



HON.SHRI ANNASAHEB DANGE
ARTS,COMMERCE & SCIENCE COLLEGE
HATKANANGALE



Department of zoology

CERTIFICATE COURSE ON APICULTURE

Academic Year: 2022-2023

- 1] Student's Notice.
- 2] Brochure / Syllabus.
- 3] List of Participating Students.
- 4] Schedule of Contact Sessions.
- 5] Participating Student Attendance Sheet.
- 6] Activity Report Photos.
- 7] Certificate.



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2022-2023

Student's Notice

Date :- 03/02/2022

Day:-friday

All B.Sc students hereby inform that our B.Sc.department going to conduct one month (two credits) CERTIFICATE COURSE ON APICULTURE. from date 03/02/2023 to 12/03/2023. Total intake for this course is 100 so interested students register your names as quickly as possible before 17/01/2023.

Thank you.

Co-ordinator

Mr. Pravin S. Gurav
Department of Computer science
Mobile :9850122568

Ass.Prof Mr.M.R.Rukadikar.

[Under Guide]

Dr.Yojana V. Jugale

Principal

Apiculture : certificate course 2022-



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Course Coordinator

Prof. MR. RUKADIKAR M.R.

(Head of Zoology Department)
Hon. Shri ADACS college, Hatkanangale
Tal. Hatkanangale, Dist. Kolhapur,
Mobile No : 8329439306

Principal

Dr. Yojana V. Jugale

Principal
Hon. Shri ADACS college, Hatkanangale
Tal. Hatkanangale, Dist. Kolhapur,

Phone NO 2118247097

Index :-

1- Introduction to the Zoology Department	03
2-About Syllabus	04
3-Eligibility for Admission	04
4-Course Duration	04
5-Course Medium	05
6-Syllabus Structure	05
7- Study Method	07
8- Evaluation Process	
8.1- Internal Evaluation	
8.2- Final Exam	
9-Credits	09
10-Special Notice	09
11-Contacts	09
12-Sample Certificate	10

(1) Introduction to Certificate Course :-

Beekeeping history is as old as human civilisation when people used to live in caves. It was during the Cretaceous period when the flowering plants evolved on the earth, honeybees also co-evolved in nature. Beekeeping has been practised in many parts of the world, including Asia and Europe, since time immemorial. The first official mentioning of beekeeping dates to about 2400 BC, in official lists of apiarists. Aristotle (384–322 BC) observed the constancy of bees on flowers of specific crop and also mentioned floral fidelity, division of labour and foulbrood disease of honeybees. Primitive human used to hunt honey from wild honeybee colonies found in the cavities of hollow trees, on rocks etc. which is still practised by rural/tribal people. The earliest evidence of hive beekeeping comes from the old Egyptian Kingdom. Origin and development of modern beekeeping lies between 1500 and 1851 when attempts were made to domesticate bees in different types of hives. Commercial beekeeping started from the second half of the 19th century. L. L. Langstroth developed modern age 'Langstroth bee hive' in 1851 with movable parallel frames. Nowadays beekeeping venture has become a full-fledged industry as it not only provides honey, beeswax, royal jelly, propolis, bee venom which are very useful for therapeutic purposes and daily uses but also has significant contribution to pollination of various fruits and crops.

● **Syllabus Utility :-**

- 1: Introduction Of Honey bee.
- 2: Infrastructure For Beekeeping.
- 3: Propagation Practices.
- 4: Importanance And Opportunity.

(3) Eligibility for Admission :-

Degree students of all streams can enroll for this course .

● **Accessibility :- for one month intake capacity of student is 50 for this course.**

(4) [Course Duration] :-

Apiculture culture certification course duration is of one month. (35 periods). After registration one year duration is considered. This course is about 50 marks. 40 marks for final exam and 10 marks for internal evaluation(project report & demonstration).

(5) Course Medium :-

Course medium is English.

(6) [Syllabus Structure] :-

Unit (1) Introduction of Honey Bees _____ 11 hours

Insects & Classification- Classification of hymenoptera, position of bee in hymenoptera solitary & social bees, History of honey bee, Systematics (Classification) of honey bee, Honey bee species, Distribution, honey bees, Asian species.

Unit (2) Propagation Practices = Sexual And Asexual.

Identifying Honey bee Species characters: *A. dorsata*, *A. cerana*, *A. florea*, *A. trigona*, *A. mellifera*. Comparative morphology of *Apis* species, & individual castes in *Apis* species, life cycle.

Unit(2) Parts of Body - _____ 11 hours

Head & Abdomen, wax glands, sting apparatus, scent gland, mechanism if sting 14 IV Comparative anatomy, digestive system, circulatory system, respiratory system, nervous system, excretory system, reproductive system.

Comparative anatomy, digestive system, circulatory system, respiratory system, nervous system, excretory system, reproductive system . Nesting behavior, Colony and organization of honey bees the castes- queen, drone and workers, Bee foraging.

Unit (3)

Behavior and communications in bees_____ 11 hours

Behavior and communications in bees- Sense organs , Social behavior, division of labour, bee dance, chemical communication- pheromones. Study of bee species and castes. Comparative measurement of body size of various bee species. Demonstrates parts of body of bees. Study of nesting behavior of bee species. Observe behavior and communication in bees.

References :-

Anatomy of Honey bee R. E. Snoadgrass.

- List of Reference Books for the subject Apiculture :-
- Bees and Bee keeping in India, D.P. Abrol, Kaluani Publications.
- First Lesson in Beekeeping : Dadant C.D. Malilton, Illinois.
- Beekeeping in Integrated Mountain Development - Economics & Scientific perspective Publication.
- Beekeeping- Teach yourself Books, By-Vernon F. (1984)

(7) Study Methods :-

Following are the ways to teach student

- (1) Guidance of expert faculties**
- (2) Internal evaluation between course study**
- (3) Practical field work**

(8) Evaluation Process :-

● **Demonstion process occurs in two phases :-**

8.1- Internal Demonstion -10 marks

8.2- Final Exam - 40 marks

8.1- Internal Evaluation 10 marks:-

For this student have to choose one project and complete it

● **Demonstration of Propagation Techniques**

● **Presentation**

● **Final result**

● **Submission**

8.2- Final Exam 40 :-

For passing students have to get 40 % marks in final exam.

(9) C redits :-

2 credits for this course

(10) Contacts :-

Coordinator

Mr. Rukadikar Mandar Raju

Department of Zoology

Hon. Shri. ADACS college, Hatkanangale

Mobile: 8329439306

HONEY BEES THE CASTES- QUEEN, DRONE AND WORKERS, BEE FORAGING INFORMATION BY SIR



Paper time at 12 pm to 1 am



