

B.Sc. BOTANY PROGRAMME

Semester VI

Core Course Choice Based -BO6B13 U

AGRIBUSINESS

(54 hours) Theory Credit 3

Course objectives

1. Inculcate and impart an idea about the business opportunities in the field of plant sciences.
2. Develop an entrepreneurial mindset and also to stick on to the core subject among the Botany students.
3. Give an idea about the need of sustainable development and organic farming.
4. Harness the opportunities and potentials in the field of ecotourism, processing technology and food sciences.

Module 1.

2 hours

Entrepreneurship

Types, Basic qualities of an Entrepreneur. Financial assistance from Banks, Role of Institutions like MSME Training Institute, Khadi and Village Industries Board, Self Help Groups, Co-operative Sector, Kudumbasree projects and Microenterprises.

Module 2.

8 hours

Value added Food products

Preparation and Preservation Techniques. Causes of Spoilage of Food. Principles of preservation – asepsis, removal of microorganisms, anaerobic situation and special methods – drying, thermal processing – pasteurization, sterilization and canning – low temperature, use of chemical preservatives and food additives. Preparation of wine, vinegar, pickles, jam, jelly, syrups, sauce, dry fruits, dairy products – (cheese, butter, yoghurt, paneer), candies, chocolates, payasam, kondattam.

Module 3.

8 hours

Processing techniques.

Processing of latex – Centrifuged latex products and galvanized rubber products. Processing, storage and marketing of Cocoa, Coconut (Copra, Coir and Tender coconut), Rice (par boiled, raw rice and rice flour), Pepper, Cardamom, Ginger, Arrowroot, Tapioca, Cashew,
The Board of Studies in Botany (U G), Mahatma Gandhi University, Kottayam

Mango, Jack fruit, Guava, Grapes, Lemon, Papaya, Musa, Garcinia. Basic principles of preparation of Lehyam and Decoction.

Module 4.

6 hours

Nursery Management.

Preparation of potting mixtures, polybags. Plant Growth structures – green houses, shaded houses, polyshed, mist chamber, sprinkling system, drip irrigation. Modern strategies in propagation by root initiation of cutting, layering technique, budding and grafting technique – Micropropagation; Planting, Transplanting and Hardening of seedlings, After care of seedlings. Packing and transporting of seedlings.

Module 5.

6 hours

Organic farming and Composting Techniques.

Organic manures and fertilizers, Composition of fertilizers. NPK content of various fertilizers and preparation of fertilizer mixtures. Common organic manures – bone meal, cow dung, poultry waste, oil cakes, organic mixtures and compost. Preparation of compost – aerobic and anaerobic- advantages and limitations. Vermicompost – preparation - Vermiwash. – preparation. Biofertilizers – Definition and preparation of different types – Trichoderma, Rhizobium, PGPR, PSB, mycorrhiza. Application of Biofertilizers. Biopesticides – Tobacco and Neem decoction. Biological control of disease and pests. Organic traps – Natural dyes.

Module 6.

6 hours

Cultivation of Vegetables, Fruits and Medicinal Plants.

Types – Home gardening, Market gardening and Truck gardening.

Packing and Transporting of Vegetables.

Organic farming of fruit crops – Packing and Transporting of fruits.

Induction of flowering and weed control.

Cultivation of Medicinal and Aromatic plants of common use and great demand.

Module 7.

6 hours

Floriculture and Apiculture.

Problems and prospects of Floriculture in Kerala.

Scope of growing Anthurium, Orchids and Jasmine in Kerala.

Common cut flowers – Rose, Gerbera, Gladiolus, Aster, *Chrysanthemum*, Daisys, Carnation, Golden rod, Anthurium, Orchids, Lilium and Limolium.

Common leaves used in flower arrangement – *Cyprus*, *Podocarpus*, *Asparagus*, Palms, Cycads, Ferns and *Eucalyptus*.

Apiculture – Scope and Significance.

Structure, Installation and maintenance of an Apiarium.

Extraction, Processing, preservation and Marketing of Honey.

Module 8.

4 hour

Flower arrangement.

Types - Western, Eastern (Japanese/ Ikebana) and Modern.

Wases, Flower Holders and Floral Foam.

Wase life of flowers and leaves.

After care of flower arrangements – Bouquets.

Packing and Maintenance of flowers and leaves.

Module 9.

4 hours

Ornamental Garden designing.

Use of different garden components.

Lawn preparation by seeds, seedling and turfing.

Maintenance of garden by Irrigation, Pruning, Repotting.

Disease and Pest control.

Module 10.

4 hours

Mushroom cultivation and Farming.

Mushrooms – Significance – Nutritive value.

Types of Mushrooms – Button – *Pleurotus*, *Volvorella*.

Spawn production, storage and marketing.

Growth of Mushrooms on Paddy Straw and Saw dust by Poly bag.

Mushroom growing structures and maintenance of humidity.

Pests and defects of mushrooms.

Storage, Transporting and Marketing of Mushrooms.

References

1. Adams , M.R. and M.O. Moss, 1995 Food Microbiology. Panima Publishing.
2. Casida, L.E. (Jr.),2005 Industrial Microbiology. New Age International.
3. Chandha.,K.L, 2003 Handbook of Horticulture. ICAR. New Delhi.
4. Frazier and Westhoff, 1988 Food Microbiology. Tata McGraw – Hill.
5. George Acquichah, 2004 Horticulture – Principles and Practices. II Edn. Prentice Hall. India.
6. George J. Banwant, 2004 Basic Food Microbiology. CBS Publishers and Distributors.
7. Gopal Chandha De, 2002 Fundamentals of Agronomy. Oxford and IBH Publishing House.
8. Hudson. T., Hartmann. Dale E. Kester, 2001 Plant Propagation, Principles and Practices. 6th Edn. Prentice Hall. India.
9. James M. Jay, 2005 Modern Food Microbiology. CBS Publishers and Distributors.
10. Kalian Kumar De, 1996 Plant Tissue Culture. New Central Book Agency (P) Ltd.
11. Kaul, T.N, 2002 Biology and Conservation of Mushroom, Oxford and IBH Publishing Co.
12. Kunte, Kawthalkar and Yawalker, 1997 Principles of Horticulture and Fruit Growing. Agri – Horticulture Co.
13. Neshamani, S, 2000 Pazhangal, Pazhavibhavangal (Malayalam). Kerala Bhasha Institute.
14. Pandey, R.K and S.K. Ghosh, 1996 A Hand Book on Mushroom Cultivation. Emkey Publications.
15. Prem Singh Arya, 2004 Vegetable Seed Production Principles. Kalyani Publishers.
16. Prince Alex, Rajani A. Nair, 2003 Ayurveda Avshodha Nirmanam – Sidhanthavum Prayogavum Malayalam. Kerala Bhasha Institute.
17. Purohit, S.S, 2005 Plant Tissue Culture. Student Edition.
18. Razdan, M.K, 1995 Introduction to Plant Tissue Culture. 2nd Edn. Oxford and IBH Publishing Co.
19. Rema, L.P, 2006 Applied Biotechnology. MJP Publishers.
20. Sharma, R.R, 2005 Propagation of Horticultural Crops. Kalyani Publishers.
21. Singh, B.D, 1996 Biotechnology. Kalyani Publishers.