

**Course no: AG-111**

**Title: Agronomy**

**Sem: I (OLD)**

**Credit: 2 ( 1+1)**

**Theory:**

Definition and scope of Agronomy. Classification of crops. Effect of different weather parameters on crop growth and development. Principles of tillage. Tilt and its characteristics. Tillage implements. Water requirement of crops and irrigation scheduling, crop rotation, cropping systems, mono double and multiple cropping . Relay cropping and mixed cropping. Cultivation practices of important field crops, improved varieties, seed rate, time and method of sowing, manuring, fertilization. Concept of dry farming.

**Practicals:**

Identifications of crops and their varieties seeds and weeds. Fertilizer application methods. Different weed control methods. Different seed bed preparation methods. Different methods of sowing and transplanting. Judging maturity time for harvesting of crop. Acquaintance with different methods of harvesting. Preparation of charts showing major agro-climatic zones and rainfall pattern Study of seed viability and germination test.

---

**Course No. : SSAC-232**

**Title : Soil, Water and Plant Analysis**

**Credit : 2=0+2**

---

### **PRACTICALS**

Layout, design and requirement of soil, water and plant analysis laboratory. Soil sampling, processing of soil samples, soil physical and chemical properties, texture, bulk density, water retention, soil reaction, conductivity, calcium carbonate, organic carbon, available NPK, Fe, Mn, Zn, Cu, B and Mo in soil, secondary nutrients Ca, Mg, S in soil, exchangeable cations Na, K, cation exchange capacity, base saturation, exchangeable sodium percentage, gypsum, requirement of alkali soils, lime requirement of acid soils. Critical values of nutrients in soils, computation of NPK fertilizer requirement as per fertilizer prescription equation for different crops. **Irrigation water analysis:** Sampling, pH, EC, cations and anions, SAR and RSC, criteria for irrigation water suitability, city and agro industrial effluents. **Plant analysis:** Sampling, processing, total N, P, K, Ca, Mg, S, Fe, Mn, Zn, Cu, B and Mo, in plants, critical values of nutrients in plants, plants nutrient diagnostic norms.

### **LESSION PLAN**

<b>Practical No.</b>	<b>Topic</b>	<b>Weightage</b>
1	Layout, Design and requirement of soil , water and plant analysis laboratory	3
1	Determination of soil texture by feel method	3
1	Determination of Bulk Density of soil by cold and core method	4
1	Determination of moisture contain by gravimetric method	3
1	Determination of soil PH	3
1	Determination of soil E.C.	3
1	Determination of $\text{CaCO}_3$ of soil .	4
1	Determination of organic carbon from thr soil by soil wet oxidation method	4

1	Determination of available N in the soil by alkaline per magnate method.	3
1	Determination of available P in soil by Olsen's method	3
1	Determination of available K in soil by flame photometer method	3
1	Determination of micronutrient in soil	3
1	Determination of secondary nutrient Ca, Mg, S in the soil.	3
1	Determination of exchangeable cations Na, K	3
1	Determination of cation exchange capacity	3
1	Determination of exchangeable sodium percentage	3
1	Determination of gypsum, requirement of alkali soils	3
1	Determination of lime requirement of acid soils	3
1	Determination of Critical values of nutrients in soils	3
1	Determination of computation of NPK fertilizer requirement as per fertilizer prescription equation for different crops	3
	<b>IRRIGATION WATER ANALYSIS</b>	
1	Determination of pH,	4
1	Determination of EC	3
1	Determination of cations and anions	3
1	Determination of SAR and RSC	3
1	Determination of criteria for irrigation water suitability, city and agro industrial effluents.	3
	<b>PLANT ANALYSIS</b>	
1	Determination of total N in plants	3
1	Determination of total P in plants	3
1	Determination of total K in plants	3

1	Determination of total Ca, Mg and S in plants	3
1	Determination of Fe, Mn, Zn, Cu, B and Mo in Plants.	3
1	Determination of critical values of nutrients in plants	3
1	Determination of plants nutrient diagnostic norms	3
<b>32</b>	<b>TOTAL</b>	<b>100</b>