

**B. Sc. DEGREE PROGRAMME (Theory)**

**ZOOLOGY**

**Generic Elective Course**

**APICULTURE**

**CODE : 5 D 02 ZLG**

Credit:2; Hours:2/week; Total Hours:36

Course outcomes

CO 1 :Develop self-employment capabilities.

CO 2 : Acquires scientific knowledge of profitable farming.

**UNIT I (8 Hrs)**

Definition, Scope, Classification of bees, Rock bee, Indian bee, Little bee and Dammer bee- their identification and habits, choice of species in Apiculture. Bee colony-Distinctive features (social organization), Identification and Functions of queen, drones and workers, Structure and functions of Legs, mouth parts and sting of worker bee. Development of Honey bee-egg, larva and pupa. Food of the bee- honey and pollen-royal jelly. Artificial feeding. Behaviour of bees-dances.

**UNIT II (8 Hrs)**

Principles of apiculture, Arranging an apiary, position-space-direction,acquiring bees-care of newly captured colonies-handling the bees. The bee comb and its architecture-Different kinds of cells. Different types of Modern hives (Newton, Langstroth) – Architecture. Appliances used in Apiaries.

**UNIT III (8 Hrs)**

Swarming-Prevention and control.Uniting stocks-Different methods Queen rearing. Requeening. Feeding methods. Apiary management. Inter-relationships of plants and bees.

**UNIT IV (8 Hrs)**

Honey bee products. Honey- Collection and Extraction, Preservation and storage –Physical properties,Chemical composition,nutritive value, medicinal values-honey as daliy food. Bee wax- Production , method of extraction-characteristics and uses. Bee venom-method of collection - composition of venom- its uses.

**UNIT V (4 Hrs)**

Enemies of bees- Mites, Greater wax moth, lesser wax moth, ants, wasps, beetles, birds and their management. Diseases of bees-adult and brood diseases- Bacterial, Fungal, Viral & Protozoan; Prevention and Control measures.

**REFERENCES:**

1. Bee Keeping in India – Sardar Singh- KAR,Delhi.

2. Bee keeping in South India – Cherian M.C. & Ramachandran, Govt.Press,Chennai.
3. Handbook of bee keeping – Sharma P.L. & Singh S.,Chandigarh.
4. Apiculture – J. Johnson and Jeyachandra, Marthandam, TamilNadu.

**B. Sc. DEGREE PROGRAMME (Theory)**  
**ZOOLOGY**  
**Generic Elective Course**  
**SERICULTURE**  
**CODE : 5 D 03 ZLG**  
**Credit:2; Hours:2/week; Total Hours:36**

**Course outcomes**

CO 1 :Develop self-employment capabilities.

CO 2 : Acquires scientific knowledge of sericulture

**UNIT I (2 Hrs)**

Importance of sericulture, sericulture industry in India, sericulture as cottage industry, role of Central Silk Board.

**UNIT II (6 Hrs)**

Moriculture - Mulberry varieties - Diseases of mulberry – fungal diseases –Bacterial diseases – Viral disease –Neematode disease - one example each - Pests of mulberry – leaf eating insect pests and borer pests - one example each.

**UNIT III (9 Hrs)**

Biology of silkworm. Life history of *Bombyxmori*. Morphology of larva; silk glands, spinnerets, silk proteins. Uni, bi and multivoltine breeds.Non mulberry silk worms.

**UNIT IV (9 Hrs)**

Rearing of silkworm: Rearing house – Rearing appliances – Rearing operation – Disinfection – Brushing – Maintenance of optimum conditions, Feeding – bed cleaning – spacing. Rearing of young ages – Chawki rearing - Rearing of late age larva: Shelf rearing. Floor rearing. Application of sampoorna. Mounting: Methods – precautions, Harvesting and sorting of cocoons.

**UNIT V (8 Hrs)**

Silk reeling: cocoon stifling – types, sorting, boiling and deflossing – brushing, Process of reeling: Different methods, silk waste and byproducts of silk reeling. Raw silk and marketing. Uses of silk.

**UNIT VI (2 Hrs)**

Diseases of silkworm. Muscardine, Pebrine, Flacherie. Prevention and control. Pests of silkworm. Uzi fly, ants and rodents. Control measures.

**REFERENCES:**

1. Ganga, G. and I. SulochanaChetty, An introduction to Sericulture.Oxford& IBH Publishing Company Private Limited,S -155,Panchshila Park,NewDelhi.
2. Ganga,G. Comprehensive Sericulture,Volume – 2 Silkworm Rearing and Silk Reeling. Oxford & IBH Publishing Company Private Limited, S -155,PanchshilaPark,New Delhi.
3. Dandin, S.B, Jayant Jayaswal and K. Giridhas, Hand Book of Sericultural Technologies, Central Silk Board, Madivala, Bangalore –68.
4. KamileAfifa. S and Masoodi M. Amin, Principles of Temperate Sericulture,Kalyani Publishers, B