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

M. Sc. (Ag.) in Agronomy

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 make the students understand the techniques on crop growth analysis, crop modeling, crop response production functions and sceinctific ways to manage different agronomic crops
2. To impart knowledge on recent developments in weed science, ecology, water management, nutrient management on itegration mode, practices of organic farming on system mode and resource conservation technologies.
3. To teach the students on aspects of agroforestry, agrometeorology, dryland farming and watershed management for better understanding of diffenet crop growig situations
4. To train the students on aspects of designing research trials, preparation of synopsis, their execution, data collection, tabulation, analysis and interpretation of result.

Programme Specific Outcomes (PSO):

- Student is able to understand scientific basis of crop production, how different factors affect its growth and development and how to manage the crops under varying soil-water- atmospheric conditions for higher productivity, profitability and sustainability
- Students get practical experience to raise different field crops in sole and intercropping systems with proper geometry and architecture by accommodating cereals, pulses, oilseeds, commercial crops, fodders and crops under agro-forestry
- Students learn the techniques to analyze the soil for its various physico-chemical properties, nutrient status, water related issues and thereby managing the crops for higher use efficiency under varying land and weed dynamic scenario
- Students develop the skill to use resources in dry land rain –fed agriculture following watershed, climate resilient and farming system approach for livelihood and sustainability
- Students develops knowledge **can conceptualize** on field research, its execution using appropriate statistical design, methodology to collect data on various biometric and yield related parameters following sampling techniques and use of statistical tools to analyze data and develops skill in writing a dissertation and gets trained to take up research at higher level of academics
- Students can demonstrate the techniques of transmitting the crop-based agro-advisory to farmers for adoption as extension scientist

MAJOR COUECES

MODERN CONCEPTS IN CROP PRODUCTION

COURSE NO- AGRON 501 **CREDIT hrs.-** 3+0

Objectives:

To make the students understand the techniques on crop growth analysis, crop modeling, crop response production functions , farming system modules and resource conservation technologies.

Outcomes:

1. Students can perform techniques and interpretate the principles involved in scientific crop production and situation based IFS modules and RCT.

2. Self employment capability through agro-entrepreneurship development by utilizing the by products from different enterprise.
3. Students can apply crop production principles to establish cause and effective relationship with different agronomic traits

PRINCIPLES & PRACTICES OF SOIL FERTILITY AND NUTRIENT MANAGEMENT

COURSE No: AGRON 502 **CREDIT hrs. :** 2+1

Objectives :

To teach the students the principles and practices of soil fertility and productivity related factors techniques of preparation of organic based manures and technologies for increasing fertilizer use efficiencies.

Outcomes:

1. Students can analyse interpretate and recommend the nutrient requirement of crops through inorganic and organic sources.
2. Students can advise farmers the crop based dose and commercial requirement and suitable farm implements for crops under different land types.
3. Scope for agro-entrepreneurship.

PRINCIPLES AND PRACTICES OF WEED MANAGEMENT

COURSE No: AGRON 503 **CREDIT hrs. –** 2+1

Objectives:

To make the student understand weed biology and ecology, Allelopathy effects, different weed management approaches- their feasibility in crops and cropping systems.

Outcomes:

1. Students are enriched with recent developments in herbicide , their selectivity and mode of action, resistance development etc.
2. Students will develop knowledge to select crop specefic herbicides, their use, dose calculation and safe handling.
3. Students can know the critical crop weed competition period, possible phyto-toxicity and residual effects of herbicides in different crops under different crop agro-ecological systems.

PRINCIPLES AND PRACTICES OF WATER MANAGEMENT

COURSE No. : AGRON 504 **CREDIT hrs.-** 2+1

Objectives:

To make the students understand about water intake in soil, its storage, movement within the soil and its uptake by the plant through energy concept both in normal and poor quality of water.

Outcomes :

1. Students can recommend scientific based irrigation scheduling in crops and cropping systems keeping in view the water resource available with the farmers and adopting integrated water resource management approach both on station and on farm situations.
2. Students will be able to recommend suitable water saving technologies and irrigation methods with an aim to produce more crop per drop.
3. Students will be acquainted with managing irrigation water in different crops for higher irrigation and field efficiency

AGRONOMY OF MAJOR CEREALS AND PULSES

COURSE No.:-AGRON 505 **CREDIT hrs. :-2+1**

Objectives:

Students are told about the agronomic practices of major cereals and pulse crop with respect to soil, water nutrition and culture requirements.

Outcomes:

1. Student can recommend the crops and the varieties along with their package of practices towards higher productivity, profitability and sustainability. Keeping the quality and reducing the losses during processing.
2. Students will get the benefit of imparting training to the farmers and farm women in their practical life after entering to the service at the state government and central government.
3. Application skills in raising and managing of cereals and pulses crops scientifically.

PRINCIPLES AND PRACTICES OF ORGANIC FARMING

COURSE No.:- AGRON 506 **CREDIT hrs. :-**2+1

Objectives:

Students are taught about the concept, scope and practices of organic farming along with the formulation of different organic products, their use both under normal cultivation and farming system mode.

Outcomes:

1. Students can adopt the practices related to organic farming can demonstrate the preparation of organic formulations in crop, cropping systems and farming systems along with the procedure used for organic certification.
2. Students will develop their skill to prepare organic products and their application.
3. Develop skills through practical orientation to organic production technologies.

FIELD EXPERIMENTS

COURSE No.:- AGRON 507 **CREDIT hrs. :-** 1+2

Objectives:

To train the students on formulation of research hypothesis, field experiments, its aims and objectives, execution techniques.

Outcomes:

1. Students can formulate research field experiments, can execute following suitable layout plan.
2. Analysis of research data using statistical software.
3. Opting a career as analyst.
4. Development of consultancy firms and project formulation.

AGRONOMY OF OILSEED, FIBRE AND SUGAR CROPS

COURSE No.:-AGRON 508 **CREDIT hrs. :-** 2+1

Objectives:

Students are told about the agronomic practices of major oilsedd, fibre and sugar crop with respect to soil, water nutrition and culture requirements

Outcomes:

1. Student can recommend the crops and the varieties along with their package of practices

towards higher productivity, profitability and sustainability. Keeping the quality and reducing the losses during processing

2. Students will get the benefit of imparting training to the farmers and farm women in their practical life after entering to the service at the state government and central government.
3. Application skills in raising and managing of fiber and sugar crops scientifically.

AGRONOMY OF FODDER AND FORAGE CROPS

COURSE No.: AGRON 50**9** **CREDIT hrs. –** 2+1

Objectives:

Students are told about the agronomic practices of major fodder and forage crop with respect to soil, water nutrition and culture requirements

Outcomes:

1. Student will gain knowledge about cultivation practices of fodder and forage crops and also they will gain practical experience in cultivating these crop in field practical classes.
2. Students will get the benefit of imparting training to the farmers and farm women in their practical life after entering to the service at the state government and central government.
3. Application skills in raising and managing of fodder and forage crops scientifically.

DRYLAND FARMING AND WATERSHED MANAGEMENT

COURSE No.:-AGRON510 **CREDIT hrs. :-** 2+1

Objectives:

Students are taught about the dry land and rainfed farming, the constraints, analysis of rainfall data and the moisture conservation in different watersheds.

Outcomes:

1. students will develop working knowledge in managing soil and crops under dry land condition.
2. Students will be able to use technical skills develop their own skill for better management of crops and soil in different watersheds based on rainfall characteristics
3. Students will learn to coordinate with line deparments in managing the crops under aberrant weather conditions and develop alternate crop plan.

AGROMETEOROLOGY AND CROP WEATHER FORECASTING

COURSE No.:-AGRON 511 **CREDIT hrs. :-** 2+1

Objectives:

Students are taught about agro-meteorology, their parameters and their effects on crop growth and developments along with the measures to minimize different types of abiotic stresses.

Outcomes:

1. Student can recommend the crops and varieties suiting to the climatic conditions and suggest different measures to cope up the aberrant weather conditions during the crop growth
2. Students will be acquainted with the weather forecast system, and can help the farmers in adopting necessary measures suggested through agro advisory service.
3. Equipped with the knowledge of recording data on weather elements, calculation, tabulation, calculation and their relations vis-a-vis interpretation with crop growth

AGRONOMY OF MEDICINAL, AROMATIC AND UNDER- UTILIZED CROPS

COURSE No.:-AGRON 512 **CREDIT hrs. :-** 2+1

Objectives:

Students are told about the agronomic practices of major fodder and forage crop with respect to soil, water nutrition and culture requirements

Outcomes:

1. Student will gain knowledge about cultivation practices of medicinal, aromatic and underutilized field crops crops and also they will gain practical experience in cultivating these crop in field practical classes.
2. Students will get the benefit of imparting training to the farmers and farm women in their practical life after entering to the service at the state government and central government.
3. Application skills in raising and managing of medicinal,aromatic and under-utilized crops scientifically.

AGROSTOLOGY AND AGRO-FORESTRY

COURSE No.:-AGRON 513 CREDIT hrs. :-2+1

.

Objectives:

Students are taught on grassland ecology, their importance, agroforestrry, their types in crop production technology in agroforestry and agrostology systems.

Outcomes:

1. Students will be able to know different agro forestry systems for varying agro ecological situations and their suitability with conventional agriculture.

2. At the end of session, students will be able to suggest different agroforestry based models in companion with field and horticultural crops and their management..

   .

3. Students can become a part of the team engaged in adoption agroforestry based solution to restore soil health through carbon seqestration and mitigating climate change impact.

CROPPING SYSTEMS AND SUSTAINABLE AGRICULTURE

COURSE No.:-AGRON 514 **CREDIT hrs. :-** 2+0

Objectives:

The students are taught on concepts and approaches of sustainability in cropping systems, types of disasters and their management with respect to crops.

Outcomes:

1. A student can formulate a cropping systems and recommend the packages in order to maintain the ecosystems and also guide the end users on different disastrous managements, policies and recommendation.
2. Self employment capability through agro-entrepreneurship development by utilizing the by products from different enterprise.
3. Students can enhance their knowledge as well as develop eco-friendly farming system models in a sustainable manner through resource recycling

MASTERS SEMINAR

COURSE No.:-AGRON 591 **CREDIT hrs. :-** 0+1

Objectives:

To develop capacity among the students to select reseaech topic on important issues, preparation of power point covering the topic in different subheads, presentation style, eloquence and to develop ability to answer the questions.

Outcomes:

The students can select topic of research on emerging and important issues and present on powerpoint.

MASTERS RESEARCH

COURSE No.:-AGRON 599 **CREDIT hrs. :-** 0+20

Objectives:

To develop capacity among the students to select reseaech topic on important issues, preparation of power point covering the topic in different subheads, presentation style, eloquence and to develop ability to answer the questions.

Outcomes:

The students can select topic of research on emerging and important issues and present on powerpoint.

MINOR COURCES

ANALYTICAL TECHNIQUES AND INSTRUMENTAL

METHODS IN SOIL AND PLANT ANALYSIS

COURSE No.:- Soils 504 **CREDIT hrs. :-** 0+2

Objective

To familiarize the students with commonly used instruments – their working, preparations of common analytical reagents for qualitative and quantitative analysis of both soil as well as plant samples.

Outcomes

- Working knowledge on the principles of commonly used instruments in the laboratory

- Practical exposure on preparations of common analytical reagents for qualitative and quantitative analysis of both soil and plant samples, electro-chemical titration of clays, analysis of soil extraction and irrigation water.
- Ability to analyse different essential nutrients in plant and soil samples

REMOTE SENSING AND GIS TECHNIQUES FOR SOIL, WATER AND CROP STUDIES

COURSE No.:- Soils 515 **CREDIT hrs. :-** 2+1

Objectives

To impart knowledge about the basic concepts of remote sensing, aerial photographs and imageries, and their interpretation; application of remote sensing in general and with special reference to soil, plants and yield forecasting; to impart knowledge about geo-statistical techniques with special reference to krigging, and GIS and applications in agriculture.

Outcomes

- Basic knowledge on fundamentals of remote sensing, different remote sensing equipment and their practical utility in relation to soil, water and crop studies.
- Hands-on skill on use of different remote sensing database and image processing softwares.
- Experience on handling of GIS software and GPS hardware for creating thematic maps.

PHYSIOLOGICAL AND MOLECULAR RESPONSES OF PLANTS TO ABIOTIC STRESSES

COURSE No.:- PP 503 **CREDIT hrs. :-** 2+1

Objective

To apprise the students regarding abiotic stress to plant and its molecular basis.

Outcomes: 1. Knowledge on physiological and molecular responses to various abiotic stresses.

2. Study of different physiological processes and molecular responses to stress.

3. Measurement and screening of stress parameters and behaviour towards tolerance.

PHYSIOLOGY OF GROWTH AND YIELD AND MODELING

COURSE No.:- PP 505 **CREDIT hrs. :-** 1+1

Objective

To impart knowledge regarding crop growth analysis and different yield prediction models.

Outcomes: 1. Knowledge regarding crop growth analysis and different yield prediction models.

2. Plant sampling to estimate growth and yield parameters.

3. Computer applications in plant physiology, crop productivity and modeling.

SUPPORTING COURSES

STAT-510: EXPERIMENTAL DESIGNS

COURSE No.:- STAT-510 **CREDIT hrs. :-** 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.

Outcomes

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.

DATA ANALYSIS USING STATISTICAL PACKAGES

COURSE No.:- STAT-513 **CREDIT hrs. :-** 2+1

Objective

I. This course is meant for exposing the students in the usage of various statistical packages for analysis of data.

II. It would provide the students an hands on experience in the analysis of their research data. This course is useful to all disciplines.

Outcomes

I. Analysis of research data using statistical software.

II. Opting a career as analyst.

III. Development of consultancy firms and project formulation.

NON-CREDIT COURSES

LIBRARY AND INFORMATION SERVICES

COURSE No.:- PGS 501 CREDIT hrs. :- 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.

Outcomes:

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 keywards, 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.

TECHNICAL WRITING AND COMMUNICATIONS SKILLS

COURSE No.:- PGS 502 CREDIT hrs. :- 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

- 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

INTELLECTUAL PROPERTY AND ITS MANAGEMENT IN AGRICULTURE

COURSE No.:- PGS 503 CREDIT hrs. :- (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.

Outcomes:

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

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

BASIC CONCEPTS IN LABORATORY TECHNIQUES

COURSE No.:- PGS 504 **CREDIT hrs. :- (0+1)**

Objective

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

Outcomes

- 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.

(e-Course) AGRICULTURAL RESEARCH, RESEARCH ETHICS AND RURAL DEVELOPMENT PROGRAMMES

COURSE No.:- PGS 505 **CREDIT hrs. :- (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 sensitize 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 practising and promoting ethics in research and developmental endeavours.

DISASTER MANAGEMENT

COURSE No.:- PGS 506 **CREDIT hrs. :- 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.

Outcomes

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

		Mapping of COs to POs & PSOs										
Name of the Course	**Course Code**	**Course Outcomes**	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**	**PSO 5**	**PSO 6**
MODERN CONCEPTS IN CROP PRODUCTION	AGRON 501	CO1	√	√	√		√	√	√			√
		CO2				√						√
		CO3	√	√	√		√	√	√		√	√
PRINCIPLES & PRACTICES OF SOIL FERTILITY AND NUTRIENT MANAGEMENT	AGRON 502	CO1	√	√	√		√		√			√
		CO2		√	√	√	√	√	√	√	√	√
		CO3				√		√				√
PRINCIPLES AND PRACTICES OF WEED MANAGEMENT	AGRON 503	CO1	√	√	√		√		√			
		CO2		√	√	√	√	√				√
		CO3			√	√	√	√			√	√
PRINCIPLES AND PRACTICES OF WATER MANAGEMENT	AGRON 504	CO1	√	√	√	√	√	√	√	√		√
		CO2	√		√	√				√		√
		CO3	√	√	√		√	√	√			√
AGRONOMY OF MAJOR CEREALS AND PULSES	AGRON 505	CO1	√	√	√		√	√	√		√	√
		CO2				√						√
		CO3	√	√	√	√	√	√	√			√

PRINCIPLES AND PRACTICES OF ORGANIC FARMING	AGRON 506	CO1	√	√	√	√	√		√			√
		CO2			√	√		√	√			√
		CO3		√	√	√					√	√
FIELD EXPERIMENTS	AGRON 507	CO1		√	√						√	
		CO2				√					√	
		CO3				√					√	
AGRONOMY OF OILSEED, FIBRE AND SUGAR CROPS	AGRON 508	CO1	√	√	√		√	√	√		√	√
		CO2				√						√
		CO3	√		√	√	√	√	√			√
AGRONOMY OF FODDER AND FORAGE CROP	AGRON 509	CO1	√	√	√		√	√	√		√	√
		CO2				√						√
		CO3	√		√	√	√	√	√		√	√
DRYLAND FARMING AND WATERSHED MANAGEMENT	AGRON 510	CO1	√	√	√		√	√		√		√
		CO2			√	√	√	√	√	√		
		CO3		√	√	√	√			√	√	√
AGROMETEOROLOGY AND CROP WEATHER FORECASTING	AGRON 511	CO1	√	√	√	√	√	√			√	√
		CO2		√	√	√				√	√	√
		CO3	√	√	√	√						√
AGRONOMY OF MEDICINAL, AROMATIC AND UNDER-UTILIZED CROPS	AGRON 512	CO1	√	√	√		√	√	√		√	√
		CO2				√						√
		CO3	√		√	√	√	√	√		√	√

AGROSTOLOGY AND AGRO-FORESTRY	AGRON 513	CO1	√	√	√		√	√	√			√
		CO2	√	√	√	√	√	√			√	√
		CO3		√	√	√			√	√	√	√
CROPPING SYSTEMS AND SUSTAINABLE AGRICULTURE	AGRON 514	CO1	√	√	√		√	√			√	√
		CO2				√						√
		CO3		√	√	√		√				√
Maters seminar	Agron-591	CO1		√							√	
		CO2										
		CO3										
Maters research	Agron-599	CO1	√	√							√	
		CO2										
		CO3										
ANALYTICAL TECHNIQUES AND INSTRUMENTAL METHODS IN SOIL AND PLANT ANALYSIS	Soils 504	CO1		√					√			
		CO2			√				√			
		CO3			√				√			
REMOTE SENSING AND GIS TECHNIQUES FOR SOIL, WATER AND CROP STUDIES	Soils 515	CO1	√	√					√			√
		CO2			√				√			
		CO3	√		√				√			

PHYSIOLOGICAL AND MOLECULAR RESPONSES OF PLANTS TO ABIOTIC STRESSES	PP 503	CO1	√				√		√			
		CO2		√			√					
		CO3		√	√						√	
PHYSIOLOGY OF GROWTH AND YIELD AND MODELING	PP 505	CO1	√	√			√				√	
		CO2		√							√	
		CO3				√					√	√
EXPERIMENTAL DESIGNS	STAT-510	CO1		√							√	
		CO2		√							√	
		CO3		√							√	
DATA ANALYSIS USING STATISTICAL PACKAGES	STAT 513	CO1		√							√	
		CO2		√							√	
		CO3		√		√					√	√
LIBRARY AND INFORMATION SERVICES	PGS 501	CO1		√							√	
		CO2		√							√	
		CO3		√		√					√	
TECHNICAL WRITING AND COMMUNICATIONS SKILLS	PGS 502	CO1		√		√				√		
		CO2		√		√				√		
		CO3		√		√				√		
INTELLECTUAL PROPERTY AND ITS	PGS 503	CO1		√	√						√	√

MANAGEMENT IN AGRICULTURE												
		CO2		√							√	
		CO3		√		√					√	√
BASIC CONCEPTS IN LABORATORY TECHNIQUES	PGS 504	CO1		√						√		
		CO2			√					√		
		CO3			√					√		√
AGRICULTURAL RESEARCH, RESEARCH ETHICS AND RURAL DEVELOPMENT PROGRAMMES	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**
Modern concept in Agronomy	AGRON 501	Y	Y	Y
Principles & practice of soil fertility and nutrient management	AGRON 502	Y	Y	Y
Principles and practices of weed management	AGRON 503	Y	Y	Y
Principles and practices of water management	AGRON 504	Y		Y
Agronomy of major cereals and pulses	AGRON 505	Y	Y	Y
Principles and practices of organic farming	Agron 506	Y	Y	Y

Agronomy of oilseed, fibre and sugar crops	AGRON 508	Y	Y	Y
Field Experiments	AGRON 507	Y		Y
Agronomy of Fodder and forage crops	AGRON 509	Y	Y	Y
Dry land farming and watershed management	AGRON 510	Y		Y
Agro-meteorology and crop weather forecasting	AGRON 511	Y		Y
Agronomy of medicinal, aromatic and underutilized crops	AGRON 512	Y		Y
Agrostology and agro-forestry	AGRON 513	Y	Y	Y
Cropping systems and sustainable agriculture	AGRON 514	Y	Y	Y
Maters seminar	AGRON 591			Y
Masters research	AGRON 599			Y
Experimental Design	STAT 510	Y		Y
Data analysis using statistical packages	STAT 513	Y	Y	Y
Physiological and Molecular responses of plants to Abiotic stresses	PP 503	Y		Y
Physiology of growth & yield and modeling	PP 505	Y		Y
Analytical Techniques and Instrumental Methods in Soil and Plant Analysis	Soils 504	Y		Y
Remote sensing and GIS techniques for soil, water and crop studies	Soils 515	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		Y
Disaster management	PGS 506	Y		Y