SRI SARADA COLLEGE FOR WOMEN (AUTONOMOUS)

Reaccredited with B++Grade by NAAC (Affiliated to Periyar University)

Salem – 636016.

DEPARTMENT OF ZOOLOGY

ADVANCED DIPLOMA COURSE

IN

SERICULTURE

SYLLABUS

I Year	Certificate Course	Moriculture
IIYear	Diploma Course	Silkworm Rearing
IIIYear	Advanced Diploma Course	Silk Reeling and Re-Reeling

ADVANCED DIPLOMA COURSE IN SERICULTURE

CERTIFICATE COURSE: MORICULTURE

Total Hours: 100

Objectives:

- To Understand the principles of Mulberry cultivation and Management.
- To promote soil conservation and fertility through Mulberry cultivation.
- To improve mulberry leaf yield and quality for silkworm feeding.
- To promote sericulture as a viable rural enterprise.

UNIT I **Hours:20**

Introduction to Sericulture - World level status, Historical background of sericulture - Spread of sericulture to Europe, Japan, South Korea, India and other countries - Organization of Sericulture in India - Central Silk Board. Introduction – Biology of Mulberry, Origin and Distribution – climate suitable for Mulberry.

UNIT II **Hours:20**

Mulberry forms – Bush, Middlings and low trees, selection and preparation of sight. Selection of Varieties for cultivation. Planting system – Row system, Pit system and Strip system – spacing of Mulberry – a brief account. Intercultivation – purpose, methods, time and frequency, Mulching.

Mulberry cultivation Practices

Irrigation: Appearance of Mulberry crop – Frequency of Irrigation – Quality of water irrigated – interval between irrigation – methods of irrigation.

UNIT III **Hours:20**

Manure and their Applications

Organic Manures – chemical fertilizers – role of major nutrients and trace elements(Micronutrients) in plant growth – Nitrogenous fertilizers – phosphatic fertilizers – potassic fertilizers – balanced use of fetilizers –

influence of fertilizers on the quality of leaves and leaf yield. Fertilizers used and schedules of application for irrigation and rainfed garden – time of application of fertilizers – method of applications. Common weeds of Mulberry and their control measures.

UNIT IV **Hours:20**

Pruning and Training

Objectives – Types and methods of Prunning and importance – Harvesting – methods, stages and time of Harvest – transportation and preservation methods – the schedule and package of practice of Mulberry cultivation.

UNIT V **Hours:20**

Diseases of Mulberry

Classification of diseases of Mulberry, Symptoms and control measures

a. Fungal Diseases - Leaf spot, Leaf rust, Powdery Mildew, leaf bright,

   Root rot

b. Bacterial Diseases
c. Viral Diseases
d. Root knot nematode disease
e. Mineral deficiency disease

Classification and brief life cycle of chief pests – symptoms of attack – period of occurrence – Types of damage caused and control measures of Caterpillars, Grasshoppers, Mealy bugs, Scale insects, thrips, Jassids, Borers and Girdlers.

REFERENCES

1. Dr. G. Ganga and Dr. J. Sulochana Chetty, J., (2008). Introduction toSericulture. Oxford & IBH Publishing Co. Pvt Ltd, New Delhi.
2. S. R. Ullal, Dr. M. N. Narashimaan, Handbook of Practical Sericulture,Central Silk Board, Bombay.
3. Boraiah. G. (1986). Mulberry cultivation. Lectures on Sericulture.

4. Sericulture Manual – I – Mulberry Cultivation oxford and IBH publishing coPvt Ltd, New Delhi.
5. Handbook of pests and diseases of Mulberry and Silkworm (1990).Published by UNESCAP, Bangok, Thailand.
6. Diseases and Pests of Mulberry and their control. 1991, Published byDirector C.S.R. and T.L. Mysore.
7. Praden. S. (1983). Agriculture Entomology and pest control.

DIPLOMACOURSE: SILKWORM REARING

Total Hours: 100

Objectives:

- To understand silkworm biology and life cycle
- To enhance disease and pest management
- To develop efficient rearing techniques and management practices
- To empower rural communities through sericulture training

UNIT I **Hours:20**

Biology of Silkworm : Systematis position of Silkworm, Silkworm races – Moultinism and Voltinism, Silkworm life history – Morphology, Egg, Larva, Pupa and Adult.

Anatomy of Silkworm: Organ systems – Digestive, Excretory, Respiratory, Circulatory, Muscular, Nervous and Reproductive system.

Glands in silkworm in general with special emphasis on silk gland.

UNIT II **Hours:20**

Development of Silkworm: Structure of the egg – developmental stages – Blastokinesis

Eyespot – Blue egg stage. Hatching Larva – five instars – Larval duration – moulting. Environmental Conditions – spinning of cocoons, pupa, Pupal duration – adult duration, Metamorphosis – definition – role of hormones in metamorphosis.

UNIT III **Hours:20**

Ideal Rearing House - Modern and model rearing house Rearing appliances – Disinfection

Environmental conditions required for rearing. Hatching – Brushing. Quality of Mulberry leaves for different ages – Preservation and storage of leaves – feeding – Moulting – Spacing – Bed cleaning. Chawki rearing – Late age rearing Mounting and Harvesting of Cocoons.

UNIT IV **Hours:20**

Silkworm Diseases – Introduction and classification

Protozoan Diseases – Pebrine, Bacterial Diseases – Flacherie, Viral Diseases – Grasserie with special reference to causal agent, symptoms and control measures.

UNIT V **Hours:20**

Fungal Diseases – Muscardine - Causal agent, symptoms – control measures Tricholygabombycis (Uzifly) - Nature of damage, prevention and control measures.

A brief account of damage caused by Ants – Nematode – Lizards – Rats – Squirrel – Birds - Agricultural Chemicals – Exhaust gases.

REFERENCES

1. Dr. G. Ganga and Dr. J. SulochanaChetty, J., (2008). Introduction to Sericulture. Oxford & IBH Publishing Co. Pvt Ltd, New Delhi.
2. S. R. Ullal, Dr. M. N. Narashimaan, Handbook of Practical Sericulture, Central Silk Board, Bombay.
3. Boraiah. G. (1986). Mulberry cultivation. Lectures on Seiculture.
4. Sericulture Manual – II – Silkworm. Oxford and IBH publishing co Pvt Ltd, New Delhi.

ADVANCED DIPLOMA COURSE : SILK REELING AND RE-REELING

Total Hours: 100

Objectives:

- To understand Cocoon sorting and grading.
- To understand new reeling technologies.
- To promote eco-friendly reeling and re-reeling practices.
- To enhance silk texture and appearance.

UNIT I **Hours:20**

Properties of Silk – Selection of Raw materials for Reeling – Different methods Physical and commercial characters of cocoons – defective cocoons.

UNIT II **Hours:20**

Stifling – Conventional and modern methods – cocoon storage – sorting – deflossing – riddling – Mixing.

UNIT III **Hours:20**

Cocoon boiling – open pan – three pantype – brushing different methods – topreeling – Sunken system of reeling.

UNIT IV **Hours:20**

Reeling – country charka – cottage basin – Multiend reeling Machine – Re-reeling – Role of water and water management in silk reeling – cleaning – lacing – skeining – book making – baling.

UNIT V **Hours:20**

Importance of raw silk testing and grading – different tests for raw silk quality – visual – mechanical – grading of raw silk. By products of Sericulture.

REFERENCES

1. Dr. S. Boraiah, Lectures on Sericulture, SBS publishers Distributors, Railway Parallel Road, Kumarapark East, Bangalore.
2. Dr. G. Ganga and Dr. J. SulochanaChetty, J., 2008. Introduction toSericulture. Oxford & IBH Publishing Co. Pvt Ltd, New Delhi.
3. Hisao Aruga, Principles of Sericulture, Oxford & IBH publishing Pvt Ltd,Bombay and Calcutta.
4. Kim, Byung- H.O. Ph.D. Raw silk reeling associated business center Limited, Colombo, Sri Lanka.