

**SRI VENKATESWARA UNIVERSITY**  
**B.Sc. DEGREE COURSE IN SERI CULTURE TECHNOLOGY**  
**(Syllabus under CBCS w.e.f. 2020-21)**

**SERI CULTURE**



*(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities  
& Model Q.P.)*

**(To be Implemented from 2020-21 Academic Year)**

## **Domain Subject: MARKET ORIENTED COURSE SERICULTURE**

### ***Activities, References & Model Q.P For Five Courses of 1, 2, 3, 4 & 5 Semesters)***

“The domain subject “SERICULTURE ”, embracing the fields of botany of mulberry plants, cultivation of mulberry, biology of silk worm, lifecycle of the silkworm, diseases of the silk work, chawki rearing technology , cocoon pests biology are the different curricular aspects for this subject

#### **GENERAL CURRICULAR ACTIVITIES**

##### **Lecturer-based:**

- 1) **Class-room activities:** Organization of Group discussions, question-answer sessions, scientific observations, use of audio-visual aids, guidance programmes, examination and evaluation work (scheduled and surprise tests), quizzes, preparation of question banks, student study material, material for PG entrance examinations etc.
- 2) **Library activities:** Reading books and magazines taking notes from prescribed and reference books and preparation of notes on lessons as per the syllabus; Reading journals and periodicals pertaining to different subjects of study; Making files of news-paper cuttings etc.
- 3) **Lab activities:** Organization of practicals, maintenance of lab attendance registers/log registers, maintenance of glassware and chemicals
- 4) **Activities in the Seminars, workshops and conferences:** Organization of at least one seminar/workshop/conference per academic year either on academic/research aspects and inculcate research spirit among students
- 5) **Research activities:** Student study projects (General / RBPT model), Minor or Major research projects, Research guidance to research scholars, Publication of research articles/papers (at least one in 2 years) in UGC-recognized journals, Registration in Vidwan/Orcid/Scopus/Web of Science
- 6) **Smart Classroom Activities:** Organization of Departmental WhatsApp groups, Ed Modo groups/Google Class Rooms/Adobe Spark groups for quick delivery of the subject; Preparation of Moocs content & presentation tube lessons by trained lecturers; Using smart/digital/e- class rooms (mandatory) wherever present; Utilization of youtube videos (subject to copy rights) etc.

##### **Student-based:**

- 1) **Class-room activities:** Power point presentations, seminars, assignments
- 2) **Library activities:** Visit to library during library hour and preparation of notes
- 3) **Lab activities:** Maintenance of observation note book and record, keeping lab clean and tidy
- 4) **Activities in the Seminars, workshops and conferences:** Participation/presentation in seminar/workshop/conference

## CO-CURRICULAR ACTIVITIES

### OBJECTIVES:

The co-curricular activities are aimed at strengthening the theoretical knowledge with an activity related to the content taught in the class room. The aesthetic development, character building, spiritual growth, physical growth, moral values, creativity of the student.

The different types of co-curricular activities relevant to Sericulture domain are listed below:

#### Academic - based

- Preparation of Charts/Clay or Thermocol Models
- Debates, Essay Writing Competitions
- Group Discussions
- Departmental (Sericulture ) magazine
- Formation of Book clubs
- Animal album-making
- Viva-Voce

#### Lab/Research –based

- Documentaries
- Field Visit/Excursions/to sericulture research stations- sericulture units
- Training at research centres (sericulture etc.)
- Exposure to scientific instruments and hands-on experience

#### Value - based

- Organization of awareness camp on mulberry plantation, Chawki garden

#### ➤ Observation of Days of National/International Importance

World Cancer Day (February 4th )	International Biological Diversity Day (May 22 <sup>nd</sup> )
Darwin Day (February 12 <sup>th</sup> )	World Turtle Day (May 23 <sup>rd</sup> )
National Science Day (Feb 28 <sup>th</sup> )	World blood Donor Day (June 14 <sup>th</sup> )
World Wildlife day (March 3 <sup>rd</sup> )	World Zoonoses Day (July 6 <sup>th</sup> )
National Vaccination Day (March 16 <sup>th</sup> )	World Mosquito Day (August 20 <sup>th</sup> )
World Health Day (April 7 <sup>th</sup> )	World Turtle Day (May 23 <sup>rd</sup> )
Earth Day (April 22 <sup>nd</sup> )	World Mosquito Day (August 20 <sup>th</sup> )
Malaria Day (April 25 <sup>th</sup> )	World Animal day (October 4 <sup>th</sup> )
World Hepatitis Day (May 19 <sup>th</sup> )	World Immunization Day (November

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**FIRST YEAR - FIRST SEMESTER**  
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**Core Course Paper-I: SERICULTURAL BOTANY AND SILKWORM BIOLOGY**  
(Total hours of teaching – 60 @ 04 Hrs./Week)

**Course Outcomes:** By the completion of the course the graduate should be able to –

**CO1 :** Describe the botany of sericulture and status of sericulture

**CO2 :** Explain the taxonomy & morphology of mulberry plant

**CO3 :** Describe the anatomy and floral biology of mulberry plant

**CO4:** Explain the biology and life cycle of silk worm

**CO5:** Describe morphology and anatomy of silk worm

**Learning objectives**

1. To understand the Botany of sericulture and the status of sericulture.
2. To understand the taxonomy & morphology of mulberry plant.
3. To understand the floral biology of the mulberry plant.
4. To understand biology and life cycle of the silk worm.
5. To understand morphology and anatomy of silk worm

**SYLLABUS**

**UNIT-I**

**A general introduction to Sericulture**

- 1.1 Introduction to Sericulture-Origin and history of Sericulture- Silk road, spread of Sericulture to Europe, South Korea, Japan, India and other countries.
- 1.2 Sericulture map of India and World: Components of Sericulture
- 1.3 Sericultural practices in tropical and temperate climate.
- 1.4 Textile fibres: Types- natural and synthetic fibres- types of silk produced in India; Importance of mulberry silk.
- 1.5 Sericulture organization in India; role of state departments of Sericulture, Central Silk Board and NGOs in Sericulture development

**UNIT-II**

**Sericultural Botany.**

- 2.1 Taxonomy of mulberry and food plants of silkworms: Study of salient features of the families-Moraceae.
- 2.2 Morphology of mulberry: different varieties of mulberry.

### **UNIT-III**

- 3.1 Anatomy of mulberry: internal structure of stem, root and leaf; secondary growth in root and stem.
- 3.2 Floral biology of mulberry: Sexual behavior, different types of anther and ovule in mulberry; micro- and megasporogenesis; development of male and female gametophytes; pollination, fertilization; development of endosperm, embryo and seed; polyembryony and parthenocarpy in mulberry.

### **UNIT-IV**

#### **Silkworm Biology.**

- 4.1 Characteristic features of the order Lepidoptera; detailed study of the families- Saturniidae and Bombycidae. Classification of sericigenous insects.
- 4.2 Classification of silkworms based on multivoltinism, univoltinism and bivoltinism. Geographical distribution; popular silkworm breeds and hybrids of Karnataka; their economic traits
- 4.3 Life cycle of *Bombyx mori*; morphology of egg, larva, pupa and adult.

### **UNIT-V**

#### **Morphology and Anatomy**

- 5.1 Morphology and anatomy of digestive, circulatory, excretory, respiratory, nervous system of silkworm larva.
- 5.2 Morphology and anatomy of reproductive systems of silkworm.
- 5.3 Morphology and anatomical structure of Silk gland.

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**B.Sc. EXAMINATION IN SERI CULTURE TECHNOLOGY**

**FIRST YEAR - FIRST SEMESTER**  
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**Core Course Paper-I: SERICULTURAL BOTANY AND SILKWORM BIOLOGY**  
**MODEL QUESTION PAPER**

**Time : 3 hrs**

**Max. Marks : 75**

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**SECTION –I**

**Answer any FIVE of the following**

**5x5 = 25 Marks**

**(Draw labelled diagrams wherever necessary)**

1. Sericulture-Origin
2. Mulberry Silks
3. Taxonomy Of Mulberry
4. Structure of stem
5. Floral biology
6. Lepidoptera
7. Silk gland
8. Digestive System of silk worm

**SECTION –II**

**Answer ALL the questions each question carries 10 marks**

**5x10=50 Marks**

**(Draw diagrams wherever necessary)**

9. (a) Write about sericulture map of India and World (or)  
(b) Describe the types of Textile fibres
10. (a) Explain about food plants of silk worms. (or)  
(b) Describe the types of Mulberry
11. (a) Write about Secondary growth in root and stem (or)  
(b) Describe the poly embryony and parthenocarpy in mulberry
12. (a) Classify the Sericigenous insects (or)  
(b) Write about popular silk worm breeds of karnataka
13. (a) Explain about respiratory and Excretory systems of silkworm larva (or)  
(b) Morphology and anatomical structure of silk moth

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**Practical Paper-I: SERICULTURAL BOTANY AND SILKWORM BIOLOGY**

1. Sericulture maps: (a) World maps and Silk Road.  
(b) Sericulture map of India and Karnataka. 1Prat.
2. Preparation of histograms and pie chartson:  
(a) Production of textile fibers inIndia.  
(b) World silkproduction.  
(c) Pie chart on mulberry and non-mulberry silk production in India. 1Prat.

**Sericultural Botany;**

3. Taxonomic description of mulberry.1Prct.
4. Study of five popular mulberry cultivars of Karnataka(Mysore local, K2, S36, S13 andV1) 1Prct.
5. Mounting of Pollen grains, Ovary and Embryo 1Prct.
6. Anatomy of petiole, leaf lamina, stem and root 2Prct
7. Weeds of mulberry garden. 1Prct

**Silkworm Biology;**

8. Life cycle of *Bombyxmori*- Morphology of egg, larva, pupa and adult of *Bombyxmori*. 1Prct.
9. Sex separation in larva, pupa and adult of the silkworm *Bombyxmori*1Prct.
10. Dissection and displayof:  
(a) Digestive system oflarva.  
(b) Silk glands.  
(c) Reproductive system of male and femalemoths.  
(d) Mounting of larval mouth parts andspiracle.  
(e) Nervous system of silkwormlarva.

**References**

1. Bongale, U.D (1995) Fertilizers in mulberry cultivation. PushpaSreePublications, Thalaghattapura, Bangalore.
2. Dokuhon, Z.S (1998). Illustrated Textbook on Sericulture. Oxford & IBH publishing Co,Pvt. Ltd, New Delhi, Calcutta.
3. Gupta, R.K & Mittal, R.K (1983) Bibliography of Indian Weeds. Associated Pub. Co. New Dehli.
4. Hasao Aruga (1994) Principles of Sericulture (Translated from Japanese) Oxford & IBH publishing Co, Pvt. Ltd, New Delhi.