

Semester	Course Code	Course Category	Hours	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	24UZOVAC1	Value Added Course-I	30	-	-	100	100

Course Title	APIARY MANAGEMENT
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SYLLABUS		
Unit	Contents	Hours
I	Introduction to Apiculture: scopes & significance History of beekeeping: Definition, Scope, Distribution, Classification and salient features of bees. Beekeeping -worldwide and in India. Role of honeybees in ecosystem. Role of Research Institute in apiary management.	6
II	Honey Bee Morphology & Life cycle Basic concepts of morphology of Honey bees. Types of honey bees - Indigenous & Exotic Species of honey bees. Food of the bee - Nectar and pollen royal jelly. Life cycle of Honey Bees.	6
III	Honeybee Enemies and Diseases Enemies of bees and wax – Mites, Moths, Ants, Bee Eaters, Garden Lizards. Seasonal management of Diseases and parasites of honey bees - Prevention and control measures of diseases.	6
IV	Honey Processing and Bee Hive Products Honey - its properties and application in various fields. Honey extraction - extraction of pollen; Royal jelly & Handling. Quality control standards, Processing of honey. Preservation and storage-Other valuable by-products of honey bees – Wax, Bee venom.	6
V	Beekeeping: Tools & Equipment Basic requirements for bee keeping start up business- Standard Tools used in Apiculture. Present status and future scope of apiculture as a small scale industry.	6

Text Book(s):
<ol style="list-style-type: none"> 1. Rahman, A. Beekeeping in India. Indian Council of Agricultural Research, New Delhi. 2017 2. Gupta, J.K. Apiculture, Indian Council of Agricultural Research, New Delhi. 2016 3. Mishra, R.C. Honeybees and their management in India. Indian Council of Agricultural Research, New Delhi. 1995.

Reference Book(s):
<ul style="list-style-type: none"> • Gatoria, G.S., Gupta, J. K., Thakur, R.K. and Singh, J. Mass queen bee rearing and multiplication of honey bee colonies. All India Co-ordinated project on honey bees and pollinators, ICAR, HAU, Hisar, p70. 2011. • Gupta, J.K., Sharma, H K and Thakur, R K. Practical Manual on Beekeeping. Department of Entomology and Apiculture, Dr Y S Parmar University of Horticulture and Forestry, Nauni, Solan, p 83. 2009.

Web Resource(s):
https://www.researchgate.net/publication/313692521_Beekeeping_in_India https://beekeepclub.com/ https://krishijagran.com/agripedia/beekeeping-in-india-a-complete-guide-to-beekeeping-for-beginners/ https://www.agrifarming.in/national-beekeeping-and-honey-mission-nbhm-features-schemes-and-benefits

Course Outcomes	
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Upon successful completion of this course, the student will be able to:

CO No.	CO Statement
CO1	Understand the basics of Bee keeping and managing beehives.
CO2	Learn the different types of species and primary life cycle of the honeybees.
CO3	Understand bee enemies and various types of bee diseases.
CO4	Realize the self-employment and marketing of various bee products.
CO5	Understand the basics of bee keeping tools, equipments and managing beehives.

Course Coordinator: Dr. P. Dhanalakshmi

Semester	Course Code	Course Category	Hours	Credits	Marks for Evaluation		
					CIA	ESE	Total
V	24UZOVAC2	Value Added Course - II	30	-	-	100	100

Course Title	HEALTH CARE AND FITNESS
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SYLLABUS		
Unit	Contents	Hours
I	Introduction to Health and Diet: Definition – Food, Health, Nutrient requirement, Dietary standards, Recommended Dietary Allowance (RDA), Balanced diet, Food pyramid, Food Groups, Food in relation to health.	6
II	Principles of planning a balanced diet: Guidelines for planning a balanced diet, Constitutes a balanced diet, food exchange list, food composition table, Advantages of having a balanced diet.	6
III	Nutritional requirements of adults: Benefits of healthy eating - Help to manage a healthy weight, manage sugar levels, improve heart health, reduce cancer risk, improve digestion, reduce stress, strengthen bones and teeth, improve immunity, improve skin health, increase Lifespan, Better Sleep.	6
IV	Nutrition and Weight Management: Over Nutrition: Obesity, Assessment - Body weight, BMI, Waist circumference, Diet therapy- principles of dietetic management and dietary guidelines. Mal nutrition: Under Weight- Limitations of underweight, Nutritional and food requirement, Dietary guidelines for Over Nutrition and Mal Nutrition.	6
V	Exercises for physical Fitness: Components and Types of fitness, Health Benefits of Exercise – Role in prevention of disease and health promotion – Yoga for fitness – simple exercises to improve stability and prevent falls.	6

Text Book(s):
<ol style="list-style-type: none"> 1. Dietetics, , 8th edition , New Age International Publications, B.Srilakshmi, 2021. 2. Lifestyle Diseases: Lifestyle Disease Management, by C. Nyambichu & Jeff Lumiri, 2018. 3. Physical Activity and Health by Claude Bouchard, Steven N. Blair, William L. Haskell.2012
Reference Book(s):
1. Physical Activity and Mental Health by Angela Clow & Sarah Edmunds, 2013.
Web Resource(s):
https://pharomeasy.in/blog/top-9-health-benefits-of-eating-well/ https://docsmedicalgroup.com/docsurgentcare/15-proven-tips-to-stick-to-a-healthy-diet-and-exercise-routine/

Course Outcomes

Upon successful completion of this course, the student will be able to:

CO No.	CO Statement
CO1	Understand the importance of a healthy lifestyle
CO2	Appreciate the importance of balanced diet
CO3	Provide understanding upon food and nutritional requirements of adults.
CO4	Create awareness on the role of nutrition in weight management.
CO5	Familiarize students about various life style of physical and mental health and thereby be a fit dietician.

Course Coordinator: Mrs. H. F. Seyed Mafiya Haniff

Semester	Course Code	Course Category	Hours	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	24PZOVAC1	Value Added Course - I	30	-	-	100	100

Course Title	Zoological Museum Management
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SYLLABUS		
Unit	Contents	Hours
I	Introduction to Museum and Museology Definitions, purpose and social relevance of museum, Types, Functions of museum: collection, documentation, conservation, exhibition and education, Role of museum in tourism – Artificial Museum, models.	6
II	Animal Sampling Techniques Scope of zoological specimen collections, concept of invasive and non-invasive samples, digital sampling techniques like sonar, camera traps. Collection of insects – malaise trap, nets, light traps - Collection of aquatic organisms – types of collection nets and gears.	6
III	Preservation of Zoological Specimen Methods of Preservation wet and dry; Preservation of Zoological specimen in solutions – formaldehyde, saline, buffers, alcohol. Alizarin preparation and resin-embedded specimens, stuffing of a small mammal and birds- Preparation of a cabinet specimen killing, skinning, preserving and filling.	6
IV	Museum Techniques Taxidermy: Concept and methods, and Importance of taxidermy in museums. Tools and materials, apparatus, chemicals, preservatives - Collection of specimen for taxidermy. Molding and Casting.	6
V	Museum Maintenance Museum Site - Environmental factors: light, relative humidity, temperature, pollutants (particulate matter and gases), good housekeeping, types of pest's pest control methods. Shelf life of Specimen - Precautions in handling of the objects.	6

Text Book(s):
<ul style="list-style-type: none"> A.Aiyappan and S.T. Satyamurti, (1998), Handbook of Museum Technique, The Principal Commissioner of Museum, Government Museum Chennai.
Reference Book(s):
<ul style="list-style-type: none"> Timothy Ambrose, Crispin Paine, (2018), Museum Basic, Routledge, 4th Edition 2. Gail Dexter and Bary Lord, (2009), The Manual of Museum Management, Rowman and little field publishers, Altamira press, 2nd Edition Simpson, G. G., Roe, A., & Lewontin, R. C. (2003). Quantitative Zoology. Courier Corporation. Prendini, L., Hanner, R., & DeSalle, R. (2002). Obtaining, Storing and Archiving Specimens and Tissue Samples for use in Molecular Studies. Techniques in molecular systematics and evolution, 176-248. Brusca, R. C., Brusca, G. J., & Haver, N. J. (1990). Invertebrates (Vol. 2). Sunderland, MA: Sinauer Associates
Web Resource(s):
<ul style="list-style-type: none"> Kevin Moore, Kevin Moore, Museum Management, ePUB (mobile friendly). The Manual of Museum Management, Barry Lord, Gail Dexter Lord, Rowman Altamira Publisher, New York. Boylan, Patrick J. Running a Museum: a Practical Hand Book, International Council of Museums, France.

Course Outcomes	
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Upon successful completion of this course, the student will be able to:	
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CO No.	CO Statement
CO1	Acquire knowledge on Museum Management and Museology
CO2	Comprehend animal sampling techniques
CO3	Apply the knowledge to collect and preserve Zoological specimen
CO4	Prepare samples for various types of downstream taxidermy protocols
CO5	Understand the cataloguing of Museum Specimens and Maintenance .

Course Coordinator: Dr. R. Krishnamoorth