GANPAT UNIVERSITY									
FACULTY OF AGRICULTURE, ALLIED SCIENCES & TECHNOLOGY									
Programme	B.Sc. (Hons)					Branch/Spec.	Agriculture		
Semester	III					Version	1.0.0.0		
Effective from Academic Year		2026-27			Effective for the batch Admitted in			July 2025	
Subject code	IIIA06FON		Subject Name		Fundamentals of Nematology				
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	1	0	1	-	2	Theory	40	40	80
Hours	1	0	2	-	3	Practical	20	0	20

Pre-requisites
Not Applicable

Course Outcomes	
On successful completion of the course, the students will be able to:	
CO1	To define and explain phytonematology, and describe the history, habitat, diversity, economic importance, morphology and biology of plant parasitic nematodes.
CO2	To classify nematodes up to family level based on morphology and feeding/parasitic habits, and analyze groups containing economically important genera.
CO3	To identify and analyze nematode symptomatology, evaluate their role in disease development, and explain interactions between plant parasitic nematodes and fungi, bacteria and viruses.
CO4	To apply appropriate nematode management strategies—including cultural, physical, biological, chemical, plant quarantine, host resistance and INM—and evaluate their effectiveness for major crop systems.

Theory Syllabus

Unit	Content	Hrs
1	Introduction: History of phytonematology, habitat and diversity, economic importance of nematodes. General characteristics of plant parasitic nematodes. Nematode: definition, general morphology and biology. Classification of nematodes up to family level with emphasis on groups containing economically important genera.	4
2	Classification of nematodes on the basis of feeding/ parasitic habit. Symptomatology, role of nematodes in disease development, Interaction between plant parasitic nematodes and disease-causing fungi, bacteria and viruses.	4
3	Nematode pests of crops: Rice, wheat, vegetables, pulses, oilseed and fiber crops, citrus and banana, tea, coffee and coconut.	4
4	Different methods of nematode management: Cultural methods, physical; methods, Biological methods, Chemical methods, Plant Quarantine, Plant resistance and INM.	3

Practical Content-

1. Sampling methods, collection of soil and plant samples
2. Extraction of nematodes from soil and plant tissues following Cobb's sieving and decanting technique, Baermann funnel technique
3. Picking and counting of plant parasitic nematodes.
4. Identification of economically important plant nematodes up to generic level with the help of keys and description: Meloidogyne, Pratylenchus; Heterodera, Tylenchulus, Xiphinema, and Helicotylenchus etc.
5. Study of symptoms caused by important nematode pests of cereals, vegetables, pulses, plantation crops etc.
6. Methods of application of nematicides and organic amendments.

Reference book

Note: Version 1.0.0.0 (First Digit= New syllabus/Revision in Full Syllabus, Second Digit=Revision in Teaching Scheme, Third Digit=Revision in Exam Scheme, Forth Digit= Content Revision)

L=Lecture, TU=Tutorial, P= Practical/Lab., TW= Term work, DT= Direct Teaching, Lab.= Laboratory work

CE= Continuous Evaluation, SEE= Semester End Examination

1. Economic Nematology-Edited by J.M. Webster
2. Plant Parasitic Nematodes (Vol-1) by Zukerman, Mai, Rohde
3. Plant Parasitic Nematodes of India: Problems and Progress by - Gopal Swarup, D. R. Dasgupta, P. K. Koshy.
4. Text book on Introductory Plant Nematology -R.K. Walia and H.K. Bajaj.

Mapping of CO with PO and PSO:

	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	1	1	1	1	1	3	2	2	1	1	1
CO2	2	1	1	1	2	1	3	2	2	1	1	1
CO3	2	1	1	1	2	1	3	3	2	1	2	1
CO4	2	2	1	1	1	1	2	1	2	1	1	1

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