Dr. A.P.J. ABDUL KALAM UNIVERSITY, INDORE

Course: B.Sc **Semester: I** **Session: 2022-23**
Subject: Zoology (Apiculture) **Subject Code: ELZO103T**

2	**Course Title**	**Apiculture**
3	**Course Type (Core Course/Elective/Generic Elective/Vocational/.....)**	**Elective**
4	**Pre-requisite (if any)**	The course can be opted as Generic Elective by the students of all streams
5	**Course Learning outcomes (CLO)**	Upon completion of the course students should be able to 1. Understand the Various species of honey bees in India, their social organization and importance. 2. Understand the techniques, involved in Bee keeping and honey production. 3. Know about various products obtained from beekeeping sector and their importance. 4. Be aware about the opportunities and employment in apiculture in public, private and government sectors. 5. Develop entrepreneurial skills for self-employment in bee keeping sector.

Unit	Topics	No. of Lectures
I	**Historical background and Biology of Bees** **1. Historical Background:** 1.1 History and Importance of Beekeeping in India 1.2 Indian species of Honey bees **2. Biology of Bees:** 2.1 Classification and Biology of Honey bee 2.2 Social organization of Bee colony 2.3 Behavioural patterns (Bee dance, Swarming) **Keywords/Tags**: Apiculture in India, Honey bee, Classification, Social organization, Behavioural pattern	07
II	**Rearing of Bees** 1.1 Artificial Bee Rearing (Apiary) 1.2 Beehives – Newton and Langstroth Box; Bee Pasturage 1.3 Selection of Bee species for apiculture 1.4 Modern Bee keeping equipment 1.5 Methods of extraction of Honey (Indigenous and Modern methods) and processing 1.6 Apiary Management–Honey flow period **Keywords/Tags**: Apiary, Newton and Langstroth Box, Bee Pasturage, Bee keeping equipment	10
III	**Diseases and Enemies** 1.1 Diseases and Enemies of honey bees	04

Part C-Learning Resources

Text books, Reference Books, Other resources

Suggested readings

1. Bisht, DS, "Apiculture", ICAR Publication, 1980
2. Conrad, R, "Natural Beekeeping", Second edition, Chelsa Green Publisher, 2013.
3. Cramp, D, "The Complete Step by Step Book of Beekeeping", Anness Publishing, 2012.
4. Flottum, K, "The Backyard Beekeeper", Fourth edition, Quarry Books Publisher, 2018.
5. Gupta, JK, "Apiculture, Indian Council of Agricultural Research", New Delhi, 2016.
6. Mishra, RC, "Honeybees and their Management in India", Indian Council of Agricultural Research, New Delhi, 1995.
7. Philips, T, "Beginning Beekeepingg", Alpha publisher, 2017.
8. Prost, PJ, "Apiculture", Oxford and IBH, New Delhi, 1962.
9. Rahman, A, "Beekeeping in India", Indian Council of Agricultural Research, New Delhi, 2017.
10. Singh, S, "Beekeeping in India", Indian Council of Agricultural Research, New Delhi, 1962.
11. Shukla, G.S. and Upadhyay, VB., "Economic Zoology", Rastogi publication Meerut, 2014.
12. Vishwapremi, KKC, "Economic Zoology", Anmol publication Pvt. Ltd., New Delhi.

Suggested equivalent online courses:

1. Swayam (MHRD) Portal Vocational Beekeeping (https://swayam.gov.in/courses/5844-vocational-beekeeping)
2. e-PG Pathshala (MHRD) Portal, (https://epgp.inflibnet.ac.in/)
3. Science Direct Open Access Content (https://www.sciencedirect.com/book/9781843342038/open-access)