



DEPARTMENT OF ZOOLOGY
C M S COLLEGE
KOTTAYAM



Applied biology for sustainable livelihood II

value added Programme



Course	Details				
Code	ZYA181402				
Title	Applied biology for sustainable livelihood-II				
Degree	Undergraduate				
Branch(s)	Zoology				
Year/Semester	II/IV				
Type	Value added Programme				
Credits	2	Hrs/Week	2	Total hours	36

<i>Objectives</i>	
1	Foster skill in students to maintain honey bee colony, group of insects whose flourish support this ecosystem through pollination
2	Equip the students to acquire additional income through honey and other bee products and promote self-employment

CO No.	<i>Expected Course Outcomes</i> <i>Upon completion of this course, the students will be able to:</i>	Cognitive Level	PSO No.
1	Understand different honey bee species, bee products and its applications.	U	4
2	Understanding colony structure and its diseases, pests and control measures	U	4
3	Understanding bee keeping techniques and instruments	U	4
4	Construct and maintain bee hives and raise apiculture as hobby or as an additional income	C	4
*PSO-Program Specific outcome; CO-Course Outcome; Cognitive Level: R-Remember; U-Understanding; Ap-Apply; An-Analyze; E-Evaluate; C-Create			

<i>Teaching and Evaluation Methods</i>	
Teaching Methodology	Contact classes, ICT enabled teaching, Hands-on training Group discussions, Case studies, Field visit, workshops, Training in reputed institution in the concerned area
Evaluation Methodology	Written examination based on the syllabus, Practical and viva

Module	Course Description	Hrs	CO No.
1.0	Apiculture	11	5,6,7,8
1.1	Introduction to Apiculture	1	5
1.2	Species of Honey bees	1	5
1.3	Behaviour of Honey bees	1	5
1.4	Organization of honeybee colony	1	6
1.5	By products of honey bees and their uses,	1	5
1.6	Bee keeping methods	1	7
1.7	Apiary management and maintenance	2	8
1.8	Bee pasturage	1	
1.9	Diseases and pests of honey bees, control measures	2	6
2.0	Meliponini culture	7	
2.1	Introduction to Meliponini culture	1	
2.2	Medicinal value of Melipona honey	1	
2.3	Diversity of stingless bees, with current status and opportunity of Melipona rearing	2	
2.4	Apiary management	3	
3.0	Practical	18	
3.1	Identification of honey bee	1	
3.2	Bee keeping equipments	1	
3.3	Setting up of Apiary	4	
3.4	Apiary management and maintenance of <i>Apis indica</i>	6	
3.5	Apiary management and maintenance of Melipona	6	

Reference

1. NPCS Board, The complete book on Bee keeping and honey processing, NIR project consultancy services, 106- E Kamala Nagar, New Delhi-7
2. Rajalakshmi Mishra (2002), Perspectives in Indian apiculture, Anmol Publishers, New Delhi
3. Pradip V Jabde (1993)Text Book of Applied Zoology: Vermiculture, Apiculture, Sericulture, Lac Culture Agricultural Pests and their Controls, Discovery Publishing House, New Delhi
4. Applied Zoology, Study material published by Zoological Society of Kerala, CMS College campus

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Report of the value added Programme

Applied biology for sustainable livelihood-II

Offered by Department of Zoology CMS College Kottayam

Applied biology for sustainable livelihood-II designed to enable the student to understand different honey bee species, bee products and its applications. Understanding colony structure diseases, pests and control measures. Understanding instruments bee keeping techniques and instruments. Construct and maintain bee hives and raise apiculture as hobby or as an additional income. Department of Zoology successfully completed 36 hours programme which contains 18 hours of theory classes and 18 hours of practical and hands own training. Training embassies on the culturing of meliponini bees which involves introduction to Meliponini culture, Medicinal value of Melipona honey, diversity of stingless bees, with current status and opportunity of Melipona rearing and apiary management.


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