

Syllabus for Bachelor of Agriculture

PLANT PATHOLOGY

Subject code: 16AS0209

Subject Name: **Introductory Plant Nematology**

B. Sc. (Hons.) Agri., **First Year (Sem.-II)**

Objective:

To create the awareness among the students about plant diseases caused by nematodes

Credit Earned: 1+1= 2 Credits

Course Outcomes:

After completion of this course, student will be able to:-

- 1 Identify the disease which is caused by nematodes.
- 2 Control the diseases caused by nematodes.

Teaching and Evaluation Scheme

Teaching Scheme (hours)		Credits	Theory Marks			Practical Marks		Total Marks
Theory	Practical		ESE (E)	IA	CSE	Viva (V)	Term Work (TW)	
1	2	2	50	30	20	25	25	150

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Contents:

Unit	Topics	Contact Hours
Theory		
1.	Introduction, History of phytonematology. Economic importance	
2.	General characteristics of plant pathogenic nematodes	
3.	Nematode general morphology and biology	
4.	Classification of nematodes up to family level with emphasis on groups containing economically important genera	
5.	Classification of plant parasitic nematodes based on feeding habits	
6.	Identification of economically important plant nematodes up to generic level with the help of keys and description	
7.	Symptoms caused by nematodes with examples	
8.	Interaction between plant parasitic nematodes and disease causing fungi, bacteria and viruses	
9.	Different methods of nematode management. Cultural methods (Crop rotation, fallowing, soil amendments, other land management techniques)	
10.	Physical methods (Soil solarization, hot water treatment)	
11.	Biological methods, Chemical methods (fumigants, non fumigants)	
12.	Resistant varieties , IPM	

Unit	Topics	Contact Hours
Practical		
1.	Methods of survey- sampling methods, collection of soil and samples	
2.	Extraction of nematodes from soil and plant tissues following combined Cobb's sieving technique and Baermann funnel technique	
3.	Counting and estimation of plant parasitic nematodes	
4.	Preparation of temporary and permanent mounts	
5.	Method of preparation of perineal patterns for identification of species of <i>Meloidogyne</i>	
6.	Study and identification of most important plant parasitic nematodes with special reference to their characteristics and symptomatology	
7.	Experimental techniques used in pathogenicity studies with root-knot nematode	
8.	Studies of nematicides and their formulations	
9.	Methods of nematicides application and their safe use	
10.	Calculation of nematicides application concentrations	

Reference Books:

1. A text book of Plant Nematology
Walia A. K. & Baja

Instructional Method:

- a. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board may also use any of tools such as demonstration, role play, quiz, brainstorming, MOOCs *etc.*
- b. The internal evaluation will be done on the basis of continuous evaluation of students in the class-room.
- c. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
- d. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.