



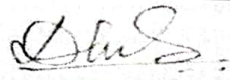

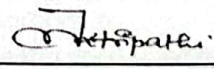
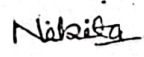




Date of Meeting: 06-May-2020

Proceedings of BOS meeting (School of Agriculture)

A meeting of the BoS committee (constituted by the Dean, School of Agriculture) was held electronically on Google Meet app at 11:00 am on May 6, 2020. The following members attended the meeting:

SN	Name (Members)	Designation	Signature
1	Prof. Girish Pandey	Dean, School of Agriculture & Chairperson BoS	
2	Prof. S. S. Tomar	HOD & Assistant Dean, School of Agriculture	
3	Prof. K. N. Nagaich	Professor, RVSKVV, Gwalior (External Expert)	
4	Dr. A. K. Sharma	Professor	
5	Dr. Dinesh Baboo Tyagi	Associate Professor & Member Secretary of BOS	
6	Dr. Lakshman Singh	Associate Professor	
7	Dr. Luxmi Kant Tripathi	Assistant Professor	
8	Dr. Nikita Nehal	Assistant Professor	
9	Dr. Girish Goyal	Assistant Professor	
10	Dr. Prashant Kumar Singh	Assistant Professor	


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"CELEBRATING DREAMS"


Agenda points were discussed in the meeting

1. Introduction of new under graduate programme
2. Introduction of new post graduate programme
3. Scheme and syllabi of newly proposed programmes
4. Modification in the credit of a remedial course
5. Inclusion of new courses
6. Modification in the course content
7. Modification in the RAWE Module

Recommendations of Board of Studies

Agenda and action taken plan for previous BoS dated-08-06-2019

Agenda	ATR
Course reallocation to the previous semester for thesis completion of M.Sc. (Ag) in Genetics and Plant Breeding	Course reallocation of M.Sc. (Ag) in Genetics and Plant Breeding has been approved by the BOS committee and subjected to the academic council
The course code for Crop Physiology (CP) should be replaced by PPH (Plant Physiology)	The BoS approved the modification of the course Crop Physiology (CP) with Plant Physiology (PPH) and recommended for the next academic council
Proposal for the addition of a new experiential learning programme	The new ELP programme named Seed Testing and Quality Assessment of B.Sc. (Hons) Agriculture was approved by the BoS and recommended to the Academic council
Proposed modification in the Syllabus	All the modifications proposed in the syllabus for the different courses were approved by BOS and forwarded to the academic council


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"CELEBRATING DREAMS"

1. Introduction of a new programme in the School of Agriculture with the name of Horticulture *i.e.* B.Sc. (Hons) Horticulture following the syllabus of ICAR's Vth Dean's committee in ITM University, Gwalior.
2. The need assessments and stakeholders' feedback for these programmes were discussed and the board has approved this for presentation in the academic council. The scheme and syllabus were also approved as per Vth Deans' committee guidelines.
3. Introduction of three new P.G. programs with nomenclature, M.Sc. (Ag.) Genetics & Plant Breeding, M.Sc. (Ag.) Soil Science & Agriculture Chemistry and M.Sc. (Ag.) Plant Pathology has been proposed.
4. The scheme and syllabi of PG programmes in Genetics and Plant Breeding, Plant Pathology, Soil Science and Agriculture Chemistry were discussed and recommended by BoS.
5. Change in credits of Elementary Mathematics, was proposed from existing 2(1+1) to 2(2+0) as per the V Deans' Committee report.
6. Proposal for inclusion of new courses, "ELCT-AE-311 Agriculture Journalism", "ELCT-AEXT-321 System Simulation and Agro-Advisory", "ELP-AE-401 Agri Warehouse Management", "ELP-AHS-401 Poultry Production Technology" and "ELP-HORT-407 Hydroponics" in B.Sc. (Hons) Agriculture was recommended. Courses on "Technical Writing and Communication Skill" and "Basic Concepts in Laboratory Techniques" were approved for adding as non-gradual compulsory courses in all master's programmes. (ANNEXURE-I)
7. Proposed modifications in the content of the courses, "AGRON-122 Introduction to Forestry", "GPB-121 Fundamentals of Genetics", "ENT-211 Pests of Crops and Stored Grain and their Management", "AENG-221 Renewable Energy and Green Technology", "CP-311 Environmental Studies and Disaster Management", "PP-311 Disease of field and Horticultural crops and Their Management-1" and "ELP- HORT-403 Processing of fruits and vegetables for value addition" has been recommended for academic council. (ANNEXURE-II)
8. The module of the RAWE programme was proposed to be changed as below for admission batch 2020-21 onwards as per V Deans' Committee report:

Existing Module (Till admission batch 2015 <i>i.e.</i> 2019 pass out)		Proposed Module (for admission batch 2016 <i>i.e.</i> 2020 pass out onwards)	
Crop Production	5 (0+5)	General orientation & On campus training by different faculties	14
Crop Protection	4 (0+4)	Village attachment	
Rural Economics	3 (0+3)	Unit attachment in Univ. / College. KVK / Research Stations	
Extension Program	4 (0+4)	Plant Clinic Attachment	2
		Agro-Industrial Attachment	4


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Any other points

- a. The reshuffling of course units and content within the course of GPB may be done by looking to the systematic arrangement as suggested by Dr. Lakshman Singh but, the Credits of the course may not be changed.
- b. Dr. K. N. Nagaich, an External Expert suggested that all courses should follow ICAR Guidelines.
- c. The board has advised to consult the scheme of various universities/institutions for necessary deviation Fifth Deans' Committee report.

All the agenda points of BoS were discussed in detail in support of necessary documents and same was recommended.

The meeting ended with vote of thanks by chairperson

Dean, School of Agriculture

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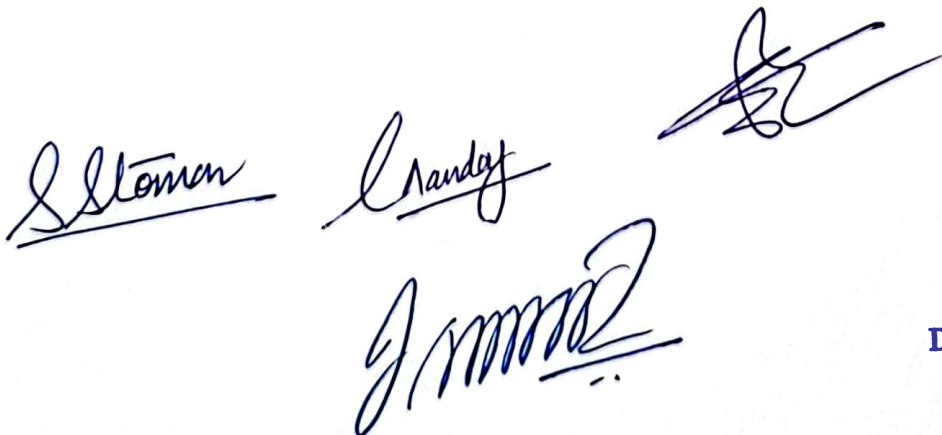


Syllabus-2020-2021
(SOAG)(BSc_HonsAgriculture)

Title of the Course	Agriculture Journalism
Course Code	ELCT-AE-311 [T]

Part A

Year	Semester	Credits	L	T	P	C
			2	0	1	3
Course Type	Embedded theory and lab					
Course Category	Discipline Core					
Pre-Requisite/s			Co-Requisite/s			
Course Outcomes & Bloom's Level	CO1- Know about basics of agricultural journalism.(BL1-Remember) CO2- Understand the difference between different types of journalism.(BL2-Understand) CO3- Apply their knowledge in communication media(BL3-Apply) CO4- Improve readability measures(BL4-Analyze) CO5- Analyze the source of information and their role in agricultural journalism(BL5-Evaluate) CO6- Develop better sources of agriculture information.(BL6-Create)					
Courses Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✗ Professional Ethics ✗ Gender ✗ Human Values ✓ Environment ✗	SDG (Goals)	SDG2(Zero hunger) SDG3(Good health and well-being) SDG4(Quality education) SDG6(Clean water and sanitation) SDG8(Decent work and economic growth) SDG12(Responsible consumption and production) SDG13(Climate action) SDG15(Life on land) SDG17(Partnerships for the goals)			




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Part B

Modules	Contents	Pedagogy	Hours
Unit 1	Agricultural Journalism: The nature and scope of agricultural journalism characteristics and training of the agricultural journalist, how agricultural journalism is similar to and different from other types of journalism.	Case Study, Guided Learning and Brain Storming	6
Unit-2	Newspapers and: Characteristics; kinds and functions of newspapers and magazines, characteristics of newspaper and magazine read magazines as communication mediaers.	Case Study, Guided Learning and Brain Storming	6
Unit-3	Form and content of newspapers and magazines: Style and language of newspapers and magazines, parts of newspapers and magazines.	Case Study, Guided Learning and Brain Storming	6
Unit-4	The agricultural story: Types of agricultural stories, subject matter of the agricultural story, structure of the agricultural story. Gathering agricultural information: Sources of agricultural information, interviews, coverage of events, abstracting from research and scientific materials, wire services, other agricultural news sources	Case Study, Guided Learning and Brain Storming	7
Unit-5	Writing the story: Organizing the material, treatment of the story, writing the news lead and the body, readability measures. Illustrating agricultural stories: Use of photographs, use of artwork (graphs, charts, maps, etc.), writing the captions. Editorial mechanics: Copy reading, headline and title writing, proofreading, lay outing.	Case Study, Guided Learning and Brain Storming	7

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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Module-1	Write a effective news story	Case Study	BL2-Understand	2
Module-2	Write a effective radio script	PBL	BL2-Understand	2
Module-3	Practicing in interviewing	PBL	BL3-Apply	2
Module-4	Covering agriculture events	PBL	BL3-Apply	2
Module-5	Writing different types of agricultural stories	PBL	BL4-Analyze	2
Module-6	Visit to the publishing office	PBL	BL4-Analyze	2
Module-7	Practicing in editing, copy reading, headline and title writing, proofreading and lay outting.	PBL	BL3-Apply	2
Module-8	Selecting pictures and art work for the agricultural stories.	PBL	BL5-Evaluate	2

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
70	26	40		30	
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
30	15			30	

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Part E

Books	Bhaskaran, C, Prakash, R. & Kishore Kumar, N. 2008. Farm Journalism in Media Management. Agro-Tech. Publishing Academy Chatterjee, P.C. 1991. Broadcasting in India. Sage Publication. 125
Articles	
References Books	
MOOC Courses	
Videos	

Course Articulation Matrix

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

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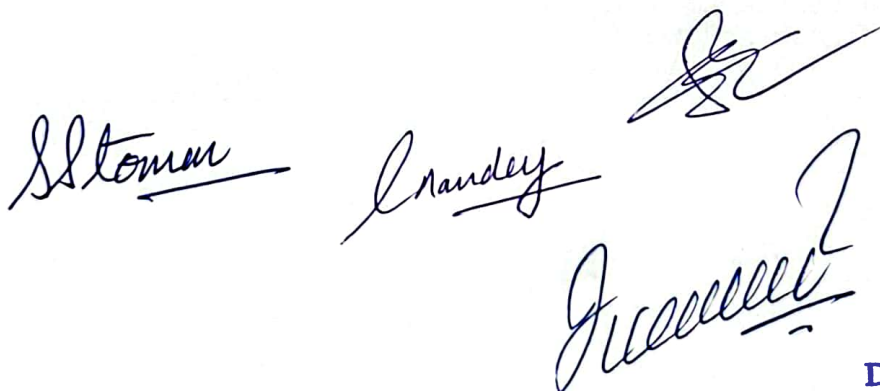
Syllabus-2020-2021

(SOAG)(BSc_HonsAgriculture)

Title of the Course	System Simulation And Agro-Advisory
Course Code	ELCT-AEXT-321 [T]

Part A

Year	Semester	Credits	L	T	P	C
			2	0	1	3
Course Type	Embedded theory and lab					
Course Category	Discipline Core					
Pre-Requisite/s	Agriculture Extension		Co-Requisite/s	Agriculture Extension		
Course Outcomes & Bloom's Level	<p>CO1- Describe the basic concepts of various System simulation tools and techniques used in agriculture fields (BL1-Remember)</p> <p>CO2- Compare the various simulation systems with their pros and cons (BL2-Understand)</p> <p>CO3- Demonstrate the use of various software for crop modelling, weather forecasting, dissemination of agroadvisory(BL3-Apply)</p> <p>CO4- Analyse the results obtained from different simulation systems with scientific interpretation (BL4-Analyze)</p> <p>CO5- Assess the suitability of different systems in optimum crop modelling diseases forecasting and weather forecasting (BL5-Evaluate)</p>					
Courses Elements	Skill Development ✓ Entrepreneurship ✗ Employability ✗ Professional Ethics ✗ Gender ✗ Human Values ✗ Environment ✓	SDG (Goals)	SDG4(Quality education) SDG13(Climate action) SDG17(Partnerships for the goals)			




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Part B

Modules	Contents	Pedagogy	Hours
Unit 1	System Approach for representing soil-plant-atmospheric continuum, system boundaries, Crop models, concepts & techniques, types of crop models, data requirements, and relational diagrams.	Classroom teaching with AV aids, Activity based learning using different tools, Flipped classes teaching model, Collaborative learning Socratic method of teaching, Power Point Presentations, ABL activities, Field demonstration of cultivation practices, Assignment, Unannounced test, Seminars with open discussions, Group discussions or debate, Quiz.	6
Unit 2	Evaluation of crop responses to weather elements; Elementary crop growth models; calibration, validation, verification and sensitivity analysis. Potential and achievable crop production- concept and modelling techniques for their estimation.	Classroom teaching with AV aids, Activity based learning using different tools, Flipped classes teaching model, Collaborative learning Socratic method of teaching, Power Point Presentations, ABL activities, Field demonstration of cultivation practices, Assignment, Unannounced test, Seminars with open discussions, Group discussions or debate, Quiz.	6
Unit 3	Crop production in moisture and nutrients limited conditions; components of soil water and nutrients balance.	Classroom teaching with AV aids, Activity based learning using different tools, Flipped classes teaching model, Collaborative learning Socratic method of teaching, Power Point Presentations, ABL activities, Field demonstration of cultivation practices, Assignment, Unannounced test, Seminars with open discussions, Group discussions or debate, Quiz.	6
Unit 4	Weather forecasting, types, methods, tools & techniques, forecast verification; Value added weather forecast, ITK for weather forecast and its validity	Classroom teaching with AV aids, Activity based learning using different tools, Flipped classes teaching model, Collaborative learning Socratic method of teaching, Power Point Presentations, ABL activities, Field demonstration of cultivation practices, Assignment, Unannounced test, Seminars with open discussions, Group discussions or debate, Quiz.	7
Unit 5	Crop-Weather Calendars; Preparation of agro-advisory bulletin based on weather forecast. Use of crop simulation model for preparation of Agro-advisory and its effective dissemination.	Classroom teaching with AV aids, Activity based learning using different tools, Flipped classes teaching model, Collaborative learning Socratic method of teaching, Power Point Presentations, ABL activities, Field demonstration of cultivation practices, Assignment, Unannounced test, Seminars with open discussions, Group discussions or debate, Quiz.	7

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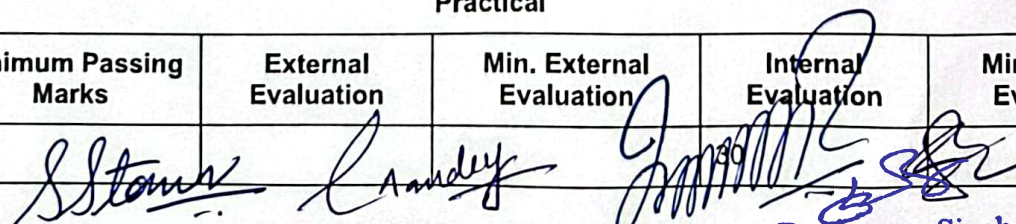
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Part C

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
Practical 1	Preparation of crop weather calendars	Experiments	BL2-Understand	4
Practical 2	Preparation of agro-advisories based on weather forecast using various approaches and synoptic charts.	Experiments	BL2-Understand	2
Practical 3	Working with statistical and simulation models for crop growth	Experiments	BL2-Understand	2
Practical 4	Potential & achievable production; yield forecasting, insect & disease forecasting models.	Experiments	BL3-Apply	2
Practical 5	Simulation with limitations of water and nutrient management options	Simulation	BL3-Apply	2
Practical 6	Sensitivity analysis of varying weather and crop management practices.	Experiments	BL4-Analyze	2
Practical 7	Use of statistical approaches in data analysis and preparation of historical, past and present meteorological data for medium range weather forecast	Experiments	BL4-Analyze	2
Practical 8	Feedback from farmers about the agro advisory	Field work	BL5-Evaluate	2

Part D(Marks Distribution)

Theory					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
70	26	40		30	
Practical					
Total Marks	Minimum Passing Marks	External Evaluation	Min. External Evaluation	Internal Evaluation	Min. Internal Evaluation
30	15				


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Part E

Books	Averill, M.L. and Kelton, D. (2005). Simulation, Modelling and Analysis. Tata McGraw Hill. Gordan, G. (2007). System Simulation. Pearson Edu. Bishnoi, O.P. (2010). Applied Agroclimatology. Oxford Book Company. Sahoo, D.D. and Solanki, R.M. (2008). Remote Sensing Techniques in Agriculture. Agrobios (India), Jodhpur.
Articles	
References Books	
MOOC Courses	
Videos	

Course Articulation Matrix

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

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Syllabus-2020-2021

(SOAG)(BSc_HonsAgriculture)

Title of the Course	Agri Warehouse Management
Course Code	ELP-AE-401 [P]

Part A

Year	Semester	Credits	L	T	P	C
			0	0	10	10
Course Type	Lab only					
Course Category	Discipline Electives					
Pre-Requisite/s			Co-Requisite/s			
Course Outcomes & Bloom's Level	CO1- Acquaintance the fundamentals of agricultural warehouse management. (BL1-Remember) CO2- Familiarize with techniques to store different types of agricultural products. (BL2-Understand) CO3- Develop the skills in maintaining and organizing inventories. (BL3-Apply) CO4- Expertise in legal guidelines and safety measures important for agricultural warehouses. (BL4-Analyze) CO5- Implement more efficient handling and shipping techniques for agricultural products. (BL5-Evaluate)					
Courses Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment X	SDG (Goals)	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	An overview of Agricultural Warehousing.	Field work	BL2-Understand	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				

Part E

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

Course Articulation Matrix

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

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Syllabus-2020-2021

(SOAG)(BSc_HonsAgriculture)

Title of the Course	Poultry Production Technology
Course Code	ELP-AHS-401 [P]

Part A

Year	Semester	Credits	L	T	P	C
			0	0	10	10
Course Type	Lab only					
Course Category	Discipline Electives					
Pre-Requisite/s	Livestock and Poultry Production	Co-Requisite/s	Livestock and Poultry Production			
Course Outcomes & Bloom's Level	CO1- Describe the role of poultry production in the national economy(BL1-Remember) CO2- Explain and demonstrate important practices at a poultry farm(BL2-Understand) CO3- Interpret important Indian and exotic breeds of poultry(BL3-Apply) CO4- Classification of classes of poultry(BL4-Analyze) CO5- Evaluate livestock and poultry diseases.(BL5-Evaluate)					
Courses Elements	Skill Development ✓ Entrepreneurship ✓ Employability ✓ Professional Ethics X Gender X Human Values X Environment ✓	SDG (Goals)	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)			

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
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.	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	

Part E

Books	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.
Articles	
References Books	
MOOC Courses	
Videos	

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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-2020-2021

(SOAG)(BSc_HonsAgriculture)

Title of the Course	Hydroponics
Course Code	ELP-HORT-407 [P]

Part A

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

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

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

Books	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
Articles	
References Books	
MOOC Courses	
Videos	








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Course Articulation Matrix

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







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