

# SERICULTURE TECHNOLOGY

## OPEN ELECTIVE PAPER FOR MASTERS DEGREE COURESES

4 Credits (L:T:P/3:1:0)

Open Elective Theory		3 Credits
<b>UNIT I</b>		
1	Introduction to Sericulture-Origin and history of Sericulture-. Components of Sericulture. Popular mulberry cultivars of India.	2 h.
2	Soils for mulberry cultivation: soil profile and classification; soil sampling and testing; problematic soils and their reclamation.	2 h.
3	Propagation of mulberry- sexual and asexual methods (cuttings, grafting and layering)-types and techniques-significance. Nursery garden.	2 h.
4	Establishment and maintenance of mulberry gardens;general description, farm implements, package of practices for mulberry gardens under rainfed and irrigated conditions, gardens for rearing of young age silkworms. Selection and preparation of planting material	2 h.
5	Irrigation management: sources, methods and schedule. Pruning of mulberry	2 h.
6	Harvesting, transportation and preservation of mulberry. Diseases and pests of mulberry and their management.	2 h.
<b>UNIT 2</b>		
7	Classification of insects with reference to sericigenous insects	1 h.
8	Classification and Characteristic of silkworm races/breeds on voltinism, moultinism, geographical distribution; indigenous and exotic.	2 h.
9	Introduction to silkworm egg production.	2 h.
10	Planning for silkworm rearing: estimation of leaf yield and quality, brushing capacity, selection of silkworm races/ breeds and hybrids.	2 h.
11	Rearing house: selection of building site, orientation of the building, model rearing house, Rearing appliances and their uses.	2 h.
12	Disinfection and hygiene: importance, types of disinfectants, preparation of spray solution and quantum of spray solution required, disinfection methods.	2 h.
13	Egg transportation, egg incubation, black boxing, silkworm larvae brushing and brushing methods.	1 h.
<b>UNIT 3</b>		
14	Young age silkworm rearing- Environmental requirements, rearing methods and operations.	2 h.
15	Moulting-symptoms and Care during moult. TSCs and CRCs	1 h.
16	Late age silkworm rearing: Environmental requirements, rearing methods and operations.	1 h.
17	Mounting: Identification of spinning larva; spinning; mounting and mounting density; Types of mountages, their advantages and disadvantages; Environmental requirements during spinning. Harvesting: Time of harvesting; sorting, storage/ preservation, packaging and transport of cocoons and marketing.	2 h.
18	Diseases and pests of silkworm and their management.	2 h.
19	Cocoon markets and their functions.	2 h.
20	Physical and commercial characteristics of multivoltine and bivoltine cocoons. Cocoon stifling: objectives and methods-sun drying, steam stifling. Hot air drying- advantages	2 h.

	and disadvantages. Preservation of cocoons.	
<b>UNIT 4</b>		
21	Cocoon cooking: objectives and methods-open pan, three pan and pressurized cocoon boiling methods.	1 h.
22	Cocoon brushing: Methods. Silk reeling: Reeling on charaka, cottage basin, multi end reeling machine and automatic reeling units.	2 h.
23	Re-reeling and packing: Objectives, grant reeling, hank preparation, lacing, skeining, booking and bale making and bundling.	2 h.
24	Raw silk testing and grading; objectives: raw silk testing-Visual inspection. Mechanical tests, raw silk grading.	2 h.
25	Silk throwing and Silk weaving- hand loom and power loom	2 h.
26	Degumming, bleaching and silk dyeing- objectives and methods	1 h.
27	Bye-products of sericulture industry. Organization of sericulture industry, CSB, KSIC, KSMB, Silk exchange and Universities.	2 h.
<b>Tutorial/Demonstration</b>		<b>1 Credit</b>
1	Soil sampling and preparation of soil sample for analysis. Analysis for soil pH.	
2	Field observation of popular mulberry cultivars. Preparation of cuttings.	
3	Raising of saplings- cutting preparation, planting and maintenance of nursery, grafting and layering in mulberry.	
4	Planting methods-row and pit systems and tree planting. Irrigation systems (surface, sprinkler and drip irrigation)	
5	Method of pruning and harvesting of mulberry, selection and preservation of mulberry for feeding of young and late age silkworms.	
6	Morphology and life cycle of silkworm, <i>Bombyx mori</i> , rearing houses and equipments. Disinfection of rearing houses and equipments.	
7	Incubation of silkworm eggs and brushing of silkworms, hatching percentage.	
8	Young and late age silkworm rearing. Method of application of bed disinfectants for management of silkworm diseases.	
9	Moulting-identification of moulting larvae. Mounting-mountages, identification and mounting of spinning larvae.	
10	Harvesting and sorting of cocoons. Cocoon assessment.	
11	Study of physical and commercial characters of cocoons in multivoltine and bivoltine races/breeds. Sorting of cocoons-identification of good and defective cocoons.	
12	Practicing of cocoon cooking and brushing, single cocoon reeling for filament length and denier, reelability and renditta.	
13	Estimation of degumming loss in multivoltine and bivoltine cocoon shell/raw silk.	
14	Estimation of bleaching loss in multivoltine silk, dyeing of silk.	
15	Bye products of sericulture industry	
16	Visit-composting and vermicomposting units, study of organic manures, chemical fertilizers and biofertilizers.	
17	Visit-collection and preservation of diseased mulberry specimens and pests. Collection and preservation of diseased silkworm specimens and pests.	
18	Visit-egg production centre, cocoon market, reeling and weaving units.	