

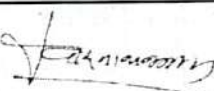
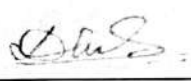

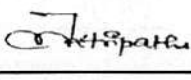
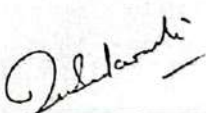


Date of Meeting: 29-May-2021

**Minutes of Meetings (BOS, School of Agriculture)**

School of Agriculture has conducted a Board of Studies (BOS) meeting on 29-05-2021 from 10.00AM to 11.00AM (video-conference meeting) for upgrading the current course curricula of undergraduate and postgraduate programmes, and addition of new programme. Few changes in scheme & syllabus have been proposed in this BOS meeting. The details of approved changes by the panel members are attached.

Members of BOS

SN	Panel Members	Name	Designation	Organization	Signature
1	Chairperson	Dr. S. S. Tomar	Dean, School of Agriculture	ITM University Gwalior	
2	Member Secretary	Dr. Shailesh Kumar Singh	HOD, School of Agriculture		
3	Internal Members	Dr. K. N. Nagaich	Professor		
4		Dr. Dinesh Baboo Tyagi	Associate Professor		
5		Dr. Prashant Kumar Singh	Assistant Professor		
6		Dr. Laxmi Kant Tripathi	Assistant Professor		
7	External Member	Dr. Ramesh Kumar Sadawarti	Dean School of Agriculture	Lovely Professional University, Punjab	

**Agenda Points for BOS Meeting**

1. Introduction of new programme B.F.Sc. (Bachelor of Fisheries Science) as per Vth Deans Committee report.
2. Change in the scheme and course nomenclature of M.Sc. (Ag.) Horticulture into two different programmes viz., M.Sc. (Ag.) Horticulture (Fruit Science) and M.Sc. (Ag.) Horticulture (Vegetable Science)
3. Change in the credit distribution of Masters' research.
4. Inclusion of new courses
5. Modification in course content (syllabus)

  
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RAWE-402	Unit attachment in University/KVK/Research Station/DAATT Centres	VII	RAWE	6(0+6)
RAWE-403	Agro Industrial Attachment/ In-plant Training	VII	RAWE	6(0+6)
<b>Rural Agricultural Work Experience Programme (Students opted for higher studies)</b>				
RAWE-401	Village Attachment Training Programme	VII	RAWE	8(0+8)
RAWE-404	Plant Clinic Attachment	VII	RAWE	2(0+2)
RAWE-405	Students Project	VII	RAWE	10(0+10)
	<b>Total</b>			<b>20(0+20)</b>

8. Three MOOC courses in postgraduate and undergraduate programmes are approved; however, these will be optional.

Programme	Existing course (Credits)	Semester	MOOC course	Portal
B.Sc.(Hons) Agriculture	Principles of Food Science and Nutrition with credits (2+0)	V	Food and Nutrition (4+0)	UGC-Swayam
Postgraduation/ PhD	Minor Elective course (2+1)	III	Organic Farming for Sustainable Agricultural Production	NPTEL
B.Sc.(Hons) Agriculture	System Simulation and Agro-advisory (2+1)	VI	Weather Forecast in Agriculture and Agro-advisory	NPTEL

  
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 REGISTRAR  
 ITM University  
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6. Change in credits and course nomenclature.
7. Restructuring the READY programme as per Vth Deans' Committee
8. Introduction of MOOC courses
9. Implementation of CBCS system

**Recommendation as discussed in the meeting**

**Agenda and action taken plan for previous BoS dated-20-11-2020**

Agenda	ATR
As per the pandemic guidelines the classes should be supplemented with virtual lab and video lectures.	Recommendations were approved by BOS and implemented
Pedagogical improvements recommended	Approved by BOS committee and subjected to academic council
Conduction of RAWELP activities following covid protocols	Approved and recommended by BOS
Increase of research credits for PG programmes	Approved by BOS and forwarded to academic council
Relevant minor course inputs in various master programmes	Approved and recommended by BOS and forwarded to academic council
Introduction of new programme B.F.Sc. (Bachelor of Fisheries Science) as per Vth Deans Committee report	Approved by BOS and forwarded to academic council

**Changes approved in BOS meetings**

1. The new programme with nomenclature of B.F.Sc. (Bachelor of Fisheries Science) in school of agriculture is approved for academic session 2021-22. The scheme and syllabi are designed as per Vth Deans Committee report.
2. Change in the scheme and course nomenclature of M.Sc. (Ag.) Horticulture two programmes from admission batch 2021 with nomenclature as per V Deans' committee report:
  - M.Sc. Ag. Horticulture (Fruit Science)
  - M.Sc. Ag. Horticulture (Vegetable Science)

Further, the prorotation of approved changes for batch 2020 is also approved. The schemes and syllabi for these programmes are discussed and approved as it is adhering to the BSMA committee report.

3. Master's Research credits are distributed in three semesters, from 2<sup>nd</sup> to 4<sup>th</sup> as given below:

Semester	Credits	Activities planned
2	4	i. Identification of research area and supervisor allocation.

  
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 Gwalior (M.P.)



		ii. Review work on the identified research area. iii. Finding the research gap and finalization of objectives. iv. Development of hypothesis, plan of research work and finalization of synopsis. v. If research is on rabi crops then research work can be initiated.
3	6	i. Intensive review work as per objectives and hypothesis. ii. If research is on zaid or kharif crops then research work can be initiated. iii. Data handling and drafting research/review paper for suitable journal.
4	10	i. Intensive review work as per objectives and hypothesis. ii. Data handling and drafting research/review paper for suitable journal. iii. Compilation and finalization of thesis.

The evaluation will be done through monthly performance by supervisor (50%) and performance evaluation by a panel through presentation at the end of semester (50%). Result will be reflected as satisfactory/non-satisfactory.

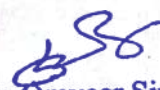
4. Inclusion of new elective courses viz., ELP- AE-402 Rural Haat and Market Analysis, ELP-ENT-403 Storage Entomology, ELP-FST-401 Product development and Packaging technology, ELP-PP-403 Seed Pathology. (ANNEXURE-1)

5. Proposed modifications in the syllabus of the courses, "AE-111 Fundamentals of Agriculture Economics", "AENG-211 Farm Machinery and Power", "HORT- 221 Production Technology for Ornamental Crops, MAP and Landscaping", "SS- 221 Problematic Soils and their Management", "PP-312 Principals of integrated Pest and Disease Management", "AGRON-322 Principal Of Organic Farming" and "ELP-PP-401 Mushroom Cultivation Technology" was recommended to academic council and Farm Power Machinery of B.Sc. (Hons) Horticulture was revised to bring synchronization with the same course in B.Sc. (Hons) Agriculture. (ANNEXURE-II)

6. Course title and credit hours of Fundamentals of Economics with 3(3+0) credits is approved for change as Fundamentals of Agricultural Economics with 2(2+0) credits while credit hours of Fundamentals of Agronomy, is approved for changing from 3(2+1) to 4(3+1) to align with V.Deans' committee.

7. Restructuring of READY programme in B.Sc.(Hons)Agriculture is approved as per V Deans' committee report of ICAR and Students Project is added for the students who are willing to opt for higher studies in future. Thus, students have two elective baskets in VII semester:

Rural Agricultural Work Experience Programme (Students opted for Industrial Placement)						
RAWE-401	Village Attachment Programme	Training	VII	RAWE	8(0+8)	

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

SHUMA

P.L. Narasimham

9. Implementation of CBCS and elective courses in all postgraduate programmes approved as per BSMA committee guidelines. The major (optional) and minor credits are optional and based on choice of students to fulfil the minimum credit requirement. The students may opt for more credits considering the significance of course in research.

**Any other points**

All changes approved in BOS is considered for proration in admission batch 2020 for postgraduate programmes while admission batch 2020, 2019 and 2018 batch for undergraduate programmes as per feasibility.

The meeting was ended at 11.00AM with vote of thanks by chairperson.



HOD, School of Agriculture



Dean, School of Agriculture



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



## 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	Semester	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.(BL1-Remember) <b>CO2-</b> Evaluation of various rural products, marketing channel and cost of production.(BL2-Understand) <b>CO3-</b> Analyze the challenges in cost of production and marketing.(BL3-Apply) <b>CO4-</b> Evaluate the role of rural industries and market infrastructure.(BL4-Analyze)					
<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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*S. S. Saini*

*R. Singh*

*Dr. Lalmani*

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



**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>	

*S. Stann*

*R. Singh*

*Autolanti*

*Basu*

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

### 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*S. Kumar*

*R. Singh*

*Devendra*

*W. S.*

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



## 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	Semester	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 X Gender X Human Values X Environment X	<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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*S. S. S. S.*

*R. Singh*

*Anurag*

*Dr. Singh*

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

### 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>	

*Stewart*

*R Singh*

*Zubair*

*Wah*

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

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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*S. Kumar*

*R. Singh*

*Surabhi*

*Sal*

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



## 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	Semester	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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*SS Tomar*

*RL Singh*

*Dushyant*

*Sanu*

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

## 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	Semester	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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*SS Sharma*

*RL Singh*

*Dushyant*

*Sanjiv*

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

### 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

Books	
Articles	
References Books	
MOOC Courses	
Videos	

*S. S. Sharma*

*R. L. Singh*

*P. S. S. S.*

*W. S.*

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



**Part C**

Modules	Title	Indicative-ABCA/PBL/ Experiments/Field work/ Internships	Bloom's Level	Hours
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)**

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				

*S. S. Tewari*

*R. L. Singh*

*Dr. Omveer Singh*

*Dr. Omveer Singh*

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

### Part E

<b>Books</b>	• Agarwal VK and Sinclair JB. 1993. Principles of Seed Pathology. Vols. I & II, CBS Publ., New Delhi. • Hutchins JD and Reeves JE. (Eds.). 1997. Seed Health Testing: Progress Towards the 21st Century. CABI, Wallington. • Paul Neergaard. 1988. Seed Pathology. • McMillan, London. Suryanarayana D. 1978. Seed Pathology. Vikash Publ., 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	-	-	-	-	2	-	-	-	-	-	-	-	-
CO2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-
CO3	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-
CO4	-	-	2	1	2	-	-	-	-	-	-	-	-	-	-
CO5	-	-	1	1	2	-	2	-	-	-	-	-	-	-	-
CO6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*S. Kumar*

*R. Singh*

*Dr. Omveer Singh*

*Dr. Omveer Singh*

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



**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	Semester	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>	<b>CO1-</b> Describe the History and economic importance of seed health in seed industry and plant quarantine( <b>BL1-Remember</b> ) <b>CO2-</b> Explain the important seed borne and seed transmitted pathogens( <b>BL2-Understand</b> ) <b>CO3-</b> Demonstrate the procedure for Isolation, identification and purification of different seed borne pathogens( <b>BL3-Apply</b> ) <b>CO4-</b> Explore the various methods of seed health testing methods( <b>BL4-Analyze</b> ) <b>CO5-</b> Develop skill for detection methods, estimation of storage losses and Integrated management practices for seed borne pathogens( <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) 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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*S. S. Chauhan*

*R. Singh*

*A. K. Singh*

*Dr. Omveer Singh*

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



### 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*S. S. Chauhan*

*R. Singh*

*A. K. Singh*

*K. Singh*

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