

**MRSPTU M.SC. (AGRICULTURE) AGRONOMY SYLLABUS
2022 BATCH ONWARDS**

Total Credits= 16

Semester 1st		Contact Hours			Max Marks		Total Marks	Credits
Subject Code	Subject Name	L	T	P	Int.	Ext.		
MAGRS2-101	Modern concepts in Crop Production	3	-	-	40	60	100	3
MAGRS2-102	Fertilizer use in Crop Production	2	-	-	40	60	100	2
MAGRS2-103	Principles and Practices of Weed Management	2	-	-	40	60	100	2
MAGRS2-104	Technical Writing and Communication Skills, Library and Information Services	2	-	-	40	60	100	2
MAGRS2-105	Intellectual Property Management, Biodiversity and Biosafety	2	-	-	40	60	100	2
MAGRS2-106	Principles and Practices of Weed Management lab	-	-	2	60	40	100	1
MAGRS2-107	Technical Writing and Communication Skills, Library and Information Services lab	-	-	2	60	40	100	1
MAGRS2-108	Master's research	-	-	6	-	-	-	3
Total		11		10	320	380	700	16

Total Credits= 18

Semester 2nd		Contact Hours			Max Marks		Total Marks	Credits
Subject Code	Subject Name	L	T	P	Int.	Ext.		
MAGRS2-201	Principles and Practices of Water Management	2	-	-	40	60	100	2
MAGRS2-202	Field Plot Techniques	2	-	-	40	60	100	2
MAGRS2-203	Statistical Methods for Research Workers	2	-	-	40	60	100	2
MAGRS2-204	Soil Fertility and Fertilizer Use	2	-	-	40	60	100	2
MAGRS2-205	Principles and Practices of Water Management lab	-	-	2	60	40	100	1
MAGRS2-206	Field Plot Techniques lab	-	-	2	60	40	100	1
MAGRS2-207	Statistical Methods for Research Workers lab	-	-	2	60	40	100	1
MAGRS2-208	Soil Fertility and Fertilizer Use lab	-	-	2	60	40	100	1
MAGRS2-209	Master's research	-	-	12	-	-	-	6
Total		8	-	20	400	400	800	18

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Semester 3rd		Contact Hours			Max Marks		Total Marks	Credits
Subject Code	Subject Name	L	T	P	Int.	Ext.		
MAGRS2-301	Agronomy of Major Cereals and Pulses	2	-	-	40	60	100	2
MAGRS2-302	Agronomy of Fodder and Forage Crops	2	-	-	40	60	100	2
MAGRS2-303	Analytical Techniques and Instrumental Methods in Soil and Plant Analysis	2	-	-	40	60	100	2
MAGRS2-304	Management of Problem Soils and Water	2	-	-	40	60	100	2
MAGRS2-305	Agronomy of Major Cereals and Pulses lab	-	-	2	60	40	100	1
MAGRS2-306	Agronomy of Fodder and Forage Crops lab	-	-	2	60	40	100	1
MAGRS2-307	Analytical Techniques and Instrumental Methods in Soil and Plant Analysis lab	-	-	2	60	40	100	1
MAGRS2-308	Management of Problem Soils and Water lab	-	-	2	60	40	100	1
MAGRS2-309	Master's research	-	-	10	-	-	-	5
Total		8	-	18	400	400	800	17

Total Credits= 16

Semester 4th		Contact Hours			Max Marks		Total Marks	Credits
Subject Code	Subject Name	L	T	P	Int.	Ext.		
MAGRS2-401	Master Seminar	-	-	-	100	100	200	3
MAGRS2-402	Research and Publication Ethics	1	-	-	40	60	100	1
MAGRS2-403	Research and Publication Ethics (practical)	-	-	2	60	40	100	1
MAGRS2-404	Master's research	-	-	22	-	-	-	11
Total		1	-	24	200	200	400	16

Overall Marks / Credits

Semester	Marks	Credits
1 st	700	16
2 nd	800	18
3 rd	800	17
4 th	400	16
Total	2700	67

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MODERN CONCEPTS IN CROP PRODUCTION

Subject Code: MAGRS2-101 **L T P C** **Duration: 45 (Hrs.)**

3 0 0 3

Course Objectives:

The main objective of soil management for agriculture is to **create favorable conditions for good crop growth**, seed germination, emergence of young plants, root growth, plant development, grain formation and harvest. Sustained productivity goes in hand with good management practices.

Course Outcomes:

1. Students will learn about the modern concepts of crop growth and productivity with regards to climate change.
2. To know about the modern concepts of tillage and farm mechanization.
3. To learn about the fundamentals and components of organic farming, vermiculture, and resource-conservation technology.

Mapping

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			2									
CO2					3							
CO3						2						

UNIT-I (10 Hours)

Crop growth analysis in relation to environment.
Geo-ecological zones of India, Quantitative agro-biological principles and inverse yieldnitrogen law.

UNIT-II (12 Hours)

Mitscherlich yield equation, its interpretation and applicability. Baule unit. Effect of lodgingin cereals.
Physiology of grain yield in cereals.
Optimization of plant population and planting geometry in relation to different resources,concept of ideal plant type and crop modelling for desired crop yield.

UNIT-III (13 Hours)

Scientific principles of crop production. Crop response production functions.
Concept of soil plant relations. Yield and environmental stress.
Integrated farming systems, organic farming and resource conservation technologyincluding modern concept of tillage; dry farming.

UNIT-IV (10 Hours)

Determining the nutrient needs for yield potentiality of crop plants, concept of balance nutrition and integrated nutrient management. Precision agriculture.

Recommended Text Books / Reference Books:

1. Havlin JL, Beaton JD, Tisdale SL & Nelson WL. 2006. Soil Fertility and Fertilizers. 7th Ed. Prentice Hall.
2. Paroda R.S. 2003. Sustaining our Food Security. Konark Publ.
3. Reddy SR. 2000. Principles of Crop Production. Kalyani Publ.
4. Sankaran S & Mudaliar TVS. 1997. Principles of Agronomy. The Bangalore Printing & Publ.
5. Singh SS. 2006. Principles and Practices of Agronomy. Kalyani.

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FERTILIZER USE IN CROP PRODUCTION

Subject Code: MAGRS2-102

L T P C

Duration: 30(Hrs.)

2 0 0 2

Course Objectives:

1. The making of various organic manures will be covered with the students.
2. To understand the importance of plant nutrients, how they are delivered to plants, and the variables that affect their availability.
3. To comprehend how crops react to various fertilisers.

Course Outcomes:

1. Students will learn about the preparation and composition of different organic manures.
2. To recognize the significance of plant nutrients, their mechanisms of transport to plants, and the factors that control their availability.
3. To understand the crop responses to different fertilizers.

Mapping

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1			3									
CO2				2								
CO3				2								

UNIT-I (7 Hours)

Crop response to fertilizer-effect on germination, growth and nutrient removal. Problems of supply and availability of nutrients, relation between nutrient supply and crop growth. Organic farming - basic concept and definitions.

UNIT-II (7 Hours)

Preparation and use of farmyard manure, compost, green manures, vermin-compost, bio-fertilizers and other organic concentrates their composition, availability and crop responses, recycling of organic wastes and residue management. Commercial fertilizers, composition, relative fertilizer value and cost.

UNIT-III (8 Hours)

Crop response to different nutrients, residual effects and fertilizer use efficiency, fertilizer mixtures and grades. Agronomic, chemical and physiological methods of increasing fertilizer use efficiency. Nutrient interactions. Time and methods of manures and fertilizers application. Foliar fertilizer application and its concept.

UNIT-IV (8 Hours)

Relative performance of organic and inorganic manures. Economics of fertilizer use. Integrated nutrient management. Site specific nutrient management. Effect of fertilizers on environment, Nutrient cycling integrated farming systems, Long effects of fertilizers use on crop yield and soil productivity.

Recommended Text Books / Reference Books:

1. Brady NC & Weil R.R 2002. The Nature and Properties of Soils. 13th Ed. Pearson Edu.
2. Fageria NK, Baligar VC & Jones CA. 1991. Growth and Mineral Nutrition of Field Crops. Marcel Dekker.
3. Havlin JL, Beaton JD, Tisdale SL & Nelson WL. 2006. Soil Fertility and Fertilizers. 7th Ed. Prentice Hall.
4. Prasad R & Power JF. 1997. Soil Fertility Management for Sustainable Agriculture. CRC Press. Yawalkar KS, Agrawal JP & Bokde S. 2000. Manures and Fertilizers. Agri-Horti

