# M.Sc. Ag. (Genetics and Plant Breeding)
## Syllabus Scheme Semester Wise

## Semester I

| SN | Course Code | Course Title | Credit hours |
|---|---|---|---|
| | **Major Compulsory Courses** | | |
| 1 | GPB-501 | Principles of Genetics | (2+1) = 3 |
| 2 | GPB-502 | Principles of Plant Breeding | (2+1) = 3 |
| | **Major Optional Courses** | | |
| 1 | GPB-505 | Principles of Cytogenetics | (2+1) = 3 |
| 2 | GPB-508 | Mutagenesis and Mutation Breeding | (2+1) = 3 |
| 3 | GPB-511 | Crop Breeding-I *(Kharif* Crops) | (2+1) = 3 |
| | **Note-Student has to select minimum of three credits in optional courses from the above list in this semester.** | | |
| | **#Minor courses** | | |
| | | **Note-Student has to select minimum of 03 credits in minor courses from the below list in this semester** | |
| | **Compulsory Non-Credit Courses (Common Courses)** | | |
| 1 | PGS-501 | Library and Information Services | (0+1) = 1 |
| 2 | PGS-502 | Technical Writing and Communications Skills | (0+1) = 1 |
| | **Master's Research** | | |
| 1 | GPB-599 | Master's Research | (0+2) = 2 |
| | **Total** | **9+3+2+2** | **16** |

**#Minor courses**

| SN | Course Code | Course Title | Credit hours |
|---|---|---|---|
| 1 | PL PATH-505 | Principles of Plant Pathology | (2+1) = 3 |
| 2 | MBB 501 | Principles of Biotechnology | (3+0) = 3 |
| 3 | VSC-504 | Principles of Vegetable Breeding | (2+1) = 3 |
| 4 | ENT-505 | Biological Control of Insect Pests and Weeds | (2+1) = 3 |

# Semester II

| SN | Course Code | Course Title | Credit hours |
|---|---|---|---|
| | **Major Compulsory Courses** | | |
| 1 | GPB-503 | Fundamentals of Quantitative Genetics | (2+1) = 3 |
| | **Major Optional Courses** | | |
| 1 | GPB-509 | Hybrid Breeding | (2+1) = 3 |
| 2 | GPB-512 | Crop Breeding-II *(Rabi* Crops) | (2+1) = 3 |
| 3 | GPB-516 | Breeding for Stress Resistance and Climate Change | (2+1) = 3 |
| | **Note-Student has to select minimum of 03 credits in optional courses from the above list in this semester.** | | |
| | **#Minor courses** | | |
| | | **Note-Student has to select minimum of 03 credits in minor courses from the below list in this semester.** | |
| | **Supporting courses** | | |
| 1 | STAT-511 | Experimental Designs | (2+1) = 3 |
| 2 | AGRON-508 | Agronomy of Medicinal, Aromatic & Underutilized Crops | (2+1) = 3 |
| 3 | MBB 503 | Molecular Cell Biology | (3+0) = 3 |
| 4 | MBB 504 | Techniques in Molecular Biology I | (3+0) = 3 |
| 5 | BIOCHEM-501 | Basic Biochemistry | (3+1) = 4 |
| | **Note-Student has to select minimum of three credits in supporting courses from the above list in this semester.** | | |
| | **Compulsory Non-Credit Courses (Common Courses)** | | |
| 1 | PGS-503 | Intellectual Property and Its Management in Agriculture | (1+0) = 1 |
| 2 | PGS-504 | Basic Concepts in Laboratory Techniques | (0+1) = 1 |
| | **Master's Research** | | |
| 1 | GPB-599 | Master's Research | (0+3) = 3 |
| | **Total** | **6+3+3+2+3 Or 6+3+4+2+3** | **17 Or 18** |

**#Minor courses**

| SN | Course Code | Course Title | Credit hours |
|---|---|---|---|
| 1 | PL PATH-507 | Principles of Plant Disease Management | (2+1) = 3 |
| 2 | MBB 507 | Techniques in Molecular Biology II | (0+3) = 3 |
| 3 | VSC-508 | Seed Production of Vegetable Crops | (2+1) = 3 |
| 4 | ENT-510 | Pests of Horticultural and Plantation Crops | (2+1) = 3 |

# Semester III

| SN | Course Code | Course Title | Credit hours |
|---|---|---|---|
| | **Major Compulsory Courses** | | |
| 1 | GPB-506 | Molecular Breeding and Bioinformatics | (2+1) = 3 |
| | **Major Optional Courses** | | |
| 1 | GPB-504 | Varietal Development and Maintenance Breeding | (1+1) = 2 |
| 2 | GPB-510 | Seed Production and Certification | (1+1) = 2 |
| 3 | GPB-517 | Germplasm Characterization and Evaluation | (1+1) = 2 |
| | **Note-Student has to select minimum of 02 credits in optional courses from the above list in this semester.** | | |
| | **#Minor courses** | | |
| | | **Note-Student has to select minimum of 02 credits in minor courses from the below list in this semester.** | |
| | **Supporting courses** | | |
| 1 | Soil-509 | Remote Sensing and GIS Technique for Soil and Crop Studies | (2+1) = 3 |
| 2 | AGRON-501 | Modern Concepts in Crop Production | (3+0) = 3 |
| 3 | MBB 515 | Environmental Biotechnology | (3+0) = 3 |
| 4 | MBB 504 | Techniques in Molecular Biology I | (3+0) = 3 |
| 5 | BIOCHEM-501 | Basic Biochemistry | (3+1) = 4 |
| | **Note-Student has to select minimum of three credits in supporting courses from the above list in this semester.** | | |
| | **Compulsory Non-Credit Courses (Common Courses)** | | |
| 1 | PGS-505 | Agricultural Research, Research Ethics and Rural Development Programmes | (1+0) =1 |
| | **Master's Seminar** | | |
| 1 | GPB-591 | Master's Seminar | (1+0) = 1 |
| | **Master's Research** | | |
| 1 | GPB-599 | Master's Research | (0+5) = 5 |
| | **Total** | **5+2+3+1+1+5 Or 5+3+3+1+1+5 Or 5+2+4+1+1+5 Or 5+3+4+1+1+5** | **17 Or 18 Or 19** |

**#Minor courses**

| SN | Course Code | Course Title | Credit hours |
|---|---|---|---|
| 1 | PL. PATH.-514 | Integrated Disease Management | (2+1) = 3 |
| 2 | MBB 504 | Techniques in Molecular Biology I | (3+0) = 3 |
| 3 | VSC-511 | Organic Vegetable Production | (1+1) = 2 |
| 4 | MBB 511 | Molecular Plant Breeding | (2+1) = 3 |
| 5 | MBB 508 | Introduction to Bioinformatics | (2+1) = 3 |
| 6 | ENT-508 | Concepts of Integrated Pest Management | (2+0) = 2 |

# Semester IV

| SN | Course Code | Course Title | Credit hours |
|---|---|---|---|
| | **Master's Research** | | |
| 1 | GPB-599 | Master's Research | (0+20) = 20 |
| | **Total** | **0+20** | **20** |
| | **Grand Total** | **20+8+6+5+1+30 Or 20+9+6+5+1+30 Or 20+8+7+5+1+30 Or 20+9+7+5+1+30** | **70 Or 71 Or 72** |