



Sree Narayana College Kollam

Department of Zoology

Certificate Course in
Beekeeping (2017-2018)

Duration : 30 hours, Seats available: 30
Course Co-ordinator: Dr B T Sulekha
Contact: 9495079217



Department of Zoology

CERTIFICATE COURSE IN BEEKEEPING

OBJECTIVES OF THE COURSE

- Impart education about modern beekeeping and build human resource in the beekeeping sector.
- Diversification of apiculture to increase income of the farmers.
- To develop strategies for management of bee colonies round the year for income generation.
- To give a better knowledge to the community about various techniques of Bee keeping and honey processing and its marketing to make them self-sustainable.
- To formulate guidelines for an appropriate technology development in honey production, utilization and preparation of a honey flora of the region.

RELEVANCE AND OUTCOME OF THE COURSE

- Maintain ecological balance in nature by way of domestication of honey bee.
- Develop entrepreneurial skills in beekeeping.
- Build human resource in the beekeeping sector.
- Generate employment opportunities in Apiculture to the unemployed youth and women for rural development.
- Undertake research and development [R&D] in Apiculture.
- Encourage the new generation to maintain their security and stability.
- Help to conserve the natural resources

OUTLINE OF SYLLABUS OF THE COURSE

(TOTAL -30 hours, 15-hour theory and 15-hour practical)

THEORY-(15 hours)

Unit 1. Introduction to Beekeeping –Scope, Importance

(1 Hr)

- History of bee keeping: Definition, Bee keeping in India, Traditional and Modern bee keeping.
- Beekeeping development in India, institutions involved

Unit 2. Species of Indian Honey bees

(1.5 Hr)

- Different species of honey bees,
- Species and Sub-Species of Hive Bees, *Apis dorsata*, *Apis florea*, *Meliopona* and *Trigona* spp.

Unit 3.Habits and behavior of honeybees

(2 Hr)

- Queen, Drones and worker bees-modification of worker bee
- Swarming behavior of Honey bees, dances of Honey Bees.

Unit 4. Honey bee Culture

(5 Hr)

- Bee keeping: Selection of apiary site and bee species, Principles of Bee Management, Bee keeping equipment, Queen rearing, Seasonal management, Supplementary Feeding, Economics of bee keeping
- Apiary-Bee-flora (Bee Pasturage): Introduction to Bee flora, Qualities of a good bee flora, Collection and preservation of bee Pasture, Important honey flow sources in India
- Bee keeping equipment and types
- Bee hive, Types of Bee hive
- Enemies of honey bee: Predatory wasps, Wax moth, Ecto parasitic mites, other bee enemies, Diseases and their control
- Honey extraction and processing: Handling of bee colonies and manipulation for honey production.
- Processing and value addition of honey.

Unit 5. Economic importance of beekeeping

(5.5 Hr)

- Economic value of commercial bee keeping'
- Honey: Composition of Honey, Uses of Honey, Honey as food, Medicine and other uses.
- Bees wax and uses: Extraction, purification and value addition of bee wax.

- Bee pollen and uses.
- Bee venom: composition and medical uses

PRACTICAL- (15 hours)

1. Study of the morphology of Honeybees and Identification of different species and classes of Honey bees
2. Study of different stages in life cycle of Honey bees.
3. Study of the behavior of Honeybees
4. Bee keeping unit - Handling of frames with colonies
5. Introduction of parts of Bee box - ISI 'A' type 'B' type & Tools used in Beekeeping
6. Colony inspection, maintenance - writing up of inspection report
7. Methods of Multiplication of Bee Colonies



BOARD OF STUDIES MEMBERS (2017-2018)

DEPARTMENT OF ZOOLOGY SREE NARAYANA COLLEGE, KOLLAM

CERTIFICATE COURSE IN BEEKEEPING

Course Co-ordinator: Dr B T Sulekha, Assistant Professor, Department of Zoology, S. N. College, Kollam

BOARD OF STUDIES FOR CERTIFICATE COURSE IN BEEKEEPING

Members:

Dr P Sherly, Associate Professor, Department of Zoology, S. N. College, Kollam

Dr Sainudeen Sahib, Associate Professor, Department of Zoology, S. N. College, Kollam

Dr B Hari, Assistant Professor, Department of Zoology, S. N. College, Kollam

Dr S Sheeba, Assistant Professor, Department of Zoology, S. N. College, Kollam

Dr S Jisha, Assistant Professor, Department of Zoology, S. N. College, Kollam



Dr. SULEKHA B.T
Associate Professor & Head
P.G. & Research Dept.of Zoology
S.N.College, Kollam-691001

Sree Narayana College Kollam

Department of Zoology

Certificate Course in Beekeeping 2017-2018

Time table

Dr B T Sulekha	Day	Time	Theory/lab
	Monday	3.15-4.45	Theory
	Tuesday	3.15-4.45	Lab
	Wednesday	3.15-4.45	Theory
	Thursday	3.15-4.45	lab
	Friday	3.15-4.45	Theory

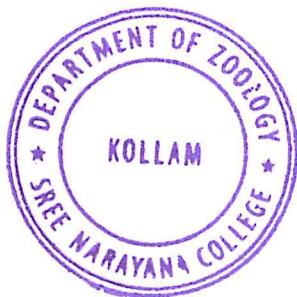


Dr. SULEKHA B.T
Associate Professor & Head
P.G. & Research Dept.of Zoology
S.N.College, Kollam-691001

Sree Narayana College Kollam
Department of Zoology
Certificate Course in Beekeeping 2017-2018

List of teachers who are handling classes for the certificate course

1. Dr B T Sulekha (Assistant Professor, Department of Zoology, Sree Narayana College, Kollam)



Dr. SULEKHA B.T
Associate Professor & Head
P.G.& Research Dept.of Zoology
S.N.College, Kollam-691001

Sree Narayana College Kollam
Certificate Course in Beekeeping 2017-2018
Student List

Sl No	Candidate Code	Name of the student	Name of the Department
1	25016132001	AHALYA DAS M	Zoology
2	25016132002	AKHILNATH A	Zoology
3	25016132004	ANU RAJ B	Zoology
4	25016132007	BABITHA BABU	Zoology
5	25016132008	KAVYA KRISHNAN	Zoology
6	25016132009	MANISHA V	Zoology
7	25016132010	NOUFIA N	Zoology
8	25016132011	RESHMA MUKUNDAN L	Zoology
9	25016132013	VARSHA JAYAN	Zoology
10	25016132014	ABHIRAM SL	Zoology
11	25016132015	AKHIL KRISHNAN R	Zoology
12	25016132017	AMMU S	Zoology
13	25016132018	AMRUTHA A S	Zoology
14	25016132019	ANANDHU LAL B R	Zoology
15	25016132020	ANUSREE S VIJAYAN	Zoology
16	25016132021	APARNA SASI	Zoology
17	25016132022	ARCHA GOPAN	Zoology
18	25016132023	ARCHA S L	Zoology
19	25016132024	ATHIRA A R	Zoology
20	25016132025	ATHIRA S R	Zoology
21			Zoology



Sree Narayana College Kollam
Certificate Course in Beekeeping 2017-2018
Student List

	25016132026	DIVYA V	
22	25016132027	FEBA JOHN	Zoology
23	25016132029	JAYAKRISHNAN S	Zoology
24	25016132030	JITHENDRA S	Zoology
25	25016132038	PRANAV J P	Zoology
26	25016132039	PREETHI PRAKASH	Zoology
27	25016132040	RAHUL S	Zoology
28	25016132046	VARSHA SUBEER	Zoology
29	25016132047	VISHNU PRIYA M	Zoology
30	25016132048	VISHNU RAJ	Zoology



Dr. SULEKHA B.T
 Associate Professor & Head
 P.G.& Research Dept.of Zoology
 S.N.College, Kollam-691001

Minutes of the Certificate Course (Bee Keeping)

Meeting for the Certificate course by Department Committee (Bee Keeping), Department of Zoology, S.N. College, Kollam was held on 14.09.2017 in the department staff room at 3:45 pm.

Members Attended

Dr. P. Sherly.	Shery	Associate Professor. HOD
Dr. Saimudeen	Saimudeen	Associate Professor.
Dr. B.T. Sulekha.	OT	Asst. Professor
Dr. B. Hari	BT	Asst. Professor
Dr. S. Sheeba	ST	Asst. Professor.
Dr. Joshua.	OT	Asst. Professor
Dr. Bebittha G.S.	G.S.	Asst. Professor.

Agenda: Fixation of Date of Board of Studies Meeting.

Decisions Taken: Members of the Board of Studies are fixed.

→ Syllabus approved


DR. SULEKHA B.T
Associate Professor & Head
P.G. & Research Dept. of Zoology
S.N. College, Kollam-691001

Minutes of the Certificate Course (Bee Keeping)

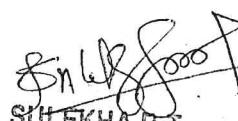
Meeting of the department Committee of the Certificate Course in ~~Bee~~ Bee Keeping of the Department of Zoology, S.N. College, Kollam was held on 18.09.2017 in the department staff room at 3:30 pm.

<u>Members</u>	<u>Chair</u>	<u>Assoicte Professor, HOD</u>
Dr. P. Shery	Sherly	Assoicte Professor.
Dr. Irmudeen Sulib	Sulib	Assoicte Professor.
Dr. B.T. Sulekha	Om	Asst. Professor
Dr. B. Hari	Hari	Asst. Professor.
Dr. S. Sheeba	Sheeba	Asst. Professor.
Dr. Jisha	Jisha	Asst. Professor.
Dr. Bibitha Q.S. Babu	Babu	Asst. Professor.

- Agenda:
1. Applications invited of Course
 2. Commencement of Course

Decisions Taken:- Announcement for inviting applications
Date of Commencement of course




Dr. SULEKHA B.T.
Associate Professor & Head
P.G. & Research Dept. of Zoology
S.N. College, Kollam-691001

Minutes of the Certificate Course

(Bee Keeping)

Meeting of the department Committee of the Certificate course in Bee Keeping of the Department of Zoology, S.N. College, Kollam was held on 10/11/2018 in the department staff room at 3:45 pm.

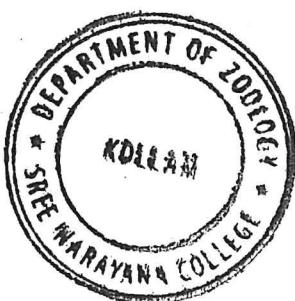
Members Attended

Dr. P. Shery	Shery	Associate Professor, HOD
Dr. Shmudeen Sabir	Sabir	Associate Professor
Dr. B.T. Sulekha	BT	Asst. Professor
Dr. B. Hari	Hari	Asst. Professor
Dr. S. Sheeba	Sheeba	Asst. Professor
Dr. Jisha	Jisha	Asst. Professor
Dr. Bibitha G.S. Babu	G.S. Babu	Asst. Professor

Agenda :- To conduct examinations and issue certificates

Decisions : 1) Review of the course after examination

2) Certificate issue




Dr. SULEKHA B.T
Associate Professor & Head
P.G. & Research Dept. of Zoology
S.N. College, Kollam-691001

SREE NARAYANA COLLEGE, KOLLAM

Department of Zoology

Certificate Course in Beekeeping

Assessment test 2017-2018

Maximum Marks 50

Duration 45 minutes

Choose the correct answer

1. Where is the surplus honey stored in the bee colony?

- (a) under the offspring or brood nest
- (b) above the brood nest
- (c) in the brood nest
- (d) in front of the brood nest

2. Nature of honey is

- (a) Acidic
- (b) Alkaline
- (c) Neutral
- (d) Turns basic after a few days

(25x2=50)

3. How long does a worker bee live in the summer?

- (a) about 2 weeks
- (b) about 2 months
- (c) about 4 months
- (d) about 6 months

4. What is varroa?

- (a) a fungus
- (b) a bacterium
- (c) an insect
- (d) an arachnid mite

5. Where are the most varroa usually found?

- (a) in the cells of developing workers
- (b) in the cells of developing queens
- (c) in the cells of developing drones
- (d) on the adult bee

6. What does the bee use to orientate itself when flying during overcast weather without sunshine?

- (a) 3 simple eyes
- (b) the 2 compound eyes
- (c) antennae

- (c) 4
- (d) 5

15. How does the bee carry the pollen back to its colony?

- (a) In its body
- (b) On its front legs
- (c) On its middle legs
- (d) On its rear legs

16. Which organ prevents the nectar collected, being passed through into the bee's digestive system in order that it can be regurgitated back at the hive?

- (a) Honey bladder
- (b) Gut
- (c) Proventriculus valve
- (d) Gullet

17. What colour is the bee's blood?

- (a) Red
- (b) White
- (c) Clear
- (d) Black

18. What does pollen consist of mainly?

- (a) Carbohydrates
- (b) Protein
- (c) Fat
- (d) None of the three

19. *Apis dorsata* is used to refer to

- (a) Little bee
- (b) Indian bee
- (c) European bee
- (d) Rock bee

20. The honey bee is of greatest use to mankind as:

- (a) It is of medicinal benefits
- (b) Helps in cross-pollination
- (c) We get honey from them
- (d) None of these

21. Honey is

- (a) Nectar of a flower
- (b) Nectar stored in the honey sac
- (c) Nectar mixed with saliva and stored in the honey sac
- (d) Nectar and water sucked by honey bee

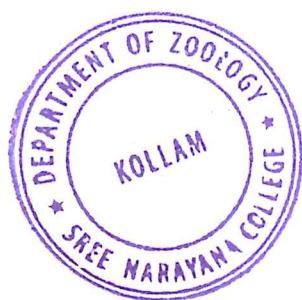
Sree Narayana College Kollam
Certificate Course in Beekeeping 2017-2018
Student List

Sl No	Candidate Code	Name of the student	Marks obtained/50
1	25016132001	AHALYA DAS M	40
2	25016132002	AKHILNATH A	45
3	25016132004	ANU RAJ B	40
4	25016132007	BABITHA BABU	44
5	25016132008	KAVYA KRISHNAN	46
6	25016132009	MANISHA V	48
7	25016132010	NOUFIA N	44
8	25016132011	RESHMA MUKUNDAN L	44
9	25016132013	VARSHA JAYAN	47
10	25016132014	ABHIRAM SL	43
11	25016132015	AKHIL KRISHNAN R	47
12	25016132017	AMMU S	41
13	25016132018	AMRUTHA A S	46
14	25016132019	ANANDHU LAL B R	43
15	25016132020	ANUSREE S VIJAYAN	45
16	25016132021	APARNA SASI	47
17	25016132022	ARCHA GOPAN	42
18	25016132023	ARCHA S L	47
19	25016132024	ATHIRA A R	47
20	25016132025	ATHIRA S R	41
21	25016132026	DIVYA V	48



Sree Narayana College Kollam
Certificate Course in Beekeeping 2017-2018
Student List

22	25016132027	Feba John	39
23	25016132029	Jayakrishnan S	48
24	25016132030	Jithendra S	44
25	25016132038	Pranav J P	44
26	25016132039	Preethi Prakash	41
27	25016132040	Rahul S	43
28	25016132046	Varsha Subeer	49
29	25016132047	Vishnu Priya M	44
30	25016132048	Vishnu Raj	42



Dr. SULEKHA B.T
 Associate Professor & Head
 P.G. & Research Dept. of Zoology
 S.N. College, Kollam-691001

A I L E N D A N C E
Name of Course.....*Certifiable Course*.....Teacher(s).....*B. I. Shukla*

Coskigé Gouye Bee Keeping..... Teacher(s) Dr. B.I. Sulekha

Name of Course *Certified Bee Keeping*

REGISTER Month(s)..... **Wreck** 2017 - 2018

Month(s) - Oct 2017 - 2018

Sl No	Name of student	Date	Hour
1.	Ahalay Das M.	x	x
2.	Alehnath A.	x	x
3.	Anu Raj B.	x	x
4.	Babita Balaji.	x	x
5.	Kavya Krishnan	x	x
6.	Manisha V.	x	x
7.	Nouria N.	x	x
8.	Preshma Mutundan S.	x	x
9.	Vasgna Jayan	x	x
10.	Ashvians J.P.	x	x
11.	Athid Krishnan R.	x	x
12.	Annu S.	x	x
13.	Amrutha A.S.	x	x
14.	Manohar Lal B.R.	x	x
15.	Amusree Vijaya	x	x
16.	Aparna Sabu	x	x
17.	Aruna Grover	x	x
18.	Ascha S.P.	x	x
19.	Athira A.R.	x	x
20.	Athira S.R.	x	x
21.	Direya Y.	x	x
22.	Febel John	x	x
23.	Jayakrishnan S.	x	x
24.	Sithendra S.	x	x
25.	Ranav. S.P.	x	x
26.	Preehni Balash	x	x
27.	Rahul S.	x	x
28.	Vasgna Subeer.	x	x
29.	Vishnu Praja M.	x	x
30.	Vishnu Tay	x	x

S. V. College, Kolham. 691001

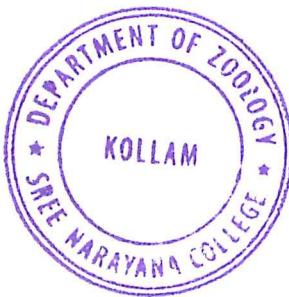
REFUGEE
RECEIVED

Signature of Teacher

Department of Zoology

Report of Beekeeping (2017- 2018)

- Application was invited for the course on 18/9/2017
- 30 Candidates applied for the course
- 30 Of them were selected
- Classes were conducted on offline mode. Classes commenced on 4/10/2018
- Exams were conducted on online mode on 18/11/2018
- Results were published on 19/11/2018
- Certificates were distributed on 14/3/2019




Dr. SULEKHA B.T
Associate Professor & Head
P.G. & Research Dept. of Zoology
S.N. College, Kollam-691001


Principal
Sree Narayana College
Kollam





SREE NARAYANA COLLEGE KOLLAM
DEPARTMENT OF ZOOLOGY
CERTIFICATE COURSE IN BEEKEEPING

This is to certify that Mr./Ms./Mrs. Akashya...Dr. M......Department of.....
Zoology.....has successfully completed Certificate Course in Beekeeping
during the Academic Year.....2017 - 2018.....

Principal

Course Coordinator



SREE NARAYANA COLLEGE KOLLAM

DEPARTMENT OF ZOOLOGY

CERTIFICATE COURSE IN BEEKEEPING

This is to certify that Mr./Ms./Mrs.....Anu Raj.....B.....Department of.....
Zoology.....has successfully completed Certificate Course in Beekeeping
during the Academic Year.....2017 - 2018.....

Principal

Course Coordinator



SREE NARAYANA COLLEGE KOLLAM
DEPARTMENT OF ZOOLOGY
CERTIFICATE COURSE IN BEEKEEPING

This is to certify that Mr./Ms./Mrs. Kavya Krishnan.....Department of.....
.....Zoology.....has successfully completed Certificate Course in Beekeeping
during the Academic Year.....2017-2018.....

Principal

Course Coordinator



SREE NARAYANA COLLEGE KOLLAM
DEPARTMENT OF ZOOLOGY
CERTIFICATE COURSE IN BEEKEEPING

This is to certify that Mr./Ms./Mrs.....Neerja, N.....Department of.....
Zoology.....has successfully completed Certificate Course in Beekeeping
during the Academic Year.....2017 - 2018.....

Course Coordinator

Principal



SREE NARAYANA COLLEGE KOLLAM
DEPARTMENT OF ZOOLOGY
CERTIFICATE COURSE IN BEEKEEPING

This is to certify that Mr./Ms./Mrs. Ammu A......Department of.....
Zoology.....has successfully completed Certificate Course in Beekeeping
during the Academic Year.....2017 - 2018.....

G. M. Jose
Course Coordinator

Principals

Principal



SREE NARAYANA COLLEGE KOLLAM

DEPARTMENT OF ZOOLOGY

CERTIFICATE COURSE IN BEEKEEPING

This is to certify that Mr./Ms./Mrs. Aparna. Sankar.....Department of.....
Zoology.....has successfully completed Certificate Course in Beekeeping
during the Academic Year.....2017 - 2018.....

Brimmankal

G. N. Sankar

Course Coordinator

Principal



SREE NARAYANA COLLEGE KOLLAM
DEPARTMENT OF ZOOLOGY
CERTIFICATE COURSE IN BEEKEEPING

This is to certify that Mr./Ms./Mrs. Aneesh A. S......Department of.....
.....Zoology.....has successfully completed Certificate Course in Beekeeping
during the Academic Year.....2017-2018.....

Principals

Principal

G. M. Jacob

Course Coordinator



SREE NARAYANA COLLEGE KOLLAM
DEPARTMENT OF ZOOLOGY
CERTIFICATE COURSE IN BEEKEEPING

This is to certify that Mr./Ms./Mrs.....Ashley U.V......Department of.....
.....Zoology.....has successfully completed Certificate Course in Beekeeping
during the Academic Year.....2018 - 2019.....

A.U.V.

Principal
Course Coordinator



SREE NARAYANA COLLEGE KOLLAM
DEPARTMENT OF ZOOLOGY
CERTIFICATE COURSE IN BEEKEEPING

This is to certify that Mr./Ms./Mrs. Angithi...S. Dev... Department of.....
.....Zoology.....has successfully completed Certificate Course in Beekeeping
during the Academic Year.....2018 - 2019.....

A. M. M.


Course Coordinator

Principal



SREE NARAYANA COLLEGE KOLLAM

DEPARTMENT OF ZOOLOGY

CERTIFICATE COURSE IN BEEKEEPING

This is to certify that Mr./Ms./Mrs. Arya.....Department of.....
Zoology.....has successfully completed Certificate Course in Beekeeping
during the Academic Year.....2018 - 2019.....

A. M. M.

G. N. M. S.
Course Coordinator

Principal



SREE NARAYANA COLLEGE KOLLAM
DEPARTMENT OF ZOOLOGY
CERTIFICATE COURSE IN BEEKEEPING

This is to certify that Mr./Ms./Mrs. Ashokamayi S. Lakshmi.....Department of.....
Zoology.....has successfully completed Certificate Course in Beekeeping
during the Academic Year.....2018 - 2019.....

Course Coordinator

Principal