



**FIRST-YEAR OF BACHELOR OF VOCATIONAL
OPEN ELECTIVE SUSTAINABLE AGRICULTURE
REVISED SYLLABUS ACCORDING TO CBCS
NEP2020**

**COURSE TITLE: BEEKEEPING TECHNOLOGY SEMESTER-II,
W.E.F. 2024-2025**

**RECOMMENDED BY THE BOARD OF STUDIES IN BVOC (SA) AND
APPROVED BY THE ACADEMIC COUNCIL**

DevrukhShikshanPrasarakMandal's
Nya. TatyasahebAthalye Arts, Ved. S. R. Sapre Commerce, and
Vid. DadasahebPitre Science College (Autonomous), Devrukh.
Tal.Sangmeshwar, Dist. Ratnagiri-415804, Maharashtra, India

Academic Council Item No: _____

Name of the Implementing Institute	:	Nya. TatyasahebAthalye Arts, Ved. S. R. Sapre Commerce, and Vid. DadasahebPitre Science College (Autonomous), Devrukh. Tal.Sangmeshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Bachelor of Vocation (Sustainable Agriculture)
Name of the Department	:	Science
Name of the Class	:	First Year
Semester	:	Second
No. of Credits	:	02
Titleof the Course	:	Beekeeping technology
Course Code	:	SAOE102
Name of the Vertical in adherence to NEP 2020	:	Open Elective
Eligibility for Admission	:	Any 12 th Pass and/Or Diploma in agriculture seeking Admission to Degree Programme in adherence to Rules and Regulations of the University of Mumbai and Government of Maharashtra
Passing Marks	:	40%
Mode of Assessment	:	Formative and Summative
Level	:	UG
Pattern of Marks Distribution for TE and CIA	:	60:40
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2024-2025
Ordinances/Regulations(if any)	:	

Syllabus for First Year of Bachelor of Vocation in Sustainable Agriculture

(With effect from the academic year 2024-2025)

SEMESTER-II

Paper No.–

Course Title: Beekeeping Technology

No. of Credits - 02

Type of Vertical: Open Elective

COURSE CODE:SAOE102

Learning Outcomes Based on BLOOM's Taxonomy:

After completing the course, the learner will be able to...		
Course Learning Outcome No.	Blooms Taxonomy	Course Learning Outcome
CLO-01	Remember	Remember the basics of Beekeeping technology
CLO-02	Understand	Understand Honeybee biology and Behaviour
CLO-03	Apply	Apply knowledge in Different Beekeeping system and equipment
CLO-04	Analyze	Analyze Hive management and colony health
CLO-05	Evaluate	Evaluate Different Beekeeping methods
CLO-06	Create	Create awareness regarding Beekeeping in Agricultural systems, their conservation, Biodiversity and food production.

Syllabus for First Year of Bachelor of Vocation in BFS

(With effect from the academic year 2024-2025)

SEMESTER-II

Paper No.–

Course Title: Beekeeping Technology

No. of Credits - 02

Type of Vertical: Open Elective

COURSE CODE: SAOE102

COURSE CONTENT			
Module No.	Content	Credits	No. of Lectures
1	<ul style="list-style-type: none"> <input type="checkbox"/> Importance of beneficial insects. History of Beekeeping <input type="checkbox"/> Beekeeping: Foraging in Beekeeping pollinating plants and their cycle, <input type="checkbox"/> Bee biology ,Cast system in Honeybee ,Species of Honeybee: Domesticated and Wild Species <input type="checkbox"/> commercial methods of rearing. Equipment used. Seasonal management. 	01	15
2	<ul style="list-style-type: none"> <input type="checkbox"/> Bee enemies : Wasp , Ants Etc. Bee diseases <input type="checkbox"/> Bee pasturage, bee foraging Foraging distance of different <input type="checkbox"/> bee species and communication. <input type="checkbox"/> Bee keeping in India, Govt Schemes to promote Beekeeping in India 	01	15
Total		02	30

Required Previous Knowledge

No previous Knowledge is required.

Access to the Course

The course is available for all the students admitted for Bachelor of Vocation (SA) as a Major or a minor. The students seeking admission in other disciplines may select the course as a minor considering the terms and conditions laid down by the University of Mumbai, the Government of Maharashtra, and the college, from time to time.

Forms of Assessment

The assessment of the course will be of Formative and Summative type. At the beginning of the course diagnostic assessment will be carried out. The formative assessment will be used for the Continuous Internal Evaluation whereas the summative assessment will be conducted at the end of the term. The weightage for formative and summative assessment will be 50:50. The detailed pattern is as given below.

Term End Evaluation (30 Marks)

Question Paper Pattern

Time: 1.5 hours

Question No.	Unit/s	Question Pattern	Marks
Q.1	All	Fill in the Blanks	6
Q.4	All	Attempt any three question from the following five questions (Applied Questions)	24
Total			30

Internal evaluation (20 Marks)

Sr. No.	Description	Marks
1	Mid Term Examination	10
2	Active Participation in teaching learning Process	5
3	Subject related activities as assigned by the teacher	5
Total		20

Grading Scale

The grading scale used is O to F. Grade O is the highest passing grade on the grading scale, and grade F is a fail. The Board of Examinations of the college reserves the right to change the grading scale.

References for Module 1 :

1. "The Beekeeper's Handbook" by Diana Sammataro and Alphonse Avitabile Publisher: Comstock Publishing associates

Chapter 1: Importance of Beneficial Insects

Chapter 2: History of Beekeeping

Chapter 3: Foraging in Beekeeping, Pollinating Plants, and their Cycle

Chapter 4: Bee Biology

Chapter 5: Caste System in Honeybee

Chapter 6: Species of Honeybee: Domesticated and Wild Species

Chapter 7: Commercial Methods of Rearing

Chapter 8: Equipment Used

Chapter 9: Seasonal Management

2. "The ABC & XYZ of Bee Culture: An Encyclopedia Pertaining to the Scientific and Practical Culture of Honey Bees" edited by A.I. Root and E.R. Root

Publisher: A. I. Root company

Chapter 1: Importance of Beneficial Insects

Chapter 2: History of Beekeeping

Chapter 3: Foraging in Beekeeping, Pollinating Plants, and their Cycle

Chapter 4: Bee Biology

Chapter 5: Caste System in Honeybee

Chapter 6: Species of Honeybee: Domesticated and Wild Species

Chapter 7: Commercial Methods of Rearing

Chapter 8: Equipment Used

Chapter 9: Seasonal Management

References For Module 2 :

1. "Honeybee Diseases and Enemies" by George E. Bohmfalk

Publisher: Springer

Chapter 1: Wasp and Ant Enemies of Bees

Chapter 2: Bee Diseases

2. "Beekeeping: A Practical Guide" by Richard E. Bonney

Publisher: storey Publishing LLC

Chapter 4: Bee Pasturage and Foraging

Chapter 5: Foraging Distance of Different Bee Species and Communication

3. "Beekeeping in India" by M. S. Chadha

Publisher: APH Publisher/ kalyani publishers

Chapter 1: Overview of Beekeeping in India

Chapter 2: Government Schemes to Promote Beekeeping in India

Reference Books:

- 1) Singh, S., 1975. Beekeeping in India – ICAR, New Delhi., 214p.
- 2) Sunita, N.D, Guled, M.B, Mulla, S.R and Jagginavar, 2003, Beekeeping, UAS Dharwad
- 3) Mishra, R.C. and Rajesh Gar. 2002. Prospective in Indian Apiculture. Agrobios, Jodhpur.
- 4) Singh, D. and Singh, D.P. 2006. A Hand-Book of Beekeeping, Agrobios (India).