KAKATIYA UNIVERSITY
FACULTY OF SCIENCE
B. Sc (Sericulture)
Semester – II
D. SC - Seri - 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	Practical: 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 - 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 DFL – transportation procedures.

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

Brushing - Definition; types of brushing and its importance

UNIT – IV

Chawki 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

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.

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, Bio-geographical 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

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 Ecology, W.B. Saunders.
9. Antonisamy, prasanna, S. Prem Kumar, Principles and practices of Biostatic, Elsevier, India