6 Hrs)**

Introduction to Lepidoptera; General characteristics. Diversity of Lepidoptera species; distribution and habitats. Key differences between butterflies and moths. Comparative anatomy and behaviors. Metamorphosis; Egg-larva-pupa-adult stages with case studies. Butterfly feeding and reproduction.

**Module III: Butterfly classification, families (9 Hrs)**

Characteristics of sub order; Aglossata, Glossata, Heterobathmiina, Rhopalocera, Zeugloptera. Characteristic features, distribution, conservation status and representatives of Butterfly families with special reference to Western Ghats; Papilionidae, Hesperiidae, Pieridae, Riodinidae, Lycaenidae, Nymphalidae.

**Module IV: Butterfly identification tools (6 Hrs)**

Key features used in butterfly identification. Identifying butterflies based on family characteristics. Familiarity with distinctive family traits. Essential tools for butterfly identification; Butterfly nets, containers, and magnifying glasses. Proper handling and ethical considerations. Approaches to observing butterflies in the field. Understanding butterfly behavior and flight patterns. Best practices for patient and effective observation

**Module V: Butterfly gardening (6 Hrs)**

Basics of Butterfly Gardening: Importance of creating butterfly-friendly environments. Factors to consider: sunlight, shelter, and proximity to water sources. Identifying host plants for caterpillars. Larval Host Plants (LHP). Attracting ‘nectar-loving’ butterflies. Attracting the ‘non-nectar-loving’ butterflies. Attracting ‘alkaloid-loving’ male butterflies. Attracting ‘mud-loving’ butterflies.

**Add-on Courses in Forestry- Model Question Paper**

**ACFOR3 Research Methodology**

Time: 90 minutes Maximum Marks: 40

 Part A- Fill in the blanks (5 x 1=5)

1. ------- is a type of experimental design
2. ------- is a system of referencing
3. ….………………….. are those which are collected afresh and for the first time, and thus happen to be original in character.
4. ….………… refers to the framework or structure of an experiment
5. The pre-determined plots or the blocks, where different treatments are

used, are known as ……………….

Part B- Short Answer Questions (Answer Any **Five**) (5 x 2=10)

1. Design of the research project;
2. Research hypothesis
3. Latin square design
4. Treatment and Replication
5. Criteria of good research;
6. How do you define a research problem?
7. Explain the meaning and significance of a Research design.

 Part C- Short Essay Questions (Answer Any **Three**) (3 x 5=15)

1. Describe some of the important research designs used in experimental hypothesis-testing research study.
2. Different systems of referencing
3. What do you mean by research? Explain its significance in modern times.
4. What is the necessity of defining a research problem? Explain.
5. Describe the different types of research, clearly pointing out the difference between an experiment and a survey.

 Part D- Essay questions (Answer Any **One**) (1 x 10=10)

1. “Report writing is more an art that hinges upon practice and experience”. Discuss.
2. Distinguish between an experiment and survey. Explain fully the survey method of research.
3. Empirical research in India in particular creates so many problems for the researchers”. State the problems that are usually faced by such researchers.

**Add-on Courses in Forestry- Model Question Paper**

**ACFOR3 Research Methodology - Practical**

Time : 60 minutes Maximum Marks: 40

1. Write a model project proposal with proper structure ( 10 marks)
2. Write a short note on different experimental designs (5 marks)
3. Write the referencing in MLA system for the given articles F, G, H, I and J (5 x 2= 10 marks)
4. Paraphrase the given paragraph K (5 x 1 = 5 marks)
5. Prepare a questionnaire based survey for collecting data related to man animal conflict in Aralam Farm, Kannur ( 10 x 1 = 10 marks)