



UNIVERSITY OF HORTICULTURAL SCIENCES, BAGALKOT
Office of the Registrar

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No. R/UHSB/ AC-29/240 / 2020-21

Date: 03.07.2020

NOTIFICATION

- Sub** : Publication of Course and syllabus of M.Sc. (Hort) and Ph.D.(Hort Degree programmes - reg.
- Ref** : 1. Minutes on Item No: 08 of 29th Academic Council meeting held on 11th June,2020
2. Proposal of the Dean (PGS), UHS, Bagalkot
3. Approval of the Director of Education, UHS, Bagalkot
4. Orders of the Hon'ble Vice Chancellor, UHS, Bagalkot

In pursuance of the above references, the finalized Course and Syllabus for M.Sc. (Hort) and Ph.D. (Hort) Degree programmes are hereby notified and published in PDF format. The same is available on University website www.uhsbagalkot.edu.in under Education title for the information and references for teachers and students.

This shall come into force with effect from the academic year 2020-21 and onwards.

By Order

REGISTRAR

REGISTRAR

UHS, BAGALKOT

- To:** 1. All the members of the Academic Council
2. All the Deans of UHS, Bagalkot.
3. The Controller of Examination, CEEC, UHS, Bagalkot
4. All Academic Units/ Account Sections of UHS, Bagalkot
5. The Personal Secretary to the Vice-Chancellor, UHS, Bagalkot.
6. Notice Board- Concerned Colleges, UHS, Bagalkot
- Copy submitted for kind information to:** The Director of Education, UHS, Bagalkot.



**UNIVERSITY OF HORTICULTURAL SCIENCES
BAGALKOT**

**COURSE SYLLABUS
FOR
Ph.D DEGREE PROGRAMME**

SEMESTER SYSTEM

2020-21

**OFFICE OF THE
DEAN POSTGRADUATE STUDIES
UNIVERSITY OF HORTICULTURAL
SCIENCES BAGALKOT - 587 104**

CREDIT REQUIREMENTS FOR DOCTORAL PROGRAMMES

COURSES	CREDIT HOURS
Core Courses	15
Optional Courses	08
Supporting Courses	05
Seminar	04
Qualifying Exam.	04
Research	39
Non Credit Compulsory Courses (if not done at M.Sc. Level)	02
Non Credit Compulsory Study Tour (PGS – 607, 0+1)	01
Total	75+3

1. FLORICULTURE AND LANDSCAPE ARCHITECTURE – CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 15 CREDITS)			
01	FLA - 601	Advances in Flower Production Technology	2+1
02	FLA - 602	Advances in Landscape Architecture	1+2
03	FLA - 603	Advances in Protected and Precision Floriculture	2+1
04	FLA - 604	Advances in Breeding of Flower Crops	2+1
05	FLA - 605	Advances in Biochemistry and Biotechnology of Flowers	2+1
TOTAL			15
OPTIONAL COURSES (MINIMUM 08 CREDITS)			
01	FLA - 606	Flori-business Management	2+0
02	FLA - 607	Advances in production of Rose, Anthurium and Orchid under Cover	2+1
03	FLA - 608	Planting Material and Seed Production in Flower Crops	1+1
04	FLA - 609	Advances in Post Harvest Handling and Value Addition of Ornamental Crops	2+1
TOTAL			10

2. FRUIT SCIENCE – CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 15 CREDITS)			
01	FSC - 601	Advances in Fruit Production	2+1
02	FSC - 602	Advances in Breeding of Fruit Crops	2+1
03	FSC - 603	Advances in Growth and Development of Fruit Crops	2+1
04	FSC - 604	Application of Biotechnological Tools in Fruits Crops	2+1
05	FSC - 605	Management of Abiotic Stress in Fruit Crops	2+1
TOTAL			15
OPTIONAL COURSES (MINIMUM 08 CREDITS)			
01	FSC - 606	Genomics and Bioinformatics in Fruit Crops	2+0
02	FSC - 607	National and International Current Issues in Fruits Production	3+0
03	FSC - 608	Organic Production of Fruit Crops	1+1
04	FSC - 609	Biodiversity and Conservation in Fruit Crops	1+1
05	FSC - 610	Advances in Canopy Management in Fruit Crops	1+1
06	FSC - 611	Advances in Banana Culture	1+1
07	FSC - 612	Advances in Mango and Citrus Culture	1+1
	FSC - 613	Advances in Viticulture	1+1
TOTAL			17

3. POSTHARVEST TECHNOLOGY- CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 15 CREDITS)			
01	PHT - 601	Physiology of Ripening and Senescence	1+1
02	PHT - 602	Novel Processing Technologies for Horticultural Produce	2+1
03	PHT - 603	Storage Techniques and Supply/Cold Chain Management for Horticultural Produce	2+1
04	PHT - 604	Advances in Packaging Technology of Horticultural Produce	1+1
05	PHT - 605	Designing of Horticulture Processing Plant	1+1
06	PHT - 606	Advances in Laboratory Techniques in Post Harvest Technology	1+2
TOTAL			15
OPTIONAL COURSES (MINIMUM 08 CREDITS)			
01	PHT - 607	Texture and Rheological Properties of Food Products	1+1
02	PHT - 608	Nanotechnology and its Application in Post Harvest Technology	2+0
03	PHT - 609	Food Laws, Regulations and Quality Management	2+0
04	PHT - 610	Advances in Processing of Medicinal and Aromatic Crops	1+1
05	PHT - 611	Advances in Wine Technology	1+1
06	PHT - 612	Food Enzymes and Horticulture Waste Utilization	1+1
07	PHT - 613	Functional Foods and Nutraceuticals	1+1
08	PHT - 614	New Product Development in Horticultural Produce	1+1
09	PHT - 615	Food Chemistry	1+1
10	PHT - 616	Food Toxicology	1+1
11	PHT - 617	Computer Applications in Food Industry	1+1
TOTAL			22

4. PLANTATION, SPICES, MEDICINAL AND AROMATIC CROPS (PSMA) - CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 15 CREDITS)			
01	PMA - 601	Advances in Production of Plantation Crops	2+1
02	PMA - 602	Advances in Spice Production	2+1
03	PMA - 603	Advances in Medicinal and Aromatic Crop Production Technology	2+1
04	PMA - 604	Advances in Breeding of Plantation Crops and Spices	2+1
05	PMA - 605	Advances in Breeding of Medicinal and Aromatic Crops	2+1
TOTAL			15
OPTIONAL COURSES (MINIMUM 08 CREDITS)			
01	PMA - 606	Biotechnology in Plantation Crops and Spices	1+1
02	PMA - 607	Post Harvest Processing and Extraction in Medicinal and Aromatic crops	2+1
03	PMA - 608	Environmental Horticulture	2+1
04	PMA - 609	Processing and Value Addition of Plantation Crops	2+1
05	PMA - 610	Processing and Value Addition of Spices	2+1
06	PMA - 611	Genetic Resources Management of Medicinal, Aromatic, Dye and Pesticidal Plants (MADPS)	2+1
07	PMA - 612	Production Technology of Dye and Pesticidal Plants	1+1
TOTAL			19

5. VEGETABLE SCIENCE – CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 15 CREDITS)			
01	VSC - 601	Advances in Vegetable Production	2+1
02	VSC - 602	Advances in Breeding of Vegetable Crops	2+1
03	VSC - 603	Protected Cultivation of Vegetable Crops	2+1
04	VSC - 604	Seed Certification, Processing and Storage of Vegetable Seeds	2+1
05	VSC - 605	Abiotic Stress Management in Vegetable Crops	2+1
TOTAL			15
OPTIONAL COURSES (MINIMUM 08 CREDITS)			
01	VSC - 606	Biotechnology of Vegetable Crops	2+1
02	VSC - 607	Advances in Solanaceous Vegetables	1+1
03	VSC - 608	Advances in Cucurbitaceous Vegetables	1+1
04	VSC - 609	Advances in Cole Crops	1+1
05	VSC - 610	Advances in Bulbous and Root Vegetables	1+1
06	VSC - 611	Export Oriented Vegetables	1+1
07	VSC - 612	Improvement and Production Technology of Perennial and Under Exploited Vegetables	2+1
08	VSC - 613	Improvement and Production Technology of Exotic Vegetables	1+1
09	VSC - 614	Vegetable Breeding for Biotic Stress Resistance	2+1
10	VSC - 615	Vegetable Breeding for Quality Traits	2+0
11	VSC - 616	Biometrical Genetics	1+1
TOTAL			25

6. PLANT PATHOLOGY – CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 15 CREDITS)			
01	HPP - 601	Advances in Mycology	2+1
02	HPP - 602	Advances in Plant Virology	2+1
03	HPP - 603	Advances in Plant Bacteriology	2+1
04	HPP - 604	Advances in Plant Nematology	2+1
05	HPP - 605	Molecular Basis of Host-Pathogen Interaction	2+1
TOTAL			15
OPTIONAL COURSES (MINIMUM 08 CREDITS)			
01	HPP - 611	Principles and Procedures of Certification	1+0
02	HPP - 612	Plant Bio-security and Bio-safety	2+0
03	HPP - 613	Advances in Seed Pathology	1+1
04	HPP - 614	Advances in Epidemiology, Forecasting and Loss Assessment of Plant Diseases	1+1
05	HPP - 615	Advances in Biological Management of Plant Diseases	1+1
06	HPP - 616	Advances in Disease Resistance in Plants	1+1
TOTAL			11

7. ENTOMOLOGY – CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 15 CREDITS)			
01	HET - 601	Advances in Insect Systematics	1+2
02	HET - 602	Immature Stages of Insects	1+1
03	HET - 603	Advances in Insect Physiology	1+1

04	HET - 604	Advances in Insect Ecology	1+1
05	HET - 605	Advances in Insecticide Toxicology	1+1
06	HET - 606	Recent Trends in Biological Control	1+1
07	HET - 607	Advances in Integrated Pest Management in Horticulture Ecosystem	2+0
TOTAL			15
OPTIONAL COURSES (MINIMUM 08 CREDITS)			
01	HET - 608	Insect Behavior	1+1
02	HET - 609	Advances in Host Plant Resistance in Horticulture crops	1+1
03	HET - 610	Advances in Acarology	1+1
04	HET - 611	Horticulture Ornithology	1+1
05	HET - 612	Molecular Approaches in Entomological Research	1+1
06	HET - 613	Plant Bio-security and Bio-safety	2+0
07	HET - 614	Ecology and Biology of Soil Arthropods and Their Management	1+1
08	HET - 615	Forest Entomology- Ecology and Management	1+1
09	HET - 616	Advances in Insect Pathology	1+1
TOTAL			18

8. BIOTECHNOLOGY AND CROP IMPROVEMENT – CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 15 CREDITS)			
01	BCI - 601	Advances in Plant Breeding Systems	2+0
02	BCI - 602	Advances in Biometrical and Quantitative Genetics	2+1
03	BCI - 603	Advances in Plant Molecular Biology	2+0
04	BCI - 604	Advances in Genetic Engineering	2+1
05	BCI - 605	Advances in Functional Genomics and Proteomics	2+0
06	BCI - 606	Emerging Trends in Seed Quality Enhancement	2+1
TOTAL			15
OPTIONAL COURSES (MINIMUM 08 CREDITS)			
01	BCI - 607	Plant Genetic Resources and Pre-breeding	2+0
02	BCI - 608	Intellectual Property Rights and Bio-safety in Plant Breeding	2+0
03	BCI - 609	Crop Evolution	2+0
04	BCI - 610	Breeding of Designer Crops	2+1
05	BCI - 611	Advances in Breeding of Major Horticultural Crops	3+0
06	BCI - 612	Marker Development and Gene Mapping	1+1
07	BCI - 613	Advances in Crop Biotechnology	2+1
08	BCI - 614	Commercial Plant Tissue Culture	1+1
09	BCI - 615	Advances in Seed Science Research	3+0
10	BCI - 616	Commercial Biotechnology	2+0
11	BCI - 617	Seed Processing and Storage	2+1
12	BCI - 618	Seed Quality Testing	2+1
13	BCI - 619	Seed Storage and Deterioration	1+1
14	BCI - 620	Testing for Genuineness & Purity of Cultivars	1+1
15	BCI - 621	DUS Testing for Plant Variety Protection	2+1
16	BCI - 622	Hybrid Seed Production	1+1
TOTAL			39

9. GENETICS AND PLANT BREEDING – CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 15 CREDITS)			
01	GPB - 601	Advances in Plant Breeding Systems	2+0
02	GPB - 602	Advanced Biometrical and Quantitative Genetics	2+1

03	GPB - 603/ PBT 610	Genomics in Crop Improvement	2+1
04	GPB - 604	Cellular and Chromosomal Manipulations for Crop Improvement	2+0
05	GPB - 605	Advances in Breeding of Major Horticulture Crops	3+0
06	GPB - 606	Plant Genetic Resources and Pre-breeding	2+0
TOTAL			15
OPTIONAL COURSES (MINIMUM 08 CREDITS)			
01	GPB - 607	Intellectual Property Rights and Bio-safety in Plant Breeding	2+0
02	GPB - 608	Crop Evolution	2+0
03	GPB - 609	Advances in Breeding of Designer Crops	2+1
04	GPB - 610 / PBT - 607	Marker Development and Gene Mapping	1+1
05	GPB - 611/ PBT 604	Advances in Crop Biotechnology	3+0
06	GPB - 612	Advances in Mutation and Heterosis Breeding	2+1
07	GPB - 613	Advances in Breeding of Flower Crops	2+1
08	GPB - 614	Advances in Breeding of Fruit and Plantation Crops	2+1
09	GPB - 615	Advances in Breeding of Vegetables Crops	2+1
TOTAL			24

10. PLANT BIOTECHNOLOGY – CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 15 CREDITS)			
01	PBT - 601	Advances in Plant Molecular Biology	2+1
02	PBT - 602	Advances in Genetic Engineering	2+1
03	PBT - 603	Advances in Microbial Biotechnology	2+0
04	PBT - 604 /GPB - 611	Advances in Crop Biotechnology	3+0
05	PBT - 605	Advances in Functional Genomics and Proteomics	2+0
06	PBT - 606	Commercial Biotechnology	2+0
TOTAL			15
OPTIONAL COURSES (MINIMUM 08 CREDITS)			
01	PBT - 607/ GPB - 610	Marker Development and Gene Mapping	1+1
02	PBT - 608	Commercial Plant Tissue Culture	1+1
03	PBT - 609	Techniques in Molecular Biology - II	0+2
04	PBT - 610 / GPB - 603	Genomics in Crop Improvement	2+1
05	PBT - 611 / FSC - 604	Application of Biotechnological Tools in Fruits Crops	2+1
06	PBT - 612 / FSC - 606	Genomics and Bioinformatics in Fruit Crops	2+0
07	PBT - 613 / PMA - 606	Biotechnology in Plantation Crops and Spices	1+1
08	PBT - 614 / VSC - 606	Biotechnology in Vegetable Crops	2+1
TOTAL			19

MINOR COURSES
AGRICULTURAL ECONOMICS

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
MINOR COURSES			
01	AEC - 604	Advanced Production Economics	1+1
02	AEC - 608	Operations Research	0+1
TOTAL			03

AGRICULTURAL EXTENSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
MINOR COURSES			
01	AEX - 603	Advances in Training Technology	1+1
02	AEX - 604	Organizational Development	1+1
03	AEX - 608	Media Management	1+1
TOTAL			06

AGRICULTURAL MICROBIOLOGY

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
MINOR COURSES			
01	AMB - 601	Advances in Fermentation Technology	1+1
02	AMB - 604	Current Topics in Soil Microbiology	1+1
03	AMB - 000	Biology and Production of Mycorrhiza	2+1
TOTAL			07

AGRONOMY

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
MINOR COURSES			
01	AGR - 601	Current Trends in Agronomy	3+0
02	AGR - 602	Crop Ecology	2+0
03	AGR - 604	Advances in Crop Growth and Productivity	2+1
04	AGR - 607	Integrated Farming Systems	2+0
TOTAL			10

CROP PHYSIOLOGY

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
MINOR COURSES			
01	CPH - 601	Functional Genomics and Genes Associated With a Few Physiological Processes	2+0
02	CPH - 602	Signal Perceptions and Transduction and Regulation of Physiological Processes	2+0
03	CPH - 603	Molecular Approaches for Improving Physiological Traits	2+1
04	CPH - 604	Advanced Techniques in Plant Physiology	0+2
05	CPH - 605	Climate Change and Crop Growth	2+0
06	CPH - 610	Molecular Physiology of Mineral Nutrient Acquisition, Transport and Utilization	1+1
TOTAL			13

FOOD SCIENCE AND NUTRITION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
MINOR COURSES			
01	FSN - 601	Advances in Carbohydrates, Proteins and Lipids	1+1
02	FSN - 604	Advances in Food Science and Technology	1+1
TOTAL			04

BIOCHEMISTRY

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
MINOR COURSES			
01	BCM - 601	Advanced Enzymology	2+0
02	BCM - 602	Advanced Molecular Biology	3+0
03	BCM - 604	Current Topics in Biochemistry	1+0
04	BCM - 607	Advanced Techniques in Biochemistry	0+2

TOTAL		08
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SEED SCIENCE AND TECHNOLOGY			CREDIT HOURS
SL NO	COURSE NO	COURSE TITLE	
MINOR COURSES			
			1+1
01	SST – 601	Hybrid Seed Production	2+1
02	SST – 602	In Situ and Ex Situ Conservation of Germplasm	1+1
03	SST – 604	Testing for Genuineness and Purity of Cultivars	2+1
04	SST – 605	Seed Storage and Deterioration	1+1
05	SST – 606	Advances in Seed Treatment	1+1
06	SST – 608	Advances in Seed Science Research	
TOTAL			14

SOIL SCIENCE AND AGRICULTURAL CHEMISTRY			CREDIT HOURS
SL NO	COURSE NO	COURSE TITLE	
MINOR COURSES			
			1+1
01	SAC – 601	Instrumental Methods of Analysis	1+1
02	SAC – 602	Tracer Techniques in Soil and Plant Studies	1+1
03	SAC – 603	Remote Sensing and GIS Techniques for Soil Crop Studies	1+1
04	SAC – 607	Physical Chemistry of Soils	1+1
05	SAC – 610	Advances in Soil Fertility	1+1
06	SAC – 611	Land Use Planning and Watershed Management	1+1
07	SAC – 613	Recycling of Organic Resources and Management	
TOTAL			14

HORTICULTURAL STATISTICS			CREDIT HOURS
SL NO	COURSE NO	COURSE TITLE	
MINOR COURSES			
			2+1
01	HST – 601	Applied Regression Analysis	2+1
02	HST – 602	Multivariate Analysis	2+1
03	HST – 603	Design of Experiments	2+1
04	HST – 604	Regression Analysis	
TOTAL			12


REGISTRAR
UHS, BAGALKOT



**UNIVERSITY OF HORTICULTURAL SCIENCES
BAGALKOT**

**COURSE SYLLABUS
FOR
MASTER DEGREE PROGRAMME

SEMESTER SYSTEM**

2020-21

**OFFICE OF THE
DEAN POSTGRADUATE STUDIES
UNIVERSITY OF HORTICULTURAL
SCIENCES BAGALKOT – 587 104**

CREDIT REQUIREMENT FOR M.Sc., DEGREE PROGRAMMES

SL NO	COURSE WORK	MINIMUM CREDIT HOURS
01	Major Subject	
	Core Courses	16
	Optional Courses	04
02	Supporting courses (other than parent dept)	09
03	Compulsory courses	05
04	Non-credit compulsory Courses	02
05	Non-credit compulsory Study Tour	01
06	Seminar	02
07	Qualifying Examination	02
08	Research	17*
Total		55+3
* 5 Credits of Research Out of 17 Credits will be Graded By the Advisory Committee at the Time of Final Viva-voce Examination on 10.00 Point Scale		

01. FRUIT SCIENCE – FINAL CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 16 CREDITS)			
01	FSC – 501	Tropical Fruits	2+1
02	FSC – 502	Sub-Tropical Fruits	2+1
03	FSC – 503	Temperate Fruit and Nuts	2+0
04	FSC – 504	Growth and Development of Fruit Crops	2+1
05	FSC – 505	Breeding of Fruit Crops	1+1
06	FSC – 506	Nutrition of Fruit Crops	2+1
TOTAL			16
OPTIONAL COURSES (MINIMUM 04 CREDITS)			
01	FSC – 507	Propagation and Nursery Management of Fruit Crops	2+1
02	FSC – 508	Canopy Management in Fruit Crops	1+1
03	FSC – 509	Principles and Practices of Dry Land Horticulture	1+1
04	FSC – 510	Orchard Management	1+1
05	FSC – 511	Principles and Practices of Water Management in Horticultural Crops	1+1
06	FSC – 512	Organic Production of Fruit Crops	1+1
07	FSC – 513	Bio-diversity and Conservation of Fruit Crops	2+1
08	FSC – 514	Bio-technology of Fruit Crops	1+1
09	FSC – 515	Plant Growth Regulators in Fruit Crops	1+1
10	FSC – 516	Under Exploited Fruit Crops	1+1
11	FSC – 517	Systematic Pomology	1+1
12	FSC – 518	GAP for Horticultural Crops	1+0
13	FSC – 519	Climate Change in Horticulture	1+0
TOTAL			26

02. VEGETABLE SCIENCE – FINAL CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 16 CREDITS)			
01	VSC – 501	Fundamentals of Vegetable Production	2+1
02	VSC – 502	Production Technology of Vegetable Crops - I	2+1
03	VSC – 503	Production Technology of Vegetable Crops - II	2+1

04	VSC – 504	Principles and Methods of Vegetable Breeding	2+1
05	VSC – 505	Seed Production Technology of Vegetable Crops	1+1
06	VSC – 506	Organic Vegetable Production Technology	1+1
TOTAL			16
OPTIONAL COURSES (MINIMUM 04 CREDITS)			
01	VSC – 507	Nutrition of Vegetable Crops	2+1
02	VSC – 508	Protected Cultivation of Vegetables	1+1
03	VSC – 509	Water Management in Vegetable Crops	1+1
04	VSC – 510	Vegetable Based Cropping Systems	2+0
05	VSC – 511	Breeding of Vegetable Crops - I	2+1
06	VSC – 512	Breeding of Vegetable Crops - II	2+1
07	VSC – 513	Fundamentals of Vegetable Processing	1+1
08	VSC – 514	Systematic of Vegetable Crops	1+1
09	VSC – 515	Production Technology of Under Exploited Vegetable Crops	1+1
TOTAL			21

03. FLORICULTURE AND LANDSCAPE GARDENING – FINAL CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 16 CREDITS)			
01	FLA – 501	Breeding of Flower Crops and Ornamental Plants	2+1
02	FLA – 502	Production Technology of Cut Flowers	2+1
03	FLA – 503	Production Technology of Traditional Flowers	2+1
04	FLA – 504	Landscaping and Ornamental Gardening	2+1
05	FLA – 505	Protected Cultivation in Floriculture	1+1
06	FLA – 506	CAD for Outdoor and Indoorscaping	1+1
TOTAL			16
OPTIONAL COURSES (MINIMUM 04 CREDITS)			
01	FLA – 507	Nursery Management and Commercial Floriculture	2+1
02	FLA – 508	Turfing and Turf Management	1+1
03	FLA – 509	Value Addition in Flowers	1+1
04	FLA – 510	Growth Regulators in Floriculture	1+1
05	FLA – 511	Bulbous Ornamental Plants	1+1
06	FLA – 512	Minor Flower Crops	1+1
07	FLA – 513	Indoor Gardening, Bonsai and Flower Arrangements	1+1
08	FLA – 514	Weed Management in Flowers and Ornamental Crops	1+1
09	FLA – 515	Seed Production of Flower Crops	1+1
10	FLA – 516	Bio-Systematics in Ornamental Plants	0+2
TOTAL			21

04. POST HARVEST TECHNOLOGY – FINAL CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 16 CREDITS)			
01	PHT – 501	Post-harvest Physiology and Management of Horticultural Produce	2+1
02	PHT – 502	Storage and Packaging Technology for Fresh and Processed Horticultural Produce	2+1
03	PHT – 503	Principles and Methods of Fruit and Vegetable Processing	2+1
04	PHT – 504	Preservation by Fermentation and Dehydration	1+1

05	PHT – 505	Food Additives in Horticultural Products	1+1
06	PHT – 506	Techniques for Quality Control and Sensory Analysis of Horticultural Products	2+1
TOTAL			16
OPTIONAL COURSES (MINIMUM 04 CREDITS)			
01	PHT – 507	Preservation by Canning and Freezing	1+1
02	PHT – 508	Processing Technology for Spices and Plantation Crops	1+1
03	PHT – 509	Post-harvest Handling and Processing of Ornamental, Medicinal and Aromatic Plants	1+1
04	PHT – 510	<i>In-plant</i> Training and Management of Waste from Horticultural Processing Industries	1+1
05	PHT – 511	Process Engineering in Horticultural Crops	1+1
06	PHT – 512	Safety in Horticulture Food Chain	2+0
TOTAL			12

**05. PLANTATION, SPICES, MEDICINAL AND AROMATIC CROPS - FINAL
CORRECTED VERSION**

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 16 CREDITS)			
01	PMA – 501	Production Technology of Plantation Crops (Palms, Cashew and Rubber)	2+1
02	PMA – 502	Production Technology of Beverage Crops	1+1
03	PMA – 503	Production Technology of Major Spice Crops	2+1
04	PMA – 504	Production Technology of Medicinal Crops	2+1
05	PMA – 505	Production Technology of Aromatic Crops	2+1
06	PMA – 506	Breeding of Plantation, Spices, Medicinal and Aromatic Crops	1+1
TOTAL			16
OPTIONAL COURSES (MINIMUM 04 CREDITS)			
01	PMA – 507	Production Technology of Minor Spice Crops	1+1
02	PMA – 508	Organic Production of Spices, Plantation, Medicinal and Aromatic Crops	1+1
03	PMA – 509	Bio-diversity of Medicinal, Aromatic and Natural Dye Plants	1+1
04	PMA – 510	Processing and Quality Analysis of Medicinal and Dye Plants	1+1
05	PMA – 511	Natural Dye and Bio-pesticidal Plants	1+1
06	PMA – 512	Production Technology of Under-utilized Spices, Medicinal and Aromatic Crops	1+1
07	PMA – 513	Propagation of Spices, Plantation, Medicinal and Aromatic Crops	2+1
08	PMA – 514	Bio-technology of Spices, Plantation, Medicinal and Aromatic Crops	1+1
09	PMA – 515	Water Management of Spices, Plantation, Medicinal and Aromatic Crops	1+1
10	PMA – 516	Nutrition of Spices, Plantation, Medicinal and Aromatic Crops	1+1
11	PMA – 517	Weed Management of Spices, Plantation, Medicinal and Aromatic Crops	1+1
12	PMA – 518	Value Addition, By-product Utilization in Spices, Plantation, Medicinal and Aromatic Crops	1+1
13	PMA – 519	Cropping Systems in Spices, Plantation, Medicinal and Aromatic Crops	1+1

14	PMA – 520	Extraction, Storage and Quality Analysis of Essential Oils	1+1
TOTAL			29

06. GENETICS AND PLANT BREEDING - FINAL CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 16 CREDITS)			
01	GPB 501	Principles of Genetics	2+1
02	GPB 502	Principles of Cytogenetics	2+1
03	GPB 503	Principles of Plant Breeding	2+1
04	GPB 504	Principles of Quantitative Genetics	2+1
05	GPB 505	Mutagenesis and Mutation Breeding	1+1
06	GPB 506	Heterosis Breeding	1+1
TOTAL			16
OPTIONAL COURSES (MINIMUM 04 CREDITS)			
01	GPB 507	Biotechnology for Crop Improvement	2+1
02	GPB 508	Cell Biology and Molecular Genetics	3+0
03	GPB 509	Population Genetics	1+1
04	GPB 510	Breeding for Biotic and Abiotic Stress Resistance	2+1
05	GPB 511 / PBT 507	Molecular Breeding	1+1
06	GPB 512	Breeding of Horticulture Crops - I (Vegetables and Flower Crops)	2+1
07	GPB 513	Breeding of Horticulture Crops - II (Fruits, Plantation and Spices)	2+1
08	GPB 514	Breeding for Crop Quality	2+0
09	GPB 515	Breeding of Major Cereal Crops	1+1
10	GPB 516	Gene Regulation and Expression	2+0
11	GPB 517	Maintenance Breeding, Concepts of Variety Release and Seed Production	1+1
12	GPB 518	Plant Genetic Resources	2+0
13	GPB 519	Bioinformatics and Data Base Management for Crop Improvement	2+1
14	GPB 520	Breeding of Designer Crops	1+1
TOTAL			34

07. PLANT BIOTECHNOLOGY

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 16 CREDITS)			
01	PBT 501	Principles of Recombinant DNA Technology	2+0
02	PBT 502	Fundamentals of Plant Molecular Biology	2+0
03	PBT 503	Molecular Cell Biology	3+0
04	PBT 504	Plant Tissue Culture and Genetic Transformation	2+1
05	PBT 505	Techniques in Molecular Biology - I	0+2
06	PBT 506	Introduction to Bioinformatics	1+1
07	PBT 507/GPB 511	Molecular Breeding	1+1
TOTAL			16
OPTIONAL COURSES (MINIMUM 04 CREDITS)			
01	PBT 508	Immunology and Molecular Diagnostics	2+1
02	PBT 509	Nano-biotechnology	2+0
03	PBT 510/ BCM 505	Biochemical Techniques	1+2

04	PBT 511	Microbial Genetics and Biotechnology	2+0
05	PBT 512	Biosafety, IPR and Bioethics	2+0
06	PBT 513/FSC 514	Biotechnology of Fruit Crops	1+1
07	PBT514/PMA 514	Biotechnology of Spices, Plantation, Medicinal and Aromatic Crops	1+1
TOTAL			16

08. HORTICULTURE PLANT PATHOLOGY - FINAL CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 16 CREDITS)			
01	HPP – 501	Principles of Plant Pathology	1+1
02	HPP – 502	Mycology	2+1
03	HPP – 503	Plant Bacteriology	1+1
04	HPP – 504	Plant Nematology	1+1
05	HPP – 505	Plant Virology	1+1
06	HPP – 506	Disease Resistance in Plants	1+1
07	HPP – 507	Integrated Disease Management	1+1
08	HPP – 508	Plant Disease Diagnostics	0+1
TOTAL			16
OPTIONAL COURSES (MINIMUM 04 CREDITS)			
01	HPP – 509	Diseases of Fruits, Spices and Plantation Crops	1+1
02	HPP – 510	Diseases of Vegetables, Flowers, Medicinal and Aromatic Plants	1+1
03	HPP – 511	Chemicals in Plant Disease Management	1+1
04	HPP – 512	Biological Management of Plant Diseases	1+1
05	HPP – 513/HET - 515	Plant Quarantine	2+0
06	HPP – 514	Seed Pathology	1+1
07	HPP – 515	Insect Vectors of Plant Viruses and Other Pathogens	1+1
08	HPP – 516	Epidemiology and Forecasting of Plant Diseases	1+1
09	HPP – 517	Post-harvest Pathology	1+1
10	HPP – 518	Mushroom Production Technology	1+1
11	HPP – 519	Ecology of Soil-borne Plant Pathogens	1+1
TOTAL			22

09. HORTICULTURE ENTOMOLOGY - FINAL CORRECTED VERSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 16 CREDITS)			
01	HET – 501	Insect Morphology	1+1
02	HET – 502	Insect Anatomy and Physiology	1+1
03	HET – 503	Insect Systematics	1+1
04	HET – 504	Toxicology of Insecticides	1+1
05	HET – 505	Pests of Fruits and Plantation Crops	1+1
06	HET – 506	Pests of Vegetable and Ornamental Crops	1+1
07	HET – 507	Pests of Spices, Medicinal and Aromatic Crops	1+1
08	HET – 508	Insect Ecology	1+1
TOTAL			16
OPTIONAL COURSES (MINIMUM 04 CREDITS)			
01	HET – 509	Principles of Integrated Pest Management	1+1

02	HET – 510	Biological Management of Insect Pests and Weeds	1+1
03	HET – 511	Post-harvest Entomology	1+1
04	HET – 512	General Acarology and Araneology	1+1
05	HET – 513	Insect Vectors of Plant Pathogens	1+1
06	HET – 514	Research Techniques in Entomology	0+1
07	HET – 515/HPP - 513	Plant Quarantine	2+0
08	HET – 516	Application of Biotechnology in Pest Management	1+1
09	HET – 517	Insect Pathology	1+1
10	HET – 518	Plant Resistance to Insects	1+1
11	HET – 519	Soil Arthropods and their Management	1+1
12	HET – 520	Vermiculture and Vermicomposting	1+1
13	HET – 521	Vertebrate Pest Management	1+1
14	HET – 522	Forest Entomology	1+1
15	HET – 523	Economic Entomology	1+1
16	HET – 524	Pests of Horticultural Crops	2+1
17	HET – 525	Applied Apiculture	1+1
TOTAL			34

10. SOIL SCIENCE AND AGRICULTURAL CHEMISTRY

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
CORE COURSES (MINIMUM 16 CREDITS)			
01	SAC – 501	Analytical Techniques in Soil and Plant Analysis	1+1
02	SAC – 502	Soil Mineralogy, Genesis, Survey and Classification	2+1
03	SAC – 503	Soil Physics	2+1
04	SAC – 504	Soil Chemistry	2+1
05	SAC – 505	Soil Biology and Soil Biochemistry	1+1
06	SAC – 506	Soil Fertility and Nutrient Management	2+1
TOTAL			16
OPTIONAL COURSES (MINIMUM 04 CREDITS)			
01	SAC – 507	Management of Problematic Soils and Waters	1+1
02	SAC – 508	Soil, Water and Air Pollution	1+1
03	SAC – 509	Soil Testing & Fertilizer Recommendation	1+1
04	SAC – 510	Manures & Fertilizers	1+1
05	SAC – 511	Agricultural Chemicals	1+1
06	SAC – 512	Soil Erosion and Conservation	1+1
TOTAL			12

NON CREDIT COMPULSORY COURSES AND STUDY TOUR

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
NON CREDIT COMPULSORY COURSES			
01	PGS - 501	Library and Information Services	0+1
02	PGS - 502	Technical Writing and Communications Skills	0+1
03	PGS - 503	Intellectual Property and its Management in Agriculture	1+0
04	PGS - 504	Basic Concepts in Laboratory Techniques	0+1
05	PGS - 505	Agricultural Research, Research Ethics and Rural Development Programmes	1+0
06	PGS - 506	Disaster Management	1+0
TOTAL			06

NON CREDIT COMPULSORY STUDY TOUR			
01	PGS - 507	Study Tour	0+1
TOTAL			01

11. SUPPORTING COURSES FOR M.Sc., DEGREE PROGRAMMES

AGRICULTURAL ECONOMICS

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	AEC – 513	Intellectual Property Management	1+0
02	AEC – 514 / AMC - 513	Commodity Futures Trading	2+0
TOTAL			03

AGRICULTURAL ENGINEERING PROCESSING AND FOOD ENGINEERING

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	PFE - 506	Food Processing Equipment and Plant Design	1+1
02	PFE - 507	Fruits and Vegetables Process Engineering	1+1
TOTAL			04

SOIL AND WATER ENGINEERING

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	SWE - 502	Design of Farm Irrigation Systems	2+1
02	SWE - 505	Soil and Water Conservation Engineering	1+1
03	SWE - 507	Watershed Management and Modeling	1+1
04	SWE - 512	Control of Pollution from Solid Wastes	2+0
TOTAL			09

AGRICULTURAL EXTENSION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	AEX - 502	Development Communication and Information Management	1+1
02	AEX - 503	Diffusion and Adoption of Innovations	1+1
TOTAL			04

AGRICULTURAL MARKETING AND COOPERATION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	AMC - 509	International Business	2+0
02	AMC – 510	Agricultural and Food Marketing	2+1
03	AMC - 511	Grading and Quality Control in Agricultural and Food Industry	1+1
TOTAL			07

AGRICULTURAL MICROBIOLOGY

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	AMB - 505	Microbiological Techniques	0+2
02	AMB - 510	Soil Microbiology	2+1
03	AMB – 511	Industrial Microbiology	1+1
04	AMB – 512	Biofertilizer Technology	1+1
05	AMB – 513	Biology and Production of Mycorrhizae	2+1
06	AMB - 515	Food Microbiology	2+1
TOTAL			15

AGRONOMY

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	AGR - 505	Agrometeorology and Crop Weather Forecasting	2+1
02	AGR - 514	Crop Growth and Yield Analysis	1+1
TOTAL			05

APICULTURE

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	API - 507	Honey and Bee Products	1+1
02	API - 508	Bee Pollination and Crop Production	1+1
TOTAL			04

CROP PHYSIOLOGY

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	CPH - 502	Principles of Plant Physiology – II Metabolic Processes and Growth Regulation	2+1
02	CPH - 508	Morphogenesis, Tissue Culture and Transformation	1+1
03	CPH - 512	Experimental Techniques in Plant Physiology	0+1
04	CPH - 513	Physiology of Woody Plants	2+0
TOTAL			08

ENVIRONMENTAL SCIENCE

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	EVS - 502	Biodiversity and Conservation	1+1
02	EVS - 505/AEC - 510/FOR - 506	Remote Sensing and GIS Application in Biodiversity Conservation	1+1
03	EVS - 511	Global Climate Change and Environment	2+0
TOTAL			06

FOOD SCIENCE AND NUTRITION

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	FSN - 502	Principles of Nutrition	3+0
02	FSN - 503	Food Analysis	1+2
TOTAL			06

PLANT BIOCHEMISTRY

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	BCM - 501	Basic Biochemistry	2+1
02	BCM - 505	Biochemical Techniques	1+2
TOTAL			06

SERICULTURE

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	SER - 506	Non-Mulberry Sericulture	1+1
TOTAL			02

FORESTRY (PLANTATION TECHNOLOGY)

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	FOR - 505	Forest Ecology and Biodiversity Conservation	2+1
02	FOR - 509	Tree Improvement	1+1
03	FOR - 517	Energy Plantations and Bio-fuels	1+1
TOTAL			07

AGRICULTURAL STATISTICS

SL NO	COURSE NO	COURSE TITLE	CREDIT HOURS
01	HST/AST - 501	Statistical Methods for Applied Sciences	1+1
02	HST/AST - 502	Experimental Designs	1+1
TOTAL			04


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