**SEMESTER- 6**

**(Silkworm Cocoon Technology)**

**DSE-SR-16-601**

**(Credits: Theory-04, Practical-02)**

**THEORY**

**UNIT-I: SELECTION OF COCOON FOR REELING**

1. Evolution of silk reeling industry and its present status.
2. Quality of cocoon: Cocoon shell ratio, cocoon shell weight, silk filament length, cocoon reelability, factors affecting reelability.
3. Physical and chemical properties of silk fiber.
4. Raw materials for silk reeling: Selection of cocoon for reeling. Assessment of renditta, cocoon gradation, cocoon procurement and transportation.

**UNIT-II: COCOON PROCESSING**

1. Cocoon drying: Different methods, conventional and modern techniques steam stifling, hot air dryer, sun drying and others, advantages and disadvantages.
2. Cocoon sorting and preservation: Separation of defective cocoons, deflossing, methods of storing and preservation of cocoons.
3. Cocoon cooking: Principles of cocoon cooking.
4. Cocoon cooking equipment and brushing: open pan, three pan boiling methods, cocoon brushing hand and mechanical brushing.

**UNIT-III: RAW SILK MANUFACTURE (REELING AND RE-REELING)**

1. Reeling appliances: Concept of silk reeling, Country charkha, Cottage machine, Multi-end reeling machine, Automatic machine.
2. Reeling operations : Formation of reeling end, jettebout, croissure, reels
3. Re-reeling: Re-reeling machine, lacing, denier, skeining, booking and storage.
4. Water quality and silk reeling: Use of water in silk reeling, water quality, relationship between water quality and silk reeling, water quality standards.

**UNIT-IV: SILK THROWING AND WEAVING:**

1. Raw silk testing and grading: Methods of testing, standard testing appliances and equipment methods of grading of raw silk.
2. Silk throwing and twisting: Throwing preparation for twisting, Twisting of yarn, soaking, dressing, drying, winding, doubling and twisting.
3. Silk weaving: Warping, beaming, drawing denting, weft preparation, power loom and handloom weaving.
4. Silk byproducts : Reeling waste and its utility in spun silk industry utility of pupae

**PRACTICALS**

a) Identification of Textile fibres by physical and chemical tests—microscopic examinations, flame test and solubility test for polyester, cotton, silk.

b) Identification of defective cocoons and their percentage in a lot, determination of shell ratio of good cocoon.

c) Single cocoon reeling—determination of average filament length and denier.

d) Practical demonstration of cooking, reeling and re-reeling of a sample cocoon.

e) Practical demonstration of multi-end silk reeling machine.

f) Reeling appliances used in mulberry cocoon reeling.

g) Study of silk fabric manufacturing unit power loom and handloom (visit to spun silk mill) during on the training.

h) Visit to various reeling and weaving units of state and centre for practical demonstration.