



**Faculty of Agricultural Sciences (IAS)
Siksha 'O' Anusandhan, Deemed to be University**

M. Sc. (Ag.) in Plant Pathology

Programme Outcome:

- Enriched knowledge on recent developments in soil and crop management with respect to improvement and productivity, water and nutrient management and their interaction with integrated approach and the disease and pest management in integrated manner. The economic indices on package of practices develop and their transfer to farmers makes the students eligible for advanced studies at doctoral level.
- With specialized knowledge in a particular discipline of agricultural sciences, the students are worth to be absorbed in different fields of academics, research and extension under different organizations.
- Agriculture being the applied science, the skills as developed in the fields of crop improvement, crop production, crop protection and social science fields makes the students an asset for taking up the assignments both at organizational and field level.
- The knowledge, skill and expertise gained during the `study of course curriculum provides an opportunity to take up entrepreneurships holistically as a joint venture.

Programme Specific Objectives:

1. To diagnose diseases of different crops and identify their possible cause.
2. To formulate management strategies for effective and eco-friendly disease management.
3. To develop new techniques for production of mushroom.
4. To identify and mass multiplication of beneficial micro-organisms for sustainable agriculture.
5. To emphasize on disease epidemiology and development of disease forecasting models.
6. To impart training on various methods, laboratory techniques and acquaint with instruments for in depth study of agriculturally important micro-organism.

Programme Specific Outcomes (PSO):

1. Diagnosis of disease to save heavy loss of crop.
2. Development of disease management strategies for effective, economic and eco-friendly management of the crop using IDM tools.

3. Modelling of different diseases for early detection.
4. Development of skills of mushroom cultivation for entrepreneurial activity.
5. Mass multiplication of beneficial micro-organism for sustainable agriculture which also provide entrepreneurship.
6. Encourages higher studies and helpful for solving plant protection issues at field level.

Pl. Path 501 MYCOLOGY 2+1

Objective

To study the nomenclature, classification and characters of fungi.

Out come

- Knowledge on importance of fungus in agriculture and human welfare.
- Knowledge on morphology, character and classification of fungus.
- Enable students to identify of plant pathogenic fungi which is helpful for job creation.

Pl Path 502 PLANT VIROLOGY 2+1

Objective

To acquaint with the structure, virus-vector relationship, biology and management of plant viruses.

OUTCOME

- Knowledge on structure, virus-vector relationship, biology of virus.
- Provide knowledge on management of plant viruses.
- Enable students to know method of raising antisera, serological tests.
- Knowledge on handling electron microscopy, ultratomy and PCR.

Pl Path 503 PLANT BACTERIOLOGY 2+1

Objective

To acquaint with plant pathogenic prokaryote and their structure, nutritional requirements, survival and dissemination.

OUTCOME

- Provide knowledge on plant pathogenic prokaryote (procarya) and their structure, nutritional requirements
- Student will know about survival and dissemination.
- Develop skills on Isolation, purification, identification and host inoculation and isolation techniques.

- Acquire knowledge about use of antibacterial chemicals/antibiotics.

PI Path 504 PRINCIPLES OF PLANT PATHOLOGY 3+0

Objective

To introduce the subject of Plant Pathology, its concepts and principles.

OUTCOME

- Knowledge on strategies for management of plant diseases.
- Knowledge on disease cycle and role of environment on disease development.
- Student will know about pathogenesis.

PL PATH 505 PRINCIPLES OF PLANT DISEASE MANAGEMENT 2+1

Objectives

To acquaint with different strategies for management of plant diseases.

Outcome

- Knowledge on different strategies of disease management will helpful for managing disease at field level.
- Student will know about different method of chemical application.
- Knowledge on sprayer and duster helpful to reduce apply accurate amount of chemicals in the field without any loss.

PL PATH 506 DISEASES OF FIELD AND MEDICINAL CROPS 2+1

Objective

To educate about the nature, prevalence, etiology, factors affecting disease development and control measures of field and medicinal crop diseases.

OUTCOME

- Understanding of nature, prevalence, etiology, factors affecting disease development.
- Knowledge on Symptoms and Management of field and medicinal crop diseases.
- Acquire the knowledge of collection and dry preservation of diseased specimens.

PL PATH 507 INSECT VECTORS OF PLANT VIRUSES AND 1+1
OTHER PATHOGENS

Objective

To teach the students about the different groups of insects that vector plant pathogens, vector-plant pathogen interaction, management of vectors for controlling diseases.

OUTCOME

- Knowledge on different groups of insects that vector plant pathogens, vector-plant pathogen interaction.
- To acquire knowledge about management of vectors for controlling diseases.
- Development of skill for identification of common vectors of plant pathogens.

PL PATH 508 INTEGRATED DISEASE MANAGEMENT 2+1

Objective

To emphasize the importance and need of IDM in the management of diseases of important crops.

OUTCOME

- Knowledge on integrated disease management strategies of important crops.
- To acquaint the student about principles, concept, tools, limitations and implications of IDM.
- To acquire knowledge about application of various chemicals, biocontrol agents and cultural methods in integrated disease management.

PL PATH 509 MUSHROOM PRODUCTION TECHNOLOGY 2+1

Objective

To develop mushroom cultivation skills for entrepreneurial activity. Historical development of mushroom cultivation and present status of mushroom industry in India.

OUTCOME

- Basic knowledge on mushroom, structure, classification, life cycle and uses.
- Knowledge on Preparation of mother culture, spawn, substrate etc will helpful to generate income.
- Acquired information on composting of spent mushroom substrate.
- Development of ideas on suitable conditions for growing mushroom.
- Knowledge about economics and constraints of mushroom cultivation.

PL PATH 510 EPIDEMIOLOGY AND FORECASTING OF PLANT DISEASES 2+1

Objective

To acquaint with the principles of epidemiology and its application in disease forecasting.

Outcome

- Knowledge on principles of epidemiology and its application in disease forecasting.
- Measuring diseases, spore dispersal and trapping, weather recording.
- Knowledge on computerized data analysis, function fitting, model preparation and validation.

PL PATH 511

DISEASES OF FRUITS, PLANTATION AND ORNAMENTAL CROPS

2+1

Objective

To acquaint with diseases of fruits, plantation, ornamental plants and their management.

Outcome

- Knowledge on diseases of fruits, plantation, ornamental plants
- Knowledge on type of pathogen responsible, epidemiology and their management.
- Student will know about symptoms and host parasite relationship
- Knowledge about Collection and dry preservation of diseased specimens.

PL PATH 512

DISEASES OF VEGETABLE AND SPICE CROPS

2+1

Objective

To impart knowledge about symptoms, epidemiology of different diseases of vegetables and spices and their management.

Outcome

- Knowledge about symptoms different diseases of vegetables and spices
- Student will know about pathogen responsible for the disease and their management.
- Knowledge on host pathogen interaction of important diseases of vegetable and spice crops.

PL PATH 513

CHEMICALS IN PLANT DISEASE MANAGEMENT

2+1

Objective

To impart knowledge on the concepts, principles and judicious use of chemicals in plant disease management.

Outcome

- Knowledge on the concepts, principles and classification of different chemicals that is used for disease management.

- Familiarization with different formulation of different fungicides
- Student will know about different plant protection appliances
- Provides knowledge on various evaluation techniques, Persistence and economics.
- Knowledge on handling and storage as well as precautions to be taken while using fungicides.
- Student will know about various methods of application of fungicide

PL PATH 514 ECOLOGY OF SOIL-BORNE PLANT PATHOGENS 2+1

Objective

To provide knowledge on soil-plant disease relationship.

Outcome

- Knowledge on soil-plant disease relationship.
- Knowledge on Quantification of rhizosphere and rhizoplane microflora
- Student will know about isolation and identification of different biocontrol agents.
- Knowledge on potentiality of biocontrol agents against management of soil borne disease.

PL PATH 515 DISEASE RESISTANCE IN PLANTS 2+0

Objective

To acquaint with disease resistance mechanisms in plants.

Outcome

- Knowledge on disease resistance mechanisms in plants.
- Knowledge on identification of physiological races of pathogens.
- It will enable student to know about management of resistant gene for development of resistant varieties.

PL PATH 516 BIOLOGICAL CONTROL OF PLANT DISEASES 2+1

Objective

To study principles and application of ecofriendly and sustainable management strategies of plant diseases.

Outcome

- It will enable the students about Isolation, characterization and maintenance of antagonists .
- It will be helpful for students to know about different method of application of antagonists against pathogen in vitro and in vivo conditions.

- It will enable students to produce antagonists in commercial scale for empowering organic farming.
- Knowledge on quality control system will helpful to register new microbial pesticides.

PL PATH 517 POST HARVEST DISEASES 2+1

Objective

To acquaint with post-harvest diseases of agricultural produce and their ecofriendly management.

Outcome

- Knowledge on post-harvest diseases of agricultural produce and their ecofriendly management.
- Student will know about Comparative efficacy of different chemicals, phytoextracts and biocontrol agents.
- Student will know how to improve the shelf life of agricultural produce.
- Knowledge of Codex Alimentarius for each product and commodity will helpful for export of produce.
- Application and monitoring of health hazard due to toxin produce by fungi.

SUPPORTING COURSES

PL PATH 518 DETECTION AND DIAGNOSIS OF PLANT DISEASES 0+2

Objective

To impart training on various methods/techniques/instruments used in the study of plant diseases/pathogens.

Outcome

- Acquaintance with different laboratory instruments and basic lab techniques.
- Knowledge on preservation of plant pathogens and disease specimens.
- Knowledge on disease diagnosis using serological and molecular techniques.
- Provide knowledge on various methods to evaluate fungicide, bactericide etc.
- Student will know about layout, field experiments, data collection and preparation of references.

PL PATH 519 SEED HEALTH TECHNOLOGY 2+1

Objective

To acquaint with seed-borne diseases, their nature, detection, transmission, epidemiology, impacts/loses and management.

Outcome

- Knowledge on Morphology and anatomy of seed.
- Student will know about disease development in seed, seed borne pathogens and factors influencing their transmission.
- Provide knowledge on forecasting of epidemics through seed borne infection.
- Knowledge on different aspects of seed certifications.
- Development of techniques for seed testing.

PL PATH 520

PLANT QUARANTINE

2+0

Objective

To acquaint the learners about the principles and the role of Plant Quarantine for containment of exotic pests and diseases, international and domestic plant quarantine regulations and set-up.

Outcome

- Knowledge on rules and regulations of quarantine and safety measures to be taken during movement of agricultural products.
- Knowledge on invasive alien pest and diseases and damage cause by them.
- Provided information regarding good laboratory practices for pesticide laboratories and pesticide industry.
- Symptomatic diagnosis and other techniques to detect pest/pathogen infestations.
- Learned techniques to disinfect the infected material.

SST-507 SEED QUALITY TESTING

3(2+1)

Objective

To provide a comprehensive knowledge on all aspects of seed quality evaluation and their relevance to crop performance.

Outcome

- Knowledge on Seed structure and quality will provide basic idea to students.
- Seed testing will helpful to get test quality seed for farmers.

- It will enable the students to know about the health of seed and management can be taken accordingly.

STAT-510 EXPERIMENTAL DESIGNS 2+1

Objective

- I. This course is meant for students of agricultural and animal sciences other than Statistics.
- II. Designing an experiment is an integrated component of research in almost all sciences.
- III. The students would be exposed to concepts of Design of Experiments.

Outcome

- I. It will enable them to understand the concepts involved in planning, designing their experiments and analysis of experimental data.
- II. The knowledge of design will significantly affect about pair-wise comparison of treatments.
- III. The inference about certain treatment from the pair-wise comparison will cost less with more output.
- IV. Varietal development leads for job creation.

EN-507 Biological Control of crop pests and weeds 2(1+1)

Objective

To train the students with theory and practice of biological control, mass production techniques and field evaluation of various biological control agents like parasitoids, predators and various entomopathogenic microorganisms.

Outcome:

- Students will know the importance and basic knowledge of biocontrol
- Students will be trained with mass production techniques and field evaluation of different bioagents.
- Knowledge on identification of common natural enemies of crop pests (parasitoids, predators, microbes) and weed killers, field collection of parasitoids and predators. Hands-on training in culturing, identification of common insect pathogens

EN- 511 Pests of Field Crop 2(1+1)

Objective

To familiarize the students about nature of damage and seasonal incidence of insect pests that cause loss to major field crops and their effective management by different methods.

Outcome

- Students will be able to identify the different harmful insect pests of different field crops and estimation of infestation and losses in different crops
- Students will know about the integrated management tools and techniques to manage the insect pests

EN-513

Storage Entomology

2(1+1)

Objective: To focus on requirement and importance of grain and grain storage, to understand the role of stored grain pests and to acquaint with various stored grain pest management techniques for avoiding losses in storage.

Outcome

- Students will be familiarized with the stored grains/seed insect pests and nature of damage caused by them; detection of insect infestation in stored food grains;
- Estimation of losses in stored food grains; determination of moisture content in stored food grains; familiarization of storage structures, demonstration of preventive and curative measures

PGS 501

LIBRARY AND INFORMATION SERVICES

1(0+1)

Objective

To equip the library users with skills to trace information from libraries efficiently, to apprise them of information and knowledge resources, to carry out literature survey, to formulate information search strategies, and to use modern tools (Internet, OPAC, search engines etc.) of information search.

Outcome:

1. Identify library services and availability of resources in order to develop a realistic overall plan for research to achieve a manageable focus appropriate to the assignment criteria, available resources, and evidence needed to support thesis.
2. Identify keywords, synonyms and related terms in order to flexible search information resources including: Internet, electronic library catalogs and print materials.

3. Identify the range of information source types available (such as peer-reviewed journals), newspaper articles, books, reference sources, etc) their distinguishing characteristics and intended audience, in order to select those appropriate based on the information need.
4. Identify the features and content of different research tools (such as database, catalogs and websites) in order to search those most appropriate to the information need.

PGS 502 TECHNICAL WRITING AND COMMUNICATIONS SKILLS 1(0+1)

Objective

To equip the students/scholars with skills to write dissertations, research papers, etc.

To equip the students/scholars with skills to communicate and articulate in English (verbal as well as writing). While the emphasis will be on writing, oral communication of scientific and technical information will form an important component of the course, as well.

Outcomes

By the end of this course students will be able to

- Develop skills that will enable to produce clear and effective scientific and technical documents.
- Use visual items in effectively constructing meaning in communication situations.
- Create clear, concise technical documents that effectively use style and grammar and information structure in ways that create meaning with the reader.
- Collaborate effectively in various writing situations, including planning, creating, and managing, evaluating, editing and revising document production

PGS 503 (e-Course) INTELLECTUAL PROPERTY AND ITS MANAGEMENT IN AGRICULTURE 1(1+0)

Objective

The main objective of this course is to equip students and stakeholders with knowledge of intellectual property rights (IPR) related protection systems, their significance and use of IPR as a tool for wealth and value creation in a knowledge-based economy.

Outcome:

1. Exposure to various types intellectual property rights.
2. Idea on various acts and organization related to IPR.

3. Knowledge on protection of plant varieties under UPOV and PPV & FR Act of India. Plant breeders rights, and Farmers rights.

PGS 504 BASIC CONCEPTS IN LABORATORY TECHNIQUES 1(0+1)

Objective – To acquaint the students about the basics of commonly used techniques in laboratory.

Outcome:

- A brief knowledge on the safety protocols to be followed in a laboratory and handling of various equipments present in the laboratory.
- Knowledge on preparations of several standard solutions, agro-chemical doses, buffers, etc for laboratory and field purposes.
- Testing the seed viability, pollen viability and description of flowering plants.

PGS 505 (e-Course) AGRICULTURAL RESEARCH, RESEARCH ETHICS AND RURAL DEVELOPMENT PROGRAMS 1(1+0)

Objective

To enlighten the students about the organization and functioning of agricultural research systems at national and international levels, research ethics, and rural development programmes and policies of Government.

Outcomes

- By the end of this course scholars will be sensitized about the basic issues related with agricultural research, ethics in research as well as rural development.
- The scholars will be also educated about principles and philosophy of rural development and various ongoing rural and community development programmes and policies.
- Students will also be motivated towards practicing and promoting ethics in research and developmental endeavours.

PGS 506 DISASTER MANAGEMENT 1(1+0)

Objectives

To introduce learners to the key concepts and practices of natural disaster management; to equip them to conduct thorough assessment of hazards, and risks vulnerability; and capacity building.

Outcome

1. A brief knowledge on nature and effects of different natural disasters and their management
2. Knowledge on different types of man-made disasters and their management
3. Appraisal on different organizations involved in disaster management at national and global level

PI Path 591

Master's seminar

1(1+0)

Objective:

To develop capacity among the student to select research topic on important issue, preparation of power point covering the topic in different subheads, presentation style, eloquence and to develop ability to answer the question.

Outcome:

The student can select the topic of research on emerging and important issues and present on power point.

PI Path-599

Master's Research

20(0+20)

Objective

To expose the student on research methodology, selection of researchable issue, preparation of synopsis and execution of program following suitable experimental design.

Outcome:

- Students can select a research topic, prepare synopsis and execute the program as per suitable design.
- Student will undertake research *in vitro* as well as *in vivo* and interpret the findings after proper analysis.
- Student can publish research paper in good journals.

Course Mapping													
Name of the Course	Course Code	Course Outcomes	PROGRAMME OUTCOMES				PROGRAMME SPECIFIC OUTCOMES						
			P O 1	P O 2	P O 3	P O 4	P S O 1	P S O 2	P S O 3	P S O 4	P S O 5	P S O 6	
Mycology	PI Path 501	CO1	✓		✓		✓		✓			✓	
		CO2	✓	✓	✓		✓	✓	✓			✓	
		CO3	✓	✓	✓	✓	✓	✓	✓		✓	✓	
Plant Virology	PI Path 502	CO1	✓	✓			✓	✓	✓			✓	
		CO2	✓	✓	✓		✓	✓	✓			✓	
		CO3		✓	✓				✓		✓	✓	
		CO4		✓	✓				✓			✓	
Plant Bacteriology	PI Path 503	CO1	✓	✓	✓		✓	✓	✓			✓	
		CO2	✓	✓	✓				✓			✓	
		CO3		✓	✓	✓		✓	✓		✓	✓	
		CO4	✓	✓	✓	✓		✓				✓	
Principles of Plant Pathology	PI Path 504	CO1	✓	✓	✓		✓	✓	✓			✓	
		CO2	✓		✓		✓	✓	✓			✓	
		CO3	✓		✓		✓	✓	✓			✓	
Principle of Plant Disease Management	PI Path 505	CO1	✓	✓	✓		✓	✓	✓			✓	
		CO2	✓		✓			✓				✓	
		CO3	✓		✓			✓				✓	
Diseases of Field and Medicinal Crops	PI Path 506	CO1	✓	✓	✓		✓	✓	✓			✓	
		CO2	✓	✓	✓		✓	✓	✓			✓	
		CO3	✓		✓		✓					✓	
Insect Vector of Plant Viruses And Other Pathogens	PI Path 507	CO1	✓	✓	✓		✓	✓	✓			✓	
		CO2	✓	✓	✓		✓	✓	✓			✓	
		CO3	✓	✓	✓		✓	✓	✓			✓	
Integrated Disease Management	PI Path 508	CO1	✓	✓	✓			✓	✓			✓	
		CO2	✓	✓	✓			✓	✓			✓	
		CO3	✓	✓	✓			✓				✓	
Mushroom Production Technology	PI Path 509	CO1	✓		✓	✓					✓		✓
		CO2	✓		✓	✓					✓	✓	✓
		CO3	✓		✓	✓					✓		✓
		CO4	✓		✓	✓					✓	✓	✓
		CO5	✓		✓	✓					✓		✓

Epidemiology and Forecasting of Plant Diseases	PI Path 510	CO1	✓	✓	✓		✓	✓	✓			✓	
		CO2	✓	✓	✓			✓					✓
		CO3		✓	✓		✓	✓	✓				✓
Diseases of Fruits, Plantation and Ornamental Crops	PI Path 511	CO1	✓	✓	✓		✓	✓				✓	
		CO2	✓	✓	✓		✓	✓				✓	
		CO3	✓	✓	✓		✓	✓				✓	
		CO4	✓	✓	✓		✓					✓	
Diseases of Vegetables and Spices Crops	PI Path 512	CO1	✓	✓	✓		✓	✓				✓	
		CO2	✓	✓	✓		✓	✓				✓	
		CO3	✓	✓	✓		✓	✓				✓	
Chemicals In Plant Disease Management	PI Path 513	CO1	✓	✓	✓			✓				✓	
		CO2	✓	✓	✓			✓				✓	
		CO3	✓	✓	✓			✓				✓	
		CO4	✓	✓	✓			✓				✓	
		CO5	✓	✓	✓			✓				✓	
		CO6	✓	✓	✓			✓				✓	
Ecology of Soil Borne Plant Pathogens	PI Path 514	CO1	✓					✓	✓			✓	
		CO2	✓		✓			✓				✓	
		CO3	✓	✓	✓			✓				✓	
		CO4	✓	✓	✓	✓		✓				✓	
Disease Resistance in Plants	PI Path 515	CO1	✓	✓				✓				✓	
		CO2	✓	✓	✓		✓					✓	
		CO3	✓	✓				✓				✓	
Biological Control of Plant Diseases	PI Path 516	CO1	✓	✓	✓			✓				✓	
		CO2	✓	✓	✓			✓			✓	✓	
		CO3	✓	✓	✓	✓		✓			✓	✓	
		CO4	✓	✓	✓	✓		✓			✓		
Post Harvest Diseases	PI Path 517	CO1	✓				✓	✓				✓	
		CO2	✓	✓				✓				✓	
		CO3	✓	✓								✓	
		CO4	✓		✓							✓	
		CO5	✓		✓			✓				✓	
Detection and Diagnosis of Plant Diseases	PI Path 518	CO1	✓	✓	✓							✓	
		CO2	✓	✓	✓		✓					✓	
		CO3	✓	✓	✓		✓	✓				✓	
		CO4	✓	✓	✓			✓				✓	
		CO5	✓	✓	✓		✓	✓				✓	

Seed Health Technology	PI Path 519	CO1	✓	✓	✓															✓			
		CO2	✓	✓	✓		✓	✓													✓		
		CO3	✓	✓	✓				✓	✓												✓	
		CO4	✓	✓	✓																	✓	
		CO5	✓	✓	✓																	✓	
Plant Quarantine	PI Path 520	CO1	✓	✓	✓																✓		
		CO2	✓	✓	✓		✓	✓														✓	
		CO3	✓	✓	✓	✓																✓	
		CO4	✓	✓	✓		✓																✓
		CO5	✓	✓	✓				✓														✓
Seed quality testing	SST-507	CO1	✓	✓	✓				✓													✓	
		CO2	✓	✓	✓	✓																	✓
		CO3	✓	✓	✓	✓				✓													✓
Biological control of crop pests and weeds	EN-507	CO1	✓	✓	✓				✓													✓	
		CO2	✓	✓	✓															✓	✓		
		CO3	✓	✓	✓				✓											✓	✓		
Pests of field crops	EN-511	CO1	✓	✓	✓		✓	✓														✓	
		CO2	✓	✓	✓			✓															✓
Storage entomology	EN 513	CO1	✓	✓	✓		✓															✓	
		CO2	✓	✓	✓																		✓
					□	□																	
Experimental Design	STAT 510	CO1	✓	✓					✓	✓													✓
		CO2	✓	✓																			✓
		CO3	✓	✓	✓																		✓
		CO4	✓	✓	✓	✓																	
Library and information services	PGS-501	CO1	✓	✓																			
		CO2	✓	✓																			
		CO3	✓	✓																	✓		
		CO4	✓	✓																	✓		
Technical writing and communications skills	PGS-502	CO1	✓	✓																			
		CO2	✓	✓																			
		CO3	✓	✓																			
		CO4	✓	✓																			
Intellectual property and its management in agriculture	PGS-503	CO1	✓	✓																			
		CO2	✓	✓																			
		CO3	✓	✓																	✓		

Basic concepts in laboratory techniques	PGS-504	CO1	✓	✓										
		CO2	✓	✓										
		CO3	✓	✓										
Agricultural research, research ethics and rural development programs	PGS-505	CO1	✓	✓										
		CO2	✓	✓										
		CO3	✓	✓										
Disaster management	PGS-506	CO1	✓	✓										
		CO2	✓	✓										
		CO3	✓	✓										

Mapping of COs vs. Employability/ Entrepreneurship/ Skill development				
Name of the Course	Course Code	Employability	Entrepreneurship	Skill development
Mycology	Pl Path 501	Y		Y
Plant Virology	Pl Path 502	Y		Y
Plant Bacteriology	Pl Path 503	Y		Y
Principles of Plant Pathology	Pl Path 504	Y		
Principle of Plant Disease Management	Pl Path 505	Y		Y
Diseases of Field and Medicinal Crops	Pl Path 506			Y
Insect Vector of Plant Viruses And Other Pathogens	Pl Path 507	Y		Y
Integrated Disease Management	Pl Path 508	Y		Y
Mushroom Production Technology	Pl Path 509		Y	Y
Epidemiology and Forecasting of Plant Diseases	Pl Path 510	Y		Y
Diseases of Fruits, Plantation and Ornamental Crops	Pl Path 511	Y		Y
Diseases of Vegetables and Spices Crops	Pl Path 512	Y		
Chemicals In Plant Disease Management	Pl Path 513	Y		Y
Ecology of Soil Borne Plant Pathogens	Pl Path 514	Y		Y
Disease Resistance in Plants	Pl Path 515			Y
Biological Control of Plant Diseases	Pl Path 516	Y	Y	Y

Post Harvest Diseases	PI Path 517	Y		Y
Seed Health Technology	PI Path 519	Y		Y
Plant Quarantine	PI Path 520	Y		Y
Master's Research	PI Path 599			Y
Master's Seminar	PI Path 591			Y
Seed quality testing	SST-507	Y		
Biological control of crop pests and weeds	EN-507	Y	Y	Y
Pests of field crops	EN-511	Y		Y
Storage entomology	EN 513	Y		Y
Experimental Design	STAT 510	Y		Y
Detection and Diagnosis of Plant Diseases	PI Path 518	Y		Y
Library And Information Services	PGS-501			Y
Technical Writing And Communications Skills	PGS-502			Y
Intellectual Property and Its Management in agriculture	PGS-503	Y		Y
Basic Concepts in laboratory techniques	PGS-504	Y		Y
Agricultural Research, Research Ethics And Rural Development programmes	PGS-505			Y
Disaster management	PGS-506	Y		Y