

Generic Elective Course - Agriculture

GUAGRI 101: Manures, Fertilizers and Soil Fertility Management 3(2+1)

Course Code	Course Name	TEACHING & EVALUATION SCHEME							
		THEORY			PRACTICAL		L	P	CREDITS
		END SEM University Exam	Two term exam*	Teachers Assessment*	End Sem University Exam	Teachers Assessment*			
GUAGRI 101	Manures, Fertilizers and Soil Fertility Management	50	30	00	15	05	2	1	3

1. **Legends:** L - Lecture; P – Practical; C-Credit;
2. ***Teacher Assessment** shall be based on following components: Quiz / Assignment / Project / Participation in Class,

Course Objective: To study the about soil fertility, fertilizers manures, and management of soil fertility

Course Outcomes:

1. Student will able to understand the how to management of soil fertility
2. Student will able to understand method of fertilizer application

Unit-1:Introduction and importance of organic manures, properties and methods of preparation of bulky and concentrated manures. Green/leaf manuring. Fertilizer recommendation approaches. Integrated nutrient management.

Unit-2:Chemical fertilizers: classification, composition and properties of major nitrogenous, phosphatic, potassic fertilizers, secondary & micronutrient fertilizers, Complex fertilizers, nano fertilizers Soil amendments, Fertilizer Storage, Fertilizer Control Order.

Unit-3:History of soil fertility and plant nutrition. criteria of essentiality. Role, deficiency and toxicity symptoms of essential plant nutrients, Mechanisms of nutrient transport to plants, factors affecting nutrient availability to plants.

Unit-4:Chemistry of soil nitrogen, phosphorus, potassium, calcium, magnesium, sulphur and micronutrients. Soil fertility evaluation, Soil testing. Critical levels of different nutrients in soil. Forms of nutrients in soil, plant analysis, rapid plant tissue tests.

Unit-5:Indicator plants. Methods of fertilizer recommendations to crops. Factor influencing nutrient use efficiency (NUE), methods of application under rainfed and irrigated conditions.

Practical: GUAGRI 101

Introduction of analytical instruments and their principles, calibration and applications, Colorimetry and flame photometry. Estimation of soil organic carbon, Estimation of alkaline hydrolysable N in soils. Estimation of soil extractable P in soils. Estimation of exchangeable K; Ca and Mg in soils .Estimation of soil extractable S in soils. Estimation of DTPA extractable Zn in soils. Estimation of N in plants. Estimation of P in plants. Estimation of K in plants. Estimation of S in plants.

Books:

1. <http://www.agrimoon.com/manures-fertilizers-agrochemicals-pdf-book/>
1. Soil Fertility and Nutrient Management (2011) by S.S.Singh, Kalyani Publishers, New, Delhi
2. FAO: Fertilizer and their use 4 TH Ed.