NEW AND RESTRUCTURED

POST GRADUATE CURRICULA AND SYLLABUS

for

Agronomy

Dr. Rammanohar Lohia Avadh University, Ayodhya (U.P.)

M.Sc. (Ag.) Agronomy

Third Semester

(Semester System as per ICAR 5th Dean Committee Recommendations)

w.e.f. 2020 - 2021

Submitted by :

Dean & Conveners, Board of Studies

Faculty of Agriculture

Dr. Rammanohar Lohia Avadh University, Ayodhya (U.P.)

M.Sc. (Ag.) Agronomy

Ist Semester			Evaluation Marks			
Code No.	Course Title	Credit Hours	Mid Term	End Term	Practical	Total
AGR. - 501	Modern Concept in Crop Production	3(2+1)	20	50	30	100
AGR. - 503	Principles and Practices of weed Management	3(2+1)	20	50	30	100
AGR. - 506	Scientific Cultivation of Major cereals and Pulses	3(2+1)	20	50	30	100
AS. - 501	Agricultural Statistics	3(2+1)	20	50	30	100
	Total Credit	12				

IInd Semester			Evaluation Marks			
Code No.	Course Title	Credit Hours	Mid Term	End Term	Practical	Total
AGR. - 502	Principles and Practices of Soil Fertility and Nutrient Management	3(2+1)	20	50	30	100
AGR. - 504	Principles and Pratices of Water Management	3(2+1)	20	50	30	100
AGR. - 507	Scientific Cultivation of Oil Seeds, Fiber and Sugar Crops	3(2+1)	20	50	30	100
AGR. - 511	Cropping system and sustainable Agriculture	3(2+1)	20	50	30	100
	Total Credit	12				

IIIrd Semester			Evaluation Marks			
Code No.	Course Title	Credit Hours	Mid Term	End Term	Practical	Total
AGR. - 509	Agronomy of Fodder and Forage Crops	3(2+1)	20	50	30	100
AGR. - 510	Agrostology & Agroforestry	3(2+1)	20	50	30	100
AGR. - 512	Dry Land Farming and Watershed Management	3(2+1)	20	50	30	100
CA. - 502	Computer Application in Agriculture	2(1+1)	20	50	30	100
PGS - 501	Library and Information Services (Non-Gradial Satisfactory/Unsatisfactory 50% Marks required for satisfactory Grade)	1(0+1)			100	100
	Total Credit	12				

IVth Semester			Evaluation Marks			
Code No.	Course Title	Credit Hours	Mid Term	End Term	Practical	Total
AGR. - 591	Master Seminar	1(0+1)				100
AGR. - 599	Master Research (Thesis)	20	Satisfactory/Unsatisfactory			
	OR					
	Special Papers - (20 - Credit) Satisfactory/Unsatisfactory					
AGR. - 513	Principles and Practices of Organic Farming	4(3+1)	20	50	30	100
AGR. - 505	Agrometeorology and Crop Weather Forecasting	4(3+1)	20	50	30	100
AGR. - 508	Agronomy of Medicinal, Aromatic and under Utilized Crops	4(3+1)	20	50	30	100
AGR. - 514	Crop Production in Problematic Soils	4(3+1)	20	50	30	100
AGR. - 515	Diagnosis of Nutritional Deficiency in Field Crops and their Remedial Measure	4(3+1)	20	50	30	100
	Total Credit	21				
	Total Credit Hours	57				

M.Sc. (Ag.) Agronomy

Third Semester Curricula & Syllabus

S. No.	Course Code	Title of the Course	Credit
1	AGR. - 509	Agronomy of Fodder and Forage Crops	3(2+1)
2	AGR. - 510	Agrostology & Agroforestry	3(2+1)
3	AGR. - 512	Dry Land Farming and Watershed Management	3(2+1)
4	CA. - 502	Computer Application in Agriculture	2(1+1)
5	PGS - 501	Library and Information Services (Non-Gradial Satisfactory/Unsatisfactory 50% Marks required for satisfactory Grade)	1(0+1)
		Total Credit Hours	**12**

M.Sc. (Ag.) AGRONOMY - III Semester Syllabus

AGR - 509 (Paper - I)
AGRONOMY OF FODDER AND FORAGE CROPS
3(2+1)

Thoery :

UNIT - I

Area and distribution varietal improvement, agro-techniques and quality aspects including anti-quality factors of important fodder crops like maize, sorghum, bajra, cowpea, oats, barly, berseem, lucerne, Guar, etc.

UNIT - II

Area and distribution, varietal improvement, agro-technique and quality aspects including anti-quality factors of important forage crops/grasses,napier grass, sudan grass, Rohdes grass, Deenanath grass, etc.

UNIT - III

Year - round fodder production and management, preservation and utilization of forage and pasture crops.

UNIT - IV

Principles and methods of hay and silage making; chemical and biochemical changes, nutrient losses and factors affecting quality of hay and silage; use of physical and chemical enrichments and biological methods for improving nutrition; value addition of poor quality fodder.

UNIT - V

Economics of forage cultivation uses and seed production techniques.

Practical :

- Practical raining of farm operation in raising fodder crops;
- Canopy measurement, yield and quality estimation, viz. crude protein, NDF, ADF, lignin, silica, cellulose etc. of various fodder and forage crops.
- Anti-quality components like HCN in sorghum and such factors in other crops.
- Hay and silage making and economics of their preparation.
- Field visit and identification of fodder and forage crops.

M.Sc. (Ag.) AGRONOMY - III Semester Syllabus

AGR - 510 (Paper - II)
AGROSTOLOGY AND AGRO-FORESTRY
3(2+1)

Theory :

UNIT - I

Agrostology: definition and importance; principles of grassland ecology: grasland ecology - community, climax, dominant species, succession, biotype, ecological status of grasslands in India, grass cover of India; problems and management of grasslands.

UNIT - II

Importance, classification (various criteria), scope, status and research needs of pastures; pasture establishment, their improvement and renovation - natural pastures, cultivated pastures; common pasture grasses.

UNIT - III

Agroforestry: definition and importance; agroforestory systems, agri-silviculture, silvipasture, agrisilvipasture, agrihorticulture, alley cropping and energy plantation.

UNIT - IV

Crop production technology in agro-forestory and agrostology system; silvipastoral system: meaning and importance for wasteland development; selection of species, planting methods and problems of seed germination in agro-forestry systems; irrigation and manuring in agro-forestry systems, associative influence in relation to above ground and underground interferences; lopping and coppicing in agro-forestry systems; social acceptability and economic viability, nutritive value of trees; tender operations; desirable tree characteristics.

Practical :

- Preparation of charts and maps of India showing different types of pastures and agro-forestry systems.
- Identification of seeds and plants of common grasses, legumes and trees of economic importance with reference to agro-forestry.
- Seed treatment for better germination of farm vegetation.
- Methods of propagation/planting of grasses and trees in silvipastoral system.
- Fertilizer application in strip and silvipastorol systems.
- After-care of plantation.
- Estimation of total biomass and fuel wood.
- Economics of agro-forestry.
- Visit to important agro-forestry research stations.

M.Sc. (Ag.) AGRONOMY - III Semester Syllabus

AGR - 512 (Paper - III)
DRY LAND FARMING AND WATERSHED MANAGEMENT
3(2+1)

Theory :

UNIT - I

Definition, concept and characterstics of dry land farming; dry land versus rainfed farming; significance and dimensions of dry land farming in Indian agricuture.

UNIT - II

Soil and climatic parameters with special emphasis on rainfall characterstics; constraints limiting crop production in dry land areas; types of drought, charactrization of enviornment for water availability: crop planning for erratic and aberrant weather conditions.

UNIT - III

Stress physiology and resistance to drought, adaptation of crop plants to drought, drought management strategies; preparation of appropriate crop plans for dry land areas; mid contingent plan for aberrant weather conditions.

UNIT - IV

Tillage, tilth, frequency and depth of cultivation, compaction in soil tillage; concept of conservation tillage; tillage in ralation to weed control and moisture conservation; techniques and practices of soil moisture conservation (use of mulches, kinds, effectiveness and economics); antitranspirants; soil and crop managment techniques, seeding and efficient fertilizer use.

UNIT - V

Concept of watershed resource management, problems, approach and components.

Practical :

- Seed treatment, seed germination and crop establishment in relation to soil moisture contents
- Moisture stress effects and recovery behaviour of important crops.
- Estimation of moisture index and aridity index
- Spray of anti-transpirants and their effect on crops
- Collection and interpretation of data for water balance equations
- Water use efficiency
- Preparation of crop plants for different drought conditions
- Study of field experiments relevent to dryland farming.
- Visit to dryland research stations and watershed projects.

M.Sc. (Ag.) AGRONOMY - III Semester Syllabus

CA - 502 (Paper - IV)
COMPUTER APPLICATION IN AGRICULTURE
2(1+1)

Theory :

Introduction to computer, operating system, definition and types, application of Ms-Office for document creation & Editing, Data presentation, interpretation and graph creation, statistical analyasis, mathematical expressions, database concepts and types, uses of DBMS in Agriculture, World Wide Web (WWW); Memory, Basic Anatomy of Computer System. e-Agriculture concepts and applications, Use of ICT in Agriculture. IT Application for computation of water and nutrient requirement of crops, computer-controlled devices (automated system) for agri-input management, Smart phone Apps in Agriculture. Decision support systems, concepts, components and applications in agriculture.

Practical :

Study of computer components, accessories, practice of important DOS Commands. Introduction of different operating system such as window, Files & Folders, File Management. Use of MS-Word and MS Power-point for creating, editing and presenting a scientific document. MS-Excel - Creating a spread-sheet, use for statistical tools, writing expressions, creating graphs, analysis of scientific data. MS-Access - Creating database.

M.Sc. (Ag.) AGRONOMY - III Semester Syllabus

PGS - 501 (Paper - V)
LIBRARY AND INFORMATION SERVICES
1(0+1)

Practical :

Introduction to library and its services; Role of libraries in education, research and technology transfer; Classification systems and organization of library; Sources of information - Primary Sources Secondary Sources and Tertairy Sources; Intricacies of abstracting and indexing services (Science Citation Index, Biological Abstracts, Chemical Abstracts, CABI Abstracts, etc.); Tracing information from reference sources; Literature survey; Citation techniques/Preparation of bibliography; Use of CD-ROM Databases, Online Public Access Catalogue and other computerized library services; Use of Internal including search engines and its resources; e-resources access methods.