

UNIVERSITY

GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

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# School of Agriculture

## CRITERIA 1

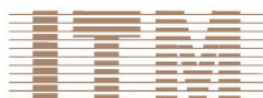
### SUB CRITERIA 1.3.4

#### Details of Students undertaking Projects/Internship

Academic Year 2021-2022



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“ CELEBRATING DREAMS ”

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### **Experiential Learning Programme (ELP)/ Hands On Training (HOT)**

Experiential Learning (EL) with business mode helps the student to develop competence, capability, capacity building, acquiring skills, expertise, and confidence to start their own enterprise and turn job creators instead of job seekers. This is a step forward for “Earn while Learn” concept. Experiential Learning is an important module for high quality professional competence and practical work experience in real life situation to Graduates. The module with entrepreneurial orientation of production and production to consumption pattern is expected to facilitate producing Job Providers rather than Job Seekers. The EL provides the students an excellent opportunity to develop analytical and entrepreneurial skills, and knowledge through meaningful hands-on experience, confidence in their ability to design and execute project work. The main objectives of EL are:

- To promote professional skills and knowledge through meaningful hands-on experience.
- To build confidence and to work in project mode.
- To acquire enterprise management capabilities.

This program will be undertaken by the students preferably during the eighth semester for a with a weightage of 0+20 credit hours. The students will register for any of two modules of 0+10 credit hours each

### **Agro Industrial Attachment**

- Students shall be placed in Agro-and Cottage industries and Commodities Boards for 03 weeks.
- Industries include Seed/Sapling production, Pesticides-insecticides, Post harvest-processing value addition, Agri-finance institutions, etc.

### **Activities and Tasks during Agro-Industrial Attachment Programme**

1. Acquaintance with industry and staff
2. Study of structure, functioning, objective and mandates of the industry
3. Study of various processing units and hands-on trainings under supervision of industry staff
4. Ethics of industry
5. Employment generated by the industry
6. Contribution of the industry promoting environment
7. Learning business network including outlets of the industry
8. Skill development in all crucial tasks of the industry
9. Documentation of the activities and task performed by the students
10. Performance evaluation, appraisal and ranking of students



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## School Of Agriculture Total Number of Projects in UG and PG

Sr. No.	Programme	Course Code	Total Number of students Involved in projects
1	B.Sc. (Hons.) Agriculture	ELP- ABM-403 ELP- AGRON-401	205
2	M.Sc. Agriculture (Agronomy)	AGRON-560	31
3.	M.Sc. Agriculture (Genetics and Plant Breeding)	GPB-599	17

## School Of Agriculture Total Number of Internship

Sr. No.	Programme	Course Code	Total Number of students Involved in projects
1	B.Sc. (Hons.) Agriculture	RAWE-403	205

  
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## List of ELP Subjects

Course Code	Course Name	Subject Type	Semester
ELP- ABM-403	Agricultural Heritage and Agritourism	ELP1	8th
ELP- AGRON-401	Agricultural waste management	ELP1	8th
ELP- ENT-401	Commercial Beekeeping	ELP1	8th
ELP- GPB-401	Seed Production Technology	ELP1	8th
ELP- HORT-403	Processing of fruits and vegetables for value addition	ELP1	8th
ELP- HORT-405	Protected Cultivation of High value Horticulture Crops	ELP1	8th
ELP-AGRON-402	Organic Production Technology	ELP1	8th
ELP-AGRON-403	Commercial Crop Production Technology	ELP1	8th
ELP- ABM-401	Agribusiness and Industrial Management	ELP1.	8th
ELP-ENT-402	Production Technology for Bio-agents and Bio-fertilizer	ELP2	8th
ELP-HORT-401	Commercial Horticulture (Vegetable and Spices Crop Production)	ELP2	8th
ELP-HORT-402	Floriculture and landscaping	ELP2	8th
ELP-HORT-404	Commercial Nursery _____ Horticultural Crops	ELP2	8th
ELP-HORT-406	Organic Vegetable Production	ELP2	8th
ELP-PP-401	Mushroom Cultivation Technology	ELP2	8th
ELP-PP-402	Plant Health Diagnosis and Management	ELP2	8th
ELP-SS-401	Soil, Plant, Water and Seed Testing	ELP2	8th
ELP- ABM-402	Industrial Training On Product Development And Marketing	ELP2.	8th



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## STUDY AND EVALUATION SCHEME

(SUBJECT-WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS)

Programme: BSc\_Hons Agriculture (BSc\_HonsAgriculture) Semester: 7<sup>th</sup>

Batch: 2018-2022

S.No.	Course Code	Course Name	Maximum Marks Allotted							Credits Allotted			Total Credits
			Theory			Practical			Total Marks	L	T	P	
			End Sem. Exam	Mid Sem. Exam	Class Participation	End Sem. Exam	Prograssive Evaluation	Internal Viva					
1	RAWE-401	Village Attachment	0	0	0	100	0	0	100	0	0	8	8
2	RAWE-402	Unit Attachment	0	0	0	100	0	0	100	0	0	6	6
3	RAWE-403	Agro- Industrial attachment	0	0	0	100	0	0	100	0	0	4	4
4	RAWE-404	Plant Clinic Attachment	0	0	0	100	0	0	100	0	0	2	2
<b>Total Credits</b>												<b>20</b>	

  
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## STUDY AND EVALUATION SCHEME

(SUBJECT-WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS)

Programme: BSc\_HonsAgriculture(BSc\_HonsAgriculture) Semester: 8<sup>th</sup>

Batch: 2018-2022

S.No.	Course Code	Course Name	Maximum Marks Allotted						Credits Allotted			Total Credits	
			Theory			Practical			Total Marks	L	T		P
			End Sem. Exam	Mid Sem. Exam	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva					
1		ELP2.	0	0	0	100	0	0	100	0	0	10	10
2		ELP1.	0	0	0	100	0	0	100	0	0	10	10
<b>Total Credits</b>												20	

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Agribusiness and Industrial Management
<b>Course Code</b>	ELP- ABM-401 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Ag. Economics			<b>Co-Requisite/s</b>	Ag. Extension			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Students will acquire knowledge about various aspects of agribusiness and also understand the structure and working of an enterprise. <b>(BL1-Remember)</b></p> <p><b>CO2-</b> Utilize the knowledge in the fields of project management and entrepreneurship development. <b>(BL2-Understand)</b></p> <p><b>CO3-</b> Analyze the challenges and problem of agroindustry, examining the quality of product of agroindustry and their role in agriculture. <b>(BL3-Apply)</b></p> <p><b>CO4-</b> Evaluate various policies, strategies and decisions relating to marketing that are developed by agribusiness firms. <b>(BL4-Analyze)</b></p>							
<b>Coures Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

#### Part B

Modules	Contents	Pedagogy	Hours
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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Structure of Agribusiness- Linkages among sub-sectors of the Agribusiness sector; economic reforms and Indian agriculture; impact of liberalization, privatization and globalization on Agri business sector Emerging trends in production, processing, marketing and exports; policy controls and regulations relating to the industrial sector with specific reference to agro-industries.	Field work	BL2-Understand	20
Module 2	Role of Agribusiness in economy- Role of agriculture in Indian economy; problems and policy changes relating to farm supplies, farm production, agro processing, Evaluation process. agricultural marketing, agricultural finance etc. in the country.	Field work	BL2-Understand	20
Module 3	Financial Management- Introduction to Financial Management, Its meaning and functions, Interface of financial management with other functional areas of a business. Financial Statements and Analysis, Capital Structure, Working Capital Management, Financial planning and Forecasting.	Field work	BL3-Apply	20
Module 4	Quality Management in Agribusiness- Basic concepts of quality management, importance of quality and the role of quality assurance in agribusiness. TQM and business strategy. Quality control process and its relevance. Quality grades and standards	Field work	BL3-Apply	20
Module 5	Agriculture supply chain management- Managing Retail Operations, Managing Retailers' Finances, Merchandise buying and handling, Merchandise Pricing, Logistics, procurement of Food products and Handling Transportation of Food Products.	Field work	BL3-Apply	20
Module 6	Project management and entrepreneurship development- Types of Project, Project lifecycle; Project feasibility; network method; Significance of entrepreneurship in economic development, developing effective business plan, Procedural steps in setting up of an industry.	Field work	BL3-Apply	20
Module 7	Production and operation management- Nature and Scope; Productivity variables and measurement; Product design and development; Quality assurance	Field work	BL4-Analyze	20

Module 8	Agribusiness policy in India- concept and formulation; and new dimensions in Agri business environment and policy; Agricultural price and marketing policies; public distribution system and other policies.	Field work	BL4-Analyze	20
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### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41			100	

### Part E

<b>Books</b>	Barnard, F.L. (2016). Agribusiness Management. Routledge Publisher United Kingdom. Diwase, S. (2017). Indian Agriculture and Agribusiness Management. KRISHI Resource Management Network, New Delhi. Nuthall, P.L. (2011). Farm Business Management: Analysis of farming system. CABI. Khan, M.Y. & Jain, P.K. (2004). Financial Management: Text, Problems and Cases. Tata McGraw Hill.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	2	2	2	1	-	3	-	1	-	1	1	2	-
CO3	-	3	3	1	1	3	2	1	2	1	-	1	-	-	2
CO4	-	3	3	1	1	-	-	1	-	1	-	1	-	1	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Industrial Training On Product Development And Marketing
<b>Course Code</b>	ELP- ABM-402 [P]

#### Part A

<b>Year</b>	4th	<b>Semester</b>	8th	<b>Credits</b>	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Ag. Economics			<b>Co-Requisite/s</b>	Ag. Extension			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Students will acquire training in the Industrial production and marketing. <b>(BL1-Remember)</b></p> <p><b>CO2-</b> Evaluation of various Industrial products, marketing channel and cost of production. <b>(BL2-Understand)</b></p> <p><b>CO3-</b> Analyze the challenges in cost of production and marketing. <b>(BL3-Apply)</b></p> <p><b>CO4-</b> Evaluate the role of industries and investors. <b>(BL4-Analyze)</b></p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

#### Part B

<b>Modules</b>	<b>Contents</b>	<b>Pedagogy</b>	<b>Hours</b>
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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Basic of industrial marketing Reason for understanding the concept of industrial marketing—Attributes of Marketing Strategy—Concept of Industrial Marketing—Definition of Industrial Marketing—Types of Product —Industrial Product—Industrial Process Exchange—Types of Industrial Customers—Commercial Enterprises—Industrial Distributors and Dealers—Original Equipment Manufacturers (OEMs)—Government Customers—Institutions—Cooperative Societies	Experiments	BL2-Understand	20
Module 2	Understanding industrial markets Industrial versus Consumer Markets—Market Structure—Marketing Perspective — Customer Behaviour—Industrial Marketing landscape—Industrial Development in India — Current trends in Indian Industrial market —Elements of Industrial Development Strategy	Experiments	BL2-Understand	20
Module 3	Economic issues in industrial marketing Derived demand —value chain of derived demand—ripple effect of derived demand—derived demand marketing—fluctuating demand—joint demand —stimulating demand—cross-elasticity of demand—effect of cross elasticity of demand on market—pricing policy—inelastic demand—purchasing / buying orientation—purchasing orientation— buying orientation— procurement orientation—supply management orientation —types of purchasing process	Experiments	BL2-Understand	20
Module 4	Industrial buying behavior: Organizational Buying —Features of Organizational Buying —Types of buying Situation— Straight Rebuy—Modified Rebuy—New task— System buy—Buying Center Concept— The Buying Decision Process—Buying Mode— The Sheth Model—The Webster and Wind Mode—Vendor Analysis —Vendor Performance Rating	Field work	BL3-Apply	20
Module 5	Industrial marketing research: Definition— Uses of Industrial Marketing Research — Studying the business trends —New Product Studies—Sales quota determination and DD forecasting—Market potential and market share analysis—Differences in Industrial and Consumer Marketing Research— Industrial Marketing Research Process— The Sampling Plan—Sampling methods — Probability Sampling Methods— Non-probability Sampling Methods	Field work	BL3-Apply	20

  
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Module 6	Product development strategy: Developing product strategy—Product Policy —New Product Development— Define product— Identify market needs—Identify key issues and approaches—Idea Generation —Idea Screening —Concept development & testing —Business Analysis —Product Development—Marketing Testing— Commercialization —Industrial Product Life Cycle — The Introductory Stage—Growth— The Maturity Stage— The Decline Stage— Product Evaluation —Perceptual Mapping	Field work	BL3-Apply	20
Module 7	Pricing in industrial marketing: Pricing Environment —Characteristics of Price— The Pricing Process in Industrial Marketing —Factors affecting industrial pricing decision —Pricing Objectives—Market Skimming —Market Penetration—Product Differentiation —Other pricing objectives — Demand Conditions —Cost Condition — Pricing Policies —Competitive Analysis — Government Regulations —Pricing Strategy —Introductory Stage — Market Skimming Strategy:—Market Penetration Strategy:— Pricing Strategy at Growth stage —Pricing Strategy at Maturity stage—Pricing Strategy at Decline Stage	Field work	BL3-Apply	20
Module 8	Industrial distribution channel: Marketing channels physical distribution—factors affecting the nature of industrial channels— geographic distribution —channel size— characteristics of intermediaries— mixed system—structure of industrial channel— direct channel—indirect channel—types of industrial middlemen/intermediaries— industrial distributors (dealers)—three main/major categories of industrial distributor: —manufacturers’ representatives – brokers—value- added reseller—the channel design process—controlling channel conflicts	Field work	BL3-Apply	20

**Part D(Marks Distribution)**

<b>Theory</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
<b>Practical</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
100	41			100	

  
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## Part E

<b>Books</b>	Cherunilam, F. (2015). Industrial Marketing Text & Cases. Himalaya Publishing House. Reeder, (1997). Industrial Marketing: Analysis, Planning and Control. Prentice Hall. Mukerjee, H.S. (2008). Industrial Marketing. Excel Books. Ghosh, P. K. (2005). Industrial Marketing. Oxford University Press.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-
CO3	-	3	2	1	-	-	1	1	1	-	1	1	-	-	2
CO4	-	2	3	1	-	-	-	1	-	-	1	1	-	1	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

(SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Agricultural Heritage and Agritourism
<b>Course Code</b>	ELP- ABM-403 [P]

### Part A

<b>Year</b>	4th	<b>Semester</b>	8th	<b>Credits</b>	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>				<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<b>CO1-</b> Describe the importance Indian agricultural heritage system ( <b>BL1-Remember</b> ) <b>CO2-</b> Explain the importance of agritourism( <b>BL2-Understand</b> ) <b>CO3-</b> Demonstrate various ITKs in the field( <b>BL3-Apply</b> ) <b>CO4-</b> Analyse the challenges while initiating agritourism and possible practical solutions( <b>BL4-Analyze</b> ) <b>CO5-</b> Evaluate the role of heritage systems in developing business( <b>BL5-Evaluate</b> )							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	<b>SDG (Goals)</b>	SDG1(No poverty) SDG2(Zero hunger) SDG4(Quality education) SDG8(Decent work and economic growth) SDG11(Sustainable cities and economies) SDG12(Responsible consumption and production) SDG15(Life on land) SDG17(Partnerships for the goals)					

### Part B

<b>Modules</b>	<b>Contents</b>	<b>Pedagogy</b>	<b>Hours</b>
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Globally Important Agricultural Heritage Systems	PBL	BL2-Understand	20
Module 2	Past day agriculture and farmers in society: Indus period, Vedic period and early historic/ Buddhist period	PBL	BL2-Understand	20
Module 3	Crops and its importance and Crop Voyage in India and World	PBL	BL3-Apply	20
Module 4	Plant production and protection through Indigenous Technical Knowledge (ITK)	PBL	BL3-Apply	20
Module 5	Scope of Agricultural heritage in Agritourism	PBL	BL3-Apply	20
Module 6	Visit to ICAR Institute	PBL	BL4-Analyze	20
Module 7	Visit to State Agricultural University	PBL	BL4-Analyze	20
Module 8	Visit to Centre for Agribusiness incubation and entrepreneurship	PBL	BL4-Analyze	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41				

### Part E

<b>Books</b>	1. V. Radha Krishna Murthy and M. Sree Rekha, 2019. Agriculture Heritage. B S Publications 2. S. R. Reddy, 2018. Agriculture Heritage. Kalyani Publishers. 3. Y. L. Nene, 2009. Glimpses of the Agricultural Heritage of India. Munshiram Manoharal Publishers 4. Jack Randall, 2012. Agriculture Tourism. Discovery Publishing Pvt. Ltd.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	2	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
CO3	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
CO4	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Agri Warehouse Management
<b>Course Code</b>	ELP-AE-401 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>				<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Acquaintance the fundamentals of agricultural warehouse management. <b>(BL1-Remember)</b></p> <p><b>CO2-</b> Familiarize with techniques to store different types of agricultural products. <b>(BL2-Understand)</b></p> <p><b>CO3-</b> Develop the skills in maintaining and organizing inventories. <b>(BL3-Apply)</b></p> <p><b>CO4-</b> Expertise in legal guidelines and safety measures important for agricultural warehouses. <b>(BL4-Analyze)</b></p> <p><b>CO5-</b> Implement more efficient handling and shipping techniques for agricultural products. <b>(BL5-Evaluate)</b></p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG3(Good health and well-being) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

#### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-1	An overview of Agricultural Warehousing.	Field work	BL2-Understand	20
Module-2	Warehouse Design and Layout.	Experiments	BL2-Understand	20
Module-3	The simulation Techniques; examining the most effective techniques for assembling and organising agricultural products under a variety of environmental factors like temperature, humidity, and ventilation.	Experiments	BL3-Apply	20
Module-4	Inventory Management; Preserve a record of inventory and discuss strategies to prevent losses and maintain proper records.	Experiments	BL3-Apply	20
Module-5	Safety procedures and regulations in agricultural warehouse environments.	Experiments	BL3-Apply	20
Module-6	Logistics management, including route planning and transportation scheduling.	PBL	BL3-Apply	20
Module-7	Visit to Local Warehouse.	Field work	BL4-Analyze	20
Module-8	Visit to Innovative and progressive farmer for storage facilities.	Field work	BL4-Analyze	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41				

### Part E

<b>Books</b>	Gopal Naik, G. Raghuram, Jothisna Rajan, Manu Bansal, Gopi S. Gopikuttan, Prateek Tawri and Ritwik Singh, Institute of Management, Bangalore. Warehouse Manual For Operationalizing of Warehousing (Development & Regulation) Act, 2007 by Warehousing Development and Regulatory Authority.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	2	-	1	-	-	-	-	-	-	-	-	-	-
CO2	-	-	2	-	-	-	-	1	-	-	-	-	-	-	-
CO3	-	1	-	-	-	1	-	-	2	-	-	-	-	-	-
CO4	-	-	-	1	-	-	1	1	-	-	-	-	-	-	-
CO5	-	-	-	-	2	1	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

(SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Rural Haat and Market Analysis
<b>Course Code</b>	ELP-AE-402 [P]

### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Fundamentals of Agricultural Economics			<b>Co-Requisite/s</b>	Fundamentals of Agricultural Extension Education			
<b>Course Outcomes &amp; Bloom's Level</b>	<b>CO1-</b> Students will acquire training in the rural market.( <b>BL1-Remember</b> ) <b>CO2-</b> Evaluation of various rural products, marketing channel and cost of production.( <b>BL2-Understand</b> ) <b>CO3-</b> Analyze the challenges in cost of production and marketing.( <b>BL3-Apply</b> ) <b>CO4-</b> Evaluate the role of rural industries and market infrastructure.( <b>BL4-Analyze</b> )							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✓ Gender ✗ Human Values ✗ Environment ✗	<b>SDG (Goals)</b>	SDG1(No poverty) SDG2(Zero hunger) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)					

### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Introduction to rural markets	PBL	BL2-Understand	20
Module 2	Rural marketing – concept and scope	PBL	BL2-Understand	20
Module 3	Rural consumers	PBL	BL2-Understand	20
Module 4	Rural vs urban marketing	PBL	BL2-Understand	20
Module 5	Market segmentation	PBL	BL3-Apply	20
Module 6	Product Strategy and Product Mix Decisions	PBL	BL3-Apply	20
Module 7	Product strategies for rural markets	PBL	BL4-Analyze	20
Module 8	Pricing strategy, Distribution,Market infrastructure	PBL	BL4-Analyze	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation

### Part E

<b>Books</b>	
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	1	-	-	-	2	-	2	1	-	-	-	-	-	-
CO2	-	1	-	1	-	2	-	-	-	-	1	-	-	-	-
CO3	-	2	-	-	-	-	-	-	-	-	2	-	-	-	-
CO4	-	-	-	-	-	2	-	-	1	-	1	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

(SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Agricultural waste management
<b>Course Code</b>	ELP- AGRON-401 [P]

### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>				<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<b>CO1-</b> Introduction with agricultural wastes and their utilization.( <b>BL1-Remember</b> ) <b>CO2-</b> Explain different waste management methods, incorporation of crop residues, composting and Biochar( <b>BL2-Understand</b> ) <b>CO3-</b> Analyze and discuss sustainable development and agriculture( <b>BL3-Apply</b> ) <b>CO4-</b> Investigate the benefits of waste management in farms.( <b>BL4-Analyze</b> ) <b>CO5-</b> Evaluate the performance of Biogas plant( <b>BL5-Evaluate</b> )							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG6(Clean water and sanitation) SDG7(Affordable and clean energy) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG14(Life below water) SDG15(Life on land) SDG17(Partnerships for the goals)				

### Part B

Modules	Contents	Pedagogy	Hours
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**Part C**

<b>Modules</b>	<b>Title</b>	<b>Indicative-ABCA/PBL/ Experiments/Field work/ Internships</b>	<b>Bloom's Level</b>	<b>Hours</b>
Module 1	Incorporation of Crop Residues into Soil for Nutrient Cycling and Soil Amendment: Incorporation of different plant residues, Testing of soil after crop residue incorporation	Experiments	BL2-Understand	20
Module 2	Livestock and poultry waste management: Manure handling and storage, Solid manure, Field storage manure	Experiments	BL2-Understand	20
Module 3	Vegetable waste management: Composting of different vegetables, Land spreading & Burial process of vegetables	Experiments	BL3-Apply	20
Module 4	Biodegradable Packaging Material (BDPM) as Planting Medium: plant derived biodegradable packaging EFB, tapioca starch and sugar cane bagasse.	Experiments	BL3-Apply	20
Module 5	Conversion of Agriculture Waste into Bio char: Preparation of biochar at different temperature, preparation of biochar from different crops, Testing of Physical chemical and biological properties of Biochar	Experiments	BL3-Apply	20
Module 6	Biochemical conversion Technology-Biogas (BCCT): Biogas technology, Biogas plant types, Microbiology of biogas production, Size and selection of biogas Plant, Biogas Plant –material and method of construction	Experiments	BL4-Analyze	20
Module 7	Odour management in Barns and storage area: Causes of odour, BMPs for Odour Control in Livestock Facilities, BMPs for Odour Control in Manure Storage	Experiments	BL4-Analyze	20
Module 8	Feedlot management: site selection, Liquid system, Solid System, BMPs for runoff control	Experiments	BL4-Analyze	20

**Part D(Marks Distribution)**

<b>Theory</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
<b>Practical</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
100	41	0		100	

  
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## Part E

<b>Books</b>	Chakrabarthy, S.K. (2010). Seed Production and Quality Control. Kalyani Publisher, New Delhi.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

<b>COs</b>	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	-	-	-	-	-	-	-	-	-	-	-	3	-
CO2	-	1	-	-	-	-	-	-	-	-	-	-	3	1	-
CO3	-	2	1	-	-	-	-	-	-	-	-	-	-	-	3
CO4	-	3	-	3	1	-	-	-	-	-	-	-	2	-	3
CO5	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

(SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Organic Production Technology
<b>Course Code</b>	ELP-AGRON-402 [P]

### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Core							
<b>Pre-Requisite/s</b>	Horticulture			<b>Co-Requisite/s</b>	Horticulture			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Students prepare field and make proper use of various techniques in them for crop production(<b>BL1-Remember</b>)</p> <p><b>CO2-</b> To boost crop production under various adverse conditions. To observe intercultural operations and new technology. (<b>BL2-Understand</b>)</p> <p><b>CO3-</b> Analyze the complete cost of cultivation.(<b>BL3-Apply</b>)</p> <p><b>CO4-</b> Evaluate the role of protected cultivation, mulching and vertical farming system.(<b>BL4-Analyze</b>)</p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG8(Decent work and economic growth) SDG12(Responsible consumption and production) SDG13(Climate action) SDG14(Life below water) SDG15(Life on land) SDG17(Partnerships for the goals)				

### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Project preparation for establishment of various protected structures (Poly house and net house)	Experiments	BL2-Understand	20
Module 2	Practices in preparatory operations, different types of growing media, soil decontamination techniques in polyhouse	Field work	BL2-Understand	20
Module 3	Preparation of beds under the polyhouse for cultivation of cucumber and tomato	Field work	BL2-Understand	20
Module 4	Hands on training on various intercultural operation under the polyhouse (staking, training and pruning, fertigation)	Field work	BL4-Analyze	20
Module 5	Use/application Low Tunnel Technology for off season cultivation of vegetable crops and flower crops	Field work	BL3-Apply	20
Module 6	Practices of hybrid seed production of vegetables under protected condition.	Field work	BL3-Apply	20
Module 7	Estimation of cost of cultivation for cucumber and tomato under the polyhouse condition	Field work	BL3-Apply	20
Module 8	Village survey to study about the major constant faced by the farmers in adopting protected cultivation in gird region.	Field work	BL4-Analyze	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41			100	

  
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## Part E

<b>Books</b>	Malam, K.V., Malam, V. R. and Kanzaria, D. R. 2024. Hi-Tech Horticulture Parvatha Reddy, P. 2024. Hi-Tech Farming for Enhancing Horticulture Productivity. CRC Press.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	2	2	2	1	-	3	-	1	1	1	1	2	-
CO3	-	3	3	1	1	3	2	1	2	-	1	1	-	-	2
CO4	-	3	3	1	1	-	-	1	-	-	1	1	-	1	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Commercial Crop Production Technology
<b>Course Code</b>	ELP-AGRON-403 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Crop Production Technology			<b>Co-Requisite/s</b>	Practical crop production			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Describe the importance and scope of commercial crop production. <b>(BL1-Remember)</b></p> <p><b>CO2-</b> Explain the knowledge regarding various organic matters and synthetic material for commercial productions <b>(BL2-Understand)</b></p> <p><b>CO3-</b> Demonstrate various agronomical crops under different organic &amp; synthetic products contents <b>(BL3-Apply)</b></p> <p><b>CO4-</b> Analyze the challenges of commercial cultivation, establishment and management along with the possible Practical solutions <b>(BL4-Analyze)</b></p> <p><b>CO5-</b> Evaluate the commercial production of agronomical crop under different practices <b>(BL5-Evaluate)</b></p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG1(No poverty) SDG2(Zero hunger) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

#### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Applying the principle of commercial crop production	Field work	BL2-Understand	20
Module 2	Preparation of Field layout	Field work	BL2-Understand	20
Module 3	Hands on training on seed treatment and sowing	Field work	BL3-Apply	20
Module 4	Practices for Nutrient management	Field work	BL3-Apply	20
Module 5	Water and Weed management	Field work	BL3-Apply	20
Module 6	Practices for major insect-pests, diseases of crops and their Management	Field work	BL4-Analyze	20
Module 7	Practices for Harvesting of crop	Field work	BL4-Analyze	20
Module 8	Estimation of cost of cultivation and Marketing of produce	Field work	BL5-Evaluate	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41				

### Part E

<b>Books</b>	. Shagun, and Jhala, V.S. 2022. Agronomy of Oilseed, Fibre and Sugar Crops. Amiga Press 2. Das, N.R. 2017. Practical Manual on Basic Agronomy (With Theory) 2nd Revised Ed. Scientific Publishers 3. Singh, C. 1983. Modern Techniques of Raising Field Crops. Oxford & IBH 4. U. S. Walia, S.S. Kler, D.S. Singh, D., 1986. ICAR, Science of Agronomy. Scientific Publishers (India) 5. Joshi, M. 2015. Textbook of field crops. PHI Learning 6. Kamburova, V.S. and Kim, S.K. 2018. Fundamentals of Agronomy. Scitus Academics LLC
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	-	2	1	-	-	-	-	-	-	-	-
CO4	-	-	3	1	1	-	-	-	-	-	-	-	-	-	-
CO5	-	2	-	-	1	-	-	1	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

(SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Poultry Production Technology
<b>Course Code</b>	ELP-AHS-401 [P]

### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Livestock and Poultry Production			<b>Co-Requisite/s</b>	Livestock and Poultry Production			
<b>Course Outcomes &amp; Bloom's Level</b>	<b>CO1-</b> Describe the role of poultry production in the national economy( <b>BL1-Remember</b> ) <b>CO2-</b> Explain and demonstrate important practices at a poultry farm( <b>BL2-Understand</b> ) <b>CO3-</b> Interpret important Indian and exotic breeds of poultry( <b>BL3-Apply</b> ) <b>CO4-</b> Classification of classes of poultry( <b>BL4-Analyze</b> ) <b>CO5-</b> Evaluate livestock and poultry diseases.( <b>BL5-Evaluate</b> )							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment X		<b>SDG (Goals)</b>	SDG1(No poverty) SDG2(Zero hunger) SDG3(Good health and well-being) SDG5(Gender equality) SDG8(Decent work and economic growth) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

### Part B

Modules	Contents	Pedagogy	Hours
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<4d style="border: 1px solid black;">Field work



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### Part C


Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Practical 1	External body parts of poultry	Field work	BL2-Understand	20
Practical 2	Handling and restraining of birds.	Field work	BL2-Understand	20
Practical 3	Identification methods of poultry.	Field work	BL2-Understand	20
Practical 4	Visit to Industrial Poultry Farm.	Field work	BL3-Apply	20
Practical 5	To study breeds of livestock and poultry and daily routine farm operations and farm records.	Field work	BL3-Apply	20
Practical 6	Judging of poultry.	Field work	BL3-Apply	20
Practical 7	Culling of poultry.	Field work	BL3-Apply	20
Practical 8	Planning and layout of housing for different types of poultry farms.	BL3-Apply	20	

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41			100	

### Part E

<b>Books</b>	Benerjee, G.C. (2019). A Textbook of Animal Husbandry. Oxford. Sastri, N.S.R., Thomas, C.K. and Singh R.A. 2016. Livestock Production and Management. Kalyani Publishers. Singh, R. (2009). Essentials of Animal Production and Management. Kalyani Publishers. ICAR. (2015). A Handbook of Animal Husbandry. ICAR. Verma, D.N. (2005). A Textbook of Livestock Production Management in Tropics. Kalyani Publishers.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	-	-	-	-	-	-	-	-	-	-	-	3	-
CO2	-	-	1	-	3	-	-	-	-	-	-	-	3	1	-
CO3	-	-	2	3	-	1	-	-	-	-	-	-	-	-	3
CO4	-	-	-	3	-	-	-	-	-	-	-	2	-	-	-
CO5	-	-	1	-	2	-	2	-	-	-	-	1	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

(SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Commercial Beekeeping
<b>Course Code</b>	ELP- ENT-401 [P]

### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Entomology			<b>Co-Requisite/s</b>	Entomology			
<b>Course Outcomes &amp; Bloom's Level</b>	<b>CO1-</b> Students will acquire training in the fields of Beekeeping, Pollination and quality Honey production.( <b>BL1-Remember</b> ) <b>CO2-</b> Evaluation of various Beekeeping tools and develop management strategy( <b>BL2-Understand</b> ) <b>CO3-</b> Analyze the challenges of commercial Beekeeping( <b>BL3-Apply</b> ) <b>CO4-</b> Evaluate the role of quality Honey and their effect on farming society( <b>BL4-Analyze</b> )							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	THE HONEYBEE AND ITS IMPORTANCE (a) Bee Biology and Behaviour (b) The Importance of Beekeeping. (c) Pollination	Field work	BL2-Understand	54
Module 2	MANAGEMENT OF THE HONEYBEE (a) Beekeeping Systems (b) Beekeeping Equipment (c) Making Beekeeping Equipment (d) Apiary Management (e) The Floral Calendar and Beekeeping (f) Bee Stings and Management (g) Hive Inspection (h) Populating the Hive (i) Catching a Swarm (j) Transferring Bees (h) Dividing and Uniting Colonies (i) Feeding of Bees (j) Bee Pests, Predators and Diseases (k) Making Bio-Pesticides	Field work	BL3-Apply	54
Module 3	HIVE PRODUCTS AND PROCESSING: (a) Hive Products (b) Quality Honey Harvesting (c) Processing Honey (d) Bees wax	Field work	BL4-Analyze	54

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	40				

### Part E

<b>Books</b>	Sammataro, D. and Alphonse. (1978). The Beekeeper's Handbook. Oxford & IBH Publishing Company Pvt Ltd., New Delhi. Abrol, D.P. (2010). Beekeeping: a compressive guide to bees and beekeeping. Scientific Publisher, Jodhpur, Rajasthan.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	3	3	1	1	3	3	1	2	-	1	1	-	-	2
CO4	-	3	3	1	1	-	-	1	-	-	1	1	-	1	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Production Technology for Bio-agents and Bio-fertilizer
<b>Course Code</b>	ELP-ENT-402 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Entomology			<b>Co-Requisite/s</b>	Entomology			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Describe the importance scope and limitations of bio-agents and bio-fertilizers(<b>BL1-Remember</b>)</p> <p><b>CO2-</b> Explain the different types of bio-fertilizers and bio-agents and their mechanism of action(<b>BL2-Understand</b>)</p> <p><b>CO3-</b> Demonstrate the procedure for Isolation, identification and purification of different bio-agents and bio-fertilizers(<b>BL3-Apply</b>)</p> <p><b>CO4-</b> Explore the various methods of mass multiplication and formulation of bio-agents and bio-fertilizers(<b>BL4-Analyze</b>)</p> <p><b>CO5-</b> Develop skill for evaluation and performance of bio-agents and bio-fertilizers in vitro and field application.</p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG6(Clean water and sanitation) SDG12(Responsible consumption and production) SDG15(Life on land)				

#### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Introduction, history, Importance and scope of bio-fertilizers and bio-agents.	Experiments	BL2-Understand	20
Module 2	Isolation and identification of fungal bio-control agents i.e. Trichoderma spp, and Beauveria bassiana from rhizosphere	Experiments	BL4-Analyze	20
Module 3	Isolation and identification of bacterial bio-control agents i.e. Pseudomonas fluorescens and Bacillus subtilis from soil, Azospirillum from plant roots.	Experiments	BL4-Analyze	20
Module 4	Isolation and identification of bio-fertilizer i.e. Rhizobium from root nodules and Azotobacter from soil.	Experiments	BL4-Analyze	20
Module 5	Mass production and formulation technology of bio-agent Trichoderma viride and Pseudomonas fluorescens	Field work	BL5-Evaluate	20
Module 6	Mass production and formulation technology of bio-fertilizers Rhizobium and Azotobacter spp.	Field work	BL5-Evaluate	20
Module 7	Methods of application technology of bio-agents and bio-fertilizer in vitro and field condition	Field work	BL3-Apply	20
Module 8	Develop the methods of increase Storage, shelf life, quality control and marketing of bio-agents and bio-fertilizers	Field work	BL3-Apply	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41			100	

  
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## Part E

<b>Books</b>	<p>SanthaKumari, P. and Vijayasree, V. (2003). Biological Control of Crop Pests in India. Kalyani Publication.</p> <p>Gaur, A.C. (2006). Biofertilizers in Sustainable Agriculture. Indian Council of Agricultural Research</p> <p>Vasantharaj David, B. and Aanatha krishnan, T.N. (2006). General and Applied Entomology. Tata McGraw-Hill.</p> <p>Metcalf, R. L. and Luckman, W.H. (1994). Introduction to Insect Pest Management- Wiley inter science publishing, NewYork.</p>
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	3	1	1	2	3	1	2	-	1	1	-	-	-	2
CO4	3	3	1	1	-	-	1	-	-	1	1	-	-	1	-
CO5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Storage Entomology
<b>Course Code</b>	ELP-ENT-403 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>				<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<b>CO1-</b> Students will acquire training in the fields of Stored protection.( <b>BL1-Remember</b> ) <b>CO2-</b> Evaluation of various Storage damage.( <b>BL2-Understand</b> ) <b>CO3-</b> Analyze the challenges of commercial storage insect pests management.( <b>BL3-Apply</b> ) <b>CO4-</b> Evaluate the role of quality farm product stored protection methods.( <b>BL4-Analyze</b> )							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG15(Life on land)					

#### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-1	Identification of stored insect biology	Field work	BL2-Understand	20
Module-2	Understanding biology of field crops insect pest	Experiments	BL3-Apply	20
Module-3	Understanding biology of Pulses insect pest	Experiments	BL3-Apply	20
Module-4	Understanding biology of Oilseeds crops insect pest	Experiments	BL3-Apply	20
Module-5	Understanding biology of fiber crops insect pest	Experiments	BL3-Apply	20
Module-6	Understanding biology of Suger crops insect pest	Experiments	BL3-Apply	20
Module-7	Understanding biology of non insect pest	Experiments	BL3-Apply	20
Module-8	Role of different pests control methods	Field work	BL5-Evaluate	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41				

### Part E

<b>Books</b>	Pruthi HS, Singh M. Pests of stored grain and their control. Special number. Indian Journal of Agricultural Science. 1950;18:1-52 Pimentel D. World resources and food losses to pests. In: Gorham JR, editor. Ecology and Management of Food Industry Pests. Arlington, Virginia: Association of Official Analytical Chemists; 1991. pp. 5-11 Atwal AS, Dhaliwal GS. Agricultural Pests of South Asia and their Management. New Delhi, India: Kalyani Publishers; 2008
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	3	2	-	2	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	3	-	7	-	-	-	-	-	-	-	-
CO4	-	-	2	1	-	-	1	3	-	-	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Product development and Packaging technology
<b>Course Code</b>	ELP-FST-401 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Principles of Food Science and Nutrition			<b>Co-Requisite/s</b>	Principles of Food Science and Nutrition			
<b>Course Outcomes &amp; Bloom's Level</b>	<b>CO1-</b> Develop a comprehensive understanding of the product development process.( <b>BL1-Remember</b> ) <b>CO2-</b> Design and prototype innovative products( <b>BL2-Understand</b> ) <b>CO3-</b> Create effective and sustainable packaging solutions( <b>BL3-Apply</b> ) <b>CO4-</b> Work collaboratively in teams to solve real-world problems( <b>BL4-Analyze</b> ) <b>CO5-</b> Present ideas and solutions confidently.( <b>BL5-Evaluate</b> )							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment X		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG14(Life below water)				

#### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Introduction to Product Development	PBL	BL2-Understand	20
Module 2	Ideation and Concept Development	PBL	BL2-Understand	20
Module 3	Design and Prototyping	PBL	BL2-Understand	20
Module 4	Testing and Refinement	PBL	BL2-Understand	20
Module 5	Introduction to Packaging Technology	PBL	BL2-Understand	20
Module 6	Packaging Design and Prototyping	PBL	BL3-Apply	20
Module 7	Sustainability in Product Development and Packaging:	PBL	BL4-Analyze	20
Module 8	Market Launch and Commercialization:	PBL	BL5-Evaluate	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41				

### Part E

<b>Books</b>	
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	-	1	-	-	-	-	-	-	1	-	-	-	-
CO2	-	-	2	-	-	-	-	-	-	-	1	-	-	-	-
CO3	-	1	2	-	1	-	-	-	-	-	-	-	-	-	-
CO4	-	-	-	1	-	-	-	-	-	-	1	2	-	-	-
CO5	-	-	-	-	-	-	-	-	1	-	-	1	2	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Seed Production Technology
<b>Course Code</b>	ELP- GPB-401 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Genetics and Plant Breeding			<b>Co-Requisite/s</b>	Genetics and Plant Breeding			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Students will acquire training in the fields of crop improvement, plant breeding, and quality seed production.<b>(BL1-Remember)</b></p> <p><b>CO2-</b> Evaluation of various seed diversity on the basis of seed morphology, Biochemical nature and reproductive behavior.<b>(BL2-Understand)</b></p> <p><b>CO3-</b> Analyze the challenges of commercial Seed production 4<b>(BL3-Apply)</b></p> <p><b>CO4-</b> Evaluate the role of quality seed and their effect on farming society<b>(BL4-Analyze)</b></p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG4(Quality education) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

#### Part B

Modules	Contents	Pedagogy	Hours
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**Part C**

<b>Modules</b>	<b>Title</b>	<b>Indicative-ABCA/PBL/ Experiments/Field work/ Internships</b>	<b>Bloom's Level</b>	<b>Hours</b>
Module 1	Selection of seed production area /land: (a) Previous & current year agro-metrological data, (b) soil type, soil sampling & soil profiling. Texture, Nutrition availability, Water holding capacity, Available organic carbon, Selection of crop.	Experiments	BL2-Understand	20
Module 2	Layout preparation /Cultural practices: Net area & gross area calculation, Design of experimentation, isolation distance, field preparation, seed sowing, and calculation of required seeds (seed rate)	Experiments	BL2-Understand	20
Module 3	Agronomical practices: Fertilizer application, irrigation, rouging, weeding, etc.	Field work	BL2-Understand	20
Module 4	Insect, pest & disease management: Identification of disease, diagnosis & procurement & management	Field work	BL4-Analyze	20
Module 5	Crop management: Identification of critical stages for field inspection, 50 % flowering, removal of Off type, plant data observation	Field work	BL3-Apply	20
Module 6	Crop maturity of observation: Observation of characteristics related to plant maturity (leaf characteristics, grain characteristics, BITE test, and laboratory based test).	Field work	BL3-Apply	20
Module 7	Harvesting & threshing: Harvesting techniques, Threshing tech. & equipments/ machines, Seed drying techniques.	Field work	BL3-Apply	20
Module 8	Bagging, packing & storage: Seed treatment (fungal, bacterial, coating & planting) Specific baggage for packaging & prescribed tags (as per seed act 1966) Storage & storage facilities (Gene Bank)	Field work	BL4-Analyze	20

**Part D(Marks Distribution)**

<b>Theory</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
<b>Practical</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
100	41			100	

  
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## Part E

<b>Books</b>	Agarwal, R.L. (2012). Seed Technology. Oxford & IBH Publishing Company Pvt. Ltd., New Delhi. Chakrabarthy, S.K. (2010). Seed Production and Quality Control. Kalyani Publisher, New Delhi. Mishra, D.K., Khare, D., Bhale, M.S. and Koutu, G.K. (2011). A Handbook of Seed Certification. Agrobios (India).
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-
CO3	-	3	3	1	1	3	2	1	2	-	1	1	-	-	2
CO4	-	3	3	1	1	-	-	1	-	-	1	1	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

(SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Seed Testing and Quality Assessment
<b>Course Code</b>	ELP-GPB-402 [P]

### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>				<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Assess the actual planting value of the seed in terms of its germination capacity(<b>BL1-Remember</b>)</p> <p><b>CO2-</b> Evaluation of seed quality attributes of the seed lots which have to be offered for sale. (<b>BL2-Understand</b>)</p> <p><b>CO3-</b> Analyze the quality maintenance challenges of commercial Seed.(<b>BL3-Apply</b>)</p> <p><b>CO4-</b> Evaluate the role of quality seed and their effect on farming society &amp; seed industry. (<b>BL4-Analyze</b>)</p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG8(Decent work and economic growth) SDG12(Responsible consumption and production) SDG15(Life on land)				

### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Seed sampling techniques	Field work	BL2-Understand	20
Module 2	Physical purity test:	Field work	BL2-Understand	20
Module 3	Germination Test:	Field work	BL3-Apply	20
Module 4	Seed Viability Test:	Field work	BL3-Apply	20
Module 5	Seed Vigour test:	Field work	BL3-Apply	20
Module 6	Electrophoresis test/ Test Weight & Seed Index:	Field work	BL3-Apply	20
Module 7	Seed moisture Test:	Field work	BL3-Apply	20
Module 8	Seed Treatment for quality enhancement:	Field work	BL4-Analyze	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41			100	

### Part E

<b>Books</b>	Agarwal, R.L. (2012). Seed Technology. Oxford & IBH Publishing Company Pvt. Ltd., New Delhi. Chakrabarthi, S.K. (2010). Seed Production and Quality Control. Kalyani Publisher, New Delhi.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	1	1	-	-	-	-	-	-	-	3	-	-
CO2	-	2	3	2	2	1	-	-	-	-	-	-	-	3	-
CO3	3	-	2	2	2	2	-	-	-	-	-	-	-	1	2
CO4	-	1	-	1	-	-	-	-	-	-	1	1	1	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Commercial Horticulture (Vegetable and Spices Crop Production)
<b>Course Code</b>	ELP-HORT-401 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>				<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Describe the importance and scope of vegetable and spices cultivation. <b>(BL1-Remember)</b></p> <p><b>CO2-</b> Explain the knowledge regarding various crop productions under commercial Horticultural. <b>(BL2-Understand)</b></p> <p><b>CO3-</b> Demonstrate various vegetable and spices crops. <b>(BL3-Apply)</b></p> <p><b>CO4-</b> Analyse the challenges of cultivation establishment and management along with the possible practical solutions. <b>(BL4-Analyze)</b></p> <p><b>CO5-</b> Evaluate the hybrid seed production of vegetables and spices. <b>(BL5-Evaluate)</b></p>							
<b>Coures Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG5(Gender equality) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consuption and production) SDG13(Climate action) SDG15(Life on land)				

#### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Project preparation for establishment of various vegetable and spices crops.	PBL	BL2-Understand	20
Module 2	Practices in preparatory operations, different types of growing media, soil decontamination techniques	PBL	BL2-Understand	20
Module 3	Preparation of field for cultivation of brinjal and tomato	PBL	BL2-Understand	20
Module 4	Hands on training of various intercultural operations under the brinjal and tomato cultivation	PBL	BL3-Apply	20
Module 5	Use/application drip irrigation system in vegetable and spices crops.	PBL	BL3-Apply	20
Module 6	Practices of hybrid seed production of vegetables and spices	PBL	BL3-Apply	20
Module 7	Estimation of cost of cultivation for brinjal and tomato.	PBL	BL4-Analyze	20
Module 8	Village survey to study about the major constant faced by the farmers in adopting drip irrigation system in cultivation under gird region	PBL	BL4-Analyze	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41				

  
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## Part E

<b>Books</b>	Hazra, P. (2011). Modern Technology in Vegetable Production. New India Publishing Agency, New Delhi. Hazra, P. (2006). Vegetable science. Kalyani Publishers, Ludhiana. Pruthi J.S., (1993). Major Spices of India- Crop Management Postharvest Technology. ICAR, New Delhi. Pruthi, J.S. (2001). Minor Spices and Condiments-Crop Management Post Harvest Technology. ICAR, New Delhi.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	-	-	-	-	-	-	-	-	-	-	-	3	-
CO2	-	1	-	3	-	-	-	-	-	-	-	-	3	2	-
CO3	-	2	3	-	1	-	-	-	-	-	-	-	-	-	-
CO4	-	-	3	-	-	-	-	-	-	-	-	2	-	-	-
CO5	-	-	1	-	2	-	2	-	-	-	-	1	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Floriculture and landscaping
<b>Course Code</b>	ELP-HORT-402 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Horticulture			<b>Co-Requisite/s</b>	Horticulture			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Describe the importance and scope Floriculture and Landscape designing(<b>BL1-Remember</b>)</p> <p><b>CO2-</b> Explain the basic concept of landscape architecture(<b>BL2-Understand</b>)</p> <p><b>CO3-</b> Demonstrate various Software for landscape architecture(<b>BL3-Apply</b>)</p> <p><b>CO4-</b> Analyse the challenges of value addition of commercial floriculture crops(<b>BL4-Analyze</b>)</p> <p><b>CO5-</b> Evaluate the role of value addition and essential oil extraction in floriculture industry(<b>BL5-Evaluate</b>)</p> <p><b>CO6-</b> Design landscape layout by utilizing Software and Create value added products from waste.(<b>BL6-Create</b>)</p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land)				


#### Part B

Modules	Contents	Pedagogy	Hours
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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Exercise-1 Aim: Introduction to Floriculture and Landscaping Objective: • To understand the basic concept of floriculture • To study the present scenario of Ornamental crops and landscape designing	Field work	BL2-Understand	20
Module 2	Exercise-2 Aim: Identification of Ornamental Crops Objective: • To identify the major ornamental crops in locality • To understand the crop morphology and characters	Field work	BL2-Understand	20
Module 3	Exercise-3 Aim: Propagation of Ornamental Crops Objective: • To understand the propagation methods for flower crops • To identify the major propagation techniques of ornamental crops in locality	Field work	BL3-Apply	20
Module 4	Exercise-4 Aim: Landscape design and planning Objective: • To learn about the landscape architecture and planning • To understand the 2D and 3D design concept • To use Software like 5D Planner, Sketchup and AutoCAD for landscape designing	Field work	BL3-Apply	20
Module 5	Exercise-5 Aim: Specialized Garden design Objective: • To learn about the landscape architecture and planning • To understand the concept of UPH • To use Software like 5D Planner, Sketchup and AutoCAD for landscape designing	Field work	BL3-Apply	20
Module 6	Exercise-6 Aim: Production of cut/loose flower Objective: • To learn about the package and practices of major flower crops. • To understand the propagation and nursery management techniques of flower crops. • Cost of cultivation of production technology.	Field work	BL3-Apply	20
Module 7	Exercise-7 Aim: Dry flower production technology of flower crops Objectives: • To learn about the various drying methods • To practice the dry flower products • To analyse the cost of dry flower products	Field work	BL4-Analyze	20
Module 8	Exercise-8 Aim: Post harvest handling of Flower crops Objective: •To inculcate the knowledge about the preservative technology •To study the post-harvest handling of flower crops •To practice the vase life study of major cut flower	Field work	BL4-Analyze	20

  
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### Part D(Marks Distribution)

#### Theory


Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation

#### Practical

Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41			100	

### Part E

<b>Books</b>	Bose, T. K. and Chowdhury, B. (1991). Tropical Garden Plants in colour. Horticulture and allied publishers, 3D Madhab Chatterjee Street Kolkata. Peter, K.V. (2009). Ornamental plants. New India publishing agency, Pitampura, New Delhi. 24 Bird, R. (2002). Flowering trees and shrubs. Printed in Singapore by Star Standard Industries pvt. Ltd. Chowdhury, B.D. and Jana, B. L. (2014). Flowering Garden trees. Pointer publishers, Jaipur. India. Arora, J.S. (2006). Introductory Ornamental Horticulture. Kalyani Publishers, Ludhiana Randhawa, G.S. and Mukhopadhyay, A. (2004). Floriculture in India. Allied Publishers Pvt. Ltd., New Delhi. Bose, T.K. and Mukherjee, D. (2004). Gardening in India. Oxford & IBH Publishers.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	2	2	2	1	-	3	-	1	1	1	1	2	-
CO3	-	3	3	1	1	3	2	1	2	-	1	1	-	-	2
CO4	-	3	3	1	1	-	-	1	-	-	1	1	-	1	-
CO5	-	3	3	-	-	-	-	-	-	-	-	-	-	-	1
CO6	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Processing of fruits and vegetables for value addition
<b>Course Code</b>	ELP- HORT-403 [P]

#### Part A

<b>Year</b>	4th	<b>Semester</b>	8th	<b>Credits</b>	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>				<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<b>CO1-</b> Students will acquire training on processed fruits and vegetables product quality. <b>(BL1-Remember)</b> <b>CO2-</b> Evaluation and maintenance of the processed product quality. <b>(BL2-Understand)</b> <b>CO3-</b> Analyze the stored products for <b>(BL3-Apply)</b> <b>CO4-</b> Evaluate the role of food processor for food safety parameters <b>(BL4-Analyze)</b>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗	<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG4(Quality education) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land)					

#### Part B

<b>Modules</b>	<b>Contents</b>	<b>Pedagogy</b>	<b>Hours</b>
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### Part C

Modules	Title	Indicative- ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Study extraction and preservation of pulps and juices:	Experiments	BL2- Understand	20
Module 2	Preparation of osmotically dried products, fruit bar and candy	Experiments	BL2- Understand	20
Module 3	Preparation of jam and jelly	Experiments	BL3- Apply	20
Module 4	Preparation of jam and jelly and Pickles, Chutneys and Fermented Products	Experiments	BL3- Apply	20
Module 5	Preparation of RTS, nectar and squash from different kind of fruits.	Experiments	BL3- Apply	20
Module 6	Physico-chemical and sensory quality evaluation of products	Experiments	BL3- Apply	20
Module 7	Planning and execution of a market survey and preparation of processing schedule and formulation of project module based on market information	Experiments	BL3- Apply	20
Module 8	Identification of sources for procurement of raw material, production and quality analysis of fruits and vegetables products at commercial scale.	Experiments	BL3- Apply	20

### Part D (Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41	0		100	

### Part E

<b>Books</b>	Rathore, N.S., Mathur, G.K., Chasta, S.S. (2012). Post-Harvest Management and Processing of Fruits and Vegetables. The Energy and Resources Institute.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	1	1	-	-	-	-	-	-	3	-	-	-
CO2	-	2	3	2	2	1	-	-	-	-	-	-	-	3	-
CO3	3	-	2	2	2	2	-	-	-	-	-	-	-	1	2
CO4	-	1	-	1	-	-	-	-	-	-	1	1	1	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Commercial Nursery _____ Horticultural Crops
<b>Course Code</b>	ELP-HORT-404 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Horticulture			<b>Co-Requisite/s</b>	Horticulture			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Describe the importance and scope Commercial Nursery in horticultural Crops(<b>BL1-Remember</b>)</p> <p><b>CO2-</b> Explain the suitability of Multiplication methods in different horticultural crops(<b>BL2-Understand</b>)</p> <p><b>CO3-</b> Demonstrate various plant propagation techniques in the field(<b>BL3-Apply</b>)</p> <p><b>CO4-</b> Analyse the challenges of commercial nursery establishment and management along with the possible practical solutions(<b>BL4-Analyze</b>)</p> <p><b>CO5-</b> Evaluate the role of PGR and media in mass multiplication of horticultural crops(<b>BL5-Evaluate</b>)</p>							
<b>Coures Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consupction and production) SDG13(Climate action) SDG15(Life on land)				

#### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-01	Design/layout of commercial nursery and preparation of nursery beds	Field work	BL2-Understand	20
Module-02	Preparation of various growing medias	Field work	BL2-Understand	20
Module-03	Enrichment of growing medias with various amendments	Field work	BL3-Apply	20
Module-04	Nursery raising of various horticultural crops	Field work	BL3-Apply	20
Module-05	Mass multiplication of various horticultural crops through cuttings	Field work	BL3-Apply	20
Module-06	Hands on practices on layering and stooling	Field work	BL3-Apply	20
Module-07	Hands on practices on various methods of budding and grafting	Field work	BL4-Analyze	20
Module-08	Marketing of nursery plants and seedlings	Field work	BL4-Analyze	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41			100	

### Part E

<b>Books</b>	Singh, J. (2012). Basic Horticulture. Kalyani Publishers. New Delhi. Kumar, N. (1997). Introduction to Horticulture. Rajyalakshmi Publications, Nagorcoil, Tamil Nadu. Randhawa, G.S. and Mukhopadhyaya, A. (1994). Floriculture in India. Allied Publishers Pvt. Ltd., New Delhi Chadha, K.L. (2019). Handbook of Horticulture (Vol-I). ICAR, New Delhi.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	2	2	2	1	-	3	-	1	1	1	1	2	-
CO3	-	3	3	1	1	3	2	1	2	-	1	1	-	-	2
CO4	-	3	3	1	1	-	-	1	-	-	1	1	-	1	-
CO5	-	3	3	-	-	-	-	-	-	-	-	-	-	-	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Protected Cultivation of High value Horticulture Crops
<b>Course Code</b>	ELP- HORT-405 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Core							
<b>Pre-Requisite/s</b>	Horticulture			<b>Co-Requisite/s</b>	Horticulture			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Students prepare field and make proper use of various techniques in them for crop production(<b>BL1-Remember</b>)</p> <p><b>CO2-</b> To boost crop production under various adverse conditions. To observe intercultural operations and new technology. (<b>BL2-Understand</b>)</p> <p><b>CO3-</b> Analyze the complete cost of cultivation.(<b>BL3-Apply</b>)</p> <p><b>CO4-</b> Evaluate the role of protected cultivation, mulching and vertical farming system.(<b>BL4-Analyze</b>)</p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG3(Good health and well-being) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

#### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Project preparation for establishment of various protected structures (Poly house and net house)	Experiments	BL2-Understand	20
Module 2	Practices in preparatory operations, different types of growing media, soil decontamination techniques in polyhouse	Field work	BL2-Understand	20
Module 3	Preparation of beds under the polyhouse for cultivation of cucumber and tomato	Field work	BL2-Understand	20
Module 4	Hands on training on various intercultural operation under the polyhouse (staking, training and pruning, fertigation)	Field work	BL4-Analyze	20
Module 5	Use/application Low Tunnel Technology for off season cultivation of vegetable crops and flower crops	Field work	BL3-Apply	20
Module 6	Practices of hybrid seed production of vegetables under protected condition.	Field work	BL3-Apply	20
Module 7	Estimation of cost of cultivation for cucumber and tomato under the polyhouse condition	Field work	BL3-Apply	20
Module 8	Village survey to study about the major constant faced by the farmers in adopting protected cultivation in gird region.	Field work	BL4-Analyze	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41			100	

  
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## Part E

<b>Books</b>	Malam, K.V., Malam, V. R. and Kanzaria, D. R. 2024. Hi-Tech Horticulture Parvatha Reddy, P. 2024. Hi-Tech Farming for Enhancing Horticulture Productivity. CRC Press.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	2	2	2	1	-	3	-	1	1	1	1	2	-
CO3	-	3	3	1	1	3	2	1	2	-	1	1	-	-	2
CO4	-	3	3	1	1	-	-	1	-	-	1	1	-	1	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Organic Vegetable Production
<b>Course Code</b>	ELP-HORT-406 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Horticulture			<b>Co-Requisite/s</b>	Horticulture			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Describe the importance and scope of organic vegetable cultivation. <b>(BL1-Remember)</b></p> <p><b>CO2-</b> Explain the knowledge regarding various organic matters for vegetable productions. <b>(BL2-Understand)</b></p> <p><b>CO3-</b> Demonstrate various vegetable crops under different organic contents. <b>(BL3-Apply)</b></p> <p><b>CO4-</b> Analyse the challenges of organic cultivation, establishment and management along with the possible practical solutions. <b>(BL4-Analyze)</b></p> <p><b>CO5-</b> Evaluate the organic production of vegetables under different organic contents. <b>(BL5-Evaluate)</b></p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG8(Decent work and economic growth) SDG12(Responsible consumption and production) SDG13(Climate action) SDG14(Life below water) SDG15(Life on land) SDG17(Partnerships for the goals)				

#### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Project preparation for establishment of various organic vegetable crops.	Experiments	BL2-Understand	20
Module 2	Practices in preparatory operations and different types of growing media.	Field work	BL2-Understand	20
Module 3	Preparation of field for cultivation of vegetables	Field work	BL2-Understand	20
Module 4	Hands on training of various intercultural operations.	Field work	BL3-Apply	20
Module 5	Use/application of various irrigation systems in vegetable crops.	Field work	BL3-Apply	20
Module 6	Practices for organically plant protection.	Field work	BL3-Apply	20
Module 7	Estimation of cost of cultivation for vegetable production	Field work	BL4-Analyze	20
Module 8	Village survey to study about the major constant faced by the farmers in adopting organic vegetable cultivation under gird region.	Field work	BL4-Analyze	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41			100	

### Part E

<b>Books</b>	Hazra, P. (2011). Modern Technology in Vegetable Production. New India Publishing Agency, New Delhi. Dhaliwal, (M.S). 2020. Handbook of Vegetable Crops. Kalyani Publishers.
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	2	2	2	1	-	3	-	1	1	1	1	2	-
CO3	-	3	3	1	1	3	2	1	2	-	1	1	-	-	2
CO4	-	3	3	1	1	-	-	3	-	-	1	1	-	1	-
CO5	-	3	3	-	-	-	-	-	-	-	-	-	-	-	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Hydroponics
<b>Course Code</b>	ELP-HORT-407 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Fundamentals of Horticulture			<b>Co-Requisite/s</b>	Production technology of vegetables and spices			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> CO-1. Describe the importance and scope Soil-less Cultivation practices and production technology for Exotic horticultural crops(<b>BL1-Remember</b>)</p> <p><b>CO2-</b> CO-2. Explain the basic concept of Growing media and Nutrient solution under protected cultivation(<b>BL2-Understand</b>)</p> <p><b>CO3-</b> CO-3. Demonstrate various technologies and management practices under Hydroponics(<b>BL3-Apply</b>)</p> <p><b>CO4-</b> CO-4. Analyze the challenges of Nutrient management under Hydroponics/protected cultivation(<b>BL4-Analyze</b>)</p> <p><b>CO5-</b> CO-5. Evaluate the role of AI technology and marketing strategies under Hydroponic cultivation of horticultural crops(<b>BL5-Evaluate</b>)</p> <p><b>CO6-</b> CO-6. Create a model layout plan with proper marketing approaches for exotic horticultural crops under advance hydroponics Schemes(<b>BL6-Create</b>)</p>							
<b>Coures Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment X		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG11(Sustainable cities and economies) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land)				

#### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-1	Plant Nutrition and its Management in Hydroponics	Field work	BL2-Understand	20
Module-2	Plant Protection in Soil-less practices	Field work	BL3-Apply	20
Module-3	Various Models under hydroponic system	Field work	BL5-Evaluate	20
Module-4	Aquaponics Model and practices	Field work	BL3-Apply	20
Module-5	Aeroponics Model and practices	Field work	BL3-Apply	20
Module-6	Vegetable and Spices Crops production under Hydroponics	Field work	BL4-Analyze	20
Module-7	Ornamental Crops production under Hydroponics	Field work	BL5-Evaluate	20
Module-8	Economics and Government Regulations in Soil-less cultivation	Field work	BL6-Create	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41				

### Part E

<b>Books</b>	Hydroponics: The Essential Hydroponics Guide: A Step-By-Step Hydroponic Gardening Guide to Grow Fruit, Vegetables, and Herbs at Home Hydroponics: A Practical Guide for the Soilless Grower (2nd Edition), by Dr. J. Benton Jones Commercial Hydroponics by John Mason
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	2	-	-	-	2	-	-	-	-	-	-	-	-
CO3	-	-	2	-	2	-	-	-	-	-	-	-	-	-	-
CO4	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Mushroom Cultivation Technology
<b>Course Code</b>	ELP-PP-401 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Plant pathology			<b>Co-Requisite/s</b>	Plant pathology			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Describe the importance and scope mushroom cultivation(<b>BL1-Remember</b>)</p> <p><b>CO2-</b> Explain the different types of mushrooms and their nutritional content(<b>BL2-Understand</b>)</p> <p><b>CO3-</b> Demonstrate the spawn production and cultivation of various types of mushrooms(<b>BL3-Apply</b>)</p> <p><b>CO4-</b> Explore various cultivation methods, such as indoor and outdoor cultivation(<b>BL4-Analyze</b>)</p> <p><b>CO5-</b> Develop skills to identify and prevent contamination issues during mushroom cultivation(<b>BL5-Evaluate</b>)</p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG8(Decent work and economic growth) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

#### Part B

Modules	Contents	Pedagogy	Hours
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**Part C**

<b>Modules</b>	<b>Title</b>	<b>Indicative-ABCA/PBL/ Experiments/Field work/ Internships</b>	<b>Bloom's Level</b>	<b>Hours</b>
Module 1	Introduction to mushrooms -Taxonomical rank -History and Scope of mushroom cultivation - Edible and Poisonous Mushrooms-Vegetative characters	Field work	BL2-Understand	20
Module 2	Identification of common edible, medicinal and poisonous mushroom	Field work	BL2-Understand	20
Module 3	Health benefits of mushrooms, Nutritional and medicinal values of mushrooms. Therapeutic aspects- antitumor effect	Field work	BL2-Understand	20
Module 4	Spawn production - Culture media preparation- production of pure culture, mother spawn preparation	Field work	BL3-Apply	20
Module 5	Sterilization and sanitation of mushroom house, Selection of substrate for mushroom cultivation, Composting technology, mushroom bed preparation	Field work	BL4-Analyze	20
Module 6	Spawning, spawn running, Cultivation technology of oyster, milky and paddy straw mushroom and harvesting.	Field work	BL4-Analyze	20
Module 7	Problems in mushroom cultivation - diseases, pests and nematodes, moulds and their management strategies	Field work	BL5-Evaluate	20
Module 8	Post-harvest technology: Preservation of mushrooms - freezing, dry freezing, drying, canning, quality assurance and entrepreneurship	Field work	BL4-Analyze	20

**Part D(Marks Distribution)**

<b>Theory</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
<b>Practical</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
100	41			100	

  
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## Part E

<b>Books</b>	<p>Suman, B.C. and Sharma, V.P. (2007). Mushroom Cultivation in India, Daya Publishing House, New Delhi.</p> <p>Cotter, T. (2014). Organic Mushroom Farming and Mycoremediation: Simple to Advanced and Experimental Techniques for Indoor and Outdoor Cultivation. Chelsea Green Publishing.</p> <p>Chang, S. T. and Hayes, W. A. (1978). The Biology and Cultivation of Edible Mushrooms. Academic Press. New York. 230 P.</p> <p>Chang, S.T. and Miles, P. G. (2004). Mushrooms: Cultivation, Nutritional Value, Medicinal Effect, and Environmental Impact. CRC Press. 480 P.</p> <p>Fletcher, J. T., White, P. F. and Gaze, R. H. (1994). Mushrooms: Pest &amp; Disease Control. 2nd. Ed. Intercept Andover, Hants. Great Britain. 174 P.</p> <p>Krieger, L. C. (2010). The Mushroom Handbook. Sufi Press. 578 P.</p>
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	3	1	1	2	3	1	2	-	1	1	1	-	-	2
CO4	3	3	1	1	-	-	1	-	-	1	1	1	-	1	-
CO5	3	3	-	-	-	-	-	-	-	-	-	-	-	-	1
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

### (SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Plant Health Diagnosis and Management
<b>Course Code</b>	ELP-PP-402 [P]

#### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>				<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Describe the importance and scope Plant Health Diagnosis and Management. <b>(BL1-Remember)</b></p> <p><b>CO2-</b> Explain the identifications of different plant diseases and their relation to the weather parameters. <b>(BL2-Understand)</b></p> <p><b>CO3-</b> Demonstrate the isolation of plant pathogen and Koch postulate. <b>(BL3-Apply)</b></p> <p><b>CO4-</b> Analysing and exploring the different isolated pathogens from the field. <b>(BL4-Analyze)</b></p> <p><b>CO5-</b> Evaluating the management practices of different pathogens using bio control agents, botanicals and chemical fungicides. <b>(BL5-Evaluate)</b></p>							
<b>Coures Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG1(No poverty) SDG2(Zero hunger) SDG3(Good health and well-being) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consunption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

#### Part B

Modules	Contents	Pedagogy	Hours
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**Part C**

<b>Modules</b>	<b>Title</b>	<b>Indicative-ABCA/PBL/ Experiments/Field work/ Internships</b>	<b>Bloom's Level</b>	<b>Hours</b>
Module-1	Identification of different plant diseases through regular field visit.	PBL	BL2-Understand	20
Module-2	Study on occurrence of the disease and their relations with the weather parameters. □ Selected disease will be observed on weekly interval (Standard Meteorological Weeks) and disease scoring will be done. □ Data handling in excel (Microsoft Office) and correlation matrix analysis study will be carried out. □ Area under disease progress curve (AUDPC) will be computed. Graph designing.	PBL	BL3-Apply	20
Module-3	Symptomatological studies of plant diseases on natural conditions.	PBL	BL4-Analyze	20
Module-4	Isolation of the plant pathogen. Preparation of the media.	PBL	BL3-Apply	20
Module-5	Steps of Koch Postulates: a) The microorganism or other pathogen must be present in all cases of the disease. b) The pathogen can be isolated from the diseased host and grown in pure culture. c) The pathogen from the pure culture must cause the disease when inoculated into a healthy, susceptible host. The pathogen must be reisolated from the new host and shown to be the same as the originally inoculated pathogen	PBL	BL4-Analyze	20
Module-6	Morphological studies of the pathogens and their preservation in agar slants.	PBL	BL5-Evaluate	20
Module-7	In-vitro management of the pathogen through different plant extracts and chemical pesticides.	PBL	BL5-Evaluate	20

**Part D(Marks Distribution)**

<b>Theory</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
<b>Practical</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
100	41			100	

  
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## Part E

<b>Books</b>	Dube, H. C. (2013). An Introduction to Fungi. 4 th (Ed). Scientific Publishers, Jodhpur, India. Agrios, G.N. (2004). Plant Pathology. (5th Ed.). Elsevier Academic Press. 882p. Alexopoulos, C.J., Mims, C.W. and Blackwell, M. (2014). Introductory Mycology (4th Ed.)Wiley India Pvt Ltd. 833p Ravichandra, N.G. (2013). Fundamentals of Plant Pathology. PHI Learning Pvt Ltd. 639p Walkey, D. G. (1991). Applied Plant Virology (2nd Ed.) Springer, 352
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	-	-	1	1	-	-	-	-	-	-	-	3	-	-
CO2	-	2	3	2	2	1	-	-	-	-	-	-	-	3	-
CO3	3	-	2	2	2	2	-	-	-	-	-	-	-	1	2
CO4	-	1	-	1	-	-	-	-	-	-	1	1	1	-	-
CO5	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

(SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Seed Pathology
<b>Course Code</b>	ELP-PP-403 [P]

### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>	Fundamentals of Plant Pathology			<b>Co-Requisite/s</b>	Principles of Integrated Pest and Disease Management			
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Describe the History and economic importance of seed health in seed industry and plant quarantine(<b>BL1-Remember</b>)</p> <p><b>CO2-</b> Explain the important seed borne and seed transmitted pathogens(<b>BL2-Understand</b>)</p> <p><b>CO3-</b> Demonstrate the procedure for Isolation, identification and purification of different seed borne pathogens(<b>BL3-Apply</b>)</p> <p><b>CO4-</b> Explore the various methods of seed health testing methods(<b>BL4-Analyze</b>)</p> <p><b>CO5-</b> Develop skill for detection methods, estimation of storage losses and Integrated management practices for seed borne pathogens(<b>BL5-Evaluate</b>)</p>							
<b>Coures Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consunption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

### Part B

Modules	Contents	Pedagogy	Hours
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**Part C**

<b>Modules</b>	<b>Title</b>	<b>Indicative-ABCA/PBL/ Experiments/Field work/ Internships</b>	<b>Bloom's Level</b>	<b>Hours</b>
Module 1	History and economic importance of seed health in seed industry and plant quarantine – important seed borne and seed transmitted pathogens	PBL	BL2-Understand	20
Module 2	Morphology and anatomy of typical monocotyledonous and dicotyledonous infected seeds	PBL	BL2-Understand	20
Module 3	Localization and mechanism of seed transmission in relation to seed infection, seed to plant transmission of pathogens	PBL	BL3-Apply	20
Module 4	Method for isolation and purification of Seed borne plant pathogens	PBL	BL3-Apply	20
Module 5	Conventional and advanced techniques in the detection and identification of seed-borne fungi, bacteria and viruses.	PBL	BL3-Apply	20
Module 6	Detect the Production of toxic metabolites produced by seed borne pathogens affecting seed quality and its impact on human, animal and plant health	PBL	BL4-Analyze	20
Module 7	Production of disease-free seeds in agricultural and horticultural crops; management of seed borne pathogens	PBL	BL5-Evaluate	20
Module 8	Develop the Integrated Disease Management Strategies for Seed-borne Diseases	PBL	BL5-Evaluate	20

**Part D(Marks Distribution)**

<b>Theory</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
<b>Practical</b>					
<b>Total Marks</b>	<b>Minimum Passing Marks</b>	<b>External Evaluation</b>	<b>Min. External Evaluation</b>	<b>Internal Evaluation</b>	<b>Min. Internal Evaluation</b>
100	41				

  
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## Part E

<b>Books</b>	<ul style="list-style-type: none"> <li>• Agarwal VK and Sinclair JB. 1993. Principles of Seed Pathology. Vols. I &amp; II, CBS Publ., New Delhi.</li> <li>• Hutchins JD and Reeves JE. (Eds.). 1997. Seed Health Testing: Progress Towards the 21st Century. CABI, Wallington.</li> <li>• Paul Neergaard. 1988. Seed Pathology. • McMillan, London.</li> <li>• Suryanarayana D. 1978. Seed Pathology. Vikash Publ., New Delhi.</li> </ul>
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-
CO2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-
CO4	-	-	2	1	2	-	-	-	-	-	-	-	-	-	-
CO5	-	-	1	1	2	-	2	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
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## Syllabus-2021-2022

(SOAG)(BSc\_HonsAgriculture)

<b>Title of the Course</b>	Soil, Plant, Water and Seed Testing
<b>Course Code</b>	ELP-SS-401 [P]

### Part A

Year	4th	Semester	8th	Credits	L	T	P	C
					0	0	10	10
<b>Course Type</b>	Lab only							
<b>Course Category</b>	Discipline Electives							
<b>Pre-Requisite/s</b>				<b>Co-Requisite/s</b>				
<b>Course Outcomes &amp; Bloom's Level</b>	<p><b>CO1-</b> Students will acquire knowledge in the field of soil testing for crop and soil health improvement(<b>BL1-Remember</b>)</p> <p><b>CO2-</b> Evaluation of various type of Soil Indexes seed diversity on the basis of seed morphology, Biochemical nature and reproductive behavior.(<b>BL2-Understand</b>)</p> <p><b>CO3-</b> Evaluate the challenges of commercial Seed production(<b>BL3-Apply</b>)</p> <p><b>CO4-</b> Evaluate the role of quality soil, seed &amp; water availability and their effect on farming society 5(<b>BL4-Analyze</b>)</p>							
<b>Courses Elements</b>	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✗		<b>SDG (Goals)</b>	SDG2(Zero hunger) SDG3(Good health and well-being) SDG9(Industry Innovation and Infrastructure) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)				

### Part B

Modules	Contents	Pedagogy	Hours
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### Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module 1	Soil sampling and soil testing procedure:	Field work	BL2-Understand	20
Module 2	Quality enhancement of soil:	Field work	BL2-Understand	20
Module 3	Water sampling and water testing:	Field work	BL3-Apply	20
Module 4	Soil quality enhancement:	Field work	BL3-Apply	20
Module 5	Evaluate of GIS and RS based soil mapping	Field work	BL3-Apply	20
Module 6	Development of soil and plant testing laboratory	Field work	BL4-Analyze	20
Module 7	Development of irrigation water testing laboratory	Field work	BL4-Analyze	20
Module 8	Development of Soil Salinity management center	Field work	BL4-Analyze	20

### Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
100	41	0		100	

### Part E

<b>Books</b>	
<b>Articles</b>	
<b>References Books</b>	
<b>MOOC Courses</b>	
<b>Videos</b>	

  
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### Course Articulation Matrix

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	3
CO2	-	1	-	3	-	-	-	-	-	-	-	-	3	1	-
CO3	-	2	3	-	1	-	-	-	-	-	-	-	-	-	3
CO4	-	-	3	-	-	-	-	-	-	-	-	2	-	-	-
CO5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

  
**Dr. Omveer Singh**  
 REGISTRAR  
 ITM University  
 Gwalior (M.P.)

## STUDY AND EVALUATION SCHEME

(SUBJECT-WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS)

Programme: MSc\_Agriculture (Agronomy) Semester: 4<sup>th</sup>

Batch: 2020-2022

S.No.	Course Code	Course Name	Maximum Marks Allotted							Credits Allotted			Total Credits
			Theory			Practical			Total Marks	L	T	P	
			End Sem. Exam	Mid Sem. Exam	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva					
1	AGRON-511[T]	Cropping System	40	30	30	0	0	0	100	1	0	1	2
2	AGRON-518[T]	Principles and practices of water management	40	30	0	0	0	0	70	2	0	0	2
3	AGRON-518[P]	Principles and practices of water management	0	0	0	30	0	0	30	0	0	1	1
<b>4</b>	<b>AGRON-560[P]</b>	<b>Research</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>16</b>
<b>Total Credits</b>												<b>21</b>	

\*Newly Added Courses

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## STUDY AND EVALUATION SCHEME

(SUBJECT-WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS)

Programme: MSc\_Agriculture(Genetics\_and\_Plant\_Breeding) Semester: 2<sup>nd</sup>

Batch: 2020-2022

S.No.	Course Code	Course Name	Maximum Marks Allotted							Credits Allotted			Total Credits
			Theory			Practical			Total Marks	L	T	P	
			End Sem. Exam	Mid Sem. Exam	Class Participation	End Sem. Exam	Prograssive Evaluation	Internal Viva					
1	GPB-504[T]	Principles Of Quantitative Genetics	40	30	0	0	0	0	70	2	0	0	2
2	GPB-509[T]	Biotechnology for Crop Improvement	40	30	0	0	0	0	70	2	0	0	2
3	GPB-515[T]	Maintenance Breeding, Concepts of Variety Release and Seed Production	40	30	0	0	0	0	70	2	0	0	2
4	PGS-505[T]	Agriculture Research Research Ethics and Rural development Programmes	40	30	0	30	0	0	100	1	0	0	1
5	PGS-506 [T]	Disaster Management	40	30	0	30	0	0	100	1	0	0	1
6	SST-502[T]	Seed Production In Field Crops	40	30	0	0	0	0	70	2	0	0	2
7	STAT-512[T]	Experimental Designs	40	30	0	0	0	0	70	2	0	0	2
8	GPB-504[P]	Principles Of Quantitative Genetics	0	0	0	30	0	0	30	0	0	1	1

9	GPB-509[P]	Biotechnology for Crop Improvement	0	0	0	30	0	0	30	0	0	1	1
10	GPB-515[P]	Maintenance Breeding, Concepts of Variety Release and Seed Production	0	0	0	30	0	0	30	0	0	1	1
11	GPB-599[P]	Master Research	0	0	0	0	0	0	0	0	0	4	4
12	SST-502[P]	Seed Production In Field Crops	0	0	0	30	0	0	30	0	0	1	1
13	STAT-512[P]	Experimental Designs	0	0	0	30	0	0	30	0	0	1	1
												<b>Total Credits</b>	21

\*Newly Added Courses

\*



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Gwalior (M.P.)

## STUDY AND EVALUATION SCHEME

(SUBJECT-WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS)

Programme: MSc\_Agriculture(Genetics\_and\_Plant\_Breeding) Semester: 3<sup>rd</sup>

Batch: 2020-2022

S.No.	Course Code	Course Name	Maximum Marks Allotted						Credits Allotted			Total Credits	
			Theory			Practical			Total Marks	L	T		P
			End Sem. Exam	Mid Sem. Exam	Class Participation	End Sem. Exam	Progressive Evaluation	Internal Viva					
1	GPB-508[T]	Cell Biology and Molecular Genetics	40	30	0	0	0	0	70	2	0	1	3
2	SST-503[T]	Seed Entomology	40	30	0	0	0	0	70	2	0	0	2
3	GPB-508[P]	Cell Biology and Molecular Genetics	0	0	0	30	0	0	30	0	0	1	1
4	GPB-591[P]	Master Seminar	0	0	0	100	0	0	100	0	0	1	1
5	GPB-599[P]	Master Research	0	0	0	0	0	0	0	0	0	8	8
6	PGS-504[P]	Basic Concept in Laboratory Techniques	0	0	0	100	0	0	100	0	0	1	1
7	SST-503[P]	Seed Entomology	0	0	0	30	0	0	30	0	0	1	1
8	STAT-501[P]	Technical Writing and Communication Skill	0	0	0	100	0	0	100	0	0	0	0
<b>Total Credits</b>												17	



**STUDY AND EVALUATION SCHEME**  
 (SUBJECT-WISE DISTRIBUTION OF MARKS AND CORRESPONDING CREDITS)

Programme: MSc\_Agriculture(Genetics\_and\_Plant\_Breeding) Semester: 4<sup>th</sup>

Batch: 2020-2022

Semester: 4th S.No.	Course Code	Course Name	Maximum Marks Allotted							Credits Allotted			Total Credits	
			Theory			Practical			Total Marks	L	T	P		
			End Sem. Exam	Mid Sem. Exam	Class Participation	End Sem. Exam	Prograssive Evaluation	Internal Viva						
1	GPB-599[P]	Master Research	0	0	0	0	0	0	0	0	0	0	10	10
<b>Total Credits</b>												10		

\*Newly Added Courses

  
**Dr. Omveer Singh**  
 REGISTRAR  
 ITM University  
 Gwalior (M.P.)

## List of Students who completed ELP under different modules



### Details of UG projects

**Name of the School:** School of Agriculture

**Name of the Course and Branch:** B.Sc. Hons. (Agriculture)

**Session:** 2018-2022

**Total No. of Students enrolled:** 205

ELP (Experiential learning program 8<sup>th</sup> semester student (B.Sc. Agriculture 2018))

S/No	Roll no-	Name	ELP Subjects
1	BAGNIAG18001	Aamir Suhail	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
2	BAGNIAG18002	Abhay Singh Bhadouria	AGRON-323
			ELP-ENT-402
			ELP-PP-401
3	BAGNIAG18005	Abhishek Sharma	AGRON-323
			ELP-AGRON-402
			ELP-HORT-403
4	BAGNIAG18008	Abhishek Vyas	AGRON-323
			ELP-PP-401
			ELP-PP-402
5	BAGNIAG18009	Aditi Mishra	AGRON-323
			ELP-AGRON-402
			ELP-SS-401
6	BAGNIAG18011	Aditya Kumar Gupta	AGRON-323
			ELP-AGRON-401
			ELP-HORT-405
7	BAGNIAG18012	Aditya Singh	AGRON-323
			ELP-AGRON-402
			ELP-HORT-403
9	BAGNIAG18014	Ajay Sharma	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
10	BAGNIAG18015	Aakash Pal	AGRON-323

			ELP-AGRON-403
			ELP-ENT-402
11	BAGN1AG18016	Akshita Singh Vats	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
12	BAGN1AG18018	Alok Singh Chauhan	AGRON-323
			ELP-AGRON-402
			ELP-SS-401
13	BAGN1AG18019	Aman Chandel	AGRON-323
			ELP-AGRON-402
			ELP-HORT-403
14	BAGN1AG18020	Aman Dixit	AGRON-323
			ELP-HORT-401
			ELP-SS-401
			ELP-HORT-402
			ELP-HORT-406
16	BAGN1AG18025	Anand Sharma	AGRON-323
			ELP-AGRON-402
			ELP-GPB-401
17	BAGN1AG18026	Anand Yadav	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
18	BAGN1AG18027	Aniket Parashar	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
19	BAGN1AG18031	Ankit Singh Rajawat	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
20	BAGN1AG18033	Ansarul Haque	AGRON-323
			ELP-AGRON-402
			ELP-ENT-401
21	BAGN1AG18034	AnshikVijayvargiya	AGRON-323
			ELP-ABM-403
			ELP-PP-401
22	BAGN1AG18035	Anshuman Bhadauria	AGRON-323
			ELP-ABM-403
			ELP-PP-401

23	BAGNIAG18036	Anup sharma	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
24	BAGNIAG18037	Anurag Pal	AGRON-323
			ELP-AGRON-401
			ELP-ENT-401
25	BAGNIAG18039	Anurodh Gaur	AGRON-323
			ELP-AGRON-402
			ELP-SS-401
26	BAGNIAG18041	Ariya V. Nair	AGRON-323
			ELP-ABM-403
			ELP-AGRON-401
27	BAGNIAG18044	Ashish Tomar	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
28	BAGNIAG18045	Ashmita Sharma	AGRON-323
			ELP-AGRON-402
			ELP-SS-401
30	BAGNIAG18047	Ashutosh Dixit	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
31	BAGNIAG18053	Azharsha. A	AGRON-323
			ELP-ABM-403
			ELP-HORT-404
32	BAGNIAG18055	Brajesh Gour	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
33	BAGNIAG18056	Brishav Parihar	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
34	BAGNIAG18057	Chayan Kumar Gautam	AGRON-323
			ELP-AGRON-401
			ELP-ENT-401
35	BAGNIAG18059	Chhatrapal Singh Baghel	AGRON-323
			ELP-AGRON-402
			ELP-HORT-403
36	BAGNIAG18060	ChorunMugli	AGRON-323

			ELP-ABM-403
			ELP-HORT-404
37	BAGNIAG18062	Deepak Kumar Singh	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
			AGRON-323
38	BAGNIAG18063	Deepak Rastogi	ELP-AGRON-401
			ELP-HORT-405
			AGRON-323
39	BAGNIAG18064	Deepak Shukla	ELP-ABM-403
			ELP-PP-401
			AGRON-323
40	BAGNIAG18065	Deepak Upadhyay	ELP-HORT-401
			ELP-HORT-403
			AGRON-323
41	BAGNIAG18066	Deependra Raghuwanshi	ELP-AGRON-402
			ELP-PP-402
			AGRON-323
42	BAGNIAG18067	Devansh Patidar	ELP-AGRON-402
			ELP-HORT-403
			AGRON-323
43	BAGNIAG18069	Divas Shukla	ELP-AGRON-402
			ELP-SS-401
			AGRON-323
44	BAGNIAG18070	Firoz Alam	ELP-AGRON-402
			ELP-PP-402
			AGRON-323
45	BAGNIAG18072	Gambo Tayeng	ELP-HORT-402
			ELP-HORT-405
			AGRON-323
46	BAGNIAG18073	Gaurav Paliwal	ELP-AGRON-402
			ELP-HORT-403
			AGRON-323
47	BAGNIAG18074	Gemin Muang	ELP-ENT-401
			ELP-PP-401
			AGRON-323
48	BAGNIAG18078	Gourav Kumar	ELP-ABM-401
			ELP-ABM-402

49	BAGNIAG18080	Gudise Rajkumar	AGRON-323
			ELP-HORT-404
			ELP-SS-401
50	BAGNIAG18082	Hardev Jain	AGRON-323
			ELP-HORT-401
			ELP-HORT-404
52	BAGNIAG18085	Harshit Tyagi	AGRON-323
			ELP-AGRON-401
			ELP-ENT-401
53	BAGNIAG18088	IndrajeetUchariya	AGRON-323
			ELP-GPB-401
			ELP-HORT-405
54	BAGNIAG18089	Jassi Singh	AGRON-323
			ELP-AGRON-402
			ELP-SS-401
55	BAGNIAG18090	Jayveer	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
56	BAGNIAG18091	Kanupriya Namdev	AGRON-323
			ELP-AGRON-401
			ELP-ENT-401
58	BAGNIAG18096	Kaushal Singh Rajawat	ELP-ENT-402
			AGRON-323
			ELP-GPB-401
59	BAGNIAG18097	KilariNarendranadh	ELP-HORT-405
			AGRON-323
			ELP-HORT-404
60	BAGNIAG18098	Koustav Nandi	ELP-SS-401
			AGRON-323
			ELP-AGRON-401
61	BAGNIAG18099	Kriti Kumari	ELP-HORT-406
			AGRON-323
			ELP-AGRON-401
62	BAGNIAG18100	Kuldeep	ELP-HORT-406
			AGRON-323
			ELP-AGRON-402



63	BAGNIAG18101	Kuldeep Kumawat	ELP-PP-401
			AGRON-323
			ELP-ABM-401
64	BAGNIAG18102	Kundan Gami	ELP-ABM-402
			AGRON-323
			ELP-ABM-401
65	BAGNIAG18103	Kunwar Mukund Singh	ELP-ABM-402
			AGRON-323
			ELP-AGRON-402
66	BAGNIAG18104	Kunwar Rahul Singh	ELP-PP-402
			AGRON-323
			ELP-ENT-401
67	BAGNIAG18106	M.A. Arshad	ELP-HORT-404
			AGRON-323
			ELP-ABM-403
68	BAGNIAG18109	Marapalli Vamshi	ELP-PP-402
			AGRON-323
			ELP-HORT-404
69	BAGNIAG18110	Mayank Tuniya	ELP-SS-401
			AGRON-323
			ELP-GPB-401
70	BAGNIAG18111	Mayuri Goswami	ELP-HORT-405
			AGRON-323
			ELP-ENT-401
71	BAGNIAG18112	MD Saif Khan	ELP-HORT-405
			AGRON-323
			ELP-AGRON-401
72	BAGNIAG18113	MD. ManjarAlam	ELP-ENT-401
			AGRON-323
			ELP-ABM-401
73	BAGNIAG18114	Mimum Modi	ELP-ABM-402
			AGRON-323
			ELP-ENT-401
74	BAGNIAG18115	Minya Riba	ELP-PP-401
			AGRON-323
			ELP-HORT-401
75	BAGNIAG18117	Mohd Joaib	ELP-HORT-402
			AGRON-323
			ELP-HORT-405
			AGRON-323
			ELP-ABM-403
			ELP-PP-402

76	BAGNIAG18119	Mradul Shukla	ELP-SS-401
			AGRON-323
			ELP-ABM-401
			ELP-ABM-402
77	BAGNIAG18120	Mumtak Tapak	ELP-ABM-403
			AGRON-323
			ELP-ENT-401
78	BAGNIAG18121	Muskan Rahangdale	ELP-PP-401
			AGRON-323
			ELP-AGRON-403
79	BAGNIAG18122	Nancy Bandil	ELP-HORT-401
			AGRON-323
			ELP-ENT-401
80	BAGNIAG18123	Nancy Bhargava	ELP-HORT-405
			AGRON-323
			ELP-AGRON-401
81	BAGNIAG18127	Om Prakash Sahu	ELP-ENT-401
			AGRON-323
			ELP-ABM-401
82	BAGNIAG18128	OsiSiram	ELP-ABM-402
			AGRON-323
			ELP-ENT-401
83	BAGNIAG18129	Pala Sai Akhil	ELP-PP-401
			AGRON-323
			ELP-ABM-403
84	BAGNIAG18130	Palash Parashar	ELP-PP-402
			AGRON-323
			ELP-AGRON-403
85	BAGNIAG18131	Pankaj Kain	ELP-HORT-404
			AGRON-323
			ELP-AGRON-402
86	BAGNIAG18132	Pankaj Rajpoot	ELP-PP-401
			AGRON-323
			ELP-AGRON-401
87	BAGNIAG18133	Parmanand Patidar	ELP-HORT-405
			AGRON-323
			ELP-AGRON-402



88	BAGNIAG18135	Piyush Dixit	ELP-HORT-403
			AGRON-323
			ELP-ABM-401
89	BAGNIAG18138	Praful Sharma	ELP-ABM-402
			AGRON-323
			ELP-HORT-402
90	BAGNIAG18139	Prajawal Patidar	ELP-HORT-406
			AGRON-323
			ELP-AGRON-402
91	BAGNIAG18140	Prajwal Digarse	ELP-HORT-403
			AGRON-323
			ELP-AGRON-402
92	BAGNIAG18141	Pranit Singh	ELP-HORT-403
			AGRON-323
			ELP-ENT-402
92	BAGNIAG18141	Pranit Singh	ELP-PP-402
			AGRON-323
			ELP-ENT-402
93	BAGNIAG18142	Prasanth Kumar K	ELP-PP-402
			AGRON-323
			ELP-ENT-401
94	BAGNIAG18144	Pratim Goswami	ELP-HORT-401
			AGRON-323
			ELP-AGRON-402
95	BAGNIAG18145	Preetam Lovewanshi	ELP-PP-402
			AGRON-323
			ELP-AGRON-402
96	BAGNIAG18147	Purvesh Vishwakarma	ELP-PP-401
			AGRON-323
			ELP-AGRON-402
97	BAGNIAG18148	Puspendra Singh	ELP-HORT-403
			AGRON-323
			ELP-ABM-401
98	BAGNIAG18153	Ringka Minge Darang	ELP-ABM-402
			AGRON-323
			ELP-HORT-402
			ELP-HORT-405

99	BAGNIAG18154	RishMakcha	AGRON-323
			ELP-HORT-402
			ELP-HORT-405
100	BAGNIAG18155	Rishabh Sharma	AGRON-323
			ELP-AGRON-402
			ELP-PP-401
101	BAGNIAG18156	Ritik Raghu	AGRON-323
			ELP-AGRON-402
			ELP-PP-402
102	BAGNIAG18157	Rohan Bhagel	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
103	BAGNIAG18158	Rohan Kushwah	AGRON-323
			ELP-HORT-401
			ELP-PP-401
105	BAGNIAG18161	Roshan Ekka	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
106	BAGNIAG18164	Sachin Gautam	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
107	BAGNIAG18165	Sachin Sharma	AGRON-323
			ELP-AGRON-403
			ELP-HORT-401
108	BAGNIAG18166	Sadique Hasan	AGRON-323
			ELP-ENT-402
			ELP-HORT-401
109	BAGNIAG18167	Saikiran Tripathy	AGRON-323
			ELP-AGRON-403
			ELP-GPB-401
110	BAGNIAG18168	Saket Kumar	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
111	BAGNIAG18169	Samarth Soni	AGRON-323
			ELP-AGRON-402
			ELP-ENT-402
112	BAGNIAG18170	Sandeep Kumar mallik	AGRON-323

			ELP-HORT-401
			ELP-PP-402
113	BAGNIAG18172	Sanjeev Singh Baghel	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
114	BAGNIAG18174	Satendra Sharma	AGRON-323
			ELP-AGRON-401
			ELP-HORT-405
115	BAGNIAG18175	Satendra Singh	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
116	BAGNIAG18176	Satendra Singh Parihar	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
117	BAGNIAG18178	Satyam Chauhan	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
118	BAGNIAG18180	Saurabh Gupta	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
119	BAGNIAG18181	Shelendra Rawat	AGRON-323
			ELP-AGRON-402
			ELP-SS-401
120	BAGNIAG18185	Shivam Sharma	AGRON-323
			ELP-AGRON-402
			ELP-SS-401
121	BAGNIAG18188	Shivanjay Shrivastava	AGRON-323
			ELP-PP-401
			ELP-PP-402
122	BAGNIAG18190	Shiwangi Singh	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
123	BAGNIAG18192	Shreyansha Dubey	AGRON-323
			ELP-AGRON-401
			ELP-ENT-401
124	BAGNIAG18194	Shyam Sunder Rajput	AGRON-323
			ELP-ENT-402
			ELP-PP-401

125	BAGNIAG18195	Sonal Shukla	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
126	BAGNIAG18196	Sonam Tandy	AGRON-323
			ELP-AGRON-401
			ELP-GPB-401
127	BAGNIAG18198	Stella Kamble	AGRON-323
			ELP-AGRON-401
			ELP-AGRON-402
128	BAGNIAG18199	Sumit Raj Khare	AGRON-323
			ELP-HORT-402
			ELP-HORT-406
129	BAGNIAG18200	Suraj Dhakar	AGRON-323
			ELP-ENT-402
			ELP-PP-401
130	BAGNIAG18202	Thanhar T R	AGRON-323
			ELP-HORT-403
			ELP-PP-401
131	BAGNIAG18203	Udit Dhakad	AGRON-323
			ELP-AGRON-402
			ELP-HORT-403
132	BAGNIAG18204	Vaibhav Rajawat	AGRON-323
			ELP-HORT-405
			ELP-PP-401
134	BAGNIAG18206	Vasudev Purohit	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
135	BAGNIAG18207	Vijendra Goutam	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
136	BAGNIAG18209	Vikash Sharma	AGRON-323
			ELP-ENT-402
			ELP-PP-401
138	BAGNIAG18214	Virendra Bansal	AGRON-323
			ELP-AGRON-401
			ELP-AGRON-402
139	BAGNIAG18216	Vishvjeet Singh Jat	AGRON-323




			ELP-AGRON-401
			ELP-AGRON-402
140	BAGNIAG18218	Vivek Kumar	AGRON-323
			ELP-HORT-401
			ELP-PP-401
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142	BAGNIAG18220	Yash Garg	AGRON-323
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			ELP-PP-401
143	BAGNIAG18221	Yashi Chauhan	AGRON-323
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			ELP-GPB-401
144	BAGNIAG18222	Yogesh Soni	AGRON-323
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			ELP-SS-401
145	BAGNIAG18224	Hari Om Jha	AGRON-323
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147	BAGNIAG18227	Sachin Basavaraj Hebasur	AGRON-323
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			ELP-HORT-403
148	BAGNIAG18229	Aniket Kumar	AGRON-323
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			ELP-PP-402
149	BAGNIAG18231	Nkumbu	AGRON-323
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			ELP-HORT-403
150	BAGNIAG18236	Shantanu Banerjee	AGRON-323
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151	BAGNIAG18237	Shubham	AGRON-323
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152	BAGNIAG18239	Shraboni Dutta	AGRON-323
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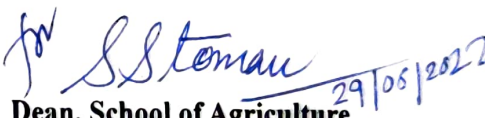
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155	BAGN1AG18248	Amit Sagar	AGRON-323
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157	BAGN1AG18250	Pinniboina Nagendra Babu	AGRON-323
			ELP-ABM-403
			ELP-PP-402
158	BAGN1AG18251	SheshaBattar Bhargavi	AGRON-323
			ELP-HORT-404
			ELP-SS-401
159	BAGN1AG18252	Thota Siva Sankar Rao	AGRON-323
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			ELP-SS-401
160	BAGN3AG19T02	Sabina Bhandari	AGRON-323
			ELP-HORT-406
			ELP-PP-401
161	BAGN3AG19T03	Harshita Agarwal	AGRON-323
			ELP-HORT-406
			ELP-PP-401
162	BAGN3AG19T04	Saloni Kanthiya	AGRON-323
			ELP-HORT-405
			ELP-PP-401
163	BAGN3AG19T05	Monika Singh	AGRON-323
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			ELP-PP-401
164	BAGN5AG20T01	Geethika Kollareddy	AGRON-323
			ELP-ABM-403
			ELP-HORT-403
166	BAGN5AG20T03	Mopidevi Gladys Lydia	AGRON-323
			ELP-GPB-401
			ELP-HORT-404
167	BAGN5AG20T04	Priyadarshan A	AGRON-323
			ELP-AGRON-402

			ELP-GPB-401
168	BAGN5AG20T05	Gurunath	AGRON-323
			ELP-HORT-405
			ELP-PP-402
169	BAGN5AG20T06	Mahadev	AGRON-323
			ELP-HORT-405
			ELP-PP-402
170	BAGN5AG20T07	Sagar D K	AGRON-323
			ELP-ENT-401
			ELP-SS-401
171	BAGN5AG20T08	SHIVANAND MALLAPPA	AGRON-323
			ELP-HORT-405
			ELP-PP-402
172	BAGN5AG20T09	Spoorthi S A	AGRON-323
			ELP-ENT-401
			ELP-HORT-401
173	BAGN5AG20T10	K Anusha	AGRON-323
			ELP-HORT-404
			ELP-SS-401
174	BAGN5AG20T11	E Sindhuja	AGRON-323
			ELP-SS-401
175	BAGN5AG20T12	Bhukya Akhila	AGRON-323
			ELP-AGRON-402
			ELP-HORT-404
176	BAGN5AG20T13	Madugula Dora Venkata Akhil	AGRON-323
			ELP-AGRON-401
			ELP-AGRON-402
177	BAGN1AG18024	Amir Hussain	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
178	BAGN1AG18149	Rahul Sharma	AGRON-323
			ELP-AGRON-402
			ELP-GPB-401
179	BAGN1AG18160	Rohit Sharma	AGRON-323
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			ELP-GPB-401
180	BAGN1AG18191	Shiwani Kumari	AGRON-323
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181	BAGN1AG18083	Harendra Singh	AGRON-323

		Kaushal	ELP-ABM-401
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182	BAGNIAG18208	Vikash Kumar Verma	AGRON-323
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183	BAGNIAG18189	Shivkumar Lodhi	AGRON-323
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184	BAGNIAG18210	Vikram Singh Rawat	AGRON-323
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185	BAGNIAG18217	Vishvnath	AGRON-323
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			ELP-ABM-402
186	BAGNIAG18013	Ajay Patil	AGRON-323
			ELP-ABM-401
			ELP-ABM-402
187	BAGNIAG18094	Kartik Sharma	AGRON-323
			ELP-ABM-401
			ELP-ABM-402

  
**ELP Coordinator**  
 Dr. Pramod Prajapati

  
**Dean, School of Agriculture**  
 Prof. (Dr.) Shiv Singh Tomar





UNIVERSITY

GWALIOR • MP • INDIA

"CELEBRATING DREAMS"

# Sample Project Report of ELP

B. SC. (HONS.) AGRICULTURE

COURSE TITLE :- MEDICINAL AND AROMATIC CROP PRODUCTION

ELP COURSE CODE :- 406

SEMESTER:- 8 TH



Accepted  
Excellent

Bisodhi  
17.6.22

SUBMITTED TO :-

Dr. KUNAL ADHIKARY

ASSISTANT PROFESSOR

DEPARTMENT OF HORTICULTURE

Kunal Adhikary  
17/06/22

SUBMITTED BY :

SATYAM CHAUHAN

BAGN1AG18178

SEC :- B



**B. SC. (HONS.) AGRICULTURE COURSE**

**TITLE: - MEDICINAL AND AROMATIC CROP PRODUCTION.**

**ELP COURSE CODE: - 406**



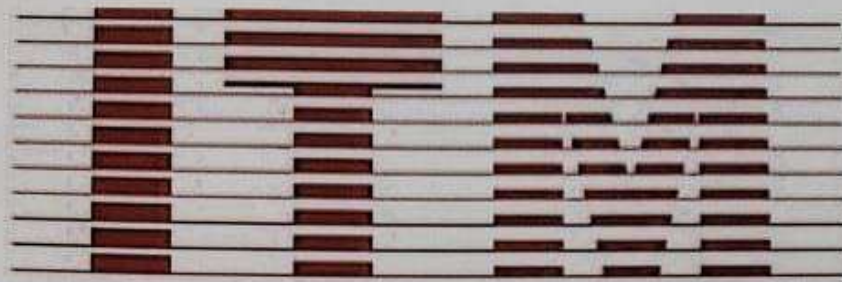
*Completed!*  
*Good!*

*July*  
*06/06/22*

*Sabina*  
*17.6.22*  
*Accepted &*  
*excellent*

**SUBMITTED TO: -**  
**DR. KUNAL ADHIKARY**  
**ASSISTANT PROFESSOR**  
**DEPARTMENT OF HORTICULTURE.**

**SUBMITTED BY: -**  
**SABINA BHANDARI**  
**BAGN3AG19T02**  
**SECTION: -B**



**INSTITUTE OF TECHNOLOGY  
& MANAGEMENT**  
GWALIOR • MP • INDIA

**ELP-ENT- 402**

**Production Technology**

**of**

**Bio-agents and Bio-fertilizers**

*AA*  
*Accepted and permitted for the presentator*  
*July 07/10/22*  
**Submitted to:**  
**Dr. Rabiya Basri**  
**Asst. Prof., SOAG**  
**ITM University, Gwalior**

**Submitted by:**  
**Shantanu Banerjee**  
**BAGN1AG18236**  
**B.SC. AG 8<sup>th</sup> sem**

*[Handwritten signature]*  
*[Handwritten signature]*



Name of the course and Batch: B.Sc.( Hons.)Agriculture (Batch: 2018)

**List of students performed training under Agro Industrial Attachment at industries/government agencies.**

<b>Sr. No.</b>	<b>Roll No.</b>	<b>Name</b>
1	BAGN1AG14099	Madakam Dileepdora
2	BAGN1AG18001	Aamir Suhail
3	BAGN1AG18002	Abhay Singh Bhadouria
4	BAGN1AG18003	Abhinand A
5	BAGN1AG18005	Abhishek Sharma
6	BAGN1AG18007	Abhishek Sharma
7	BAGN1AG18008	Abhishek Vyas
8	BAGN1AG18009	Aditi Mishra
9	BAGN1AG18011	AdityaKumar Gupta
10	BAGN1AG18012	Aditya Singh
11	BAGN1AG18013	Ajay Patil
12	BAGN1AG18014	Ajay Sharma
13	BAGN1AG18015	Akash Pal
14	BAGN1AG18016	Akshita Singh Vats
15	BAGN1AG18017	Alka Patel
16	BAGN1AG18018	Alok Singh Chauhan
17	BAGN1AG18019	Aman Chandel
18	BAGN1AG18020	Aman Dixit
19	BAGN1AG18022	Aman Sharma
20	BAGN1AG18023	Amarjeet Singh Narwariya
21	BAGN1AG18024	Amir Hussain
22	BAGN1AG18025	Anand Sharma
23	BAGN1AG18026	Anand Yadav
24	BAGN1AG18027	Aniket Parashar
25	BAGN1AG18029	Ankit Jadon
26	BAGN1AG18031	Ankit Singh Rajawat
27	BAGN1AG18033	Ansarul Haque
28	BAGN1AG18034	Anshik Vijayvargiya
29	BAGN1AG18035	Anshuman Bhadauria
30	BAGN1AG18036	Anup sharma
31	BAGN1AG18037	Anurag Pal
32	BAGN1AG18039	Anurodh Gaur
33	BAGN1AG18041	Ariya V. Nair
34	BAGN1AG18044	Ashish Tomar
35	BAGN1AG18045	Ashmita Sharma
36	BAGN1AG18046	Ashok Singh Parmar
37	BAGN1AG18047	Ashutosh Dixit

38	BAGN1AG18052	AyushiSingh
39	BAGN1AG18053	Azharsha. A
40	BAGN1AG18054	Bhattu Swathi
41	BAGN1AG18055	Brajesh Gour
42	BAGN1AG18056	Brishav Parihar
43	BAGN1AG18057	ChayanKumar Gautam
44	BAGN1AG18059	Chhatrapal Singh Baghel
45	BAGN1AG18060	Chorun Mugli
46	BAGN1AG18062	DeepakKumar Singh
47	BAGN1AG18063	Deepak Rastogi
48	BAGN1AG18064	Deepak Shukla
49	BAGN1AG18065	Deepak Upadhyay
50	BAGN1AG18066	Deependra Raghuwanshi
51	BAGN1AG18067	Devansh Patidar
52	BAGN1AG18069	Divas Shukla
53	BAGN1AG18070	Firoz Alam
54	BAGN1AG18072	Gambo Tayeng
55	BAGN1AG18073	Gaurav Paliwal
56	BAGN1AG18074	Gemin Muang
57	BAGN1AG18078	Gourav Kumar
58	BAGN1AG18080	Gudise Rajkumar
59	BAGN1AG18082	Hardev Jain
60	BAGN1AG18083	Harendra Singh Kaushal
61	BAGN1AG18085	Harshit Tyagi
62	BAGN1AG18087	Hemant Gami
63	BAGN1AG18088	Indrajeet Uchariya
64	BAGN1AG18089	Jassi Singh
65	BAGN1AG18090	Jayveer
66	BAGN1AG18091	KanupriyaNamdev
67	BAGN1AG18093	KarankiSeshaSai
68	BAGN1AG18094	KartikSharma
69	BAGN1AG18095	KartikeyUpadhyay
70	BAGN1AG18096	KaushalSingh Rajawat
71	BAGN1AG18097	Kilari Narendranadh
72	BAGN1AG18098	KoustavNandi
73	BAGN1AG18099	KritiKumari
74	BAGN1AG18100	Kuldeep
75	BAGN1AG18101	KuldeepKumawat
76	BAGN1AG18102	Kundan Gami
77	BAGN1AG18103	KunwarMukund Singh
78	BAGN1AG18104	KunwarRahul Singh
79	BAGN1AG18106	M.A.Arshad
80	BAGN1AG18109	Marapalli Vamshi
81	BAGN1AG18110	Mayank Tuniya
82	BAGN1AG18111	Mayuri Goswami

83	BAGN1AG18112	MD Saif Khan
84	BAGN1AG18113	MD.ManjarAlam
85	BAGN1AG18114	Mimum Modi
86	BAGN1AG18115	Minya Riba
87	BAGN1AG18117	Mohd Joaib
88	BAGN1AG18119	Mradul Shukla
89	BAGN1AG18120	Mumtak Tapak
90	BAGN1AG18121	Muskan Rahangdale
91	BAGN1AG18122	Nancy Bandil
92	BAGN1AG18123	Nancy Bhargava
93	BAGN1AG18125	Neeraj Rajpoot
94	BAGN1AG18127	Om Prakash Sahu
95	BAGN1AG18128	Osi Siram
96	BAGN1AG18129	Pala Sai Akhil
97	BAGN1AG18130	Palash Parashar
98	BAGN1AG18131	PankajKain
99	BAGN1AG18132	Pankaj Rajpoot
100	BAGN1AG18133	Parmanand Patidar
101	BAGN1AG18135	Piyush Dixit
102	BAGN1AG18138	Praful Sharma
103	BAGN1AG18139	Prajjawal Patidar
104	BAGN1AG18140	Prajjawal Digarse
105	BAGN1AG18141	Pranit Singh
106	BAGN1AG18142	PrasanthKumarK
107	BAGN1AG18144	Pratim Goswami
108	BAGN1AG18145	Preetam Lovewanshi
109	BAGN1AG18146	Pukhraj Sharma
110	BAGN1AG18147	Purvesh Vishwakarma
111	BAGN1AG18148	Puspendra Singh
112	BAGN1AG18149	Rahul Sharma
113	BAGN1AG18150	Rahul Tiwari
114	BAGN1AG18153	Ringka Minge Darang
115	BAGN1AG18154	Rish Makcha
116	BAGN1AG18155	Rishabh Sharma
117	BAGN1AG18156	Ritik Raghu
118	BAGN1AG18157	Rohan Bhagel
119	BAGN1AG18158	Rohan Kushwah
120	BAGN1AG18160	Rohit Sharma
121	BAGN1AG18161	Roshan Ekka
122	BAGN1AG18164	Sachin Gautam
123	BAGN1AG18165	Sachin Sharma
124	BAGN1AG18166	Sadique Hasan
125	BAGN1AG18167	Saikiran Tripathy
126	BAGN1AG18168	Saket Kumar
127	BAGN1AG18169	Samarth Soni

128	BAGN1AG18170	SandeepKumar mallik
129	BAGN1AG18171	Sandeep Sikarwar
130	BAGN1AG18172	Sanjeev Singh Baghel
131	BAGN1AG18173	Satendra
132	BAGN1AG18174	Satendra Sharma
133	BAGN1AG18175	Satendra Singh
134	BAGN1AG18176	Satendra Singh Parihar
135	BAGN1AG18177	Satya Prakash
136	BAGN1AG18178	Satyam Chauhan
137	BAGN1AG18180	Saurabh Gupta
138	BAGN1AG18181	Shelendra Rawat
139	BAGN1AG18185	Shivam Sharma
140	BAGN1AG18186	Shivam Singh Kamariya
141	BAGN1AG18188	Shivanjay Shrivastava
142	BAGN1AG18189	Shivkumar Lodhi
143	BAGN1AG18190	Shiwangi Singh
144	BAGN1AG18191	Shiwani Kumari
145	BAGN1AG18192	Shreyansha Dubey
146	BAGN1AG18194	Shyam Sunder Rajput
147	BAGN1AG18195	Sonal Shukla
148	BAGN1AG18196	Sonam Tandy
149	BAGN1AG18198	Stella Kamble
150	BAGN1AG18199	Sumit Raj Khare
151	BAGN1AG18200	Suraj Dhakar
152	BAGN1AG18202	Thanhar T R
153	BAGN1AG18203	Udit Dhakad
154	BAGN1AG18204	Vaibhav Rajawat
155	BAGN1AG18205	Vankayala Hareeshkumar
156	BAGN1AG18206	Vasudev Purohit
157	BAGN1AG18207	Vijendra Goutam
158	BAGN1AG18208	VikasKumar Verma
159	BAGN1AG18209	Vikash Sharma
160	BAGN1AG18210	Vikram Singh Rawat
161	BAGN1AG18212	Vineet Patidar
162	BAGN1AG18214	Virendra Bansal
163	BAGN1AG18216	Vishvjeet Singh Jat
164	BAGN1AG18217	Vishvnath
165	BAGN1AG18218	Vivek Kumar
166	BAGN1AG18219	Vutukuri Tejasai
167	BAGN1AG18220	Yash Garg
168	BAGN1AG18221	Yashi Chauhan
169	BAGN1AG18222	Yogesh Soni
170	BAGN1AG18224	Hari Om Jha
171	BAGN1AG18225	KatariLokanatha
172	BAGN1AG18227	Sachin Basavaraj Hebasur

173	BAGN1AG18229	Aniket Kumar
174	BAGN1AG18231	Nkumbu
175	BAGN1AG18236	Shantanu Banerjee
176	BAGN1AG18237	Shubham
177	BAGN1AG18239	Shraboni Dutta
178	BAGN1AG18243	KarishmaChapagain
179	BAGN1AG18244	KonduruPrathyusha
180	BAGN1AG18245	Sandesh Singh Tomar
181	BAGN1AG18246	Amit Gupta
182	BAGN1AG18248	Amit Sagar
183	BAGN1AG18249	Swadesh Patidar
184	BAGN1AG18250	Pinniboina Nagendra Babu
185	BAGN1AG18251	Shesha Battar Bhargavi
186	BAGN1AG18252	Thota Siva Sankar Rao
187	BAGN3AG19T01	Manashi Chand
188	BAGN3AG19T02	Sabina Bhandari
189	BAGN3AG19T03	Harshita Agarwal
190	BAGN3AG19T04	Saloni Kanthiya
191	BAGN3AG19T05	Monika Singh
192	BAGN5AG20T01	Geethika Kollareddy
193	BAGN5AG20T02	Harish
194	BAGN5AG20T03	Mopidevi Gladys Lydia
195	BAGN5AG20T04	Priyadarshan A
196	BAGN5AG20T05	Gurunath
197	BAGN5AG20T06	Mahadev
198	BAGN5AG20T07	Sagar D K
199	BAGN5AG20T08	SHIVANAND MALLAPPA
200	BAGN5AG20T09	Spoorthi S A
201	BAGN5AG20T10	K Anusha
202	BAGN5AG20T11	E Sindhuja
203	BAGN5AG20T12	Bhukya Akhila
204	BAGN5AG20T13	M. Dora Venkata Akhil
205	BAGN5AG20T14	Chitrlekha Sahu



<b>S.No.</b>	<b>List of industries/government agencies for training under AIA</b>
<b>1.</b>	Plantica Natural
<b>2.</b>	M/s. Prashanth seeds
<b>3.</b>	KrishiVizyanKendra(ICAR)MinistryofAgricultureandFarmersWelfare
<b>4.</b>	GwaliorSahakariDugdhSanghMaryaditGwaliorM.P.
<b>5.</b>	OMCAR INDIA, Pvt.Ltd
<b>6.</b>	MANMUL, Milk ProducersSocieties
<b>7.</b>	MULKANOOR Cooperative Rural Credit and Marketing Society, Ltd.
<b>8.</b>	Uttam Agro Industries
<b>9.</b>	Humane Agrariab Centre
<b>10.</b>	NationalFertilizerLimited (AGovt. ofIndia Undertaking)
<b>11.</b>	Tirhut Dugdh Utpadak Sahkari Sangh Limited
<b>12.</b>	Kargil
<b>13.</b>	Natural Bioproducts Pvt. Ltd.



**MULKANOOR COOPERATIVE RURAL CREDIT  
AND MARKETING SOCIETY LTD.,**

Village: Mulkanoor, Mandal: Bheemavarapally, Dist: Hanamkonda-505471

**Founder President: Late Sri A.K. Vishwanatha Reddy**

Regd No.AMC/KNR/95/1, GSTIN:36AAAAT6454A1ZQ.  
Email: mcrcms1956@gmail.com, Website: www.mcrcms.coop



ISO 9001:2015  
Certified Society

A. Praveen Reddy, Ex. MLA  
President

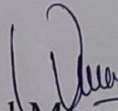
Ref No. 14/2021-S/700/2021-2022

Date: 29-10-2021

## CERTIFICATE

This is to certify that **Mr M.A. ARSHAD,**  
**Roll No. BAGNIAG18106,** studying B.Sc. (Hons)  
Agriculture in **ITM University, Gwalior, Madhya  
Pradesh** has done his project work in our organization on  
**“UNIT ATTACHMENT ON SEED PROCEESING  
UNIT” (from 2<sup>nd</sup> To 29<sup>th</sup> September, 2021) & “AGRO  
INDUSTRIAL UNIT ON COTTON GINNING  
INDUSTRY” (from 1<sup>st</sup> To 28<sup>th</sup> October, 2021)** in the  
campus of MCRC & MS Ltd., Telangana state.



  
General Manager



## PLANTICA NATURAL

Products: Vermicompost, Vermiwash, Natural Fertilizer  
Natural Insecticide, Natural Fungicide, NADEP Compost

### Certificate

This is to certify that Aditi Mishra

Student of B. Sc. (H) Agriculture Fourth Year of ITM University, Gwalior, M.P. has successfully completed his/ her **06 credit hr (Duration - 03 Weeks)** Industrial Training Program under Component – II: Agro Industrial Attachment (AIA), **from 01 to 22, August 2021** at Plantica Natural, Dehradun, Uttarakhand.

**(Ashish Negi)**  
Unit In-Charge



आत्मनिर्भर भारत

Plantica Natural (A Unit of Plantica Foundation). Regist. under Ministry of MSME, Govt. of India, ISO 9001:2015 Certified Organization  
Madhur Vihar Phase - II, Near Bengali Kothi, Dehradun, Uttarakhand  
E-mail: pgrindias@gmail.com





क्रमांक..214.....

दिनांक.04:Jan:2022



गवालियर सहकारी दुग्ध संघ मर्यादित, गवालियर

सांची दुग्ध संयंत्र, बानमोर  
AN ISO : 9001:2008  
AN ISO : 22000:2005



## प्रमाण-पत्र

प्रमाणित किया जाता है कि कुमारी/श्री P. NAGENDRA... BABU.....

महाविद्यालय/विश्वविद्यालय I.T.M. UNIVERSITY, GUALIOR कक्षा B.Sc.(Ag.)

ने दिनांक 22:Oct:2021 से दिनांक 21:Dec:2021 तक

विषय Quality... Analysis & Processing of Milk & Milk Products में

प्रोजेक्ट वर्क/इण्डस्ट्रीयल ट्रेनिंग में भाग लेकर प्रोजेक्ट रिपोर्ट प्रस्तुत किया ।

गवालियर सहकारी दुग्ध संघ मर्यादित इनके उज्ज्वल भविष्य की कामना करता है।

Himan  
प्रभारी (प्रशिक्षण)

04/11/22  
महाप्रबन्धक (क्षेत्र संचालन)

मुख्य कार्यपालन अधिकारी

**List of 2020-batch students Submitted Dissertation/Project Report**

S. No.	Roll No.	Name
1.	MAGN1AG20001	Pramod Tuppad
2.	MAGN1AG20002	Rohit Kulshreshtha
3.	MAGN1AG20003	Sunkara Sarada Devi
4.	MAGN1AG20004	Aniruddha Yadav
5.	MAGN1AG20005	Arman Kumar
6.	MAGN1AG20006	Harshita Joshi
7.	MAGN1AG20007	Gummadala Kasirao
8.	MAGN1AG20008	Kurukunda Suresh Reddy
9.	MAGN1AG20009	Manthati Harichandana
10.	MAGN1AG20010	Masapalli Himaja
11.	MAGN1AG20011	Myaka Sai Teja
12.	MAGN1AG20012	Parigela Naveen Kumar
13.	MAGN1AG20013	Perli Himavarsha
14.	MAGN1AG20014	Rahul Ranjan
15.	MAGN1AG20016	Rohan Agnihotri
16.	MAGN1AG20017	Shubham Dangi
17.	MAGN1AG20018	Sindhu Shikha Roy
18.	MAGN1AG20019	Sourabh Mahadev Mirje
19.	MAGN1AG20020	Srivatsa S Kharad
20.	MAGN1AG20021	Suddala Prem Kumar
21.	MAGN1AG20022	Veetarag Ladage
22.	MAGN1AG20023	Vikrant
23.	MAGN1AG20024	Vishwanath Anand
24.	MAGN1AG20025	Pallavi K
25.	MAGN1AG20029	Deepsikha
26.	MAGN1AG20030	Harshita Patel
27.	MAGN1AG20031	Siddanna Khanadale
28.	MAGN1AG20032	Veerbhadrappa
29.	MAGN1AG20033	Saurabh Dhote
30.	MAGN1AG20034	Shubham Ratre
31.	MAGN1AG20035	Mandra Durga Bhavani

  
 Head of Department

Agronomy



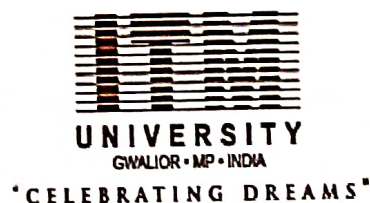
**Sample for Masters projects report**  
**“Response of Bio-fertilizers Inoculation and Phosphorus on**  
**Chickpea (*Cicer arietinum.L*)”**

*Thesis*  
*Submitted in partial fulfillment for the award of the degree of*

**MASTER OF SCIENCE (AGRICULTURE)**

in

**AGRONOMY**



Submitted by

**ROHIT**

**KULSHRESHTHA**

**(ITMAGS020395)**

Under the guidance of

**Prof. JAIDEV SHARMA**  
**Professor & HOD,**  
**Department of Agronomy**  
**School of Agriculture**

**Department of Agriculture, School of Agriculture**  
**ITM UNIVERSITY, GWALIOR- 474001 MP, INDIA**

**2022**

**CERTIFICATE (I)**

This is to certify that the thesis entitled "Response of Bio-fertilizers Inoculation and Phosphorus on Chickpea (*Cicer arietinum.L.*)" submitted by Rohit Kulshreshtha, Enrollment No.- ITMAG20S0395 in partial fulfillment for the award of the degree of M.Sc. Agriculture (AGRONOMY), ITM University, Gwalior has been carried out under my supervision.

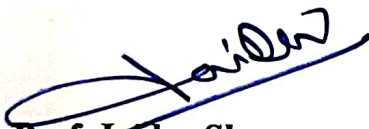
To the best of my knowledge and belief, the dissertation

- I. Is an original piece of work by the Candidate himself?
- II. Has duly been completed?
- III. Is up to the standard both in respect of contents and language?
- IV. Fulfills the requirement of the ordinance relating to M.Sc. Ag (Agronomy) Degree of the University.
- V. Work has not been submitted partially or wholly to any other University or Institute for the award of any other degree or diploma.

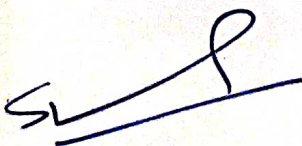


**Prof. JAIDEV SHARMA**  
(supervisor)  
Professor  
School of Agriculture

**Date:**



**Prof. Jaidev Sharma**  
(Head of the Department, Agronomy)



**(Dean, School of Agriculture)**



**CERTIFICATE (II)**

This is to certify that the thesis entitled "Response of Bio-fertilizers Inoculation and Phosphorus on Chickpea (*Cicer arietinum.L*)" submitted by Mr.ROHIT KULSHRESHTHA (MAGN1AG20002) to the School of Agriculture, ITM University Gwalior in partial fulfilment of the requirements for the degree of Master of Science in (Agriculture) in the discipline of Agronomy has been successfully defended in presence of the Advisory Committee after an oral examination of the student in collaboration with an external examiner.

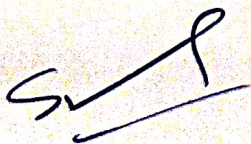
**ADVISORY COMMITTEE**

**Major Advisor & Chairman**

**Member (Major)**

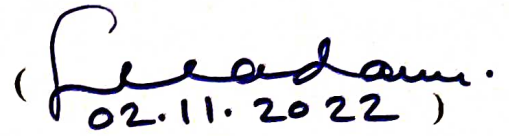
**Member (Minor)**

**Dean's Nominee**



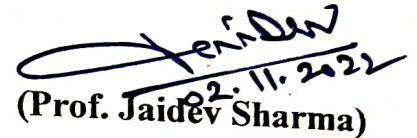
**Dean, School of Agriculture**

**DEAN**  
School of Agriculture  
ITM University  
Gwalior (M.P.)



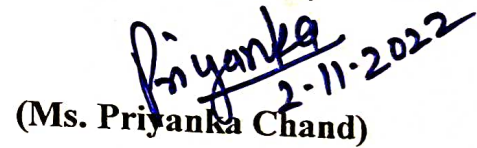
(02.11.2022)

**EXTERNAL EXAMINER**



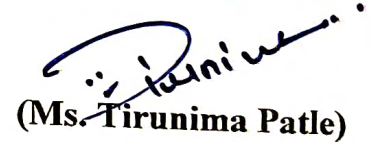
(Prof. Jaidev Sharma)

Professor of Agronomy



(Ms. Priyanka Chand)

Asstt. Prof. of Agronomy



(Ms. Tirunima Patle)

Asstt. Prof. of

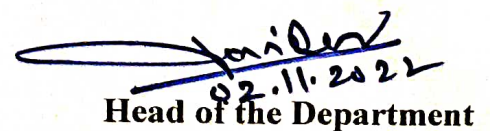
Soil and Water Conservation



(Dr. D.B. Tyagi)

Associate Professor

School of Agriculture



02.11.2022  
Head of the Department



**“EFFECT OF NITROGEN LEVELS ON DIFFERENT VARIETIES OF WHEAT  
(*Triticum aestivum* L.) IN GIRD REGION OF MADHYA PRADESH”**

*Thesis*

*Submitted in partial fulfilment for the award of the degree of*

**MASTER OF SCIENCE (AGRICULTURE)**

In

**AGRONOMY**



**UNIVERSITY**

GWALIOR • MP • INDIA

**“CELEBRATING DREAMS”**

*W. B. Singh*  
**DEAN**  
School of Agriculture  
ITM University  
Gwalior (M.P.)

Submitted by

**ANIRUDDHA YADAV**

**(ITMAG20S0397)**

Under the guidance of

**Dr. DINESH BABOO TYAGI**

**Associate Professor**

**DEPARTMENT OF AGRICULTURE, SCHOOL OF AGRICULTURE**

**ITM UNIVERSITY, GWALIOR- 474001 MP, INDIA**

**2022**



**CERTIFICATE (I)**

This is to certify that the thesis entitled "Effect of nitrogen levels on different varieties of wheat (*Triticum aestivum* L.) in gird region of Madhya Pradesh" submitted by **Aniruddha Yadav, Roll No- ITMAG20S0397** in partial fulfilment for the award of the degree of M.Sc. Agriculture (AGRONOMY), ITM University, Gwalior has been carried out under my supervision.

To the best of my knowledge and belief, the dissertation

I. Is an original piece of work by the Candidate himself?

II. Has duly been completed?

III. Is up to the standard both in respect of contents and language?

IV. Fulfils the requirement of the ordinance relating to M.Sc. Ag (Agronomy) Degree of the University.

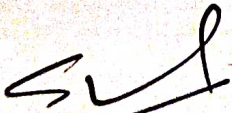
V. Work has not been submitted partially or wholly to any other University or Institute for the award of any other degree or diploma.



**Date: Dr. Dinesh Baboo Tyagi**  
**(supervisor)**



**(Head of the Department, Agronomy)**



**(Dean, School of Agriculture)**

**DEAN**  
**School of Agriculture**  
**ITM University**  
**Gwalior (M.P.)**



**CERTIFICATE (II)**

This is to certify that the thesis entitled, "Effect of Nitrogen levels on different varieties of wheat (*Triticum aestivum* L.) in gird region of Madhya Pradesh". submitted by Mr. ANIRUDH YADAV (Enrolment No. ITMAG20S0410) to the School of Agriculture, ITM University Gwalior in partial fulfillment of the requirements for the degree of Master of Science (Agriculture) in the discipline of Agronomy has been successfully defended in the presence of Advisory Committee after an oral examination of the student in collaboration with an external examiner.

**ADVISORY COMMITTEE**

**Major Advisor & Chairman**

**Member (Major)**

**Member (Minor)**

**Dean's Nominee**

**Dean, School of Agriculture**

**DEAN**  
School of Agriculture  
ITM University  
Gwalior (M.P.)

  
**(Dr. P.K. Tyagi)**

Head of Section,  
COA, JNKVV, Tikamgarh  
External Examiner

  
**(Dr. Dinesh Baboo Tyagi)**


Associate Professor  
School of Agriculture

  
**(Dr. Jai Dev Sharma)**

Professor & Head  
Department of Agronomy

  
**Dr. Parmita Deb**

Assistant Professor  
School of Agriculture

  
**Dr. Rabiya Basari**

Assistant Professor

  
**Head of the Department**

### Details of PG research projects

**Name of the School:**School of Agriculture

**Name of the Department:**Genetics and Plant Breeding

**Session:** 2020-2022

**Total No. of Students enrolled:** 22

S.No	Specialization	Name of the Student	Roll No.	Title of the project	Duration	Guide's Name
1.	Genetics and Plant Breeding	Mr. Shaik Abdul Muqsith	ITMAG20 S0444	Induced chemical mutation to sustain mustard production under changing climate	2	Dr. Sudheer K Pathak
2.	Genetics and Plant Breeding	Mr. Gurrala. Sai Vamsi Reddy	MGPN1A G20008	Assessment of Genetic variability, Heritability and Genetics advance studies on Garden Pea ( <i>Pisum sativum</i> L.) Genotypes	2	Dr. Shama Praveen
3.	Genetics and Plant Breeding	Mr. Bacham Shiva	ITMAG20 S0443	Genetic studies on induced chemical mutation in Groundnut ( <i>Arachis</i>	2	Dr. Shama Praveen

				<i>hypogaea</i> L.)		
4.	Genetics and Plant Breeding	Ms. Dumpati Pravalika	MGPN1A G20010	Assessment of Genetic variability. Heritability and Genetics advance studies for yield and quality traits in Elite Genotypes of Chickpea ( <i>Cicer arietinum</i> L.)	2	Dr. Sudheer K Pathak
5.	Genetics and Plant Breeding	Ms. Ch. Durga Bhavani	MGPN1A G20009	Effect of Seed priming on Seed quality Attributes in Pea ( <i>Pisum sativum</i> L.)	2	Dr. Jai Prakash Gupta
6.	Genetics and Plant Breeding	Mr. J. Raj Kumar	ITMAG20 S0428	Study on Induced Mutation in tomato ( <i>Solanum lycopersicum</i> L.) by Hydroxyl amine and sodium Azide	2	Dr. Lakshman Singh
7.	Genetics and Plant Breeding	Ms. Ganta Jyoshna Rani	ITMAG20 80446	Genetic Analysis on Character Association, Path Coefficient, Variability, Heritability and Genetic Advance	2	Dr. Shama Parveen

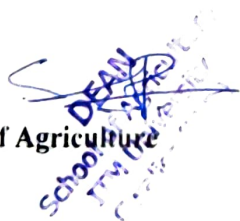


				Studies in Marigold (Tagetes spp.) Genotypes"		
8.	Genetics and Plant Breeding	Mr. Mukesh	MGPN1A G20014	Studies on the Optimization of Seed Storage Treatments for Seed Quality Standards in Wheat ( <i>Triticum aestivum</i> L.)	2	Dr. Jai Prakash Gupta
9.	Genetics and Plant Breeding	Ms. Nikita Aggarwal	MGPN1A G20007	Identification of Induced Chemical Mutants for Improving Yield and Yield Attributing Traits in Wheat ( <i>Triticum aestivum</i> L.) against Changing Climate	2	Dr. Sudheer Kumar Pathak
10	Genetics and Plant Breeding	Ms. P. Poojitha	ITMAG20 S0442	Studies on Genetic Variability in Groundnut ( <i>Arachis hypogaea</i> L.)	2	Dr. Lakshman Singh
11	Genetics and Plant Breeding	Mr. Praveen Kumar. S	MGPN1A G20017	Evaluation and Characterization of Sunflower ( <i>Helianthus annuus</i> L.) Germplasms	2	Dr. Lakshman Singh

12	Genetics and Plant Breeding	Ms. Rai Narayana Pravalika	MGPN1A G20003	Evaluation of Growth and Pollen Viability in Relation to Fruit Set among Five Varieties of Tomato ( <i>Solanum lycopersicum</i> L.)”	2	Dr. Shama Praveen
13	Genetics and Plant Breeding	Mr. Ravi Shankar Singh	MGPN1A G20022	“Variability Analysis, Heritability and Genetic Advance and Correlation among Elite Gladiolus ( <i>Gladiolus grandiflorus</i> L.) Germplasm	2	Dr. Lakshman Singh
14	Genetics and Plant Breeding	Mr. Sachin Rajesh Awachar	MGAN1A G20021	Induction of Genetic Variability in Chilli ( <i>Capsicum annum</i> L.) Through Mutation via Hydroxyl Amine and Sodium Azide	2	Dr. Shama Praveen
15	Genetics and Plant Breeding	Mr. Karpe Sani	MGPN1A G20006	Effect of induced mutation through	2	Dr. Shama Praveen

		Datta		Sodium Azide and Hydroxyl Amine in Chili ( <i>Capsicum annum</i> L.)		
16	Genetics and Plant Breeding	Mr. Sneha Vinod Bansod	MGPN1A G20026	Effect of Induced Mutation on the Seed Quality of Pea ( <i>Pisum Sativum</i> L.)	2	Dr. Jai Prakash Gupta
17	Genetics and Plant Breeding	Ms. Punem Swathi	MGPN1A G20013	Studies on Induced Variability through Chemical mutagens via., Sodium Azide and Hydroxyl Amine in Pea ( <i>Pisum sativum</i> L.)”	2	Dr. Lakshman Singh

Dean, School of Agriculture



HOD/COD of the Department

Handwritten signature and date: 07/10/22



## Sample for Masters projects report



### CERTIFICATE OF EVALUATION COMMITTEE

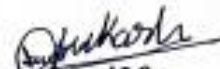
This is to certify that the thesis title "Studies on the Optimization of Seed Storage Treatments for Seed Quality Standards in Wheat (*Triticum aestivum* L.)", has been prepared and submitted by Mukesh (Roll No: MGPNIAG20014) for the partial fulfillment of the requirement of award of degree of Masters of Science in Agriculture (Genetics and Plant Breeding), School of Agriculture, ITM University, Gwalior, Madhya Pradesh the thesis has been examined by the Evaluation Committee and found acceptable.

#### Advisory Committee

Chairman & Advisor

:

Dr. Jai Prakash Gupta  
Assistant Professor  
Department of Genetics and Plant Breeding

  
22/09/22

Members (Major)

:

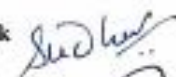
Dr. Shama Parveen  
Associate Professor & Head  
Department of Genetics and Plant Breeding

  
22/09/22

Member (Minor)

:

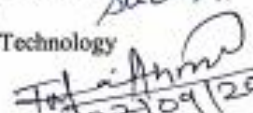
Dr. Sudheer Kumar Pathak  
Assistant Professor  
Department of Seed Technology



Deans Nominee

:


Dr. Tufail Ahmad  
Associate Professor & Head  
Department of Entomology

  
22/09/2022

External Examiner

:




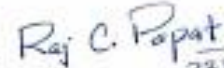
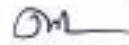


  
Dr. Omveer Singh  
REGISTRAR  
ITM University  
Gwalior (M.P.)

**CERTIFICATE OF EVALUATION COMMITTEE**

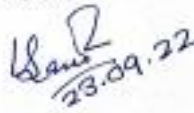
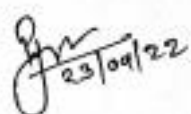

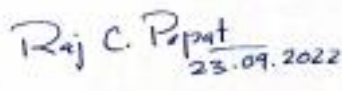

This is to certify that the thesis title "Identification of Induced Chemical Mutants For Improving Yield And Yield Attributing Traits In Wheat (*Triticum aestivum* L.) Against Changing Climate " has been prepared and submitted by Nikita Aggarwal (Roll No: MGPNIAG20007) for the partial fulfillment of the requirement of award of degree of Masters of Science in Agriculture( Genetics and Plant Breeding), School of Agriculture, ITM University, Gwalior, Madhya Pradesh the thesis has been examined by the Evaluation Committee and found acceptable.

**Advisory Committee**

Chairman & Advisor	:	 22/09/22 <b>Dr. Sudheer Kumar Pathak</b> Assistant Professor Department of Genetics and Plant Breeding
Members(Major)	:	<b>Dr. Shama Parveen</b> Associate Professor & Head  Department of Genetics and Plant Breeding
Member(Minor)	:	<b>Dr. Jai Parkesh</b> Assistant Professor  Department of Seed Technology 22-09-22
Deans Nominee	:	<b>Dr. Raj C Popat</b>  Assistant Professor 22/09/22 Department of Agricultural Statistics
External Examiner	:	

**CERTIFICATE OF EVALAUTION COMMITTEE**

This is to certify that the thesis title "Evaluation of Growth and Pollen Viability in Relation to Fruit Set among Five Varieties of Tomato (*Solanum lycopersicum* L.)" has been prepared and submitted by Rai Narayana Pravalika (Roll No: MGPNIAG20003) for the partial fulfillment of the requirement of award of degree of Masters of Science in Agriculture (Genetics and Plant Breeding), School of Agriculture, ITM University, Gwalior, Madhya Pradesh the thesis has been examined by the Evaluation Committee and found acceptable.

	<u>Advisory Committee</u>	<u>Signature</u>
<b>Chairman &amp; Advisor</b>	<b>Dr. Shama Parveen</b> Associate Professor and Head Department of Genetics and Plant Breeding	 23.09.22
<b>Members(Major)</b>	<b>Dr. Priyanka Gupta</b> Associate Professor Department of Genetics and Plant Breeding	 23/09/22
<b>Member(Minor)</b>	<b>Dr. Jai Prakash Gupta</b> Assistant Professor Department of Seed Technology	 23/09/22
<b>Deans Nominee</b>	<b>Dr. Raj C Papat</b> Assistant Professor Department of Agricultural Statistics	 Raj C. Papat 23.09.2022
<b>External Examiner</b>		 23/09/22