UNIVERSITY OF HORTICULTURAL SCIENCES, BAGALKOT

Dr. T. B. Allolli, Ph.D (Horticulture)
Registrar
Cell No. 94806 96389
Phone No. 08354-230276/278/286/280

Office of the Registrar
Udyanagiri, Navanagar
Bagalkot – 587104, Karnataka
E-mail: registrar@uhsbagalkot.edu.in
Website: https://uhsbagalkot.karnataka.gov.in

No. R/UHSB/ UG/AC/ 378 /2024-25

Date : 26.06.2024
03.07

NOTIFICATION

Sub : Inclusion of a new course "Fluid Mechanics FPE 206, 2 (1+1)" and modification to existing course "Fundamentals of Horticulture and Plant Propagation HRT 101, 3(2+1)" for B.Tech. (Food Technology) degree programme...reg.

Ref : 1. Minutes on Item No. 05 of 37th Academic Council meeting held on 03.05.2024
2. Approval of the Director of Education, UHS, Bagalkot
3. Orders of the Hon'ble Vice Chancellor, UHS, Bagalkot

In pursuance of the above references, the following new course **"Fluid Mechanics FPE 206, 2(1+1)"** is added for B.Tech. (Food Technology) degree programme during the II year II semester.

Further, the following modification is made to the course entitled "Fundamentals of Horticulture and Plant Propagation HRT 101, 3(2+1)" for B.Tech. (Food Technology) degree programme. The modification details are as below:

Sl. No.	Existing	Modified
1	Fundamentals of Horticulture and Plant Propagation, HRT 101, 3(2+1)	Fundamentals of Horticulture HRT 101, 2(1+1)

Total credit hours for award of B.Tech. (Food Technology) degree programme will increases from 179 to 180.

The prescribed syllabus for the above new course FPE 206, 2(1+1) and modified course HRT 101, 2(1+1) is enclosed in Annexure I and II respectively.

The above changes will be applicable to the students admitted during the academic year 2024-25 and onwards.

By Order,

REGISTRAR

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UHS, BAGALKOT

To: Notice Board

CWCs to:

1. All the members of the Academic Council
2. All the Deans of UHS, Bagalkot.
3. The Director, SC/ST Cell, UHS, Bagalkot
4. The Controller of Examination, CEEC, UHS, Bagalkot
5. The University Librarian, UHS, Bagalkot
6. All Academic Units/ Account Sections of UHS, Bagalkot
7. The Personal Secretary to the Hon'ble Vice-Chancellor, UHS, Bagalkot.

Copy submitted for kind information to: The Director of Education, UHS, Bagalkot.

ANNEXURE - I

Syllabus for Fluid Mechanics - FPE 206, 2 (1+1)

Theory:

Units and Dimensions, Concepts of fluid mechanics: Fluid, properties of fluids, fluid continuum, static pressure of liquids, specific weight, hydraulic pressure, absolute and gauge pressure, pressure head of a liquid. **Viscosity:** Newtonian & non-Newtonian fluids, kinematic and dynamic viscosity, variation of viscosity with temperature; Surface tension, compressible and non-compressible fluids. **Pressure measuring devices:** Simple, differential micro inclined manometer & mechanical gauges, floating bodies; Archimedes' principle, stability of floating bodies. Equilibrium of floating bodies. **Fluid flow:** Classification-steady, uniform & non-uniform, one, two and three dimensional flow: Dimensional Analysis, Buckinghams' theorems application to fluid flow phenomena, Froude number, Reynold's number, Weber number, laminar, turbulent, continuity equation, Bernoulli's theorem and its applications. **Flow Measurement:** Pipes, venture meter, flow nozzle, orifice meter, bend meter, rota meter. Flow through pipes; Loss of head, determination of pipe dia.& discharge, friction factors, critical velocity, flow through orifices, notches & veirs, Vena contracta, hydraulic coefficient & discharge losses. **Velocity measurement:** Pitot tube, hot wire anemometer, current meter. **Turbines & pumps:** Classification, centrifugal, submersible & reciprocating pumps, positive displacement pump & their characteristics. Pressure variation, work efficiency, selection and sizing of pumps.

Practicals:

Study of different fluid measuring devices, measurement of pressure using manometer & pressure gauge and its calibration, measurement of viscosity of liquids, to plot flow rate v/s pressure drop with U tube manometer, study of differential manometer, determination of discharge coefficient for venture meter. Determination of discharge coefficient for Orifice meter, Determination of discharge coefficient for V-notch. Verification of emptying time formula for tank. Determination of critical Reynold's number by Reynold's apparatus. Study of flow through pipes and determination of friction coefficient. Study of reciprocating, centrifugal and gear pumps. Study of pitot-tube, rota-meter and its calibration. Study of different types of valves and submersible pumps.

Reference Books:

1. Fluid Mechanics by JagadishLal, published by Metropolitan Book Co.
2. Hydraulics and fluid Mechanics (SI Units) by Modi, P.N. and Seth, S.M. Standard Publishing House
3. Fluid Mechanics, By Jain, A.K., Khanna Publications.
4. Fluid Mechanics and hydraulic machines by R.K. Bansal., Laxmi Publishers.

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ANNEXURE- II

Syllabus for Fundamentals of Horticulture - HRT 101, 2(1+1)

Sl. No.	Existing	Modified
1	Introduction, meaning of Horticulture, History and Development of Horticulture. Economic importance and classification of horticultural crops and their nutritive value, area and production, exports and imports, agro climatic zones of India and the state, nursery management practices, soil and climate, orchards, gardens, nutrition and kitchen garden and other types of gardens - principles, planning and layout, management of orchards, planting systems and planting densities. Principles and methods of pruning and training of fruit crops, types and use of growth regulators in horticulture, water management, weed management and nutrient management, mulching, bearing habits, factors influencing fruitfulness and unfruitfulness. Rejuvenation of old orchards, top working, principles of organic farming. History, importance and scope of propagation of horticultural nursery and management. Selection of nursery area. Propagation by sexual and asexual methods, advantages and disadvantages. Principles of seed production, viability. Dormancy - internal and external factors. Raising of rootstocks by seed and clonal multiplication. Propagation structures- mist chamber, humidifiers, green house/ glass house/ poly house and shade house, cold frames, hot beds, media and sterilization of media. Asexual propagation chimera. Propagation by cuttings, layering, grafting, budding. Propagation by specialized structures. Micro-propagation advantages and disadvantages **Practicals** Orchard, tools and implements. Features of orchard, planning and training and pruning, layout of nutrition garden, preparation of nursery beds, digging of pits, planting systems, soil and weed management practices and manuring, layout of different irrigation systems. preparation of fertilizer mixtures and field application, preparation and application of growth regulators, identification and management of nutritional disorder in fruits and vegetables, study of bearing habits, maturity standards, harvesting, grading, packaging and storage. Tools implements and containers used for	Introduction, definition of Horticulture, history and development of Horticulture. Economic importance and classification of horticultural crops and their nutritive value, area and production, exports and imports, agro climatic zones of India and the state, nursery management practices, soil and climate, orchards, gardens, nutrition and kitchen garden and other types of gardens - principles, planning and layout, management of orchards, planting systems and planting densities. Principles and methods of pruning and training of fruit crops, types and use of growth regulators in horticulture, water management, weed management and nutrient management, mulching, bearing habits, factors influencing fruitfulness and unfruitfulness. Rejuvenation of old orchards, top working, principles of organic farming. **Practicals:** Orchard, tools and implements. Features of orchard, planning and training and pruning, layout of nutrition garden, preparation of nursery beds, digging of pits, planting systems, soil and weed management practices and manuring, layout of different irrigation systems. preparation of fertilizer mixtures and field application, preparation and application of growth regulators, identification and management of nutritional disorder in fruits and vegetables, study of bearing habits, maturity standards, harvesting, grading, packaging and storage.

	propagation and nursery techniques. Study of propagation structures. Seed propagation-preparation of portable trays, seed treatments, sowing and seedling production. Nursery containers, media, potting, de-potting and repotting of plants, hardening of plants in nursery, shade regulation in nursery, plant protection in nursery plants. Packing nursery plants for local and long distance markets. Methods of propagation by cuttings and layering. Criteria for selection of mother trees, pre-curing of scion, separation of scion. Methods of propagation by grafting and budding. Propagation through specialized structures. Use of growth regulators in plant propagation. Project preparation for commercial nurseries. Visit to commercial nurseries and tissue culture laboratory.	

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