B. Sc. SERICULTURE

SYLLABUS

(CBSC Common Core Syllabus under CBCS)

With effect from academic year 2025-2026

Accrediated with A+ by NAAC

DEPARTMENT OF SERICULTURE

KAKATIYA UNIVERSITY

WARANGAL-506009, TELANGANA

Annexure-I (Credits)Proposed CBCS Structure from 2025-2026 for UnderGraduate Courses

Courses		Papers	Total Credits	Credits for each paper/ Semester					
				B.Sc					
				I	II	III	IV	V	VI
Core Courses (DSC)	Major-1	6	30	5	5	5	5	5	5
	Major-2	6	30	5	5	5	5	5	5
	Minor-1	4	20	5	5	5	5	---	----
MIL/AEC (First language)	English	4	20	5	5	5	5	---	----
Second Language (Telugu, Hindi, Urdu etc.,)		4	20	5	5	5	5	---	----
Multi Disciplinary Course	MDC-1	1	4	---	----	---	----	4	----
SEC 1,2		2	4	---	----	---	----	2	2
SEC 3,4		2	4	---	----	---	----	2	2
Value added course (VAC)	VAC 1,2	2	6	---	----	---	----	3	3
Internships	Internship/Project	1	4	---	----	---	----	---	4
Total Credits in each semester		----	142	25	25	25	25	21	21
Total Credits in UG		---	142						

KAKATIYA UNIVERSITY – WARANGAL-506009
Scheme for Under Choice Based Credit System
B.Sc. (Sericulture) Course Structure

W.E.F. 2025-2026 academic year batch onwards

Year	Paper	Semester	Subject	Hours/per Week		Credits	Marks (IA)	Marks (EE)	Total Marks
				Theory	practical				
1	DSC I	I	General sericulture and Mulberry cultivation	5	1	5	25	100	125
	DSC II	II	Silk worm biology and Rearing technology	5	1	5	25	100	125
2	DSC III	III	Grainage technology	5	1	5	25	100	125
	DSC IV	IV	Post cocoon technology	5	1	5	25	100	125
3	DSC V	V	Mulberry and Silkworm crop Protection	5	1	5	25	100	125
	DSC VI	VI	Vanya sericulture	5	1	5	25	100	125
3	SEC 4	VI	Chawki rearing technology	2	-	2	10	40	50
3	MDC	V	Seri bio technology and Biodiversity (Multi Discipline)	4	-	4	20	80	100

Tutorials: Problem solving session for each 20 student's one batch.

IA: Internal Assessment

EE: End Examination

DSC: Discipline Specific Course

SEC: Skill Enhancement Course

MDC: Multi-Disciplinary Course

Final Examination: Question Papers Pattern

B.Sc. (SERICULTURE)

Theory Question Paper Pattern

wef Academic Year: 2025-2026

Time: 3 hours] [Max. Marks: 80

Section –A

Answer Eight questions. All questions carry equal marks. (8x4m=32)

Q1 Q2 Q3	From Unit-I
Q4 Q5 Q6	From Unit-II
Q7 Q8 Q9	From Unit-III
Q10 Q11 Q12	From Unit-IV

Section – B

Answer any All questions. All questions carry equal marks. (4x12m=48)

Q13. (a) From Unit-I
(or)
(b)

Q14. (a) From Unit-II
(or)
(b)

Q15. (a) From Unit-III
(or)
(b)

Q16. (a) From Unit-IV
(or)
(b)

B.Sc. (SERICULTURE)
Practical Question Paper Pattern
wef Academic Year: 2025-2026

Time: 2 hours] [Max. Marks: 25

1 Major Experiment (10 M)

2 Minor Experiment (5 M)

3 Record (5 M)

4 Viva (5 M)

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Internal Examinations:

1. Two Internal exams are to be conducted and best of two internal marks is considered.
2. First internal exam is to be conducted after completion of Unit-I & II.
3. Second internal exam is to be conducted after completion of Unit-III & IV.
4. Internal Examination duration: 1 hr 30 min
5. Internal Theory (question paper) consists of 20 marks.
6. 10 Short questions are to be given 5 questions from each of 2 completed units; 10 questions are to be answered (10Q X 2m = 20m).

Final Exam for Other Papers

1. Each SEC QP consists of 50 marks.
   (10Q are given. 5Q from each unit, 5Q are to be answered, 5Q X 10 m = 50m)
   (Duration:2hrs)

2. Project consists of 100 marks with 4 Credits. 80 Marks will be allotted for Project Evaluation and 20 marks for viva-voce.

SD/-
Dr. SUJATHA
Chairperson,
BOS in Sericulture, KU

KAKATIYA UNIVERSITY
FACULTY OF SCIENCE
B.Sc (Sericulture)
Semester – I
DSC – I
General Sericulture and Mulberry Cultivation

Theory –	4 hours/week	4 credits	Theory {Internal marks-20}
Practical –	3 hours/week	1 credit	Theory {External marks-80}
			Practical-External marks – 25

Objectives

1. To introduce the concepts of sericulture, textile fibres.
2. To understand about general aspects of moriculture and sericulture.
3. To understand and know the scientific approach of package of practices for mulberry cultivation .

UNIT – I

Introduction to sericulture:- origin and history of sericulture, silk route; distribution of sericulture in world, types of fibres and their properties natural and artificial fibres types,identification and uses of different silk fibres.

Eco-friendly activity of sericulture, employment generation in different components, importance of sericulture as rural industry, role of women in sericulture, role of NGO, International sericulture commission role and stakeholders in sericulture and their benefits.

UNIT – II

Sericulture organization; its functions constraintsin silk production, employment and incomegeneration for youth and women through sericulture.

Challenges, prospects and problems of sericulture, research and training in sericulture,financing and insurance agencies,future strategies for sound sericulture.

UNIT – III

Moriculture and its botanical aspects origin,phytogeography, systematic of morusand economic importance of the family;Its species and varieties, suitable edaphic and environment conditions for growth and productivity

Description of mulberry:Morphology and Anatomy of mulberry root, stem, leaf, flower and fruit.

Mulberry production and establishment: propagation of mulberry - sexual and asexual methods, importants,types,raising and maintenance of nurseries for saplings.

UNIT – IV

Package and practices selection and preparation of land ; soil and soil testing for mulberry cultivation, problematic soils, causes& their reclamation; plant nutrient management:- organic manures, inorganic fertilizer, bio fertilizers and integrated nutrient management. Irrigation management (sources, types and impact on mulberry crops): mulching and intercultivation, -types.

Establishment and maintenance of mulberry garden; package of practices for rainfed and irrigated gardens,weed management -Common weeds,problems posed by weeds and their remedial measures.

Pruning of mulberry, harvesting, transportation and preservation of mulberry leaves: objectives and methods.

REFERENCEBOOKS :-

1. Afifa, S Kamili and Amin Masood, M (2000) Principles of temperate sericulture, Kalyani Publishers, Ludhiana.
2. Bongale, UD (1986) Mulberry cultivation, Lectures on sericulture.
3. Dandin, S.B and Giridha, K ((2010) Handbook of Sericulture technologies (4th revised Edition), Central Silk Boardbanglore.
4. FAO Manuals – I Mulberry cultivation, FAO Rome.
5. Ganga, G (2003) Comprehensive Sericulture, Volume 1: Moriculture, Oxford & IBM Publishers Co. Pvt. Ltd, New Delhi.
6. Ganga., G., and J. Sulochana Chetty, J. (1995) An introduction to Sericulture (3rd Reprint) Oxford and IBH Publishing Co Pvt. Ltd, New Delhi.
7. Hisao Aruga (1994) Principles of Sericulture, Oxford IBH publishing Co Pvt Ltd, New Delhi.
8. Rajat K Datta and Mahesh Nanavaty (2005) Global silk Industry: A complete source Book, Universal publishers Boia, Roton Florida, USA.
9. Rangaswamy, G. Narasimhanna, M.N, Kasiviswanathan, K., Sastry, C.R and Jolly, M.S (1976) Sericulture Manual, Mulberry cultivation, Food and Agricultural Services Bulletin 15/1 Food and Agriculture organization of the United Nations, Rome.
10. Sandhya Rani S (1998) Sericulture and rural development, Discovery Publishing House, New Delhi.

General Sericulture & Mulberry Cultivation

Practicals DSC – I 3 hours/week 1 credit 25 Marks

1. Sericulture Maps: Indicating mulberry and non mulberry belts in India and silk route
2. Preparation of pie charts: 1) Different types of silk production in India
   2) Production of textile fibres.
3. Land area measurement – conversion and calculations.
4. Identification and study of textile products, natural and synthetic fibres; types of silks and silk yarns, spun and noilfibres.
5. Taxonomic description of mulberry cultivators; Anatomy of root, stem, leaf, petiole, lenticles & trichomes; section cutting & preparation of permanent slides.
6. Raising of sapling – land & cutting preparation, planting & maintaining of nurseries.
7. Propagation methods with reference to cutting ,grafts and layers.
8. Collection and testing of soil samples - P^H, soil horizon, water holding capacity bulk density organic matter capacity ,NPK, permanent wilting co-efficient,
9. Identification of manures & fertilizers and their calculation for a given area.
10. Identification and use of implements.
11. Identification of common weeds and their management.

KAKATIYA UNIVERSITY
FACULTY OF SCIENCE
B.Sc (Sericulture)
Semester – II
DSC - II
Silkworm Biology &Rearing Technology

Theory: 4 hours/week	4 credits	Theory {Internal marks: 20}
		Theory {External marks: 80}
Practicals: 3 hours/week	1 credit	External Marks – 25

Objectives

1. Acquire knowledge on various aspects of silkworm biology & development.
2. To acquaint with ecology &ethiology of silkworm rearing.
3. To familiarise with improved rearing technologies.
4. Develop confidence to set up farms on their own.

UNIT –I

Salient features of class Insects - Classification of Serigenous Insects – Characteristics features of order Lepidoptera - families 1) Bombycidae and Saturnidae- economical importance of insects Classification of Silkworms – Based on origin. geographical distribution, voltanism and moultinism - popular mulberry silkworm species and varieties of Telangana and India.

Biology of Silkworm *Bombyx mori* – Life cycle of *Bombyxmori.*

UNIT – II

Morphology of *B. mori*: egg, larva, pupa and moth. Metamorphosis – Definition, types and Significances.

Anatomy:- Structure and function of digestive system, circulatory system - excretory system - respiratory system, nervous system, male and female reproductive systems and silk gland.

UNIT – III

Rearing House:- model rearing house, types of rearing houses and appliances and their role. Disinfection and disinfectants and personal hygiene-methods and preparation

Procurement of DFLs – transportation and procedures.
Incubation – Definition, methods, environmental requirements, black boxing and its importance.
Brushing - Definition; methods of brushing and its importance

UNIT – IV

Chawki rearing:- importance,characterestics, methods advantages and disadvantages & care during moulting role of CRCs and its advantages -profits condition.

Late age rearing: importance charecterstics methods, -advantages and disadvantages optimum condition, feeding, bed cleaning and methods – spacing,

Moulting; importance, charecterstics of worms& care to be taking during moulting.
Bed cleaning- defination, types and advantages

Spinning: Identification of spinning worms, mounting and mounting density – types of mountages advantages and disadvantages – environmental conditions during spinning and mounting.

Harvesting: Time and methods, storage, sorting transportation and marketing of cocoons and care to be taken where transporting and marketing, difective cocoons-causes, types, how to avoid..

REFERENCE BOOKS:-

1. Chrsley,S.R (1982) Culture and Sericulture Academic press inc., New York U.S.A
2. Ganga., G., and J. Sulochana Chetty (1995) An Introduction to Sericulture:-Oxford& IBM Publishing Company, Both Editions
3. Krishnaswami, S; Narasimhanna, M.N; Suryanarayan, S.K and Kumararaj, S. (1973)SERICULTURE MANUAL-2 – Silkworm Rearing, food and Agriculture services Bulletin FAA , Rome
4. Madan Mohan Rao, M. (1999) Comprehensive Sericulture Manual. B.S Publication, Hyderabad
5. M.AminMasoodi & Afifa S, Kamili I (2000) Principles of Temperate Sericulture Kalyani publishers,ludhina
6. Ya taro tazima and S.Morashi (2001) Improvement of biological functions in the silkworm, science publisher.
7. Tazima Y (1978) Handbook of silkworm rearing Fuzi Pub Co Ltd Tokyo Japan.
8. Yataro Tazima (2001)Improvement of Biological Functions in the silkworm science, publishers

Silkworm biology and rearing Technology

PRACTICALS

3hours/week **1credit** **Marks-25**

1. Life Cycle: Morphology of egg. larva, pupa and adult silkworm of *B. mori*
2. Sex separation in larva, pupa and adult silkworm
3. Anatomy of silkworm: Dissection of mot parts, digestive system, respiratory system, nervous system, silk gland, reproductive system of male and female moth.
4. cocoon characteristics- uni, bi & mv races
5. Rearing houses, model rearing house, rearing appliances for chawkiand late age stages
6. Disinfection – types of disinfectants – concentration, dosage requirements
7. Incubation of silkworm eggs: method, black boxing, optimum environmental condition.
8. Calculation of fecundity and hatching percentage
9. Chawki rearingcharacterstics and methods. feeding, bed cleaning, spacing, moulting.
10. Late age rearingcharacterstics and methods . feeding, bed cleaning, spacing, moulting.
11. Spinning and mounting – types and methods of mounting.
    Note: Silk worm rearing should be conducted and submission of report is mandatory
12. Moulting – identification of moulted worms and care to be taken during moulting.

KAKATIYA UNIVERSITY
Faculty of Science
B.Sc (Sericulture)
Semester – III
DSC - III
GrainageTechnology

Theory – 4hours/week	4 credits	Theory {Internal marks 20}
		Theory {External marks-80}
Practical – 3 hours/week	1 credits	Practicals- External marks – 25

Objectives

1. To understand about the seed technology, silkworm seed organisation and its importance.
2. Gain knowledge about scientific procedure involved in egg production & hibernation.
3. Schedules and importance of mother moth examination and other related process in production of DFLs.

UNIT – I

Seed technology: introduction, concept, types of silkworm eggs and general account of silkworm seeds.

Seed organization – concept and significance, maintenance of parent stock Basic multiplication centers (P_4, P_3, P_2 and P_1 centers, Seed areas,seed and seed cocoon rearers - transaction procedure – significance; seed legislation act.

Planning for pure and hybrid silkworm, egg production, norms for purchase of bivoltene and multivoltine seed cocoons from marketsdeflossing, sorting & preservation, pupal examination & its functioning.

UNIT – II

Grainages: Choice of site, ground plan, model grainage building – grainageequipments and their usage, maintenance of environmental factors in grainage, disinfection and hygience conditions in grainage

Grainagemanagement:- staff and labourmaintainence, care to be taken while carrying out grainage activities, maintance of grainage records.

Sex separation of pupa and moth, synchronization of moth emergence.

UNIT – III

Processing of eggs: Selection of moth, coupling, decoupling, oviposition-preservation of moths, preparation of starch coated paper – method of egg laying (egg sheet and loose eggs), surface disinfection of egg sheets/washing of eggs, weighing and packing of loose eggs,

Pupal and mother moth examination: types of examination – green and dry moth examination, individual, sample and mass examination; precautions.

UNIT - IV

Handling and preservation of eggs:-

Acid treatment – hot and cold acid treatment, advantages and disadvantages

Preservation and handling of hibernated eggs for 3, 4, 6 and 10 months hibernation schedule, incubation of acid treated and hibernated eggs

REFERENCE BOOKS:-

1. Ganga G. (2003) Comprehensive sericulture, Volume 2 Silkworm rearing and seed technology, Oxford & IBH Publishing Co. Pvt. Ltd.
2. Jayant Jayaswal, Giridhar K, Somi Reddy J. Jagadish Prabhu, H(2008) Mulberry silkworm seed production, Central Silk Board, Bangalore.
3. Manjeet S. Jolly ed (1987) Appropriate sericulture techniques, International center for training & research in tropical sericulture, Mysore.
4. Reading is sericulture, KU publication, by Dr. Vijaya Babu, Dr. K. Sujatha, Dr. G. Shamitha.
5. Tribuwan Singh, Madan Mohan Bhat (2010) silkworm Egg science:- Principles and protocol. Daya Publishing house, Delhi.
6. Ullah, S.R and Narasimhanna, M.N (1987) Handbook of practical Sericulture (3rd Edition) Central silkworm Board, Bangalore.
7. Wang San – ming (1989) Silkworm Egg Production, Vol-III FAO Agricultural services Bulletin 73/3 Translated by Li Ping Yi, Pan Runshi and Ou Bing – Sen

Grainage Technology

DSC – III Practicals 3hour/week 1 credit 25marks

1. Model grainage plan
2. Identification of grainageequipments.
3. Assessment of cocoons of pure race and hybrids for cocoon weight, shell weight and racial characters.
4. Selection of seed cocoons, sorting &deflossing, preservation.
5. Sex separation at cocoon, pupal and moth stages, sex ratio, pupation percentage.
6. Moth emergence – pairing, depairing and oviposition.
7. Preparation of egg cards/loose eggs & surface sterilization of eggs.
8. Moth & pupal examination. Individual moth examination, pupal gut examination, identification of pebrine spores
9. Identification of different types of eggs – fertilized, unfertilized, un hatched and dead eggs.
10. Morphology of silkworm egg, pupal and moth.
11. Acid treatment: preparation of acids of required specific activity and treatment of eggs with acid.
12. Visit to seed cocoon markets, cocoon markets,grainage and cold storage centers.
13. Dissection of silkworm eggs- observation of embryonic development in relation to preservation of eggs at different temperatures - slide preparation.

KAKATIYA UNIVERSITY
Faculty of Science
B. Sc (Sericulture)
Semester – IV
DSC – IV
Post Cocoon Processing Technology

Theory	4 hours/week	4 credits	Theory {Internal Marks-20}
			Theory {external marks-80}
	3 hours/week	1 credit	Practicals- External marks-25

Objectives

1. To introduce the cocoon and its significance in reeling.
2. To acquaint with silk reeling technologies and its importance.
3. To understand the process from cocoon to yarn.

UNIT – I

Textile fibers – Brief introduction to natural & synthetic fibres and their uses, identification of silk fibres, structure of fibre, physical and commercial characteristic of cocoons, importance and problems posed during reeling in industry.
Cocoon sorting – objectives &proceedure: defective cocoons, causes for formation of defective cocoons, remedial measures; Marketing of cocoons – its functions & procedure.

UNIT – II

Cocoon handling, Selection, sorting, preservation of cocoons,
Cocoon stifling:- objectives, factors and methods – sun drying, steam stifling, hot air drying and other typesof hot air drying – advantages and disadvantages.
Cocoon cooking:-Objectives, factors and methods – open pan, three pan, pressurized, floating and sunken system- merits and demerits.
Brushing – objectives – methods – advantages and limitations.

UNIT – III

Silk Reeling:- Evolution of silk reeling, reeling units – charaka, cottage basin, multiend, semi automatic and automatic reeling devices – components and their functions.
Rereeling and packing: objectives, grant reeling, hank preparation, lacing, skeining, booking, baling and bundling.

Raw silk properties – physical, chemical and microscopic; factors influencing the properties/ silk quality of raw silk, silk exchange – structure and functions.

UNIT –IV

Raw silk testing and grading:- objectives of testing/grading,

Raw silk testing: Visual, winding, evenness, cleanness, neatness, tenacity and elongation, cohension and condition weight:- raw silk grading – international standards and bureau of International standards BIS.

Doubling, twisting, weaving, degumming, bleaching and silk dyeing – objectives and methods.

REFERENCE BOOKS:-

1. Bibhuti Nath Jha (2012) Silk industry in India, Satyam Publishing house, New Delhi.
2. Dhote, A.K (1989): Sericulture instructional cum practical manual, Volume V, Silk reeling, testing and spinning, NCERT, New Delhi.
3. Huang guo Rui (1998) Silk Reeling, -Oxford & IBM Publishing Co. Pvt Ltd, New Delhi.
4. Krishnaswami, S. Madhava Rao, N.R, Suryanarayana, S.K and Sundaramurthy, TS (1972) Manual – 3 Silk reeling. FAO Agricultural Service Bulletin 15/3 Food & Agriculture Organization of the United Nations, Rome
5. Mahadevappa, D., Halliyal, U.G., Shankar., A.G and Ravindra Bhandiwad 2000. Mulberry silk reeling technology, Oxford & IBM publishing Co. Pvt Ltd, New Delhi.
6. Somasekhar, T.H and kawakami, K Eds (2002) Manual on Bivoltine silk reeling technology, 2002, JICA PP BST Project CSRTI Mysore.

Post cocoon processing Technology

Practicals DSC - IV 3 hours/week 1 credit 25 marks

(Core paper)

- Identification of textile fibres by Microscopic, physical & chemical and confirmatory tests.
- Physical and commercial characters of cocoons in MV and BV races / breeds.
- Properties like tenacity, elongation, toughness, elastic recovery and moisture absorption.
- Sorting of cocoons:- Identification and calculation of good and defective cocoons percentage by number and weight.
- Cocoon stifling and cooking
- Determination of filament length ,renditta, shell ratio percentage and denier.
- Determination of alkalinity and hardness of reeling water by titration method.
- Identification of reeling machines and their components.
- Estimation of degumming loss in multi voltine and bivoltine cocoons and raw silk.
- Estimation of bleaching loss in multivoltine silk.

- Dyeing of multivoltine and bivoltine silk using acid, basic and compound dyes.
- Printing of silk fabrics: objectives and methods – hand and screen printing.
- Study of different types of silk waste
- Visit to nearest silk reeling centers.
- Longitudinal & cross section view of silk textile fibres& its impact on physio mechanical

KAKATIYA UNIVERSITY
FACULTY OF SCEINCE
B.Sc (Sericulture)
Year - III
Semester – V
DSC – V
Mulberry and Silkworm Crop Protection

Theory	-	4 hours/week	-	4credits	Theory {Internal marks – 20}
					Theory {External marks - 80}
Practical	-	3 hours/week	-	1credit	{External marks – 25}

Objectives

1. To study the incidence, symptoms and damage caused by pests and diseases of mulberry & silkworm.
2. To acquaint with management of pest and diseases through different methods toprevent crop loss (in moriculture and rearing).

UNIT – I:-Sampling of Diseases / Sample

Collection of diseases form Mulberry, Identification, Isolation, culturing and preservation of pathogen of mulberry; disease scoring scale – calculation of disease index percentage and severity, significance of crop protection.

Mulberry diseases&its management

- Introduction and importance of mulberry diseases
- Fungal disease:- mulberry leaf and stem diseases – incidence, life cycle, symptoms& its management.
- Root rot – incidence, symptoms, casual organism, life cycle of pathogen and its management.
- Viral, bacterial, nematode diseases of mulberry- occurrence, symptoms, casual organisms, and its management.
- Nutritional disorders in mulberry - symptoms and remedial measures

UNIT – II Mulberrrypests:-

- Pests, predators and parasites.
- Definition - mulberry pest and its classification.

- Mulberry pests:- leaf eating cater pillars, mealy bugs (tukra), leaf rollers, jassids, thrips, scale insects, beetles, grass hoppers, sap suckers - occurrence, symptoms, nature of damage and integrated crop measures,
- Mulberry predators - nature of damage & itsmanagement.
- Integrated Pest Management.

UNIT – III Silkworm diseases:-

- Introduction – mode of infection, classification of silkworm diseases.
- Protozoan disease (Pebrine) – occurrence, symptoms, casual organism, life cycle and management.
- Bacterial disease of silkworm – occurrence, types symptoms, casual organism, predisposing factors, mode of infection, prevention and control measures.
- Viral disease (grasserie) – occurrence, types, symptoms, casual organism, mode of infection – management.
- Fungal disease (muscardine) – occurrence, types, symptoms, casual organism, mode of diseases and management,
- Diseases of non mulberry& its management.

UNIT – IV Pestsand Predators of Silkworm:-

- Pest of silkworms:- Dermestid beetles – life cycle, nature of damage, factors responsible, Indian and Japaneseuzifly, nature of damage and prevention / control measures.
- Predators of Silkworm:- Cockroach, ants, lizards, rodents, birds – systematic position, nature of damage and control measures.
- Integrated pest management:- physical, chemical and biological control methods.
- Pest and predators of non mulberry and their management.

REFERENCE BOOKS: -

1. Govindaiah Gupta, V.P, D. Rajadurai, S & Nishitha Naik (2005) A text book on mulberry crop protection, Central Silk Board, Bangalore.
2. Govindan R and T.K. Narayanaswamy (1998) Principles and silkworm pathology-mulberry and silkworm crop protection, Seri, Scientific Publishers.
3. Jolly M.S., Sen S.K., Sonwalkar, N. and Prasad G.K, (1979) Sericulture Manual – 4 Non mulberry silk, Food and Agricultural Services Bulletin 15/4 Food and Agricultural Organization of the United Nations Rome, issue 29.
4. Khan, M.A., Anil dhar., Zeya, S.B. and Trag, A.B (2004) Pests and Disease of Mulberry and their management. Bishan Singh, Mahendra Pal Singh Publishing.
5. Lu Yup Lian (1991) Silkworm disease FAO Agricultural Services Bulletin 73/4 FAO of the United Nations Rome.
6. Nataraju B and Balavenkatasubbiah (2008) Silkworm diseases and their management, under block 2,Silkworm disease and pest management in crop protection INGOU, New Delhi.

7. Singh R.N and Saratchandra, B (2011) sericulture entomology A.P.H Publishing Corporation, New Delhi.
8. Singh R.N, Samson, M.V and Datta R.K (2000) Pest management in sericulture. Indian Publishers House Pvt. Ltd, New Delhi.
9. Tribhuvan Singh and Pramod Kumar Singh (2013) Mulberry crop protection, Discovery Publishing House Pvt. Ltd. New Delhi.

Mulberry and silkworm crop protection

Practical'sDSC– V Semester - V 3 hrs/week 1 credit 25 marks

1. Studies of fungal disease of mulberry (free hand sectioning), staining and temporary mounting.
2. Collection of diseased samples of mulberry leaf / root and their identification and preservation / identification of fungal, bacterial pathogen, mineral deficiencies symptoms in mulberry and their remedial measures.
3. Pests of mulberry – collection, identification and preservation / mounting.
4. Studies on common insect pests of mulberry - leaf eating caterpillars, scale insects, mealy bugs, thrips, jassids, leaf roller and grass hoppers.
5. Morphological features of pebrine infected silkworm eggs, pupa and moth – isolation and microscopic examination. Staining of spoores (giemsa staining).
6. Preparation of media and cultivation of bacteria,
   Characterization of bacteria, 1) Morphological: Shape, endospore stain, capsule stain
   2) Cultural Growth in different carbon sources (Medias)
   3) Biochemical Tests – Catalase, IMVC, Nitrate, redulase
7. Staining and study of symptoms of bacterial diseases of silkworm – microscopic examination and identification of pathogens.
8. Identification / visual examination of silkworm larva infected with NPV, CPV and keehu – collection and Microscopic examination of polyhedral bodies – staining polyhedral
9 Study of silkworm larva, pupa and moth infected by fungal diseases – collection, staining and microscopic examinations.
10. Fungicide / pesticides – forms, formulation and application
11. Studies on Indian and Japaneseuzi fly and dermestid beetle - identification of maggot, pupa, adult and silkworm larva infected by uzi fly.
12. Visit to different mulberry garden in different districts for field study.

KAKATIYA UNIVERSITY
FACULTY OF SCEINCE
B. Sc (Sericulture)
Year - III
Semester – VI
DSC – VI
Vanya Sericulture

Theory	4hours/week	4credits	Theory {Internal marks – 20}
			Theory {External marks – 80}
Practicals	3hours/week	1credit	Practical marks – 25

Objectives

1. To understand the distribution and status of vanya silk production.
2. To study the procedure involved in cultivation of host plants, rearing, reeling and egg production techniques.
3. To acquaint knowledge about economics of vanya sericulture.

UNIT – I

Vanya silk in India – Importance, scope, demand and impact of vanya silk on tribal socio economic conditions.

Host plants of vanya silkworms and its botanical description.

UNIT – II

Package of practices for established primary host plants, diseases and pests of host plants of vanya silkworms & their management.

Planning for egg production and rearing of tasar, eri and muga including disinfection and hygenic practices to be maintained.

UNIT – III

Morphology and life cycle of vanya silkworms, egg production technology – selection & preservation of seed cocoons, moth emergence, synchronization, pairing and depairing of moths, ovi position, handling and packing of eggs.

Rearing of Vanya silkworms: traditional and improved techniques, feeding, bed cleaning, moulting care during moulting, mounting, harvesting and marketing of cocoons.

Diseases and pest of non mulberry silkworm and their management.

UNIT – IV

Reeling of tasar and muga cocoons, spinning of eri cocoons, selection, cooking, reeling, marketing of raw silk.

Economics of vanya silkworms & byproducts of vanya sericulture and value addition through utilization.

REFERENCE BOOKS:-

1. Jolly M.S., Sen, S.K., Sonwalker, N and Prasad G.K (1997) Sericulture manual 4 – Non mulberry silks. Food and Agricultural services Bulletin 15/4. Food and agricultural organisation of the United Nations, Rome.
2. Chowdhury, S.N. (1998) Muga culture, Central Silk Board, Bangalore, India.
3. Dokuhon, Z.S (1998) Illustrated text book on sericulture, Oxford & IBM Publishing Co. Pvt Ltd, Calcutta.
4. Jolly, M.S Chowdhury, S.N and Sen (1975) Non Mulberry sericulture in India, Central Silk Board, Bombay, India.
5. Jolly, M.S (1998) Tasar culture, Central Silk Board, Bangalore.
6. Thangavelu, K; Chakraborty, A.K; Bhagawati, A.K and ISA MD/(1998) Handbook of Ericulture, CSB, Bangalore.
7. Chaudury, S.N. (1982) Eri Silk Industry, Directorate of Sericulture & weaving, Govt. of Assam, Gauhati, Assam.

Vanya sericulture

Practicals

DSC – VI

3hours/week 1credit 25 marks

1. Host plants of tasar, eri and muga silkworms.
2. Identification of leaves of two food plants of non mulberry silkworm with morphological characters & taxonomic traits.
3. Pests and diseases of primary host plants of vanya silkworms.
4. Identification of the morphological features of tasar, eri and muga silkworms (Egg, larva, pupa, cocoon and moth).
5. Egg production technology of vanya silkworms.
6. Rearing technology of vanya silkworm.
7. Cooking and reeling technology of tasar,
8. Cooking and spinning technology of eri cocoons.
9. Identification of tasar, eri and muga raw silk and wastes

KAKATIYA UNIVERSITY
Faculty of Science
B. Sc (Sericulture)
Year - III
Semester – VI
Chawki rearing Technology
(SEC – IV)

Theory	2hours/week	2credits	50marks

Objectives

1. To introduce the concept of mulberry garden for maintainence of chawki worms.
2. To understand about general aspects of chawki rearing techniques and economics.

UNIT – I

Chawki Rearing Technology:- Chawki rearing – Introduction, role and its importance, chawki mulberry garden establishment, maintainence and management, disinfection and hygienic conditions – objectives and methods, eggs suitable for chawki rearing; Handling - precautions during transportation, incubation and black boxing of eggs, brushing of chawki worms, characteristics of chawki worms,
chawki rearing house – environment for chawki worms.

UNIT – II

Chawki rearing method:- feeding and spacing for chawki worms, bed cleaning – methods & frequency, care during moulting, chawki certification transportation of chawki worms, artificial diet for chawki worms, economics of chawki rearing, chawki rearing centers in Telangana – the methodologies followed, cost: profit ratio,
Visit to CRCS and their Success stories of chawkirearers.

REFERENCE BOOKS:-

1. Ganga G (2003) comprehensive sericulture, Volume – 2 Silkworm rearing Oxford & IBM publishing Co. Pvt Ltd.
2. Wang San – Ming (1989) silkworm egg production Vol – III FAo agricultural services bulletin translated by Li Ping. Y, Pan Runshi and Ou-bin-sen.
3. Internet.

KAKATIYA UNIVERSITY
FACULTY OF SCEINCE
B. Sc (Sericulture)
Year - III
Semester – V
MDC – V
Seri Bio Technology and Bio Diversity

Theory	4hours/week	4credits	Theory {Internal marks -20}
			Theory {External marks-80}

Objectives

1. To study about Bio technology in sericulture.
2. To gain knowledge about Bio diversity in Sericulture.

UNIT – I

1.1. Scope and importance of animal Bio technology.
1.2.Scope and Importance of Plant Bio technology,
1.3. Transgenic Silkworms and their role in Sericulture.
1.4. Transgenic Mulberry Crop and their role. In sericulture

UNIT – II

2.1.Insect culturing – Types of culturing, Procedure., Advantages and Disadvantages,Tissue culturing – types, benefits, challenges and applications.
2.2. Types of culture media – nutrient media, selective media, deferential media, enriched media, and Transport media.
2.3. Purpose of microbial culturing identification of micro organisms (Bacteria & fang testing of anti biotic sensitivity), Research Industrial use (fermentation & enzyme Production). Bio technology & medicine (Vaccine Protection)
2.4. Common microbial culture technology & (streak, pour, spread plate & liquid culture and its application.

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UNIT – III

3.1 Scope and importance of biodiversity.

3.2 Biodiversity – An Important approach to improve mulberry and silkworm crop.
3.3 Biodiversity conservation – Objectives & Advantages. In mulberry sericulture.
3.4 Biodiversity conservation strategies for sustainable development in mulberry sericulture.

UNIT – IV

4.1 Biodiversity - Its importance in vanya sericulture.
4.2 Conservation efforts for vanya sericulture.
4.3 Advantages & disadvantages of conversation in vanya sericulture.
4.4 Biodiversity hotspots – mulberry & non mulberry species in Telangana, and loss of seribiodiversity.

REFERENCE BOOKS:-

1. Sericulture and seri-bioversity – P.K. Srivastav and K. Thangavelu.
2. Genetic engineering in plants. Ko suge T. Meredith, C. P. And Hollender S. Plenum press, New York, 1989.
3. Plant biotechnology Ignacimuthu V. L. Oxford IBH publishing company, New Delhi.1995.
4. Genetic manipulation for crop improvement. Chopra V. L. Oxford IBH publishing company, New Delhi, 1985..
5. Plant biotechnology in Agriculture by K. Lindsey and M.G.K. Jones prentice hall Jersey, 1990.

KAKATIYA UNIVERSITY
FACULTY OF SCEINCE
B. Sc (Sericulture)
Semester – VI
Project / Optional
Rural Sericulture Work Experience

Project 4 credits Viva 20 Marks + Project Evaluation 80 Marks = 100 marks

Objectives

1. To provide an opportunity to understand the rural setting in relation to sericulture.
2. To make the students familiar with socio economic conditions of the sericulturist& the real field problems.
3. Develop confidence & competency to solve the problems and also to develop self employment skills.

Activities

- Village attachment training program.
- Attachment with Govt./sericulture institution, grainages rearing and nearby reeling units run by private and Government and prepare a project report and present it in the class.
- The project may be on plant protection, soil sampling & testing, nurseries, cocoon production, transfer of technology.
- Study of structure, functioning, objectives, economics of a unit (mulberry, grainage, rearing, reeling, dyeing and prunting).
- Employment & income generation through the farm.
- Skill development in all tasks of moriculture, rearing, reeling, grainage and related activities.

Thanking you

SD/-
Chairperson
BOS in Sericulture

Annexure – I (Credits)

Proposed CBCS Structure from 2025-26 for Under Graduate Courses

Courses		Papers	Total Credits	Credits for each paper / Semester						Credits for each paper / Semester						Credits for each paper / Semester					
				BA						B.Com.						B.Sc.					
				I	II	III	IV	V	VI	I	II	III	IV	V	VI	I	II	III	IV	V	VI
Core Courses DSC	Major-1	6	30	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Major - 2	6	30	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
	Minor-1	4	20	5	5	5	5	-	-	5	5	5	5	-	-	5	5	5	5	-	-
MIL/AEC (First Language)	English	4	20	5	5	5	5	-	-	5	5	5	5	-	-	5	5	5	5	-	-
Second Language (Telugu, Hindi, Urdu, etc.)		4	20	5	5	5	5	-	-	5	5	5	5	-	-	5	5	5	5	-	-
Multi-Disciplinary Course	MDC 1	1	4	-	-	-	-	4	-	-	-	-	-	4	-	-	-	-	-	4	-
Sec 1, 2		2	4					2	2					2	2					2	2
Sec 3, 4		2	4					2	2					2	2					2	2
Value added course (VAC)	VAC 1, 2	2	6	-	-	-	-	3	3	-	-	-	-	3	3	-	-	-	-	3	3
Internships	Internship / Project	1	4	-	-	-	-	-	4	-	-	-	-	-	4	-	-	-	-	-	4
Total Credits in each semester			142	25	25	25	25	21	21	25	25	25	25	21	21	25	25	25	25	21	21
Total Credits in UG				142						142						142					
Credits under Non-CGPA (Community engagement and service)		NSS /NCC /sports / Extra curricular	6	Upto 6 (2 in each year)						Upto 6 (2 in each year)						Upto 6 (2 in each year)					
		IKS	4	Upto 4 (2 in each, after I & II years)						Upto 4 (2 in each, after I & II years)						Upto 4 (2 in each, after I & II years)					

Chairperson,
BOS in Sericulture, KU, WGL

With effect from the Academic year 2025 - 2026