## SEMESTER- 2

## Core course: Sericulture Paper-II

## Silkworm Biology and Rearing Technology

## (Credits: Theory-04, Practical-02)

### Unit 1: SILKWORM TAXONOMY AND DISTRIBUTION

1. Systematic position of silkworm and salient features of the order Lepidoptera and family Bombycidae and Saturnidae
2. Life cycle of *Bombyx mori* – stages of development (egg, larva, pupa and adult).
3. Voltinism: Univoltine, bivoltine and multivoltine races.
4. Moultinism: Characteristics features of different moulters.

### Unit 2: SILKWORM BIOLOGY-I

1. Morphology of Egg, larva, pupa and adult
2. Digestive system: Alimentary canal and physiology of digestion.
3. Respiratory system and respiration.
4. Excretory system and excretion.
5. Circulatory system: Dorsal vessel, haemolymph and haemocytes

### Unit 3: SILKWORM BIOLOGY-II

1. Reproductive system : Male and female systems and mechanism of egg development
2. Silk glands: Structure, development and mechanism of silk synthesis.
3. Mouting: Structures of integument and cuticle formation and shedding of the cuticle hormonal control. Characteristics of moulting larva.
4. Metamorphosis-definition, morphological changes role of the hormones in insect metamorphosis
5. Embryology-structure of the egg developments stages-stages, blastokinesis-eye spot and blue egg stage hatching.

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## UNIT 4: REARING TECHNOLOGY

1. Rearing house: types, rearing appliances and their uses.
2. Disinfection: Importance and types of disinfection; Incubation and black boxing
3. Brushing: Definition, methods-brushing from loose eggs and sheet eggs-advantage and disadvantage of different types of brushing
4. Chawki and late age rearing: methods, environmental conditions required, leaf requirement and selection. Bed cleaning –methods, spacing and feeding schedule
5. Mounting and Harvesting : Types of mountages, transfer of matured silkworms and spinning of cocoons, harvesting, preservation and assessment

## PRACTICALS

a) Morphology- Egg, last instar larva, pupa, adult
b) Sexual dimorphism, morphology of mouthparts, antennae, legs, prologs and wings.
c) Anatomy-Dissection of alimentary canal, excretory system, respiratory system, silk gland of larva and reproductive system of adult.
d) Study of rearing appliances
e) Characteristics of moulting larva and moulted out larva.
f) Silk products—Silk wastes and other byproducts.
g) Conduct of silkworm rearing by students
h) Visit to various sericulture centres of state and southern India.

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