

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		IIIA07PNF		Subject Name		Principles and Practices of Natural Farming			
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 explain the history of Indian agriculture, principles of natural farming, and its importance in climate resilience, soil health, biodiversity conservation, food and nutritional security, and SDGs.								
CO2	To assess ecological footprints, evaluate ecosystem services, and design farm systems integrating crops, trees, and animals for optimal ecological balance.								
CO3	Students will demonstrate practical application of nutrient management, pest and weed control, farm waste recycling, and water conservation techniques suitable for natural farming practices.								
CO4	Students will be able to critically assess the viability, market potential, processing, labelling, certification, and mechanization options for natural farming produce.								
CO5	To propose entrepreneurial models, community engagement strategies, and case-based solutions to promote natural and chemical-free farming practices.								
<b>Theory Syllabus</b>									
Unit	Content								Hrs
1	Indian Heritage of Ancient Agriculture, History of Natural Farming, Importance of natural farming in view of climate change, soil health, water use carbon sequestration, biodiversity conservation, food security and nutritional security, and sustainable development goals (SDGs), Concept of natural farming; Definition of natural farming; Objective of natural farming, Essential characteristics and Principles of natural farming								3
2	Scope and importance of natural farming. Main Pillars of natural farming; Methods/ types/schools of natural farming. Characteristics and design of a natural farm, Concept of ecological balance, ecological engineering and community responsibility in natural versus other farming systems, Introduction to concept of ecological, water, carbon and nitrogen foot prints								4
3	Concept and evaluation of ecosystem services, integration of crops, trees and animals, cropping system approaches, Biodiversity, indigenous seed production, farm waste recycling, water conservation and renewable energy use approaches on a natural farm, Rearing practices for animals under natural farming, Nutrient management in natural farming and their sources, Insect, pest, disease and weed management under natural farming								4
4	Mechanization in natural farming, Processing, labelling, economic considerations and viability, certification and standards in natural farming, marketing and export potential of natural farming produce and products. Initiatives taken by Government (central/state), NGOs and other organizations for promotion of natural farming and chemical free agriculture, Case studies and success stories in natural farming and chemical free traditional farming, Entrepreneurship opportunities in natural farming.								4
<b>Practical Content-</b>									
1. Visit of natural farm and chemical free traditional farms to study the various components and operations of natural farming principles at the farm;									

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

2. Indigenous technical knowledge (ITK) for seed, tillage, water, nutrient, insect-pest, disease and weed management;
3. On-farm inputs preparation methods and protocols,
4. Studies in green manuring in-situ and green leaf manuring,
5. Studies on different types of botanicals and animal urine and dung based non-aerated and aerated inputs for plant growth, nutrient, insect and pest and disease management;
6. Weed management practices in natural farming;
7. Techniques of Indigenous seed production- storage and marketing, Partial and complete nutrient and financial budgeting in natural farming;
8. Evaluation of ecosystem services in natural farming (Crop, Field and System).

#### Reference book

1. Ayachit, S.M. 2002. Kashyapi Krishi Sukti (A Treatise on Agriculture by Kashyapa). Brig Sayeed Road, Secunderabad, Telangana: Asian Agri-History Foundation 4: 205.
2. Boeringa, R. (Eed.). 1980. Alternative Methods of Agriculture. Elsevier, Amsterdam, 199 pp.
3. Das, P., Das, S.K., Arya, H.P.S., Reddy, G. Subba, Mishra, A. and others: Inventory of Indigenous Technical Knowledge in Agriculture: Mission mode Project on Collection, Documentation and Validation of Indigenous Technical Knowledge, Document 1 To 7, Indian Council of Agricultural Research, New Delhi.
4. Ecological Farming -The seven principles of a food system that has people at its heart. May 2015, Greenpeace.
5. Ecological Farming, The Seven principles of a food system that has people at its heart. May 2015, Greenpeace
6. FAO. 2018. The 10 elements of agro-ecology: guiding the transition to sustainable food and agricultural system.<https://www.fao.org/3/i9037en/i9037en.pdf> Agro ecosystem Analysis for Research and Development Gordon R. Conway.1985.
7. Fukuoka, M. 1978. The One-Straw Revolution: An Introduction to Natural Farming. Rodale Press, Emmaus, PA. 181 pp
8. Fukuoka, M. 1985. The Natural Way of Farming: The Theory and Practice of Green Philosophy. Japan Publications, Tokyo, 280 pp.
9. Hill S.B and Ott. P. (Eeds.). 1982. Basic Techniques in Ecological Farming Berkhauser Verlag, Basel, Germany, 366 pp.
10. Hill, S.B. and Ott, P. (Eeds.). 1982. Basic Techniques in Ecological Farming. Berkhauser Verlag, Basel, Germany, 366 pp.

#### Mapping of CO with PO and PSO:

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

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