

POOL OF GENERIC ELECTIVES FOR ODD SEMESTER

GENERIC ELECTIVE (GE-01)

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Agricultural Botany and Weed Science ALS BOT GE 01	4	2	0	2	NIL	NIL

Objectives:

To gain the knowledge on:

- Requirement of the conditions for seed germination.
- Growth hormones, plant development and flowering conditions.
- Weeds and methods to control weeds.

Course Learning Outcomes:

After completion of this course the students would be able to understand the following:

- How is the quality of seeds assessed and how are suitable conditions created for seed germination?
- How is growth, flowering and fruiting in plants managed through the application of hormones?
- Weed biology, ecology and management of weeds in commercial crops

Theory:

Unit 1. Seed Physiology:

Hours: 04

Seed dormancy types, factors, mechanism and methods for breaking dormancy, seed viability, seed vigour and seed germination.

Unit 2. Physiology of Crop Growth and Yield:

Hours: 05

Growth, methods of growth analysis, factors affecting growth, concept of phytotronics and Fertilizers (Nitrogen, Phosphorus, biofertilizers).

Unit 3. Regulation of Growth and Development: Hours: 04

Role of hormones in plant growth and development, growth retardant.

Unit 4. Reproductive Physiology and Senescence: Hours: 06

Physiology of flowering, Photoperiodism, vernalization, physiology of fruit ripening, senescence and regulation of senescence.

Unit 5. Biology of Weeds: Hours: 04

Ecology of weeds, competition, reproduction of weeds. Allelopathy and Invasive Plants.

Unit 6. Crop Management Practices: Hours: 07

Mechanical, Cultural, Biological and Chemical Weed control. Some obnoxious weeds and their management, Integrated pest management (IPM).

Practical:

- To study the effect of ethylene on shelf life of cut flowers. / To study the effect of cytokinin on leaf senescence.
- To test the viability of weed seeds.
- To study the allelopathic effects of weeds on germination of crop seeds.
- To study the effect of herbicides on seed germination and seedling growth of weeds.
- Determination of pH and analysis of a soil sample for carbonates, chlorides, sulphates, organic matter and base deficiency by rapid field tests.
- To perform qualitative test for Nitrogen (NH_4^+ , NO_3^- , urea) in a fertilizer and soil sample.
- Demonstration / use of digital resources for the mechanisms used in herbicide application.
- Field trip to a crop land to study weeds.
- Submission of any two properly dried and mounted weed specimens with herbarium label.

Essential/recommended readings

- Ashton, F. M., & Monaco, T. J. (2002). *Weed Science: Principles and Practices*. John Wiley and Sons. Inc.
- Hopkins, W.G. (1995). *Introduction to plant physiology*. John Wiley and Sons. Inc.
- Taiz, L., & Zeiger, E. (2006). *Plant Physiology* (5th ed.). Sinauer Associates, Inc.
- Mandal, R.C. (1990). *Weeds, weedicides and weed control: Principle and Practice*. Agro Botanical Publishers.

Suggestive readings

- Rao, V. S. (1999). *Principles of Weed Science*. Oxford and IBH Publishers.
- Subramanian, S. (2017). *All about weed control*. Kalayani publishers.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.