



# बिरसा मुंडा ट्रायबल युनिवर्सिटी Birsa Munda Tribal University

राजपिपला, जि. नर्मदा Rajpipla, Dist. Narmada  
Established by Tribal Development Department, Govt. of Gujarat

## School of Science

### B.Sc. (Chemistry) Programme

**Subject Code & Name:** - BS02SECHE3: Honeybee Farming

#### Teaching and Evaluation Scheme:

Teaching Scheme				Examination Scheme			
Credits				Component Weightage			
L	T	P	Total	CCE		SEE	
				TH	PWE	TH	PWE
2	-	-	2	50%	00	50%	00

Programme Name	B.Sc. (Chemistry)
Semester	II
Course Code	BS02SECHE3
Course Title	Honeybee Farming
Course Content Type (Th./Pr.)	Theory
Course Credit	2
Sessions+ Lab. Per Week	2
Total Teaching/Lab. Hours	30 Hours
* 2 Laboratory = 1 Session	

#### Learning Objectives

This course is designed to acquaint the student with the broad field of beekeeping, Honeybee biology, and division of labour in bees and construction of bee hives.

#### Prerequisites (if any)

#### Learning Outcomes

On the Completion of this course, students will able to:

1. Understand the morphology, anatomy and life cycle of Honey Bee species.
2. Learn its social organization and social or solitary behavior.
3. Acquire knowledge about beekeeping tools and equipment.
4. Apply, practical and theoretical concept to identify species and casts of bees.
5. Get acquainted about properties and applications of Honey and its by-products.





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Detailed Contents		
UNIT	TOPIC/SUB-TOPIC	TEACHING HOURS
I	<p><b>1. Introduction to Apiculture - scope, importance :</b></p> <ul style="list-style-type: none"><li>• History of beekeeping: Definition, Beekeeping worldwide and In India.</li><li>• Traditional beekeeping and Modern beekeeping.</li></ul> <p><b>2. Honey Bee morphology, Anatomy and Life cycle :</b></p> <ul style="list-style-type: none"><li>• Basic concepts of morphology of Honey bees</li><li>• Types of honey bees- indigenous, exotic, Species of honey bees. Origin, systematics and distribution of honey bees.</li><li>• Social organization in honey bees: Colony life and social organization – Queen, drone, worker.</li><li>• Study of Social behavior of honey bee: Attack, Bee Dance</li><li>• Bee enemies – Enemy: Mites, Wax Moths, Ants, Bee Eaters, Garden Lizards, Bears.</li></ul>	15
II	<p><b>1. Beekeeping: Tools and Equipment:</b></p> <ul style="list-style-type: none"><li>• Basic requirements for beekeeping start up</li><li>• BIS standard Tools used in apiculture.</li><li>• Introduction to types of bee boxes and Their Parts</li></ul> <p><b>2. Honey Processing and Bee Hive Products :</b></p> <ul style="list-style-type: none"><li>• Honey - its properties and application in various fields</li><li>• Honey extraction &amp; handling - Quality control standards, Processing of honey.</li><li>• Other valuable by-products of honey bees – Wax, Bee venom &amp; Royal jelly extraction.</li></ul>	15

### Text Book(s)

1. Economic Zoology, G.S. Shukla, 2009 Rastogi Publications





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### Reference Books

1. Anatomy of Honey bee by R.E. Snoadgrass.
2. Bees and Bee keeping in India by D.P. Abrol, Kaluani Publications.
3. The hive & the Honey Bee, Dadant Publication, America.
4. Beekeeping in India, 1962, 82, by Sardar Singh, ICAR, New Delhi.
5. Beekeeping by E.F. Phillips. Agrobios (India) Publication.
6. Handbook of Beekeeping by Dharamsingh, Devendra Pratap Singh, Agrobios.

### Web Resources

1. Vocational : Bee keeping :: <https://www.classcentral.com/course/swayam-vocational-bee-keeping17839/course/swayam-vocational-bee-keeping-17839> (Swayam Course)
2. Beekeeping parts, tools, & equipment: <https://www.classcentral.com/course/youtube-beekeeping-parts-toolsequipment-59050/course/youtube-beekeeping-parts-tools-equipment-59050> (Swayam Course).

**L::** Lecture, **T::** Tutorial , **P::** Practical

**CCE::** Continuous and Comprehensive Evaluation

(CCE Theory includes Mid Semester Examination, Assignment, MCQ quizzes, Seminar, Reflective notes, class participation, case analysis and presentation, slip tests (announced/ surprised), attendance etc. or any combination of these)

**PWE::** Practical Work Examination

(PWE includes Laboratory practical work, project work, viva simulation exercise work etc.)

**SEE::** Semester End Evaluation

