

B.Sc. SERICULTURE SYLLABUS UNDER CBCS

(With effect from 2016-2017)

VI- SEMESTER, GE-2 (Theory)

Sericulture and Entrepreneurial Development

Max. Marks: 80

Unit 1: Sericulture & scope of Entrepreneurship.

- 1.1 General Introduction to Sericulture and its distribution in India. Sericulture organization in India.
- 1.2 Insect and non-insect fauna producing silk; types of silk produced in India; status of mulberry and non-mulberry Sericulture in India
- 1.3 Scope of Sericulture in India, employment potential and income generation.
- 1.4 Entrepreneurship development programme (EDP) for new enterprise creation; emergence and objectives.

Unit 2: Mulberry- Entrepreneurship

- 2.1 Host plant of mulberry silkworm, mulberry varieties for irrigated and rainfed conditions.
- 2.2 Soils, location and climate for mulberry cultivation. Package of practices for mulberry cultivation under rainfed and irrigated conditions.
- 2.3 Pests and diseases of mulberry and their management.
- 2.4 Entrepreneurship development in mulberry - Kisan nursery, Vermicompost, Bio-fertilizer and Biogas.

Unit 3: Silkworm-Entrepreneurship

- 3.1 Silkworm seed organization and its significance; importance of seed areas (bivoltine and multivoltine) and silkworm seed legislation act.
- 3.2 Grainage operations: Grainage building, Procurement and preservation of seed Cocoons, sexing, moth emergence, mating, oviposition- sheet and loose egg preparation, mother moth examination, surface sterilization of eggs, acid treatment of hibernating eggs, packing and sale of eggs. Entrepreneurship development in silkworm egg production
- 3.3 Rearing operations: Life cycle of the silkworm, *Bombyx mori*; transportation and incubation of eggs, disinfection, brushing, young and late-age rearing, environmental requirements, feeding, cleaning, spacing, care during moult, hygiene maintenance, mounting and spinning, cocoon harvesting, transportation, marketing and cocoon markets.
- 3.4 Entrepreneurship development in silkworm rearing - chawki rearing units, mass disinfection units, polyclinics and production of bio-control units.



Professor & Chairman
Board of Studies in Zoology
Department of Zoology
Kannur University
Kannur, Kerala

Unit-4: Silk-Entrepreneurship

- 4.1 Physical and commercial characteristics of cocoons. Cocoon sorting – defective cocoons. Cocoon stifling – objectives and methods; cocoon preservation and cocoon cooking – objectives and methods.
- 4.2 Reeling water – quality and its importance; silk reeling, different reeling – units – charaka, cottage, basin, multi-end, semi-automatic and automatic; re-reeling and packing - objectives and operations – Entrepreneurship development in silk reeling establishment of reeling units.
- 4.3 Introduction to textile fibres: Types – natural and synthetic fibres; importance of silk fibre; silk production. Properties of mulberry silk, silk testing and grading – objectives; Silk Exchange; weaving and dyeing.
- 4.4 Entrepreneurship development in by-products utilization – mulberry silkworm larva, pupa, moth, silk reeling and handicrafts.

M. M. Reddy

Professor & Chairman
Board of Studies in Zoology
Department of Zoology
Saxena University
Warangal - 506 009.

B.Sc. SERICULTURE SYLLABUS UNDER CBCS

(With effect from 2016-2017)

VI- SEMESTER

Paper-VII (Theory)

Silk Technology

Max. Marks: 50

Unit-1: Selection of Cocoon for reeling

- 1.1. Evolution of silk reeling industry and its present status.
- 1.2. Quality of cocoon : Cocoon shell ratio, cocoon shell reeling rate, silk filament length, cocoon reelability, factors affecting reelability.
- 1.3. Physical and chemical properties of silk fibre.
- 1.4. Raw materials for silk reeling : Selection of cocoon for reeling. Assessment of renditta, cocoon gradation, cocoon procurement and transportation.

Unit –2: Cocoon processing

- 2.1 Cocoon drying: Different methods, conventional and modern techniques steam stifling, hot air dryer, sun drying and others, advantages and disadvantages.
- 2.2 Cocoon sorting and preservation: Separation of defective cocoons, deflossing, methods of storing and preservation of cocoons.
- 2.3 Cocoon cooking: Principles of cocoon cooking,
- 2.4 Cocoon cooking equipment and brushing: open pan, three pan boiling methods, cocoon brushing hand and mechanical brushing.

Unit-3: Raw silk manufacture (Reeling and re-reeling)

- 3.1 Reeling appliances: Concept of silk reeling, Country charkha, Domestic machine, Cottage machine, Multi-end reeling machine, Automatic machine.
- 3.2 Reeling operations : Formation of reeling end, jettebout, croissure, reels, speed of reels, traverse or distributors.
- 3.3 Re-reeling : Re-reeling machine, lacing, denier, skeining, booking and storage.
- 3.4 Water quality and silk reeling : Use of water in silk reeling, water quality, relationship between water quality and silk reeling, water quality standards.

Unit-4

- 4.1. Raw silk testing and grading : Methods of testing, standard testing appliances and equipment methods of grading of raw silk.
- 4.2. Silk throwing and twisting : Throwing preparation for twisting, Twisting of yarn, soaking, dressing, drying, winding, doubling and twisting.
- 4.3. Chemical processing of silk yarns and fabrics : Degumming, bleaching, dyeing, printing of silk yarns and fabrics.
- 4.4. silk byproducts and their use



Professor & Chairman
Board of Studies in Zoology
Department of Zoology
Kesorva University
Warangal - 506007.

B.Sc. SERICULTURE SYLLABUS UNDER CBCS

(With effect from 2016-2017)

VI- SEMESTER

Paper-VII (Practical)

Silk Technology

Max. Marks: 30

1. Identification of reeling equipment
2. Categorization of different types of cocoons- good and defective cocoons calculation of percentage of each type .
3. Cocoon stifling- different methods and determination of degree of drying.
4. Cocoon cooking- different methods and determination of degree of drying.
5. Identification of silk, cotton, wool and synthetic fibre (viscose/nylon/polyester) by physical method-
6. Study of charaka, cottage basin, multi-end silk reeling machine, automatic and semi- automatic reeling machine-practical demonstration. (visit to private reeling unit and filature)
7. Determination of commercial characters of cocoon
 - a. shell ratio
 - b. filament length
 - c. denier
 - d. reelability
 - e. renditta



Professor & Chairman
Board of Studies in Zoology
Department of Zoology
Kakatiya University
Warangal - 506009

B.Sc. SERICULTURE SYLLABUS UNDER CBCS
(With effect from 2016-2017)
VI- SEMESTER
Paper-VIII (Theory)
Silk Marketing and Non-mulberry Sericulture

Max. Marks: 50

Unit-1: Marketing and extension

- 1.1.Principles and importance of extension education in sericulture
- 1.2.Project formulation and role of credit co-operative and financing agencies in sericulture:
NAARD, IDBI, Banks, IRDP, etc.
- 1.3.Silk demand all over the world
- 1.4.Marketing institutions: Marketing boards, co-operatives and stabilization of price

Unit –2: Non-Mulberry Sericulture

- 2.1Types of non-mulberry silkworms and their distribution in India and other countries
- 2.2 life cycle of tasar silkworm
- 2.3 life cycle of eri silkworm
- 2.4. life cycle of muga silkworm

Unit-3: Tasar culture

- 3.1 Tropical tasar : Distribution, life cycle, morphology of egg, larva, pupa, cocoon, moth larval behavior.
- 3.2. Anatomy : Silk gland, digestive in larva and moth.
- 3.3. respiratory, reproductive system in larva and moth.
- 3.4. Food plants : Primary and secondary food plants, distribution, taxonomy, morphology, propagation and plantation.
- 3.5.Rearing : Rearing operations—brushing, maintenance of larval population, improved rearing techniques for young and late age tasar.

Unit-4: Grainage (Seed production)

- 4.1 Tasar seed protection-grainage
- 4.2 tasar Diseases and pests : Types, incidences, preventive and control measures.
- 4.3 tasar cocoons reeling : Character of the ecoraces, selection and hybridization.
- 4.4 tasar culture tribal welfare



Professor & Chairman
Board of Studies in Zoology
Department of Zoology
Kakatiya University
Warangal - 506 009.

B.Sc. SERICULTURE SYLLABUS UNDER CBCS
(With effect from 2016-2017)
VI- SEMESTER
Paper-VIII (Practical)
Silk Marketing and Non-mulberry Sericulture

Max. Marks: 30

1. Morphology of eri silkworm
2. Morphology of muga silkworm
3. Morphology of tasar silkworm
4. Presentation of statistical data- Bar chart and graph, pie chart of
 - a. raw silk
 - b. cocoon
 - c. area under mulberry cultivation,
 - d. import and
 - e. exports.
5. Presentation of statistical data-tasar products
6. Dissection of tasar silk glands and digestive system



Professor & Chairman
Board of Studies in Zoology
Department of Zoology
Kakatiya University
Warangal - 506002