

**SEMESTER-VIII**

Students will practically gain hands on expertise for a semester in any two options out of commercial horticulture, protective cultivation of high value horticulture crops, processing of fruits and vegetables for value addition, floriculture and landscape gardening, production of bioinputs-biofertilizers and biopesticides, mass multiplication of plants and bio-molecules through tissue culture, mushroom culture and bee keeping

**STUDENT READY: Experimental Learning Programme**

<b>Course No.</b>	<b>Title of the Course</b>	<b>Credit Hour</b>
ELP 451	Commercial Horticulture	10(0+10)
ELP 452	Protective Cultivation of High Value Horticulture Crops	10(0+10)
ELP 453	Processing of Fruits and Vegetables for Value Addition	10(0+10)
ELP 454	Floriculture and Landscape Architecture	10(0+10)
ELP 455	Bio-inputs: Bio-fertilizers and Bio-pesticides.	10(0+10)
ELP 456	Mass Multiplication of Plant And Molecules through Tissue Culture	10(0+10)
ELP 457	Mushroom culture	10(0+10)
ELP 458	Bee keeping	10(0+10)
	<b>Total</b>	<b>20 (0+20)</b>

**EXPERIENTIAL LEARNING PROGRAMME****20 (0+20)**

- ELP 451. Commercial Horticulture:** Nursery production of fruit crops: Raising of rootstocks, grafting and budding of rootstocks, management of grafted plants, plant certification, packaging and marketing, quality control. Nursery production of ornamentals: Production of plantlets, production of potted plants, management and maintenance, sale and marketing. Protected cultivation of vegetables and flowers: Nursery raising/procurement and transplanting, management and maintenance of the crop, postharvest handling, quality control and marketing.
- ELP 452. Protective Cultivation of high Value Horticulture Crops:** Visit to commercial polyhouses, Project preparation and planning. Specialised lectures by commercial export house. Study of designs of green- house structures for cultivation of crops. Land preparation and soil treatment. Planting and production: Visit to export houses; Market intelligence; Marketing of produce; cost analysis; Visit to export houses; Market intelligence; Marketing of produce; cost analysis; institutional management. Report writing and viva-voce.

3. **ELP 453. Processing of fruits and vegetables for value addition:** Planning and execution of a market survey, preparation of processing schedule, preparation of project module based on market information, calculation of capital costs, source of finance, assessment of working capital requirements and other financial aspects, identification of sources for procurement of raw material, production and quality analysis of fruits and vegetables products at commercial scale, packaging, labelling, pricing and marketing of product.
4. **ELP 454. Floriculture and landscape gardening:** Preparation of project report, soil and water analysis, preparation of land and layout. Production and Management of commercial flowers. Harvesting and postharvest handling of produce. Marketing of produce, Cost Analysis, Institutional Management, Visit to Flower growing areas and Export House, Attachment with private landscape agencies. Planning and designing, site analysis, selection and use of plant material for landscaping. Formal and informal garden, features, styles, principles and elements of landscaping. Preparation of landscape plans of home gardens, farm complexes, public parks, institutions, high ways, dams and avenues. Making of lawns, use of software in landscape. Making of bouquets, button hole, wreath, veni and gazaras, car and marriage palaces. Dry flower Technology (identification of suitable species, drying, packaging and forwarding techniques).
5. **ELP 455. Bio-inputs: Bio-fertilizers and bio-pesticides:** Isolation and pure culture establishment of fertilisers and bio-pesticides. Culture methods and substrates. Scale of methods for bio-fertilizers and bio-pesticides. Substrate preparation and mixing techniques. Quality analysis of bio-fertilizers and bio-pesticides. Testing the final product in small scale level. Storage, marketing and cost analysis of bio-fertilizers and pesticides.
6. **ELP 456. Mass multiplication of plants and molecules through tissue culture:** Preparation of stock solutions of tissue culture media. Preparation of solid media and liquid media. Initiation of in vitro culture and multiplication (preparation of explant, inoculation and culturing) (crop to selected). Sub-culturing, Hardening and establishment, Initiation of callus cultures – suspension cultures, Induction of selected biomolecules in callus, Harvesting and extraction of biomolecule, Marketing and cost analysis.
7. **ELP 457. Mushroom culture:** Construction cultivation room/structure and Disinfection. Compost preparation & pasteurization. Procurement of mother culture and spawn preparation. Procurement of casing soil and preparation for production. Mushroom seeding, Casing with soil and maintenance, Harvesting, processing, Grading, packing, marketing and Cost economics of mushroom culture.
8. **ELP 458. Bee keeping:** Procurement and arrangement of bee keeping equipments. Location and collection of potent nectar yielding bee flora seeds from wild. Raising/ enriching the high nectar yielding bee flora in the campus. Location and hiving the natural bee colony from the wild. Establishing the apiary with suitable/favourable necessaries. Maintenance and multiplication of hived colonies. Management of natural enemies and diseases of bees. Maintenance of bee colonies during dearth and honey flow seasons. Harvesting and Processing of honey and bee wax. Marketing and cost analysis