KAKATIYA UNIVERSITY
UNIVERSITY COLLEGE,
WARANGAL, T.S.
Syllabus for optional subject- sericulture in B.Sc course (CBCS & CAGP)

Proceedings

Members present.

1) Dr. K. Sujatha, Asst Prof of Sericulture, KU — Chairperson
2) Dr. Y. Venkaiah, Incharge, Sericulture Unit, KU — Member
3) Dr. Kaneez Fatima, Asst Prof of Sericulture, KU — Member

Chairperson BOS in sericulture, welcomed the members to the meeting and presented the agenda.

1. **Approval of newly constructed syllabus as per revised CBCS regulations**

A) The Board of Studies in Sericulture (UG) at its meeting held on 7th September, 2020 recommended the distribution of credit pattern with modified syllabus under CBCS and CAGP regulations to be considered for the implementation from the academic year 2019-20 and onwards for B.Sc sericulture as one of the optional subject. The syllabus for I st to III rd semester along with the scheme are annexed here with.

B) It was resolved that the syllabus for the remaining semester (from IV th to VI th) will be framed and approved in the next BOS meeting.

2. **Approval of Board of Examiners (BOE) for the academic year 2020-21 examination is also enclosed.**

The BOS members unanimously resolved and approved the BOE members for the academic year 2020-21 examinations

BOE members.

S.No	Name	Phone/Mobile
1	Dr. K.SUJATHA	9849296672
2	Dr. KANEEZ FATIMA	9959025632

3. **Approval of the panel of examiners for the academic year 2020-2021.**

The chairman thanked all the members for their participation and contribution in framing the syllabus for B.Sc Sericulture I st to III rd Semester.

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With effect from the Academic year 2019 - 2020

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Scheme for Under Choice Based Credit System
With Effect from the Academic Year 2019-20
B.Sc. PROGRAMME

SUBJECT : SERICULTURE

S. No	Year	Semester	Course Category	Title of the Paper	No. of Credits			Max. Marks			Total Marks
					Theory	Practical	Total Credits	I.A	End Exam	Practical	
1	First	Sem-I	DSC-I (Core Paper)	General Sericulture and Moriculture	4	1	5	20	80	25	125
2			AECC-I	Fundamentals of Environmental Sciences/ Fundamentals of Computers	2	-	2	-	50	-	50
3		Sem-II	DSC-II (Core Paper)	Silkworm Biology and Rearing technology	4	1	5	20	80	25	125
4			AECC-II	Fundamentals of Environmental Sciences/ Fundamentals of Computers	2	-	2	-	50	-	50
5	Second	Sem-III	DSC-III (Core Paper)	Silkworm seed technology	4	1	5	20	80	25	125
6			SEC-1	Value addition in sericulture	2	-	2	-	50	-	50
7			SEC-2	Agri and Seri Clinic	2	-	2	-	50	-	50
8		Sem-IV	DSC-IV (Core Paper)	Post Cocoon technology	4	1	5	20	80	25	125
9			SEC-3	Chawki Rearing technology	2	-	2	-	50	-	50
10			SEC-4	Bio craft technology	2	-	2	-	50	-	50
11	Third	Sem-V	DSE-I Elective *(Choose any one Elective)*	Mulberry and Silkworm crop protection / Silkworm Extension and economics	4	1	5	20	80	25	125

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12			GE Compulsory	Seri-biotechnology	4	-	4	-	100	-	100
13		Sem-VI	DSE-II Elective *(Choose any one Elective)*	Vanya Sericulture / Entrepreneurship development in sericulture	4	1	5	20	80	25	125
14			Project / Optional	Rural Sericulture Work experience	4	-	4	20 (Viva-Voce)	80 (Project Evaluation)	-	100
Total Credits & Marks					**44 (Theory)**	**6 (Practicals)**	**50 (Total)**	**140**	**960**	**150**	**1250**

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(9)

Final Examination: Question Papers Pattern

B.Sc. (SERICULTURE)
Theory Question Paper Pattern
WEF Academic Year: 2020-2021

Time: 3 hours] [Max. Marks: 80

Section - A

Answer ALL questions. All questions carry equal marks. (4Qx12m=48)

Q1. (a)
[OR] From Unit-I
Q1. (b)

Q2. (a)
[OR] From Unit-II
Q2. (b)

Q3. (a)
[OR] From Unit-III
Q3. (b)

Q4. (a)
[OR] From Unit-IV
Q4. (b)

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Section – B

Answer any EIGHT questions. All questions carry equal marks. (8Qx4m=32)

Q5	From Unit-I
Q6	
Q7	
Q8	From Unit-II
Q9	
Q10	
Q11	From Unit-III
Q12	
Q13	
Q14	From Unit-IV
Q15	
Q16	

B.Sc. (SERICULTURE)
Practical Question Paper Pattern
WEF Academic Year: 2020-2021

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 QP consists of 20 marks.
6. 10 Short questions are to be given (5Q from each of 2 Completed units); 10Q 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. GE QP consists of 100 marks. QP model is same as Core paper.
3. Project consists of 100 marks with 4 Credits. 80 Marks will be allotted for Project Evaluation and 20 marks for viva-voce.

Dr. SUJATHA
Chairperson,
BOS in Sericulture, KU

Chairperson
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With effect from the Academic year 2019 - 2020

KAKATIYA UNIVERSITY
FACULTY OF SCIENCE
B. Sc (Sericulture)
Semester – I
D SC Seri – I
General Sericulture and Moriculture

Theory –	4 Hour/week	4 credit	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 origin, growth and study of sericulture as science.
2. To understand about general aspects of moriculture and sericulture.
3. To understand the scientific approach of mulberry and package of practices.
4. Know the climatic conditions required for mulberry cultivation.

UNIT – I

Introduction to sericulture:- origin and history of sericulture, silk route; distribution of sericulture in world, components of sericulture (mulberry, rearing, seeling, grainage and weaving) end products of each components & their economic importance.

Environmental impact on sericulture, eco-friendly activity of sericulture, employment generation in different components, importance of sericulture in rural development, role of women in sericulture, role of NGOD, International sericulture commission, Private Partners, State, Nation.

UNIT – II

Sericulture development & organization; economics on silk production, income generation through sericulture.

Prospects and problems of sericulture, future strategies for sound sericulture.

UNIT – III

Moriculture and its botanical aspects: History, origin, distribution and economical importance of the family; Moraceae, systematics of the genus morus and its species and varieties, pure and cross breeds in India and abroad, optimum environment condition for growth and productivity

Botanical description of mulberry: Anatomy of mulberry root, stem, leaf, flower and fruit.

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

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UNIT – IV

Package and practices: soils for mulberry cultivation, soil sampling and testing, problematic soils & their reclamation; plant nutrient management:- organic manures, inorganic fertilizer, bio fertilizers and irrigation management (sources, methods, impact on mulberry crops and schedules): mulching and intercultivation

Establishment and maintenance of mulberry garden; package of practices for rainfed and irrigated garden, chawki gardens and weed management.

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

REFERENCE BOOK:-

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 Board.
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 Datla 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., Satry, 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. Rangaswami G Narasimhanna M.N, Kashiviswasnathan K Sastry, Sericulture manual – I Mulberry cultivation agriculture Service Bulletin, FAO Rome
11. Sandhya Rani S (1998) Sericulture and rural development, Discovery publishing House, New Delhi.

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With effect from the Academic year 2019 - 2020

General Sericulture & Moriculture

Practicals D.SC – Seri – I 3 hours/week 1 credit 25 Marks

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

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AECC – I

Fundamentals of Computer Science

THEORY **2 hours/week** **2 Credits** **50 marks**

Objectives

1. To impart basic knowledge about environment and its allied problems.
2. Developing an attitude of concern for the environment.
3. To motive the students to participate in environment protection and its improvement.

UNIT – 1

What is a Computer; software and Hardware: Software application, Primary memory, Storage Devices.

UNIT – II

Working with computers: computer terminology; starting and stopping the computer; mouse usage.

UNIT – III

Computer tools & utilities; disk utility; files and directories; manipulating files and folders; working with windows environment

UNIT – IV

Computer network; LAN Internet; E-mail

UNIT – V

MS Word:- Introduction; Working with documents; formatting documents; creating tables, drawing tools, printing documents

UNIT – VI

MS Excel:- Introduction, working with spreadsheet, formation spreadsheet, creating chart
MS power point:- Introduction, opening new presentation, different presentation templates, setting backgrounds, setting presentation layout; creating presentation

REFERENCE BOOKS:-

1. Arora. S- Computer applications A textbook Dhanpal Rai & co (p) Ltd.
2. Anita Goel: Computer fundamentals.
3. B. Antonisamy, Prasanna S, S. Premkumar, Christopher S. Principles and practice of Bio Statistic, Elsevier India.
4. Jaypee brothers medical publishers: 2nd edition.
5. Rao, Bio statistic A manual of statistical for use in health nutrition and Anthropology.
6. V. Rajaraman, 6th edition Fundamentals of computer, Neharika Adabals.

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FACULTY OF SCIENCE
B. Sc (Sericulture)
Semester – II

Title: Silkworm Biology & Rearing Technology

Course Code D. SC - Seri - II

Theory: 4 hours/week	4 Credit	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 & ethology 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 *Bombyx mori.*

UNIT – II

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

Anatomy:- digestive system, circulatory system - excretory system - nervous system, male and female reproductive system, structure and function of silk glands.

UNIT – III

Rearing House:- model rearing house, types of rearing houses, rearing appliances-disinfection of rearing house and appliances-personal hygiene.

Procurement of DHS – transportation proceedures.

Incubation – Definition, environmental requirements, black boxing and its importance.

Brushing - Definition; types of brushing and its importance

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UNIT – IV

Chowki rearing:- Preparation:- brushing & its methods, rearing -optimum condition, chawki methods and frequency of feeding, bed cleaning & methods of cleaning, spacing moulting & care during moulting.

Late rearing: methods, optimum condition, feeding, bed cleaning and methods – spacing, moulting & care to be taking during moulting.

Spinning: Identification of spinning worms, mounting and mounting density – types of mountages – environmental conditions during spinning and moulting.
Moulting – identification of moulting worms and care
Harvesting: Time of harvesting, harvesting methods, storage, preservation, transportation and marketing of cocoons- time and procedure to be followed.
Mounting – identification of worms, mounting and spinning of larvae.

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 (1991) 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, Agriculture services Bulletin FAQ sericulture manual, Rome
4. Manuals - @ Silkworm Rearing Agriculture Serice bulletin FAO, Rome.
5. Madan Mohan Rao, M. (1999) Comprehensive Sericulture Manual. P.S Publication, Hyderabad
6. M.Amin Masood & Afifa S, Kamie I (2000) Principles of temperate sericulture Kalyani C Publisher
7. S.Morashi (2001) Improvement of biological functions in the silkworm, science publisher.
8. Tazim Y (1922) Handbook of silkworm rearing Fuzi pub Co Ltd Tokyo Japan.
9. Yataro Fazima (2001) improvement of Biological Functions in the silkworm science, publishers

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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 mouthparts, digestive system –respiratory system, nervous system, silk glands, reproductive system of male and female moth, cocoon characteristics- uni, bi & mv races
4. Rearing houses, model rearing house, rearing appliances for chawki and late age
5. Disinfection – types of disinfectants – concentration, dosage requirements
6. Incubation of silkworm eggs: method, black boxing, optimum environmental condition.
7. Calculation of fecundity and hatching percentage
8. Chawki rearing – feeding, bed cleaning, spacing, moulting.
9. Late age rearing - feeding, bed cleaning, spacing, moulting.
10. Mounting and spinning – types of mountages.
    Note: silkworm rearing (22-24 days) submission of report
11. Mounting – identification of moulted worms and care to be taken during moulting.

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With effect from the Academic year 2019 - 2020

ACEE - 1I
Fundamentals of Environmental sciences

Theory	2hours/week	2 Credits	50marks

Objectives

1. To provide students with knowledge and tools that will allow them design and implement effectively.
2. To understand problem solving techniques in sericulture using the computers.
3. To update new sericultural techniques using computers.

UNIT – I

Introduction to Environmental Studies:- Definition, Scope & Importance, People and institutions in environment, Natural Resources – Renewable and Non renewable resources, Natural Resources and associated problems.

UNIT – II

Biodiversity & its Conservation: Introduction, Biogeographical classification of India
Value of Biodiversity: consumptive use, productive use, social, ethical, aesthetic & option value. India as a mega-diversely nation, hotspots of biodiversity, threats to biodiversity

UNIT – III

Pollution:- Definition, Air pollution:- Causes, types and control measures
Water pollution:- causes, types and control measures
Soil pollution:- causes, types and control measures
Noise pollution:- effect of noise pollution and control techniques
Thermal pollutions:- effect and control measures,
Role of man in prevention of pollution

UNIT – IV

Social issues and the Environment: from unsustainable to sustainable development, urban problems related energy, rain water harvesting, water shed management, environmental ethics: need for preservation of resources for future generation, waste products, reuse, reduce and recycle

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REFERENCE BOOKS:-

1. Agarwal, K.C (2001) Environmental Biology, Nidie Publ Ltd Bikaner.
2. Bharuncha Erach (2003) The biodiversity of India.
3. Gluck H.P. (1993) water in crisis, pacific Institute of Studies.
4. Rao M.N. & Datta A.K 1987 waste water treatment, oxford & IBH Publ Co. Pvt. Ltd 345.
5. Trivedi R.K & P.K Goel - Introduction to air pollution.
6. Jadhay, & Bhosale, V.M (1995) Environmental protection Law, Himalaya Publ House, Delhi 284 P.
7. Mckinncv M.L., and Schoch, R.M (1996) Environmental Science systems & Solution. WCH enhanced edition 639 p.
8. Odum, E.P (1971) Fundamentals of Ecolology, W.B. Saunders.
9. Antonisamy, prasanna, S. Prem Kumar, Principles and practices of Biostatic, Elsevir India

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With effect from the Academic year 2019 - 2020

KAKATIYA UNIVERSITY
Faculty of Science
B. Sc (Sericulture)
Semester – III
Silkworm Seed Technology

D.SC – Seri – III

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 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 cocoon rearers – seed cocoon markets – transaction procedures – significance)

Planning for pure and hybrid silkworm, egg production, purchase of bivoltene and multivoltine seed cocoons from markets deflossing, sorting & preservation, pupal examination & its function.

UNIT – II

Grainages: Location, ground plan, model grainage – grainage equipments and their usage, maintenance of environmental factors in grainage, disinfection and hygience conditions in grainage
Grainage management:- staff and labour maintainence, care to be taken while carrying out grainage activities.
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), weighing disinfection of egg sheet/washing of eggs, weighing and packing of loose eggs,

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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. Javant 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 Y, Pan Runshi and Ou Bing – Se

Silkworm Seed Technology

D SC – III Practicals 3hour/week 1 credit 25marks

1. Model grainage plan
2. Identification of grainage equipments.
3. Assessment of cocoons of pure race and hybrids for cocoon weight, shell weight and racial characters.
4. Selection of seed cocoons, sorting & preservation.
5. Sex separation at cocoon, pupal and moth stages.
6. Moth emergence – pairing, de pairing 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

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9. Identification of different types of eggs – fertilized, unfertilized, un hatched and dead eggs.
10. Morphology of silkworm egg.
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.

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KAKATIYA UNIVERSITY
Faculty of Science
B. Sc (Sericulture)
Semester – III
Value Addition in Sericulture
(SEC – I)

Theory	2 hours/week	2-credits	50 marks

Objectives

1. To gain knowledge about the medicinal values of mulberry & its medicament.
2. To understand about the value addition from mulberry leaf, fruit, stem and root.

UNIT – I

Value addition from mulberry leaf:- Animal feed Importance, mulberry leaf extraction in reducing blood glucose, reducing Blood fat, strengthening blood vessels, cosmetic production, Health benefits of mulberry leaves (Tea, Soap, Atherosclerosis)
Value addition to mulberry fruit:- Multipurpose uses of mulberry fruit, mulberry fruit jam, mulberry fruit chutney etc.
Value addition products from mulberry stem:- Mulberry as fodder and fuel, mulberry wood art, utilization of mulberry twigs for basket making, agricultural and sports items etc
Recycling technology of sericulture waste:- preparation of compost from sericulture waste, silkworm litter for biogas generation, vermicomposting of silk waste, Livestock maintenance, Agriculture, Biogas slurry
Value addition to silkworm:- commercial food
Value addition to silkworm pupae:- cereal diet, use of pupal chitin, use of pupal fat and oil, pupae as broilers diet ruminant diet, Pig diet; organic fertilizers, health products pupae diet as astronaut food, paints & vanishes.

UNIT – II

Silk reeling waste and cocoon waste utilization for value addition microtubes, use in biomedical and bioengineering field, pharmaceutical industry, art craft, interior decoration.
Grainage waste and value addition:- utilization of cut and pierced cocoons, pharmaceutical industry, value addition to silk moth.
Non mulberry sericulture waste utilization for value addition: - Taster, muga and eri waste – garland, silk paper, silk package material, spun silk & noil soil, importance of quilts
Impact of value added byproducts as entrepreneurship.

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REFERENCE BOOKS:-

1. Kundu, S. (ed) (2014) Silk biomaterials for tissue engineering & regenerative medicine, Elsevier.
2. Internet (Literature).

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KAKATIYA UNIVERSITY
Faculty of Science
B. Sc (Sericulture)
Semester – III
Agri and Seri Clinic
(SEC – II)

Theory	2 hours/week	2 credits	50 marks

Objectives

1. To study about INM practices, to improve soil health.
2. To gain knowledge about problems related to sericulture.
3. Assessment of inputs and outputs.
4. To gain knowledge about pests and diseases and acquaint with remedial measures.

UNIT – I

Soil health analysis, INM practice to improve the soil and plant health, identification of deficiency symptoms in mulberry & acquainting with remedial measures; Diagnosis of pest and diseases of silkworm and acquainting with remedial measures; survey of problematic rearing houses and mulberry garden and finding of the inputs, leaves and Dfls; Assessment of toxicity & their nature, levels and suggested remedies, development of INM and IDPM schedules for management of nutrition, pest and diseases in mulberry and acquainting with remedial measures.

REFERENCE BOOKS:-

1. Plant Ecology & phytogeography – N. Arumugam.
2. Soil Fertility fertilizer & integrated nutrients management by Tolanurs, CBS publication.
3. An introduction to environmental toxicology – 4th Edition Michael M Dory.
4. https://www.intechopin.com

Chairperson
BOS in Sericulture

INCHARGE
Sericulture
University College
Kakatiya University,
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With effect from the Academic year 2019 - 2020

KAKATIYA UNIVERSITY
Faculty of Science
B. Sc (Sericulture)
Semester – IV
POST COCOON TECHNOLOGY

D SC – Seri - IV

Theory	4 hours/week	4 credit	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. Cocoon characteristic, structure of fibre; physical and commercial characteristic of cocoons, importance and problems of reeling in industry.

Cocoon sorting – objectives & proceedure: defective cocoons, marketing of cocoons – functions & proceedure.

UNIT – II

Cocoon handling, Selection, preservation of cocoons,

Cocoon stifling:- objectives, factors and methods – sun drying, steam stifling, hot air drying, Yamato hot air dyiers – advantages and disadvantages: coccon sorting: preservation of cocoons.

Cocoon cooking:- Objectives, factors and methods – open pan, three pan, pressurized, floating and sunken system- merits and demerits.

Brushing – objectives – method – advantage 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.

Re reeling and packing: objectives, grant reeling, hank preparation, lacing, skeining, booking, baling and bundling.

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

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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 Bivoltene silk reeling technology, 2002, JICN PP BST Project CSRTZ Mysore.

Post cocoon Technology

Practicals D SC - Seri – 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 od good and defective cocoons by number and percentage.
- Cocoon stifling and cooking
- Determination of filament length / reel ability/raw % recovery / renditta and dieniur.
- 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.

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- Dyeing of multivoltine and bivoltene silk using acid, basic and compound dyes.
- Printing of silk fabrics: objective method – 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

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

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 chawki rearers.

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.

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With effect from the Academic year 2019 - 2020

KAKATIYA UNIVERSITY
Faculty of Science
B. Sc (Sericulture)
Semester – IV
Bio craft Technology
(SEC – IV)

Theory	2 hours/week	2 credits	50marks

Objectives

1. To introduce to by products, its importance of its value addition in sericulture.
2. Utility of silk wastes for preparation of biocrafts.
3. To gain knowledge about skills and art of making biocrafts.

UNIT – I

Introduction to byproducts and its importance, sources of bye products from different activities; process of making biocrafts; selection of cocoons, sorting, cleaning, dyeing with natural and synthetic dyes, different tools required for cocoon crafts making, designing, developing of cocoon crafts.

UNIT – II

Hands on learning:- the skill and art of making single flowers, different forms of bouquets, garlands, placards, silk balls and cocoon caps, Ikebans of cocoon craft flowers, flower arrangements in different materials (enamel, wood, plastic, glass, bamboo, porcelain and mud pots), photo frames, wall hangings and plates, making of key chains in form of doll, car hangings and greeting cards.

Interior decoration using cocoon crafts for different occasions, stage decoration of marriages and functions.

Integration of agricultural / horticultural material in cocoon craft as entrepreneurial skills of cocoon craft

Utility of silk waste for preparation of silk bangles, necklaces, anklets, rachis, earrings, finger rings etc.,

Utility of silk borders / cloth / waste silk in making of purses, handbags, vanity bags, files, table clothes and curtains etc.

REFERENCES :-

1. Internet & using creative mind

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With effect from the Academic year 2019 - 2020

KAKATIYA UNIVERSITY
FACULTY OF SCEINCE
B.Sc (Sericulture)
Semester – V

Mulberry and Silkworm Crop Protection.

DSE – Seri – I (Elective one)

Theory	-	4 hours / week	-	4 Credit	Theory {Internal marks – 20}) Theory {External marks - 80}
Practical	-	3 hours / week	-	1 Credit	{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 to prevent crop loss (in mulberry 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, symptoms
- Root rot – incidence, symptoms, casual organism, life cycle of pathogen and management and incidence, symptoms.
- Viral, bacterial, nematode diseases of mulberry- occurrence, symptoms, casual organisms, and its management.
- Nutritional disorders in mulberry - symptoms and remedial measures

UNIT – II Mulberrry pests:-

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

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

UNIT – III Silkworm iseases:-

- 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 Pests and Predators of Silkworm:-

- Dermes-tid beetles – life cycle, factors responsible, Indian uzifly, nature of damage and prevention / control measures.
- Predators of Silkworm:- Cockroach, ant, 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.
3. Jolly M.S., Sen S.K., Sonwalker, 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.
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.

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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

Practicals - DSE – Seri - 1 Semester - V 3 hrs / week 1 credits 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, pups and moth infected by fungal disease – collection, staining and microscopic examinations.
10. Fungicide / pesticides – forms, formulation and application
11. Studies on India uzi 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.

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KAKATIYA UNIVERSITY
FACULTY OF SCEINCE
B. Sc (Sericulture)
Semester – V

Paper - V: - Silkworm Extension and Economics

DSE – Seri – I (Elective - 2)

Theory	-	4 hours / week	-	4 Credits	Theory {Internal marks – 20} Theory {External marks - 80}
Practical	-	3 hours / week	-	1 Credits	(External marks – 25)

Objectives

1. To understand the importance of extension, different methods for effective diffusion of innovations.
2. To understand the extension services.
3. workout the economics of mulberry, rearing, silk reeling and grainage.

UNIT – I

Meaning, objective and importance of sericulture extension principles, functions and concepts of extension education; extension programme, concept and principle, role of extension of personel and farmers in programme planning and transfer of technology. Technology dissemination, Sericulture extension :- technology transfer – concept components; appropriate and affordable technology for sustainable rural development: scope & role of sericulture extension in rural development.
Communication:- Functions, models, elements, concepts and implications.
Extension programme management, sericulture developments through plans.

UNIT – II

Extension teaching methods adopted in sericulture, use of audio visual aids in sericulture; Training - meaning: principle, method and training programme in sericulture, sericulture – popular and scientific articles in magazines and journals.
Adoption and diffusion of innovation. TOT: meaning and system, role of extension in TOT
Sericulture extension system:- extension system of C.S.B, state governments, voluntary organization and Universities.

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With effect from the Academic year 2019 - 2020

UNIT – III

Economic - Principles of economics, micro and macro economics, classification of costs – explicit and implicit fixed, variable, marginal, average, profits – gross and net.
Advantages & characteristics of sericulture, scope of sericulture in India –vis-à-vis other agricultural crops – income and employment generation.

UNIT – IV

Economics of mulberry production under rainfed and irrigated systems, comparative economics of mulberry production under traditional and improved practices.
Economics of silkworm egg production in Government and private grainages; Economics of cocoon production for commercial purpose, comparative economics of cocoon production under traditional and improved methods of silkworm rearing.
Economics of raw silk production in charaka, cottage basin and multi end-reeling units.
Credit system & microfinance: SHG – opportunity of SHG in sericulture: Micro-finance, role and importance of public distribution system.

REFERENCE BOOKS:

1. Adavi Reddy (1978) Extension education, Sri Laxmi Press, Bapatla.
2. Bansil D.C (2002) Agricultural statise in India (4th edition) CBS Publishers and Distributors, New Delhi.
3. Carver, T.N (1911) principles of rural economic year.
4. Desai V. (1990) A study of rural economic, FAO Agricultural extension manual.
5. Dhote, A.K (1989) Sericulture extension and management, National Council of education research and training, New Delhi.
6. Govindan R; Chinnaswamy A.P. Krishnaprasad N.R. Reddy D.N.R (200) Non mulberry sericulture silk technology and sericulture economics & extension Vol-3 Proceeding of NSTC 1999 UAS, Bangalore.
7. Krishi kosh. Egranth.ac.in/display bits stream handle = 1/5810048919
8. Ramana, D.V (1987) Economics of sericulture and silk industry in India, Deep & Deep Publication, New Delhi.
9. Tribhuvan Singh, Madan Moham Bhat and Mohammad Ashaf Khan (2009) sericulture extension: Principle & Management APH Publishing Corporation, New Delhi.
10. Taylor (1961) Agriculture Extension. Worldwide institution and force of change.

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With effect from the Academic year 2019 - 2020

SILKWORM EXTENSION AND ECONOMICS

PRACTICALS **3hours/week** **1credit** **25marks**

1. Visit to a village to study about sericulture activity.
2. Visit to a village to study level of education of the sericulture feedback on the visit.
3. Sericulture activities like preparation of audio visual aids – charts, hangouts, pamphlets – arranging and conduction of panel discussion with sericultures (Rearers, reelers & mulberry cultivars).
4. Visit to rearers house, CRC, TSC, KSMB, KSIC cocoon markets, silk exchange and research institutes & panel discussion with concern persond.
5. Identification of byproducts of sericulture industry.
6. Utilization of these byproducts in the industry.
7. Preparation of economic models – mulberry cultivation, silkworm rearing, silkworm egg production & silk reeling.

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With effect from the Academic year 2019 - 2020

KAKATIYA UNIVERSITY
FACULTY OF SCEINCE
B. Sc (Sericulture)
Semester – V
Seri Biotechnology
General Elective (Compulsory)

Theory 4 hours/week 4credits 100 marks

Objectives

1. Acquire the knowledge on biotechnological aspects and its application which can be applied for crop improvement.
2. Gain knowledge on biotechnological tools for improvement of silkworm.

UNIT – I

Introduction:- Scope and importance of plant biotechnology.
Growth in relation to morphogenesis: cell and organ differentiation: concept of totipotency, Micropropagation; multiple shoot formation, synthetic seed in mulberry, Somatic hybridization: isolation of protoplast; regeneration of plants & genetic modification of protoplast.

UNIT – II

Screening of disease resistance in mulberry & gene transfer methods in plants; target cells for transformation, gene transfer techniques.
Transgenic plants and their role in crop improvement, molecular farming and regulated gene expression, transformation of chloroplast genome (cg) in higher plants using Agro bacterium and particle gene.
Patenting transgenic organisms & isolated genes.

UNIT – III

Silkworm cell culture – composition & preparation of media and maintenance of cultures.
Tissues and organ culture, tissues grafting.
Polymerase chain reaction; Application in sericulture
Application of biotechnology in silkworm – new textile fibres – improvement of silkworm strains & markers.

UNIT – IV

A brief account of transgenic animals – silkworm transgenesis, application of silkworm transgenesis, piggy bac transposon, red fluorescent protein, expression in *Bombyx mori*.

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With effect from the Academic year 2019 - 2020

Immune response against bacterial & viral diseases in silkworm: inducible anti bacterial and antiviral proteins in silkworm.
BMNPV vector – life cycle, biotechnological application for large scale synthesis of recombinant proteins.
IPR, patenting and bioethics

REFERENCE BOOKS

1. Asakura T., Mille, T., (2013) Biotechnology of silk, Springer Science & Business media.
2. Glick, B.R, Pasternak, J.J (2003) Molecular Biotechnology - Principles and applications of recombinant DNA, ASM press, Washington.
3. Murray, D.R (1991) Advanced methods in plant breeding Biotechnology: CAB International Wallingford, oxon, United Kingdom.
4. Russel, P>J (2009) Genetics – A Molecular approach III edition, Benjamin Cummings.
5. Venkatesh Kumar, and Shyam Kumar, V (2011) Application of Biotechnology in sericulture, Stadium Press (India) Pvt Ltd.

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With effect from the Academic year 2019 - 2020

KAKATIYA UNIVERSITY
FACULTY OF SCEINCE
B. Sc (Sericulture)
Semester – VI
Elective
Vanya Sericulture
(Elective - I)

D SE – Seri – II

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

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With effect from the Academic year 2019 - 2020

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

D SE – Seri – II (Elective - I)

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

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KAKATIYA UNIVERSITY
FACULTY OF SCEINCE
B. Sc (Sericulture)
Semester – VI
Entrepreneurship development in sericulture
(Elective - II)

D SE – Seri – II

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

Objectives

1. To study the entrepreneurial opportunities in sericulture.
2. To gain knowledge to become an entrepreneur in various aspects of sericulture.

UNIT – I

Entrepreneurship: development programme (EDP):- Objectives of EDP, qualities of an entrepreneur and selection of a potential entrepreneur.
Project formulation (Project appraisal): Meaning and purpose, agencies interested/supporting the project, market feasibility of the project, means of finance, risk analysis.
Marketing:- Approach, demand, assessment and steps involved in marketing.

UNIT – II

Insectary facilities and equipment: Location, environmental control, building specification, furnishings and equipments.
Mass production of insect pathogens:- culturing of hosts/preparation of culture substrate, innoculation, collection of diseased cadavers, isolation, purification and storage of pathogens.
Mass production of parasitoids; culturing of host insects oviposition and emergence of parasitoids adults from hosts, collection, feeding and storage of parasitoid adults.

UNIT – III

EDP in raising mulberry sapling (Kisan Nurseries)
EDP in organization of Chawki rearing centres.
EDP in silkworm egg production & rearing.
EDP in silk reeling – charaka, cottage basin and multi end reeling units.

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UNIT – IV

Mechanization in mulberry cultivation, silkworm egg production and silkworm rearing – activities and economics. Advances in silk reeling technology – activities and economics. Health hazard faced by sericulturists.

REFERENCE BOOKS

1. HisaoAruga (1994) Principles of sericulture, Oxford & IBM publishing Co.Pvt Ltd, New Delhi.
2. Madan Mohan Rao (1999) Comprehensive sericulture manual B.S publications, Hyderabad.
3. S.S Khanka, Entrepreneurial development, S. Chand Publishing.
4. A. Nirjas, Entrepreneurial development, Sanbun publishers.
5. V.S.P Rao. Human resources management, Taxmann.
6. Philip kotle, Marketing Management, Analysis, Planning, implementing and control Repearson.

Entrepreneurship development in sericulture

PRACTICALS

DSE Seri – II (Elective - II)

3hours/week 1 credit 25 marks

1. Planning the facilities required for mulberry garden establishment.
2. Observations on insect pathogens and symptoms.
3. Observations on insect parasitoids.
4. Planning for kisan nurseries and economics.
5. Planning for establishment of chawki rearing centers.
6. Planning for establishment of silk reeling – charakas, cottage, multi end reeling units.
7. Assessment of profit – cost ratio under traditional and mechanized systems of silkworm egg production.
8. Assessment of profit – cost ratio under traditional and mechanized systems of silkworm rearing and chawki rearing centers.
9. Assessment of profit – cost ratio under traditional and mechanized systems of silk reeling units.
10. Health related problems during mulberry cultivation, rearing, egg production and reeling.

Chairperson
BOS in Sericulture

INCHARGE
Sericulture
University College
Kakatiya University,
WARANGAL -506009(T S)INDIA

With effect from the Academic year 2019 - 2020

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

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