

## 1. Agricultural Economics

### M.Sc. Ag. (Agricultural Economics)

#### Core Courses (15 credits)

AEC 500	Micro Economic Theory and Applications	3(3-2-0)
AEC 501	Macro Economic Theory and Policy	3(3-2-0)
AEC 510	Elementary Econometrics	2(1-1-1)
AEC 515	Linear Programming Methods	2(1-1-1)
AEC 620	Agricultural Marketing and Price Analysis	2(1-1-1)
AEC 640	Agricultural Production Economics	2(1-1-1)
AEC 600	Master's Seminar	1

**Sub Total 15**

#### Basic Supporting Courses (6 credits)

BPM 501	Linear Algebra and Advanced Calculus	3
BPS 561	Statistical Methods	3

**Sub Total 6**

#### Optional/ Minor Courses (9 credits)

9

#### Thesis Research (20 credits)

AEC-690	Master's Thesis Research	20
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**Total 50**

## Ph.D. (Agricultural Economics)

#### Core Courses (12 credits)

AEC 700	Advanced Micro Economic Theory	2(2-2-0)
AEC 701	Advanced Macro Economic Theory	2(2-2-0)
AEC 710	Advanced Econometrics	3(2-0-1)
AEC 715	Operations Research for Agricultural Decisions	3(2-0-1)
AEC 788	Doctoral Seminar-I	1
AEC 789	Doctoral Seminar-II	1

**Total 12**

#### Basic Supporting Courses (3 credits)

BPS 577	Multivariate Analysis and Official Statistics	3(2-0-1)
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#### Optional Courses (5 credits)

5

#### Minor Courses (10 credits)

10

#### Thesis Research (45 credits)

AEC 790	Ph.D. Thesis Research	45
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**Total 75**

#### Compulsory Courses for Minor for Other Discipline

AEC 500	Micro Economic Theory and Applications	3
AEC 640	Agricultural Production Economics	2

### List of Post Graduate Courses of the Department

AEC-411	Economic Theory	3(2-0-1)
AEC-412	Agricultural Economics	3(2-0-1)
AEC-435	Farm Management Analysis	3(2-0-1)
AEC-500	Micro Economic Theory and Applications	3(3-2-0)
AEC-501	Macro Economic Theory and Policy	3(3-2-0)
AEC-510	Elementary Econometrics	2(1-1-1)
AEC-515	Linear Programming Methods	2(1-1-1)
AFS-526	Food Chemistry and Nutrition	3(3-0-0)
AFS-531	Food Microbiology	4(2-0-2)
AFS-541	Technology of Milk and Milk Products	3(2-0-1)
AFS-551	Technology of Meat, Fish and Poultry Products	3(2-0-1)
AFS-561	Technology of Cereals, Pulses and Oilseeds	3(2-0-1)
AFS-571	Technology of Fruits and Vegetables	3(2-0-1)
AFS-580	Food Plant Sanitation	3(2-0-1)
AFS-591	Food Packaging Technology	2(1-0-1)
AEC-600	Master's Seminar	1
AEC-620	Agricultural Marketing and Price Analysis	2(1-1-1)
AFS-623	Additives, Ingredients and Enzyme Technology	3(2-0-1)
AEC-640	Agricultural Production Economics	2(1-1-1)
AFS-685	Beverage and Snack Foods Technology	3(2-0-1)
AFS-686	Product Design and Development	2(2-0-0)
AEC-690	Masters' Thesis Research	20
AEC-700	Advanced Micro Economic Theory	2(2-2-0)
AEC-701	Advanced Macro Economic Theory	2(2-2-0)
AEC-710	Advanced Econometrics	3(2-0-1)
AFS-712	Modern Techniques in Food Processing	2(2-0-0)
AEC-715	Operations Research for Agricultural Decisions	3(2-0-1)
AFS-722	Advanced Food Chemistry	2(2-0-0)
AFS-733	Advances in Food Microbiology	2(1-0-1)
AFS-781	Advanced Food Analysis	2(0-0-2)
AEC-788	Doctoral Seminar-I	1
AEC-789	Doctoral Seminar-II	1
AEC-790	Ph.D. Thesis Research	45

**Note: Courses of 400 series are remedial courses of the department**

## 2. Agricultural Extension and Communication

### M.Sc. (Agricultural Extension and Communication)

#### Core Courses (19 credits)

AAC-530	Research Methods in Behavioural Sciences	3(2-0-1)
AAC-602	Foundations of Human Behaviour	3(2-0-1)
AAC-603	Fundamentals of Development Communication	3(2-0-1)
AAC-605	Perspectives of Distance Education	2(2-0-0)
AAC-635	Training for Human Resource Development	3(2-0-1)
AAC-650	Trends in Extension Education	2(2-0-0)
AAC-654	Diffusion and Adoption of Innovations	2(2-0-0)
AAC-600	Master's Seminar	1

**Sub Total 19**

#### Basic Supporting Courses (3 credits)

BPS-561	Statistical Methods	3(2-0-1)
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#### Optional/ Minor Courses (8 credits)

8

#### Thesis Research (20 credits)

AAC-690	Master's Thesis Research	20
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**Total 50**

## Ph.D. (Agricultural Extension and Communication)

#### Core Courses (14 credits)

AAC-666	Advanced Management Techniques	3(2-0-1)
AAC-703	Advances in Agricultural Extension	3(2-0-1)
AAC-706	Instructional Technology	3(2-0-1)
AAC-730	Advanced Design and Techniques in Social Science Research	3(2-0-1)
AAC-788	Doctoral Seminar-I	1
AAC-789	Doctoral Seminar-II	1

**Sub Total 14**

#### Basic Supporting Courses (3 credits)

BPS-671	Theory of Sampling	3(2-0-1)
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#### Optional Courses (3 credits)

3

#### Minor Courses (10 credits)

10

#### Thesis Research (45 credits)

AAC-790	Ph.D. Thesis Research	45
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**Total 75**

#### Compulsory courses for the minor of Ph. D. for Other Disciplines

BHS/AAC- 702	Foundations of Psychology	3(3-0-0)
BHS/AAC- 661	Dynamics of Social Change	2(2-0-0)

## List of Post Graduate Courses of the department

AAC-530	Research Methods in Behavioural Sciences	3(2-0-1)
AAC-600	Master's Seminar	1
AAC-601	Special Problem	1-2
AAC-602	Foundations of Human Behaviour	3(2-0-1)
AAC-603	Fundamentals of Development Communication	3(2-0-1)
AAC-604	Gender Sensitization for Development	3(2-0-1)
AAC-605	Perspectives of Distance Education	2(2-0-0)
AAC-606	Media Production and Management	3(2-0-1)
AAC-607	E-Extension	3(2-0-1)
AAC-608	Visual Communication	3(2-0-1)
AAC-610	Speech Communication	3(1-0-2)
AAC-611	Interpersonal Communication	3(1-0-2)
AAC-612	Communication Media and Information Technology	2(1-0-1)
AAC-620	Radio for Rural Development	3(1-0-2)
AAC-621	Video for Rural Development	3(1-0-2)
AAC-630	Photography for Development	3(1-0-2)
AAC-631	Field Publicity Methods	3(2-0-1)
AAC-632	Advertising and Publication Relation	3(2-0-1)
AAC-633	Folk and Traditional Media	2(2-0-0)
AAC-635	Training for Human Resource Development	3(2-0-1)
AAC-636	Managerial Skills for Extension Professionals	2(2-0-0)
AAC-640	Publication Editing and Production	3(1-0-2)
AAC-641	Agricultural Journalism	3(2-0-1)
AAC-642	Science Reporting	3(2-0-1)
AAC-643	Script Writing For Development Media	2(2-0-0)
AAC-650	Trends in Extension Education	2(2-0-0)
AAC-652	Rural Development Programme	2(2-0-0)
AAC/	Dynamics of Rural Leadership	2(2-0-0)
BHS-653		
AAC-654	Diffusion and Adoption of Innovations	2(2-0-0)
AAC-656	Teaching Methodology	2(1-0-1)
AAC-657	Youth Work in Agricultural Extension	2(2-0-0)
AAC-658	Agriculture Education	2(1-0-1)
AAC-659	Participatory Methods in Extension	2(1-0-1)
AAC-660	Communication Evaluation	3(2-0-1)
AAC/	Dynamics of Social Change	2(2-0-0)
BHS-661		
AAC-662	Sociology of Communication	2(2-0-0)
AAC-663	Organizational Communication	2(2-0-00)
AAC-665	Entrepreneurship Development and Management in Extension	3(2-0-1)
AAC-666	Advanced Management Techniques	3(2-0-1)
AAC-667	Writing Skills for Professional	2(1-0-1)
AAC-668	Presentation Skills	2(1-01)
AAC-669	Advances in Training Technology	3(2-0-1)
AAC-670	Market Led Extension Management	2(1-0-1)
AAC-671	Transfer of Technology in Agriculture	3(2-0-1)
AAC-672	Organizational Development	3(2-0-1)
AAC-690	Master's Thesis Research	20

AAC/ BHS-702	Foundation of Psychology	3(3-0-0)
AAC-703	Advances in Agricultural Extension	3(2-0-1)
AAC-706	Instructional Technology	3(2-0-1)
AAC-730	Advanced Design and Techniques in Social Science Research	3(2-0-1)
AAC-788	Doctoral Seminar-I	1
AAC-789	Doctoral Seminar-II	1
AAC-790	Ph.D. Thesis Research	45

### 3. Agrometeorology

#### M.Sc. Ag. (Agro meteorology)

##### Core Courses (13 credits)

AAM-503	Micrometeorology	3(2-0-1)
AAM-510	General Meteorology	3(3-1-0)
AAM-515	Applied Agricultural Climatology	3(2-0-1)
AAM-520	Agricultural Meteorology	3(2-0-1)
AAM-600	Master's Seminar	1
<b>Sub Total</b>		<b>13</b>

##### Basic Supporting Courses (7 credits)

BPP-534	Agro meteorological Measurements and Instrumentation	3(2-0-1)
BPS-661	Experimental Statistics	4(3-0-1)
<b>Sub Total</b>		<b>7</b>

##### Optional/ Minor Courses (10 credits)

10

##### Thesis Research (20 credits)

AAM-690	Master's Thesis Research	20
<b>Total</b>		<b>50</b>

### Ph.D. (Agro meteorology)

##### Core Courses (11 credits)

AAM-701	Climate Change and Sustainable Development	3(2-0-1)
AAM-706	Strategic Use of Climatic Information	3(2-0-1)
AAM-710	GIS: Principles and Applications	3(2-0-1)
AAM-788	Doctoral Seminar-I	1
AAM-789	Doctoral Seminar-II	1
<b>Sub Total</b>		<b>11</b>

##### Basic Supporting Courses (6 credits)

BPS-672	Mathematical Statistics	3(3-1-0)
APS-650	Soil Physics	3(2-0-1)
<b>Sub Total</b>		<b>6</b>

##### Optional Courses (3 credits)

3

##### Minor Courses (10 credits)

10

##### Thesis Research (45 credits)

AAM-790	Ph.D. Thesis Research	45
<b>Total</b>		<b>75</b>

##### Compulsory courses for Minor for Other Discipline

AAM-503	Micrometeorology	3(2-0-1)
AAM-510	General Meteorology	3(3-1-0)

### **List of Post Graduate Courses of the Department**

AAM-401	Principles of Agro-meteorology	3(2-0-1)
AAM-500	Principles of Remote Sensing	3(2-0-1)
AAM-503	Micrometeorology	3(2-0-1)
AAM-510	General Meteorology	3(3-1-0)
AAM-515	Applied Agricultural Climatology	3(2-0-1)
AAM-520	Agricultural Meteorology	3(2-0-1)
AAM-525	Hydrometeorology	3(2-0-1)
AAM-538	Forest Meteorology	3(2-0-1)
AAM-600	Master's Seminar	1
AAM-630	Crop Weather Models	3(2-0-1)
AAM-632	Evapo-transpiration	2(1-0-1)
AAM-640	Weather Forecasting and Agro-advisories	3(2-0-1)
AAM-650	Remote Sensing Applications in Agriculture	3(2-0-1)
AAM-655	Computer Applications in Agro meteorology	3(1-0-2)
AAM-690	Master's Thesis Research	20
AAM-701	Climate Change and Sustainable Development	3(2-0-1)
AAM-703	Air Pollution Meteorology	3(2-0-1)
AAM-704	Weather Climate and Livestock	3(2-0-1)
AAM-705	Analytical Tools and Methods for Agro meteorology	3(2-0-1)
AAM-706	Strategic Use of Climatic Information	3(2-0-1)
AAM-708	Database Management and Commercialization of Agro meteorological Data in E-services	3(1-0-2)
AAM-710	GIS: Principles and Applications	3(2-0-1)
AAM-715	Geo-information for Disaster Management	3(2-0-1)
AAM-720	Sustainable Natural Resource Management	3(2-0-1)
AAM-788	Doctoral Seminar-I	1
AAM-789	Doctoral Seminar-II	1
AAM-790	Ph.D. Thesis Research	45

**Note: Courses of 400 series are remedial courses of the department**

#### 4. Agronomy

##### M.Sc. Ag. (Agronomy)

###### Core Courses (13 credits)

APA-505	Principles and practices of soil fertility and nutrient management	4(3-0-1)
APA-521	Agronomy of <i>Kharif</i> crops	4(3-0-1)
APA-522	Agronomy of <i>Rabi</i> crops	4(3-0-1)
APA-600	Master's Seminar	1
<b>Sub Total</b>		<b>13</b>

###### Basic Supporting Courses (8 credits)

BPY-501	Principles of Plant Physiology	4(3-0-1)
BPS-661	Experimental Statistics	4(3-0-1)
<b>Sub Total</b>		<b>8</b>

###### Optional/ Minor Courses (9 credits)

###### Thesis Research (20 credits)

APA-690	Master's Thesis Research	20
<b>Total</b>		<b>50</b>

###### Compulsory courses for the minor of Master's for Other Disciplines

APA-521	Agronomy of <i>Kharif</i> Crops	4(3-0-1)
APA-522	Agronomy of <i>Rabi</i> Crops	4(3-0-1)

#### Ph.D. Agronomy

###### Core Courses (12 credits)

APA-616	Current Trends in Agronomy	3(3-0-0)
APA-703	Seed and Crop Physiology	4(3-0-1)
APA-704	Mineral Nutrition of Crop Plants	3(2-0-1)
APA-788	Doctoral Seminar-I	1
APA-789	Doctoral Seminar-II	1
<b>Sub Total</b>		<b>12</b>

###### Basic Supporting Courses (3 credits)

BPS-662	Advanced Experimental Design	3(2-0-1)
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###### Optional Courses (5 credits)

###### Minor Courses (10 credits)

###### Thesis Research (45 credits)

APA-790	Ph.D. Thesis research	45
<b>Total</b>		<b>75</b>

###### Compulsory courses for the minor of Ph. D. for Other Disciplines

APA-616	Current Trends in Agronomy	3(3-0-0)
APA-704	Mineral Nutrition of Crop Plants	3(2-0-1)

### List of Post Graduate Courses of the Department

APA-401	Elements of Crop Production**	3(2-0-1)
APA-402	Agro-techniques of Field Crops **	3(2-0-1)
APA-501	Modern Concepts in Crop Production	4(3-0-1)
APA-503	Principles and Practices of Weed Management	3(2-0-1)
APA-504	Principles and Practices of Water Management	3(2-0-)
APA-505	Principles and Practices of Soil Fertility and Nutrient Management	4(3-0-1)
APA-513	Principles and Practices of Organic Farming	3(2-0-1)
APA-521	Agronomy of <i>Kharif</i> Crops	4(3-0-1)
APA-522	Agronomy of <i>Rabi</i> Crops	4(3-0-1)
APA/	Medicinal, Aromatic and Under Utilized Crops	3(2-0-1)
APH-531		
APA-600	Master's Seminar	1
APA-603	Crop Production and System Modeling	3(2-0-1)
APA-604	Advances in Crop Growth and Productivity	3(2-0-1)
APA-606	Advances in Weed Management	2(2-0-0)
APA-608	Integrated Farming System for Sustainable Agriculture	2(2-0-0)
APA-609	Agrostology and Agroforestry	3(2-0-1)
APA-610	Crop Ecology	2(1-0-1)
APA-614	Soil Conservation and Watershed Management	3(2-0-1)
APA-615	Stress Crop Production	3(2-0-1)
APA-616	Current Trends in Agronomy	3(3-0-0)
APA-653	Precision Agronomy	3(2-0-1)
APA-690	Master's Thesis Research	20
AST-702	Seed Vigour	2(1-0-1)
APA-703	Seed and Crop Physiology	4(3-0-1)
APA-704	Mineral Nutrition of Crop Plants	3(2-0-1)
APA-788	Doctoral Seminar-I	1
APA-789	Doctoral Seminar-II	1
APA-790	Ph.D. Thesis Research	45

\*\* Courses are remedial course for non-Agriculture graduates.

## M.Sc. Forestry-Agroforestry

### Core Courses (13 credits)

APF-501	Silviculture	2(2-0-0)
APF-502	Forest Biometry	3(2-0-1)
APF-503	Forest Management	2(2-0-0)
APF-521	Agroforestry Systems	2(2-0-0)
APF-522	Soil and Water Management in Agroforestry	3(2-0-1)
APF-600	Master's Seminar	1
<b>Sub Total</b>		<b>13</b>

### Basic Supporting Courses (7 credits)

BPS- 661	Experimental statistics	4(3-0-1)
APS-705	Remote Sensing and GIS Techniques for Soil and Crop studies	3(2-0-1)
<b>Sub Total</b>		<b>7</b>

### Optional Courses (10 credits)

10

### Thesis Research (20 credits)

APF- 690	Master's Thesis Research	20
<b>Total</b>		<b>50</b>

### Compulsory Courses for minor for other Discipline

APF-522	Soil and Water Management in Agroforestry	3(2-0-1)
APF-622	Productivity of Agroforestry Systems	3(3-0-0)

### List of Post Graduate Courses of the Department

APF-501	Silviculture	2(2-0-0)
APF-502	Forest Biometry	3(2-0-1)
APF-503	Forest Management	2(2-0-0)
APF-504	Forest Products and Industries	3(2-0-1)
APF-505	Forest Ecology and Biodiversity Conservation	3(2-0-1)
APF-507	Forest Protection	2(1-0-1)
APF-509	Tree Improvement	2(1-0-1)
APF-510	Forest Nursery and Plantation Technology	2(1-0-1)
APF-521	Agroforestry Systems	2(2-0-0)
APF-522	Soil and Water Management in Agroforestry	3(2-0-1)
APF-600	Master's Seminar	1
APF-622	Productivity of Agroforestry Systems	3(3-0-0)
APF-690	Master's Thesis Research	20

## 5. Entomology

### M.Sc. Ag. (Entomology)

#### Core Courses (16 credits)

APE-501	Insect Morphology	2(1-0-1)
APE-502	Insect Anatomy, Physiology and Nutrition	3(2-0-1)
APE-507	Biological control of crop pests and weeds	2(1-0-1)
APE-508	Toxicology of insecticides	3(2-0-1)
APE-510	Principles of integrated pest management	2(1-0-1)
APE-553	Insect Taxonomy	3(2-0-1)
APE-600	Master's Seminar	1
<b>Sub Total</b>		<b>16</b>

#### Basic Supporting Courses (5 credits)

BPS-601	Experimental Statistics	4(3-0-1)
BHS-610	Storage and Retrieval of Scientific information	1(1-0-0)
<b>Sub Total</b>		<b>5</b>

#### Optional/ Minor Courses (9 credits)

9

#### Thesis Research (20 credits)

APE-690	Master's Thesis Research	20
<b>Total</b>		<b>50</b>

## Ph.D. (Entomology)

#### Core Courses (11 credits)

APE-705	Insect Behaviour	2(1-0-1)
APE-711	Molecular Approaches in Entomological Research	2(1-0-1)
APE-712	Advanced Integrated Pest Management	2(2-0-0)
APE-718	Entomological Technique	1(0-0-1)
APE-753	Insect Host Plant Relationship	2(1-0-1)
APE-788	Doctoral Seminar-I	1
APE-789	Doctoral Seminar-II	1
<b>Sub Total</b>		<b>11</b>

#### Basic Supporting Courses (6 credits)

BBC-501	General Biochemistry	3(3-0-0)
BMB-520	Fundamentals of Molecular Biology	3(3-0-0)
<b>Sub Total</b>		<b>6</b>

#### Optional Courses (3 credits)

3

#### Minor Courses (10 credits)

10

#### Thesis Research (45 credits)

APE-790	Ph.D. Research Thesis	45
<b>Total</b>		<b>75</b>

### **List of Post Graduate Courses of the Department**

APE-430	Pests of Field Crops and Stored Grains	3(2-0-1)
APE-431	Pests of Horticultural Crops	3(2-0-1)
APE-501	Insect Morphology	2(1-0-1)
APE-502	Insect Anatomy, Physiology and Nutrition	3(2-0-1)
APE-505	Insect Ecology	2(1-0-1)
APE-506	Insect Pathology	2(1-0-1)
APE-507	Biological control of crop pests and weeds	2(1-0-1)
APE-508	Toxicology of insecticides	3(2-0-1)
APE-510	Principles of integrated pest management	2(1-0-1)
APE-513	Storage Entomology	2(1-0-1)
APE-518	Techniques in Plant Protection	1(0-0-1)
APE-519	Commercial Entomology	2(1-0-1)
APE-553	Insect Taxonomy	3(2-0-1)
APE-600	Master's Seminar	1
APE-601	Special Problem	2
APE-614	Agricultural Zoology	2(1-0-1)
APE-690	Master's Thesis Research	20
APE-701	Advanced Insect Systematics	3(1+2)
APE-703	Advanced Insect Physiology	2(2-0-0)
APE-705	Insect Behaviour	2(1-0-1)
APE-706	Recent Trends in Biological Control	2(1-0-1)
APE-707	Advanced Insecticide Toxicology	3(2-0-1)
APE-711	Molecular Approaches in Entomological Research	2(1-0-1)
APE-712	Advanced Integrated Pest Management	2(2-0-0)
APE-718	Entomological Technique	1(0-0-1)
APE-753	Insect Host plant Relationship	2(1-0-1)
APE-788	Doctoral Seminar-I	1
APE-789	Doctoral Seminar-II	1
APE-790	Ph.D. Thesis Research	45

**Note: Courses of 400 series are remedial courses of the department**

## **6. Food Science and Technology**

### **M.Sc. (Food Technology)**

#### **Core Courses (11 credits)**

AFS-511	Principles of Food Processing	3(2-0-1)
AFS-526	Food Chemistry and Nutrition	3(3-0-0)
AFS-531	Food Microbiology	4(2-0-2)
AFS-600	Master's Seminar	1

**Sub Total 11**

#### **Basic Supporting Courses (9 credits)**

TPF- 644	Unit Operations in Food Process Engineering	3(2-0-1)
BBC-501	General Biochemistry	3(3-0-0)
BBM-500	General Microbiology	3(3-0-0)

**Sub Total 9**

#### **Optional/ Minor Courses (10 credits)**

10

#### **Thesis Research (20 credits)**

AFS-690	Master's Thesis Research	20
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**Total 50**

### **Ph.D. (Food Technology)**

#### **Core Courses (12 credits)**

AFS-686	Product Design and Development	2(2-0-0)
AFS-712	Modern Techniques in Food Processing	2(2-0-0)
AFS-722	Advanced Food Chemistry	2(2-0-0)
AFS-733	Advances in Food Microbiology	2(1-0-1)
AFS-781	Advanced Food Analysis	2(0-0-2)
AFS-788	Doctoral Seminar-I	1
AFS-789	Doctoral Seminar-II	1

**Sub Total 12**

#### **Basic Supporting Courses (3 credits)**

TPF-645	Food Processing Equipments and Plant Design	3(2-0-1)
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#### **Optional Courses (5 credits)**

5

#### **Minor Courses (10 credits)**

10

#### **Thesis Research (45 credits)**

AFS -790	Ph. D. Thesis Research	45
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**Total 75**

#### **Compulsory Courses for the Minor for Other Disciplines**

AFS 511	Principles of Food Processing	3(2-0-1)
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### List of Post Graduate Courses of the Department

AFS-511	Principles of Food Processing	3(2-0-1)
AFS-526	Food Chemistry and Nutrition	3(3-0-0)
AFS-531	Food Microbiology	4(2-0-2)
AFS-541	Technology of Milk and Milk Products	3(2-0-1)
AFS-551	Technology of Meat, Fish and Poultry Products	3(2-0-1)
AFS-561	Technology of Cereals, Pulses and Oilseeds	3(2-0-1)
AFS-571	Technology of Fruits and Vegetables	3(2-0-1)
AFS-580	Food Plant Sanitation	3(2-0-1)
AFS-582	Food Analysis and Quality management	3(1-0-2)
AFS-591	Food Packaging Technology	2(1-0-1)
AFS-600	Master's Seminar	1
AFS-601	Special Problems	1-2
AFS-623	Additives, Ingredients and Enzyme Technology	3(2-0-1)
AFS-685	Beverage and Snack Foods Technology	3(2-0-1)
AFS-686	Product Design and Development	2(2-0-0)
AFS-690	Master's Thesis Research	20
AFS-712	Modern Techniques in Food Processing	2(2-0-0)
AFS-722	Advanced Food Chemistry	2(2-0-0)
AFS-733	Advances in Food Microbiology	2(1-0-1)
AFS-741	Current Topics in Food Science and Technology	2(2-0-0)
AFS-781	Advanced Food Analysis	2(0-0-2)
AFS-788	Doctoral Seminar-I	1
AFS-789	Doctoral Seminar-II	1
AFS-790	Ph. D. Thesis Research	45

## 7. Genetics and Plant Breeding

### M.Sc. Ag. (Genetics and Plant Breeding)

#### Core Courses (17 credits)

AGP 520	Breeding Field Crops-I	2(1-0-1)
AGP 530	Breeding Field Crops-II	2(1-0-1)
AGP 540	Cell Biology, Molecular Genetics and Gene Regulation	3(3-0-0)
AGP 550	Principles of Cytogenetics	3(2-0-1)
AGP 560	Advanced Plant Breeding	3(3-0-0)
AGP 570	Principles of Quantitative Genetics	3(2-0-1)
AGP 600	Master's Seminar	1(1-0-0)

**Sub Total 17**

#### Basic Supporting Courses (4 credits)

BPS 661	Experimental Statistics	4(3-0-1)
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#### Optional/ Minor Courses (9 credits)

9

#### Master's Thesis Research (20 credits)

AGP 690	Master's Thesis Research	20
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**Total 50**

### Ph.D. (Genetics and Plant Breeding)

#### Core Courses (11 credits)

AGP 720	Advances in Plant Breeding Systems	2(2-0-0)
AGP 724	Genomics in Crop Improvement	2(2-0-0)
AGP 725	Molecular and Chromosomal Manipulation for Crop Breeding	2(2-0-0)
AGP 730	Advanced Biometrical and Quantitative Genetics	3(2-0-1)
AGP 788	Doctoral Seminar-I	1(1-0-0)
AGP 789	Doctoral Seminar-II	1(1-0-0)

**Sub Total 11**

#### Basic Supporting Courses (3 credits)

BPS 662	Advanced Experimental Designs	3(2-0-1)
AST 705	Advances in Seed Science Research	1(1-0-0)

**Sub Total 4**

#### Optional Courses (5 credits)

5

#### Minor Courses (10 credits)

10

#### Thesis Research (45 credits)

AGP 790	Ph.D. Thesis Research	45
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**Total 75**

### Compulsory Courses for Minor for Other Discipline

AGP 540	Cell Biology, Molecular Genetics and Gene Regulation	3(3-0-0)
AGP 560	Advanced Plant Breeding	3(3-0-0)

### List of Post Graduate Courses of the Department

AGP-411	Principles of Genetics	3(2-0-1)
AGP-421	Principles of Plant Breeding	3(3-0-0)
AGP 520	Breeding Field Crops-I	2(1-0-1)
AGP 530	Breeding Field Crops-II	2(1-0-1)
AGP 540	Cell Biology, Molecular Genetics and Gene Regulation	3(3-0-0)
AGP 550	Principles of Cytogenetics	3(2-0-1)
AGP 560	Advanced Plant Breeding	3(3-0-0)
AGP 570	Principles of Quantitative Genetics	3(2-0-1)
AGP 600	Master's Seminar	1(1-0-0)
AGP 601	Special Problem	1-2
AGP 610	Plant Genetic Resources and Crop Evolution	3(2-0-1)
AGP 622	Breeding for Biotic and Abiotic stress resistance	3(3-0-0)
AGP 624	Biotechnology for Crop Improvement	3(2-0-1)
AGP 625	Maintenance breeding, variety release and seed production	2(1-0-1)
AGP 630	Breeding for Crop Quality	2(1-0-1)
AGP 640	Heterosis breeding	2(1-0-1)
AGP 650	Mutagenesis and Mutation Breeding	2(2-0-0)
AGP 690	Master's Thesis Research	20
AGP 720	Advances in Plant Breeding Systems	2(2-0-0)
AGP 724	Genomics in Crop Improvement	2(2-0-0)
AGP 725	Molecular and Chromosomal Manipulation for Crop Breeding	2(2-0-0)
AGP 730	Advanced Biometrical and Quantitative Genetics	3(2-0-1)
AGP 788	Doctoral Seminar-I	1(1-0-0)
AGP 789	Doctoral Seminar-II	1(1-0-0)
AGP 790	Ph.D. Thesis Research	45

**Note: Courses of 400 series are remedial courses of the department**

**Ph.D. (Seed Science and Technology) (Multi-disciplinary programme)****Core Courses (8 credits)**

AST/AGP 701	Hybrid Seed Production	2(1-0-1)
AST/AGP 704	Seed Laws and DUS Testing for Plant Variety Protection	3(2-0-1)
AST 705	Advances in Seed Science Research	1(1-0-0)
AST 788	Doctoral Seminar-I	1(1-0-0)
AST 789	Doctoral Seminar-II	1(1-0-0)
<b>Total</b>		<b>8</b>

**Basic Supporting Courses (7 credits)**

BBC 501	General Biochemistry	3(3-0-0)
BBC 505	Basic Techniques in Biochemistry	1(0-0-1)
BPY 608	Seed Physiology	3(2-0-1)
<b>Total</b>		<b>7</b>

**Optional Courses (5 credits)**

5

**Minor Courses (10 credits)**

10

**Thesis Research (45 credits)**

AST 790	Ph.D. Thesis Research	45
<b>Total</b>		<b>75</b>

**Compulsory courses for the minor of Ph. D. for Other Disciplines**

AST 701	Hybrid Seed Production	2(1-0-1)
AST 704	Seed Laws and DUS Testing for Plant Variety Protection	3(2-0-1)

**List of Post Graduate Courses of the Department (Multi-disciplinary programme)**

APV 535	Seed Production Technology of Vegetable Crops	3(2-0-1)
AST 601	Special Problem*	1-2
BPY 608	Seed Physiology	3(2-0-1)
AGP 610	Plant Genetic Resources and Crop Evolution	3(2-0-1)
APP 615	Seed Health Testing	3(2-0-1)
AST/AGP 701	Hybrid Seed Production	2(1-0-1)
AST/ APA 702	Seed Vigour	2(1-0-1)
AST/ AEC 703	Seed Marketing and Management	2(1-0-1)
AST/AGP 704	Seed Laws and DUS Testing for Plant Variety Protection	3(2-0-1)
AST 705	Advances in Seed Science Research	1(1-0-0)
APP 710	Seed Health Technology	3(2-0-1)
AST 788	Doctoral Seminar-I*	1(1-0-0)
AST 789	Doctoral Seminar-II*	1(1-0-0)
AST 790	Ph.D. Thesis Research	45

\*course will be offered by the department of respective advisors

## 8. Horticulture

### M.Sc. Ag. (Horticulture)

#### Core Courses (13 credits)

APH-541	Tropical and dry land fruit production	3(2-0-1)
APH-542	Subtropical and Temperate fruit production	3(2-0-1)
APH-543	Biodiversity and conservation of fruit crops	3(2-0-1)
APH-546	Breeding of fruit crops	3(2-0-1)
APH-600	Master's Seminar	1(1-0-0)
<b>Sub Total</b>		<b>13</b>

#### Basic Supporting Courses (7 credits)

BPS-661	Experimental statistics	4(3-0-1)
APV-531	Production technology of cool season vegetable crops	3(2-0-1)
<b>Sub Total</b>		<b>7</b>

#### Optional Courses (10 credits)

10

#### Thesis Research (20 credits)

APH-690	Master's Thesis Research	20
<b>Total</b>		<b>50</b>

## Ph.D. Horticulture

### Core Courses (11 credits)

APH-741	Advances in breeding of fruit crops	3(2-0-1)
APH-742	Advances in production of fruit crops	3(2-0-1)
APH-743	Advances in growth regulation of fruit crops	3(2-0-1)
APH-788	Doctoral Seminar-I	1(1-0-0)
APH-789	Doctoral Seminar-II	1(1-0-0)
<b>Sub Total</b>		<b>11</b>

### Basic Supporting Courses (4 credits)

BBC-501	General biochemistry	3(3-0-0)
BBC-505	Basic techniques in biochemistry	1(0-0-1)
<b>Sub Total</b>		<b>4</b>

### Optional Courses (5 credits)

5

### Minor Courses (10 credits)

10

### Thesis Research (45 credits)

APH-790	Ph.D. Thesis Research	45
<b>Total</b>		<b>75</b>

### Compulsory Courses for Minor for Other Discipline

APH-541	Tropical and dry land fruit production	3(2-0-1)
APH-542	Subtropical and Temperate fruit production	3(2-0-1)

**M.Sc. Ag. Horticulture (Floriculture and Landscaping)****Core Courses (16 credits)**

APH-551	Breeding of flower crops and ornamental plants	3(2-0-1)
APH-552	Production technology of cut flowers	3(2-0-1)
APH-553	Production technology of loose flowers	3(2-0-1)
APH-554	Landscaping and ornamental gardening	3(2-0-1)
APH-557	Turfing and turf management	3(2-0-1)
APH-600	Master's Seminar	1(1-0-0)

**Sub Total 16****Basic Supporting Courses (4 credits)**

BPS-661	Experimental statistics	4(3-0-1)
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**Optional Courses (10 credits)**

10

**Thesis Research (20 credits)**

APH-690	Master's Thesis Research	20
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**Total 50****Ph.D. Horticulture (Floriculture and Landscaping)****Core Courses (11 credits)**

APH-751	Advances in breeding of flower crops	3(2-0-1)
APH-752	Advances in flower production technology	3(2-0-1)
APH-754	Advances in landscape architecture	3(2-0-1)
APH-788	Doctoral Seminar-I	1(1-0-0)
APH-789	Doctoral Seminar-II	1(1-0-0)

**Sub Total 11****Basic Supporting Courses (4 credits)**

BBC-501	General biochemistry	3(3-0-0)
BBC-505	Basic techniques in biochemistry	1(0+1)

**Sub Total 4****Optional Courses (5 credits)**

5

**Minor Courses (10 credits)**

10

**Thesis Research (45 credits)**

APH-790	Ph.D. Thesis Research	45
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**Total 75****Compulsory Courses for Minor for Other Discipline**

APH-552	Production Technology of Cut Flowers	3(2-0-1)
APH-553	Production Technology of Loose Flowers	3(2-0-1)

### List of Post Graduate Courses of the Department

APH-401	Introduction to Horticulture	3(2-0-1)
APH-412	Production of Fruit Crops	3(2-0-1)
APH-451	Production of Ornamental Crops	3(2-0-1)
APH-503	Systematic Horticulture	3(2-0-1)
APH-511	Plant Propagation and Nursery Husbandry	3(2-0-1)
APH-513	Orchard Management	3(2-0-1)
APH/APA-531	Medicinal aromatic and underutilized crops	3(2-0-1)
APH-541	Tropical and dry land fruit production	3(2-0-1)
APH-542	Subtropical and Temperate fruit production	3(2-0-1)
APH-543	Biodiversity and conservation of fruit crops	3(2-0-1)
APH-544	Canopy management in fruit crops	2(1-0-1)
APH-546	Breeding of fruit crops	3(2-0-1)
APH-551	Breeding of flower crops and ornamental plants	3(2-0-1)
APH-552	Production technology of cut flowers	3(2-0-1)
APH-553	Production technology of loose flowers	3(2-0-1)
APH-554	Landscaping and ornamental gardening	3(2-0-1)
APH-557	Turfing and turf management	3(2-0-1)
APH-600	Master's Seminar	1(1-0-0)
APH-601	Special Problem	1-2
APH-611	Growth and development of horticultural crops	3(2-0-1)
APH-655	Protected floriculture	3(2-0-1)
APH-656	Value addition in flowers	3(2-0-1)
APH-690	Master Thesis Research	20
APH-730	Nutrition of horticultural crops	3(2-0-1)
APH-731	Post harvest physiology of horticultural crops	3(2-0-1)
APH-741	Advances in breeding of fruit crops	3(2-0-1)
APH-742	Advances in production of fruit crops	3(2-0-1)
APH-743	Advances in growth regulation of fruit crops	3(2-0-1)
APH-751	Advances in breeding of flower crops	3(2-0-1)
APH-752	Advances in flower production technology	3(2-0-1)
APH-754	Advances in landscape architecture	3(2-0-1)
APH-788	Doctoral Seminar-I	1(1-0-0)
APH-789	Doctoral Seminar-II	1(1-0-0)
APH-790	Ph.D. Thesis Research	45

**Note: Courses of 400 series are remedial courses of the department**

## 9. Plant Pathology

### M.Sc. Ag. (Plant Pathology)

#### Core Courses (9 credits)

APP-604	Principles of Plant Pathology	3(3-0-0)
APP-605	Detection and Diagnosis of Plant Diseases	2(0-0-2)
APP-606	Principles of Plant Disease Management	3(2-0-1)
APP-600	Master's Seminar	1
<b>Sub Total</b>		<b>9</b>

#### Basic Supporting Courses (11 credits)

BBB-599	Mycology	3(2-0-1)
BHS 640	Storage and Retrieval of Scientific Information	1(1-0-0)
BPS-661	Experimental Statistics	4(3-0-1)
APP-611	Chemicals in Plant Disease Management	3(2-0-1)
<b>Sub Total</b>		<b>11</b>

#### Optional/ Minor Courses (10 credits)

10

#### Thesis Research (20 credits)

APP-690	Master's Thesis Research	20
<b>Total</b>		<b>50</b>

## Ph.D. (Plant Pathology)

#### Core Courses (13 credits)

APP-704	Molecular basis of Host Pathogen Interaction	3(2-0-1)
APP-712	Ecology of Soil borne Plant Pathogens	3(2-0-1)
APP-713	Disease Resistance in Plants	2(2-0-0)
APP-718	Epidemiology and Forecasting of Plant Diseases	3(2-0-1)
APP-788	Doctoral Seminar-I	1
APP-789	Doctoral Seminar-II	1
<b>Sub Total</b>		<b>13</b>

#### Basic Supporting Courses (2 credits)

APP- 607	Plant Biosecurity and Biosafety	2(2-0-0)
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#### Optional Courses (5 credits)

5

#### Minor package (10 credits)

10

#### Thesis Research (45 credits)

APP-790	Ph.D. Thesis Research	45
<b>Total</b>		<b>75</b>

## Compulsory Courses for Minor for Other Discipline

APP-604	Principles of Plant Pathology	3(3-0-0)
APP-606	Principles of Plant Disease Management	3(2-0-1)

### List of Post Graduate Courses of the Department

APP-401	Introductory Plant Pathology	3(2-0-1)
APP-410	Diseases of Field Crops	3(2-0-1)
APP-430	Diseases of Horticultural Crops	3(2-0-1)
APP-507	Disease of Field and Medicinal Plants	3(2-0-1)
APP-508	Disease of Fruits, Plantation and Ornamental Crops	3(2-0-1)
APP-509	Disease of Vegetable and Spice Crops	3(2-0-1)
APP/ENT- 514	Insects Vector of Plant Viruses and other Pathogens	2(1-0-1)
APP-515	Biological Control of Plant Diseases	3(2-0-1)
APP-516	Integrated Disease Management	3(2-0-1)
APP-517	Mushroom Production Technology	3(2-0-1)
APP-519	Post Harvest Disease	3(2-0-1)
APP/ENT-520	Plant Quarantine	2(2-0-0)
APP-600	Master's Seminar	1
APP-601	Special Problem	1
APP-602	Plant Virology	3(2-0-1)
APP-603	Plant Bacteriology	3(2-0-1)
APP-604	Principles of Plant Pathology	3(3-0-0)
APP-606	Principles of Plant Disease Management	3(2-0-1)
APP-607	Plant Biosecurity and Biosafety	2(2-0-0)
APP-611	Chemicals in Plant Disease Management	3(2-0-1)
APP-616	Advanced Plant Virology	3(2-0-1)
APP-617	Advanced Bacteriology	3(2-0-1)
APP-618	Principles and Procedures of Certification	1(1-0-0)
APP-622	Techniques in Phytonematology	1(0-0-1)
APP-624	Cultural & Chemical Control of Plant Parasitic Nematodes	2(1-0-1)
APP-630	Phytonematology	2(1-0-1)
APP-690	Master's Thesis Research	20
APP-704	Molecular Basis of Host Pathogen Interaction	3(2-0-1)
APP-710	Seed Health Technology	3(2-0-1)
APP-712	Ecology of Soilborne Plant Pathogen	3(2-0-1)
APP-713	Disease Resistance in Plants	2(2-0-0)
APP-718	Epidemiology and Forecasting of Plant Diseases	3(2-0-1)
APP-788	Doctoral Seminar I	1
APP-789	Doctoral Seminar II	1
APP-790	Ph.D. Thesis Research	45

**Note: Courses of 400 series are remedial courses of the department**

## 10. Soil Science

### M.Sc. Ag. (Soil Science)

#### Core Courses (14 credits)

APS-500	Soil Physics	3(2-0-1)
APS-516	Soil Fertility and Fertilizer Use	4(3-0-1)
APS-517	Soil Chemistry	3(2-0-1)
APS-518	Soil Biology and Biochemistry	3(2-0-1)
APS-600	Master's Seminar	1
<b>Sub Total</b>		<b>14</b>

#### Basic Supporting Courses (7 credits)

BPS-661	Experimental Statistics	4(3-0-1)
BPC-641	Physical Chemistry	3(2-0-1)
<b>Sub Total</b>		<b>7</b>

#### Optional/ Minor Courses (9 credits)

9

#### Thesis Research (20 credits)

APS-690	Master's Thesis Research	20
<b>Total</b>		<b>50</b>

## Ph.D. (Soil Science)

### Core Courses (9 credits)

APS-710	Advances in Soil Physics	2(2-0-0)
APS-720	Advances in Soil Fertility	2(2-0-0)
APS-730	Biochemistry of Soil Organic matter	2(2-0-0)
APS-620	Land degradation and restoration	1(1-0-0)
APS-788	Doctoral Seminar-I	1
APS-789	Doctoral Seminar-II	1
<b>Sub Total</b>		<b>9</b>

### Basic Supporting Courses (6 credits)

BPC-614	Spectroscopic and chromatographic techniques	3(2-0-1)
BPS-662	Advanced Experimental design	3(2-0-1)
<b>Sub Total</b>		<b>6</b>

### Optional Courses (5 credits)

5

### Minor Courses (10 credits)

10

### Thesis Research (45 credits)

APS-790	Ph.D. Thesis Research	45
<b>Total</b>		<b>75</b>

## Compulsory Courses for Minor for Other Discipline

APS-500	Soil Physics	3(2-0-1)
APS-515	Analytical techniques and Instrumental methods in Soil and Plant analysis	2(0-0-2)
APS-516	Soil Fertility and Fertilizer use	4(3-0-1)

### **List of Post Graduate Courses of the Department**

APS-401	Basics of Soil Science	3(2-0-1)
APS-430	Soil Survey	3(2-0-1)
APS-468	Soil Testing & Fertilizer Recommendation	2(1-0-1)
APS-500	Soil Physics	3(2-0-1)
APS-515	Analytical Techniques and Instrumental methods in soil and Plant Analysis	2(0-0-2)
APS-516	Soil Fertility and Fertilizer Use	4(3-0-1)
APS-517	Soil Chemistry	3(2-0-1)
APS-518	Soil Biology and Biochemistry	3(2-0-1)
APS-519	Soil Mineralogy, Genesis, Classification and Survey	3(2-0-1)
APS-580	Soil Erosion and Conservation	3(3-0-0)
APS-600	Master's Seminar	1(0-0-1)
APS-601	Special Problem	2(0-2-2)
APS-610	Management of Problematic Soils and Waters	3(2-0-1)
APS-620	Land degradation and restoration	1(1-0-0)
APS-640	Soil-Plant-Microbe relationship	2(2-0-1)
APS-690	Master's Thesis Research	20
APS-705	Remote Sensing and GIS Techniques for Soil and Crop Studies	3(2-0-1)
APS-710	Advances in Soil Physics	2(2-0-0)
APS-715	Mineralogy of Soil	3(2-0-1)
APS-720	Advances in Soil Fertility	2(2-0-0)
APS-730	Biochemistry of Soil Organic matter	2(2-0-0)
APS-788	Doctoral Seminar-I	1
APS-789	Doctoral Seminar-II	1
APS-790	Ph.D. Thesis Research	45

**Note: Courses of 400 series are remedial courses of the department**

## 11. Vegetable Science

### M.Sc. (Vegetable Science)

#### Core Courses (18 credits)

APV 502	Breeding of Self-pollinated Vegetable Crops	3(2-0-1)
APV 504	Breeding of Cross-pollinated Vegetable Crops	3(2-0-1)
APV 531	Production Technology of Cool Season Vegetable Crops	3(2-0-1)
APV 532	Production Technology of Warm Season Vegetable Crops	3(2-0-1)
APV 534	Production Technology of Spices	2(2-0-0)
APV 535	Seed Production Technology of Vegetable Crops	3(2-0-1)
APV 600	Master's Seminar	1

**Sub Total 18**

#### Basic Supporting Courses (4 credits)

BPS 661	Experimental Statistics	4(3-0-1)
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#### Optional/ Minor Courses (8 credits)

8

#### Thesis Research (20 credits)

APV 690	Master's Thesis Research	20
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**Total 50**

### Ph. D. (Vegetable Science)

#### Core Courses (11 credits)

APV 721	Advances in Vegetable Production	3(2-0-1)
APV 722	Advances in Breeding of Vegetable Crops	3(2-0-1)
APV 723	Protected Cultivation of Vegetable Crops	3(2-0-1)
APV 788	Doctoral Seminar-I	1
APV 789	Doctoral Seminar-II	1

**Sub Total 11**

#### Basic Supporting Courses (6 credits)

BBC 501	General Biochemistry I	3(3-0-0)
BMB 650	Crop Biotechnology	3(2-0-1)

**Sub Total 6**

#### Optional Courses (3 credits)

3

#### Minor Courses (10 credits)

10

#### Thesis Research (45 credits)

APV 790	Ph.D. Thesis Research	45
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**Total 75**

### **List of Post Graduate Courses of the Department**

APV-412	Vegetable Crops	3(2-0-1)
APV 502	Breeding of Self-pollinated Vegetable Crops	3(2-0-1)
APV 504	Breeding of Cross-pollinated Vegetable Crops	3(2-0-1)
APV 506	Systematics of Vegetable Crops	2(1-0-1)
APV 507	Production Technology of Un-exploited Vegetable Crops	2(1-0-1)
APV 508	Organic Vegetable Production Technology	2(1-0-1)
APV 531	Production Technology of Cool Season Vegetable Crops	3(2-0-1)
APV 532	Production Technology of Warm Season Vegetable Crops	3(2-0-1)
APV 534	Production Technology of Spices	2(2-0-0)
APV 535	Seed Production Technology of Vegetable Crops	3(2-0-1)
APV 536	Biodiversity and Conservation of Vegetable Crops	2(1-0-1)
APV 600	Masters Seminar	1
APV 601	Special Problem	1-2
APV 606	Abiotic Stress Management in Vegetable Crops	3(2-0-1)
APV 690	Master's Thesis Research	20
APV 721	Advances in Vegetable Production	3(2-0-1)
APV 722	Advances in Breeding of Vegetable Crops	3(2-0-1)
APV 723	Protected Cultivation of Vegetable Crops	3(2-0-1)
APV 788	Doctoral Seminar-I	1
APV 789	Doctoral Seminar-II	1
APV 790	Ph.D. Thesis Research	45

**Note: Courses of 400 series are remedial courses of the department**