Proceedings of the Meeting of board of studies in Sericulture (CB) held on 17th/05/ 2025at 11.30AM in the Department of Studies in Sericulture Science, University of Mysore, Manasagangothri Mysuru-06

Members present		Signature
1. **Prof. D.M. Mamatha** Head , Department of Bioscience and Sericulture S.P. Mahila University, **Tirupati .** **Andra Pradesh**	**(External)**	Online Via Google Meet 17/05/2025
2. **Prof. Ramakrishna Naika** Head , College of sericulture UAS , Chintamani	**(External)**	
3. **Prof Fathima sadtulla** Department of Sericulture UAS, GKVK, Bengaluru	**(External)**	17/5/25
4. **Dr P.N. NARASE GOWDA** Head .Department of Biotechnology VV Puram . Bengaluru	**(External)**	
5. **Prof. H.B. Mahesha** Head ,Department of Sericulture Yuvarajas College Mysuru	**(Internal)**	17/5/25
6. **Prof. ROHIT L SHANKAR** Department of Sericulture Yuvarajas College Mysuru	**(Internal)**	17/5/25
7. **DR. M.N. SRINIVASA** Head and Professor Department of Sericulture Maharanis Science College For Women's Mysuru	**(Internal)**	
8. **Prof . B. Sannappa** DOS in Sericulture Science University of Mysore, Mysuru	**(Internal)**	17/05/25

9. **Prof . M.N. Anil Kumar** (Internal)
DOS in Sericulture Science
University of Mysore,
Mysuru

12. **Dr. R.S. Umakanth** (Internal)
Associate Professor
DOS in Sericulture Science
University of Mysore,
Mysuru

13. **Prof. T.S. JAGADEESH KUMAR** (Internal)
Chairman - BOS in Sericulture (CB)
DOS in Sericulture Science
University of Mysore, Mysuru

The Chairman welcomed all the members of board of studies in Sericulture (CB). As per the University letter No: AC2 (S)/07/2024-25, Dated : 29-04-2025. The meeting has been conveyed for design of curriculum syllabus for B.Sc.,III and IV semester in Sericulture with two discipline core papers with two practicals (3 and 2 credits each), two elective papers (3 credits each) and one compulsory paper (2 credit) were framed under state education policy with detailed discussion and deliberation by BOS members. Approved. The list of panel of UG examiners (Sericulture) for the year 2025-26 are enlisted and approved same and submitted to The Registrar (Evaluation) University of Mysore, Mysuru

Prof. T.S. JAGADEESH KUMAR 17/5/25
Chairman - BOS in Sericulture (CB)

DR. T.S. JAGADEESH KUMAR
M.Sc., M.Phil, PGDHRM., Ph.D.
Professor and Chairman
Board of Studies in Sericulture (PG)
Department of Studies in Sericulture
University of Mysore
Manasa Gangotri, Mysuru-570 006.

UNIVERSITY OF MYSORE
DEPARTMENT OF STUDIES IN SERICULTURE SCIENCE

PROF. T.S. JAGADEESH KUMAR M.Sc., PGDHRM., M.Phil., Ph.D.
Chairman - BOS – CB
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To ,
Deputy Registrar
Academic Section
University of Mysore
Mysuru

Respected sir,

Sub: Submission of meeting proceedings and syllabus of UG III and IV Semester Sericulture -reg
Ref: .Order No.AC2(S)/07-2024-25, Dated 29-04-2025

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With reference to the above subject, The Board of Studies meeting in sericulture has been conducted on 17-05-2025 and discussed the deliberations of all the beloved members in the meeting and designed the curriculum, syllabus for the III and IV Semester UG in Sericulture, University of Mysore, Mysuru and approved for the academic year 2025-26. This is for your kind reference and needful at your end.

Yours faithfully,

DR. T.S. JAGADEESH KUMAR 17/5/2025
M.Sc., M.Phil, PGDHRM., Ph.D.
Professor and Chairman
Board of Studies in Sericulture (PG)
Department of Studies in Sericulture
University of Mysore
Manasa Gangotri, Mysuru-570 006.

Enclosures:

1.Syllabus copy of UG in sericulture and proceedings of the meeting is enclosed

MSSC/36/2025-26/dt 17.05.2025

UNIVERSITY OF MYSORE

B.Sc. SERICULTURE SYLLABUS OF III AND IV SEMESTER UNDER STATE EDUCATION POLICY

Univ. Ref: No.AC2(S)/07- 2024-25 dated 29-04-2025

(DURATION OF THE COURSE : 3 YEARS WITH 6 SEMESTERS)

L:T:P = 3:0:2

Semester	Course	Title of the Paper	(L:T:P) /Week	Credit	Duration of Exam (hr.)	Marks		Total Marks
						I A (C1+C2)	Final Exam (C-3)	
Discipline Specific Core (DSC) Course								
III	DSC-3(SER) C **Theory**	Mulberry and Silkworm Crop Protection	3:0:0	3	3	10+10	80	100
	DSC-3(SER)C **Practical**	Mulberry and Silkworm Crop Protection	0:0:2	2	3	05+05	40	50
	Elective - C	Applied Entomology	3:0:0	3	3	10+10	80	100
IV	DSC-4(SER) D **Theory**	Mulberry and Silkworm Physiology	3:0:0	3	3	10+10	80	100
	DSC-4(SER) D **Practical**	Mulberry and Silkworm Physiology	0:0:2	2	3	05+05	40	50
	Compulsory Course- D	Grainage Technology	2:0:0	2	3	05+05	40	50
	Elective D	Silk Technology	3:0:0	3	3	10+10	80	100

III SEMESTER

DSC –3 (SER)-C: MULBERRY AND SILKWORM CROP PROTECTION **Credits-3**

Theory **3 hr. /week x 16 weeks = 48 hr.**

	Unit-1	
1.	Introduction to plant diseases and their classification.	1 hr.
2.	Influence of biotic and abiotic factors on the incidence of plant/mulberry diseases. Importance of plant protection.	2 hrs.
3.	Classification of mulberry diseases. Deficiency diseases of mulberry and their corrective measures.	2 hrs.
4.	Foliar and shoot diseases of mulberry - Powdery mildew, Leaf spot, Leaf rust, Leaf blight and stem canker: Occurrence, symptoms, etiology and preventive and control measures.	4 hrs.
5.	Root diseases of mulberry – Root knot and root rot: Occurrence, life cycle, symptoms and control measures.	1 hr.
6.	Viral, bacterial and dwarf diseases of mulberry: Occurrence, symptoms and preventive measures.	2 hrs.
	Unit-2	
7.	Pest: Definition, origin, outbreak and forecasting.	2 hrs.
8.	Major pests: Leaf roller, Bihar hairy caterpillar, mealy bug and thrips – life cycle, nature of damage and their preventive measures.	4 hrs.
9.	Minor pests: Girdlers, termites and mites - life cycle, nature of damage and their preventive and control measures.	4 hrs.
10.	Pesticides: Forms, formulations, calculation and application.	2 hrs.
	Unit-3	
11.	Introduction and classification of silkworm diseases.	1 hr.
12.	Protozoan disease – symptomatology, structure of pebrine spore, life cycle of *Nosema bombycis*, source, mode of infection and transmission, cross infectivity, prevention and control.	3 hrs.
13.	Bacterial diseases - causative agents, symptoms, factors influencing flacherie, source, mode of infection and transmission, prevention and control.	4 hrs.
14.	Viral diseases (grasserie, infectious flacherie, cytoplasmic polyhedrosis, densonucleosis and gattine)-causative agents- symptoms – sources, mode of infection and transmission-prevention and control.	4 hrs.
	Unit-4	
15.	Fungal diseases: White and green muscardine and aspergillosis- causative agents- symptoms - structure and life cycle of fungal pathogen- mode of infection and transmission- prevention and control.	3 hrs.
16.	Life cycle of Indian uzifly; seasonal occurrence, oviposition and host-age preference; nature and extent of damage; prevention and control; integrated management of Indian uzifly.	3 hrs.
17.	Pests of cocoons: Dermestid beetle - life cycle; nature and extent of damage; Prevention and control measures.	2 hrs.
18.	Predators of silkworm: Cockroaches, ants, lizards and rodents; prevention and control measures.	2 hrs.
19.	Integrated management of diseases and pests of mulberry and silkworm.	2 hrs.

DSC –3 (SER)-C: MULBERRY AND SILKWORM CROP PROTECTION Credits-2

Practical **14 Practicals of 4 hr. each**

1.	Study of powdery mildew, leaf spot and leaf rust of mulberry – sectioning, staining and mounting of pathogen.	2 Prac.
2.	Study of root-knot and root rot in mulberry.	2 Prac.
3.	Collection, mounting/preservation of insect pests of mulberry.	1Prac.
4.	Identification of mulberry pests and nature of damage of the following pests: leaf roller, Bihar hairy caterpillar, scale insect, mealy bug, thrips, beetles, jassids and grasshoppers.	2 Prac.
5.	Study of pesticides: Formulations and applicators (sprayers and dusters)	1 Prac.
6	Identification and staining of bacteria and pebrine spore,	1 Prac
7	Identification and staining of polyhedra of nuclear polyhedrosis and mycelial mat/spores of muscardine.	2 Prac.
8	Methods of application of silkworm bed disinfectants for management of silkworm diseases.	1 Prac.
9.	Life cycle of Uzi fly; Identification of uzi-infested silkworms and cocoons.	1 Prac.
10.	Life cycle of dermestid beetles: Dermestid beetle infested silkworm cocoons and estimation of incidence. Identification of predators of silkworm.	1 Prac.

SCHEME OF PRACTICAL EXAMINATION

Duration-3 hrs. **Max. Marks – 40**

Q 1.Temporary mounting of any one of the following. - 10 marks

Leaf spot/ leaf rust/ powdery mildew/ root knot nematode of mulberry.

Note: Distribution of marks

a) Identification with binomial nomenclature - 2

b) Sectioning, staining and mounting - 5

c) Labelled diagram with description - 3

Q 2.Temporary mounting of any one of the following. - 10 marks

Pebrine spore/ nuclear polyhedral bodies/ mycelia and conidial spores.

Note: Distribution of marks

a) Identification - 2

b) Staining and mounting -5

c) Procedure and diagram - 3

Q 3. Preparation of disinfectant and pesticides - 10 marks

Q 4. Identify and comment on the spots A, B, C, D and E (Any five) - 10 marks

III SEMESTER

ELECTIVE –1 (SER)-C: APPLIED ENTOMOLOGY

Credits-3

Theory

3 hr./week x 16 weeks = 48 hr.

	Unit-I	
1	General characteristic features of insects. Insects in the service of man. Insects as enemies of man. Insect age, abundance and adaptations; causes for success of insects.	3hrs.
2	Salient features of insect orders with special reference to Lepidoptera, Diptera, Hymenoptera, Coleoptera, Homoptera and Neuroptera.	3hrs.
3	Collection and preservation of insects - methods, mounting and labeling.	1hr.
4	Metamorphosis in insects - ametabola, hemimetabola and holometabola.	2hrs.
5	Beneficial insects - silkworm, honeybee and lac insect – products and their uses; parasitoids and predators and their role in pest suppression; pollinators and their role in crop production.	3hrs.
	Unit-II	
6	Insects as human food: Commonly eaten insects, nutritional value and advantages and problems of eating insects.	2hrs.
7	Insects as important laboratory tools for scientific research - silkworm, fruit fly, house fly and mosquito. Insects in the service of forensic science.	3hrs.
8	Social insects - termites, honeybees, wasps and ants.	2hrs.
9	Insect pests: Definition, origin, and types, pest forecasting and outbreak.	2hrs.
10	Symptoms and injuries caused by insect pests; economic threshold and economic injury levels.	3hrs.
	Unit – III	
11	Insect pests of agricultural crops: Cereals, pulses, oilseeds and vegetables.	3hrs.
12	Insect pests of stored grains: Primary and secondary storage pests and their management.	3hrs.
13	Insect pests of farm animals: Blood sucking flies, myiasis flies, lice and fleas; arachnids.	3hrs.
14	Insect pests of public health importance: Mosquitoes, house flies, sand flies, eye flies, lice, bed bugs and rat fleas.	3hrs.
	Unit – IV	
15	Insect pests and their control: General considerations and prior information's.	2hrs.
16	Natural control of insect pests: Climatic factors, natural barriers, natural enemies and diseases	3hrs.
17	Applied control of insect pests: Cultural, mechanical, physical, chemical, biological, genetical/autocidal and legal methods.	3hrs.
18	Mass production of bio-control agents: parasitoids, predators and pathogens.	2hrs.
19	Integrated pest management – goals, principles and concepts, components and benefits.	2hrs.

IV SEMESTER

DSC – 4 (SER)-D : MULBERRY AND SILKWORM PHYSIOLOGY

Credits-3

Theory

3 hr./week x 16 weeks = 48 hr.

	Unit –1	
1.	Absorption of water and solutes by roots; effect of external conditions; root pressure; ion exchange and active absorption.	3 hrs.
2.	Mineral nutrition- macro and micro nutrients; their physiological role	2 hrs.
3.	Transpiration: Significance; stomata- mechanism of opening and closing; regulation of water loss by stomata; factors influencing the rate of transpiration	4 hrs.
4.	Brief account of biological nitrogen fixation; types- importance in mulberry.	3 hrs.
	Unit-2	
5.	Biochemical composition of mulberry leaf	2 hrs.
6.	Brief account of photosynthesis: Outline of the process; types of carbon fixation (C3 and C4); brief account of photorespiration and its significance.	5 hrs.
7.	Plant growth regulators: Importance and application in mulberry.	3 hrs.
8.	Role of environmental factors on mulberry growth and yield.	2 hrs.
	Unit-3	
9.	Digestion: Nutritive requirements of the silkworm. Structure and function of digestive system; digestive enzyme; process of digestion.	4 hrs.
10.	Respiration: tracheal systems- spiracles, mechanism of respiration, factors affecting respiration.	4 hrs.
11.	Excretion: structure and function of excretory system and cryptonephridial arrangement and its significance in water regulation.	4 hrs.
	Unit - 4	
12.	Neuro-endocrine system: Nervous system; Structure and distribution of endocrine gland; structure and functions.	2 hrs.
13.	Sense organs: Photoreceptors, Chemoreceptors and Mechanoreceptors.	2 hrs.
14.	Fertilization – embryonic development stages, organgenesis and egg hatching.	2 hrs.
15.	Muscle Physiology: Histology of insect muscles, flight muscles in insects, ultra structure of skeletal muscle, mechanism of muscle contraction	3 hrs.
16.	Integument: Structure, formation and function.	1 hr.
17.	Metamorphosis - types of insect metamorphosis.	2 hrs

DSC -4 (SER)-D: MULBERRY AND SILKWORM PHYSIOLOGY - Credits-2

Practical **14 Practicals of 4 hr. each**

1.	Determination of stomatal size and index	1 Prac.
2.	Kranz Anatomy in relation to photosynthesis.	1 Prac.
3.	Separation of photosynthetic pigments from mulberry leaf by paper chromatography.	1 Prac.
4.	Determination of water potential of potato tubers.	1 Prac.
5.	Estimation of leaf moisture retention capacity of mulberry varieties.	1 Prac.
6.	Estimation of mulberry leaf protein content by Biuret method.	1 Prac
7.	Hill reaction	1 Prac
8.	Estimation of total protein content in haemolymph of silkworm	1 Prac.
9.	Estimation of fat body glycogen content in silkworm	1 Prac.
10.	Estimation of glucose content in silkworm by DNS method	1 Prac.
11.	Estimation of carbohydrate content in silkworm.	1 Prac.
12.	Estimation of amylase activity levels in silkworm	1 Prac.
13.	Estimation of SDH activity levels in silkworm.	1 Prac.
14.	Study of haemocytes in silkworm.	1 Prac.

SCHEME OF PRACTICAL EXAMINATION

Duration-3 hr. **Max. Marks – 40**

Q 1.Separation of photosynthetic pigments/ water potential of potato tubers / Stomatal index /Estimation of protein in mulberry leaf. - 10 marks

Note: Distribution of marks

a) Procedure - 4
b) Labeled diagram / Result - 3
c) To conduct Experiment - 3

Q 2.Estimation of haemolymph protein / glycogen/ glucose - 10 marks

Note: Distribution of marks

a) Procedure - 4
b) Result and conclusion - 3
c) Conduct of experiment - 3

Q 3.Estimation of amylase/SDH/haemocytes/Hill recation/chromatography - 10 marks

Note: Distribution of marks

a) Procedure - 4
b) Result and conclusion - 3
c) Conduct of experiment - 3

Q 4. Identify and comment on the spots A, B, C, D and E. (Any five) - 10 marks

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IV SEMESTER
COMPULSORY PRACTICAL / SKILL - GRAINAGE TECHNOLOGY

Credits-2

Practical **14 Practicals of 4 hr. each**

1.	Silkworm seed organization, Basic seed multiplication centres - P4, P3, P2 and P1 stations; Seed areas- concepts, procedure and importance.	1 Prac.
2.	Concept of selected seed rearers/villages- Seed Legislation Act- maintenance of seed crops.	1 Prac.
3.	Seed cocoon markets- pupal examination, certification of seed cocoon lots- price fixation for seed cocoons.	1 Prac.
4.	Disinfection and hygiene in seed production units.	1 Prac.
5.	Seed production centres - types of grainages- organisation and functions of grainages	1 Prac.
6.	Plan for model grainage- grainage equipments and their use - Seed production plan.	1 Prac.
7.	Procurement and transportation of seed cocoons- processing and preservation of seed cocoons- sex separation in seed cocoons.	1 Prac.
8.	Moth emergence and synchronization; sex separation; synchronization – safe duration.	1 Prac.
9.	Coupling and decoupling; oviposition; method of egg production; refrigeration of male moths; mother moth examinations- individual and mass methods - dry moth examination; environmental conditions for grainage activity.	1 Prac.
10.	Egg disinfection- handling of multivoltine eggs- preservation ideal embryonic stages for cold storage- maximum duration of cold storage. Handling of bivoltine eggs for early hatching- physical and chemical methods- hot and cold acid treatment.	1 Prac.
11.	Postponement of egg hatching; hibernation schedule for 3, 4, 6 and 10 months duration for bivoltine egg production.	1 Prac.
12.	Preparation of disease free layings on sheet and loose eggs – advantages - handling of loose eggs.	1 Prac.
13.	Incubation of eggs-methods, environmental conditions required for incubation, postponement of egg hatching by temporary consignment.	1 Prac.
14.	Production of silkworm eggs in Government and LSPs.	1 Prac.
15.	By products of grainages and their utilization.	1 Prac.

IV SEMESTER

ELECTIVE –1 (SER) : SILK TECHNOLOGY Credits-3

Theory **3 hr./week x 16 weeks = 48 hr.**

	Unit-I	
1.	Physical and commercial characteristics of cocoons: cocoon colour, shape, size, hardness, grain/wrinkle, weight of cocoon, weight of cocoon shell, shell ratio, filament length, reelability percentage, raw silk recovery percentage, denier and renditta.	3 hrs.
2.	Purchase of cocoon in open auction in cocoon market; grading and sorting of multivoltine, bivoltine and cross breed cocoons.	3 hrs
3.	Cocoon stifling: Definition, objectives, different methods-conventional and modern techniques- steam stifling. Hot air drying- Batch type and conveyer type.	3 hrs
4.	Cocoon cooking/boiling: Definition and objectives, different methods of cocoon cooking - Mono pan, three pan and pressurized methods.	3 hrs
	Unit-II	
5.	Reeling water: quality required for silk reeling, hardness, pH; corrective measures.	4 hrs
6.	Cocoon brushing: Definition and objectives; methods of brushing.	2 hrs
7.	Reeling: Objective; devices-country charaka, cottage basin, multi end reeling machine, auto and semi-automatic, improved CSTRI reeling devices.	4 hrs
8.	Re-reeling and packing: Objectives, process; lacing, skeining, booking and baling.	2 hrs
	Unit-III	
9.	Raw silk properties- physical, chemical and biological. Other uses of raw silk.	3 hrs.
10.	Raw silk testing and grading; Visual inspection. Mechanical tests; Supplementary tests- conditioning weight, scouring loss, exfoliation tests.	4 hrs.
11.	Silk throwing: Introduction, objectives; soaking, winding, doubling, twisting, rewinding.	3 hrs.
12.	Silk weaving: Warp preparation, Weft preparation; pirn winding methods. Power loom and handloom weaving. Flow chart of weaving; weaving defects.	2 hrs.
	Unit-IV	
13.	Chemical processing of silk yarns and fabric: Degumming- methods. Silk bleaching-methods and their importance	3 hrs.
14.	Silk dyeing-Acidic and basic dyeing processing; dyes and chemicals used for silk dyeing.	3 hrs.
15.	Printing: Hand block printing, Screen printing and Machine printing.	2 hrs.
16.	Spun silk industry- various steps involved, flow chart, spun silk yarn and noil yarn.	3 hrs.
17.	By-products of silk industry and their utilization.	1 hrs.

REFERENCE BOOKS

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2. Chapman,R.F.(1969)The insect–structureandfunction,CambridgeUniversityPress
3. Dandin,S.B.andGiridhar,K.(2010)Handbookofsericulturetechnologies.CentralSilk Board, Bangalore.
4. Govindaiah., Gupta, V.P., Sharma, D.D., Rajadurai, S. and Nishtha Naik, V. (2005) Mulberry crop protection. Central Silk Board, Bangalore.
5. Imms(A.D) (1961)GeneralTextbookofEntomology,Edn.9.Rev.byO.W.Richards&
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10. ShankarM.A (1997)Handbookofmulberrynutrition,UAS-Multiplex,Bangalore.
11. Silk Dyeing and Finishing Handbook.(2000) (Translated from Chinese)Compiled by Shanghai Silk Industry Corporation, China. *Oxford & IBH Publishing Co. Pvt. Ltd.* New Delhi & Calcutta.
12. Silkworm crop protection(2005)Central Silk Board, Bangalore.
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15. Wigglesworth V.B.(1956)InsectPhysiology(Edn.5;Rev.)Methuen,London.
16. Yasuji Hamamura. (2001) Silkworm Rearing on artificial diet. Oxford*&IBH Publishing Co. Pvt. Ltd.* New Delhi & Calcutta.

INTERNAL ASSESSMENT

	THEORY COURSE		**Marks Allotted**
1	C-1	Submission of one Assignment by each student	10 marks
	C-2	Conduct of Internal Class Test	10 marks
	PRACTICAL COURSE		
2	C-1	Performance of students viva-voce	5 marks
	C-2	Evaluation of students class records	5 marks

QUESTION PAPER PATTERN (THEORY: C3 EXAMINATION): I-VI SEMESTER

Sl. No	Type of question	Marks / Question	No. of Questions to be asked	No. of Questions to be answered	Total
1	Define/Mention/Expand the following	2	06	05	10
2	Write short notes on the following	4	06	05	20
3	Give brief answers on the following	6	05	03	18
4	Write in detail/explain the following	8	06	04	32
				Total	**80**

17/5/25

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PROF. T.S. JAGADEESH KUMAR 17/5/25
CHAIRMAN -BOS (CB)

Dr. T.S. JAGADEESH KUMAR
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