

 Estd. 1962 "A++" Accredited by NAAC(2021) With CGPA 3.52	SHIVAJI UNIVERSITY, KOLHAPUR - 416 004, MAHARASHTRA PHONE : EPABX – 2609000, www.unishivaji.ac.in , bos@unishivaji.ac.in शिवाजी विद्यापीठ, कोल्हापूर - ४१६ ००४, महाराष्ट्र दूरध्वनी - ईपीएबीएक्स - २६०९०००, अभ्यासमंडळे विभाग दूरध्वनी ०२३१-२६०९०९३/९४	
--	---	---

Ref.No. SUK/BOS/ 655

Date: 02/09/2023

To,

The Principals,

All Concerned Affiliated Colleges / Institutions.

Shivaji University, Kolhapur.

Subject : Regarding syllabi of Vocational Education Part-II under the Faculty of Inter-Disciplinary Studies.

Sir/Madam,

With reference to the subject, mentioned above, I am directed to inform you that the university authorities have accepted and granted approval to the syllabi of Vocational Education Part-II under the Faculty of Inter-Disciplinary Studies. as per National Education Policy 2020.(NEP)

1)	Advanced Diploma in Catering and Hospitality Management.
2)	Advanced Diploma in Medical Laboratory technology
3)	Advanced Diploma in Nutrition and Dietetics.
4)	Advanced Diploma in Nursing and Hospital Management.
5)	Advanced Diploma in Sustainable Agriculture Management.
6)	Advanced Diploma in Tourism and Service Industry
7)	Advanced Diploma in Agriculture
8)	Advanced Diploma in Food Processing Technology
9)	Bachelor of Design Part-II


This syllabi shall be implemented from the academic year 2023-2024 onwards. A soft copy containing the syllabi is attached herewith and it is also available on university website www.unishivaji.ac.in. (Online Syllabus)

The question papers on the pre-revised syllabi of above mentioned course will be set for the examinations to be held in October /November 2023 & March/April 2024. These chances are available for repeater students, if any.

You are, therefore, requested to bring this to the notice of all students and teachers concerned.

Thanking you,

Yours faithfully,


 Dr. S.M.Kubal
 (Dy Registrar)

Copy to:

1	Director, Board of Evaluation and Examination	7	Centre for Distance Education
2	The Dean, Faculty of IDS	8	Computer Centre / I.T.cell
3	The Chairman, Respective Board of Studies	9	Affiliation Section (U.G.) / (P.G.)
4	B.A.,B.Com.,B.Sc. Exam	10	P.G.Admission / P.G.Seminar Section
5	Eligibility Section	11	Appointment Section -A/B
6	O.E. I, II, III, IV Section	12	Dy.registrar (On/ Pre.Exam)

SHIVAJI UNIVERSITY, KOLHAPUR



Accredited By NAAC with 'A⁺⁺' Grade

National Education Policy (NEP-2020)

Faculty of Interdisciplinary Studies

Advanced Diploma in Sustainable Agriculture Management

Second Year Bachelor of Vocation (B. Voc.- Advanced Diploma)

Course Structure for (Level-6)

With Multiple Entry and Multiple Exit Option.

Sustainable Agriculture Management- Part-II

Semester- III and IV

(Subject to the modifications that will be made from time to time)

(To be implemented from Academic Year- June, 2023-24 onwards)

National Education Policy (NEP-2020)

Second Year Bachelor of Vocation (B. Voc.- Advanced Diploma) Course Structure for (Level-6)

With Multiple Entry and Multiple Exit option

(To be implemented from the Academic Year 2023-24)

Semester III – Duration: 6 Months											
Sr. No.	Teaching Scheme					Evaluation Scheme					
	Course	No. of Lectures		Hours (T + P)	Credits	Theory	Internal/ Practical	Total Marks	Min Marks (Separate passing)	Exam Duration (Hrs.)	
		T	P							T	P
1.	AECC-CD Environmental Science-I	4	2	6	-	-	-	-	-	-	-
2.	GEC –C Fundamental of Financial Accounting-I	4	2	6	4	40	10	50	18	2	-
3.	DSC –C-I Introduction to Plant Pathology	4	-	4	4	50	-	50	18	2	-
4.	DSC –C-II Herbal Aromatic Medicinal Plants	4	-	4	4	50	-	50	18	2	-
5.	DSC –C-III Water Management including Micro Irrigation	4	-	4	4	50	-	50	18	2	-
6.	SEC-C-I Laboratory work- Introductory Plant Pathology	-	4	4	2	-	50	50	18	-	3
7.	SEC-C-II Laboratory work- Herbal Aromatic Medicinal Plants	-	4	4	2	-	50	50	18	-	3
8.	SEC-C-III Laboratory work- Water Management including Micro Irrigation	-	4	4	2	-	50	50	18	-	3
9.	SEC-C-IV	-	-	2	2	-	50	50	18	-	-

	Project/ Tour/ Indus- trial Visit										
	Total	20	16	38	24	190	210	400	-	-	

Semester IV – Duration: 6 Months (Advance Diploma)											
Sr. No.	Teaching Scheme					Evaluation Scheme					
	Course	No. of Lectures		Hours (T + P)	Credits	Theory	Internal/ Practical	Total Mark s	Min Marks (Separate passing)	Exam Duration (Hrs.)	
		T	P							T	P
1.	AECC-CD Environmental Science-II	4	2	6	4+4	70	30	100	28+14	3	-
2.	GEC – D Fundamental of Financial Accounting-II	4	2	6	4	40	10	50	18	2	-
3.	DSC – D -I Plant Pathology: Diseases of field crops & management	4	-	4	4	50	-	50	18	2	-
4.	DSC – D-II Livestock Production & Management	4	-	4	4	50	-	50	18	2	-
5.	DSC – D -III Agricultural Finance & Cooperation	4	-	4	4	50	-	50	18	2	-
6.	SEC- D -I Laboratory work- Plant Pathology: Diseases of field crops & management	-	4	4	2	-	50	50	18	-	3
7.	SEC- D -II Laboratory work- Livestock Production & Management	-	4	4	2	-	50	50	18	-	3
8.	SEC- D -III Laboratory work- Agricultural Finance & Cooperation	-	4	4	2	-	50	50	18	-	3
9.	SEC- D -IV Project/ Tour/ Industrial Visit	-	-	2	2	-	50	50	18	-	-
	Total	20	16	38	32	260	240	500	-	-	
	Grand Total	40	32	76	56	450	450	900	-	-	

• Student Contact Hrs Per week: 36 hrs	• Total marks for B.Voc.- Advanced Diploma: 900
• Theory and Practical Lectures: 48 Minutes Each	• Total credits for B.Voc.- Advanced Diploma: 56
• AECC: Ability Enhancement Compulsory Course (Compulsory Environmental Science)	
• Practical workload will for batch of 20 students	
• Practical Examination will be conducted Semester wise for 50 Marks per course (subject).	
• DSC: Discipline Specific Core Course - Candidate can opt three courses (Subjects) from DSC.	
• GEC: Generic Elective Compulsory Course - Candidate can opt any one course (Subject).	
• There shall be separate passing for theory and practical courses.	
• AECC & GEC Internal Evaluation should be done at college or respective departmental level	
• <u>Exit option after Level 6:</u> Students can exit with Advance Diploma Course in Bachelor of Vocation with the completion of courses equal to minimum of 56 credits and also shall have to acquire additional CCC credits by successfully completing CCC-I and CCC-II courses which are assisted by Compulsory Civic Courses	
• SEC-C & SEC-D are two parts of Vocational Advance Diploma Course-II.	

Eligibility:

Eligibility for Admission: For Advance Diploma: Diploma or equivalent in any related stream.

Eligibility for Faculty: 1) Post Graduate with NET / SET/Ph. D. in Agriculture / Botany Or
2) Five Year Industry Experienced Personal.
3) M. Sc. (Environmental Science) With NET/SET For Environmental Science.
4) M. Com. With NET / SET/Ph. D. For Fundamentals of Financial Accounting.

Eligibility for Lab Assistant: Graduation with related field

Staffing Pattern:

Teaching: In the 2nd year of B. Voc. – 1 Full Time
one C. H. B. for Environmental Science
one C. H. B. for Fundamentals of Financial Accounting.

Lab. Assistant: For 1st Year of B. Voc. – 1 Part Time
For 2nd and 3rd Year (Inclusive of 1st Year) of B. Voc. – 1 Full Time

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
(AECC-CD)

Paper – I: Environmental Science-I

Paper No:

Credits: 08

Theory: 4 lectures/week

Total Marks: 100 (Theory 70 + Project 30)

Practical: 02 lectures per week per batch of 20 students

Units Prescribed for Theory: 70 Marks.

***** **COMMON TO ALL** *****

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Pattern of Question Paper
(AECC-CD)

Title: Environmental Science-I

Time: 3 hours

Total Marks: 70

-
- | | |
|--|----|
| Q. 1 Do as directed. Question items on Unit 1 to be asked.
(10 out 12) | 10 |
| Q. 2 Write a letter of application.
OR
Draft a CV/ Resume for a particular post. | 20 |
| Q. 3 Present a given information or data using a table/ chart/ pie diagram, etc.
(Any one diagram to be drawn.) | 20 |
| Q. 4 Fill in the blanks in the given interview. | 20 |

Project Evaluation: 30 Marks

Oral and Presentation based on the units prescribed.

Note:

The above structure is designed as per the guidelines of NSQF and NEP. The structure may be flexible for B.Voc.-II courses as per their requirements.

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Generic Elective Compulsory Course (GEC– C)
Title: Fundamental of Financial Accounting- I

Paper No.: III

Credits: 04

Theory: 4 lectures/week

Total Marks: 50 (Theory 40 + Internal 10)

Course Outcome: The students will acquire knowledge of

1. Importance of accounting in medical laboratory
2. Types of Journals & Ledger.
3. Types of Subsidiary books
4. Preparation of final account
5. Concept of depreciation.

Content of Syllabus:

Module- I: Introduction to Accounting.

(15 Hrs)

1. Meaning, nature and advantages of accounting, branches of accounting.
2. Accounting concepts and conventions, types of accounts.
3. Rules of journalizing, source documents – cash vouchers, cash memo.
4. Receipts, debit notes, credit notes.
5. Paying slips, withdrawals, Cheque

Module- II: Journals & Ledger

(15 Hrs)

1. Preparation of journal entries and ledger accounts
2. Subsidiary books- purchase books, purchase return book, sales book, sales return book, cash book, bills receivable book, bills payable book, journal proper.

Module- III: Depreciation

(15 Hrs)

1. Meaning,
2. Methods- straight line method- reducing balance method, change in depreciation method.

Module- IV: Final Accounts

(15 Hrs)

1. Preparation of trial balance.
2. Preparation of final accounts of sole traders and partnership firms

Practical's (Based on the above Units):

1. Preparation of journal entries and ledger account
2. Preparation of subsidiary books.
3. Preparation of trial balance.
4. Practical problems on final accounts of sole traders and partnership firms.
5. Practical problems on methods of depreciation.

Books Recommended:

1. Barry Berman and Joel R. Evans- Retailing management- A Strategic Approach, Prentice Hall of India.
2. James R. Ogden Denise Ogden- Integrated Retail Management- Biztantra.
3. Gibson G. Vedamani- Retail Management- Functional Principal Practices, Jiao Publishing House.
4. Swapna Pradhan- Retailing Management- Text and Cases, Tata McGraw Hill
5. Jawahar Lal and Dr. Seema Shivastava- Financial Accounting- S-Chand.

Note: (If any - such as)

1. In theory examination, the weightage to numerical problems should not exceed 30%.
2. Students can use scientific calculators in theory examination.

.....

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Pattern of Question Paper
(AECC-CD)

Title: Fundamentals of Financial Accounting-I

Time: 2 hours

Total Marks: 40+10

.....

Q. 1 Fill in the Blanks / Write long forms	10
Q. 2 Write in brief. (Any Two) . A. B. C. D.	10
Q. 3 Write Short Notes on . (Any Two) A. B. C. D.	10
Q. 4 Descriptive (Any One)	10

Internal Evaluation: 10 Marks

Oral and Presentation based on the units prescribed.

Note:

The above structure is designed as per the guidelines of NSQF and NEP. The structure may be flexible for B.Voc.-II courses as per their requirements.

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Discipline Specific Core Course (DSC– C-I)
Title: Introduction to Plant Pathology.

Paper No.: III

Theory: 4 lectures/week

Credits: 04

Total Marks: 50 (Theory)

.....
Course Outcome:

- To know & study Plant Pathology and diseases.
- To study causal organisms & control methods of the plant diseases.
- To study identification of Biodegradation of soil microbes.
- To study the various Pesticide & Herbicides;
- To study control measures for better crop production.

Module- I: Introduction to Plant Pathology

(15 Hrs)

- 1.1 History of Plant Pathology.
- 1.2 Introduction to plant pathology in agriculture.
- 1.3 Importance of Plant Pathology
- 1.4 Scope and objective of plant pathology

Module- II: Diseases, definition, introduction & classification

(15 Hrs)

- 2.1 Meaning of Disease.
- 2.2 Plants diseases.
- 2.3 Basic classification of plant diseases.
- 2.4 Biotic and abiotic and causes of disease.

Module- III: Classification of Fungi & Bacteria

(15 Hrs)

- 3.1 Classification of Fungi.
- 3.2 Classification of Obligate Parasites; Albuginaceae and Fernosporaceae.
- 3.3 Classification of Bacteria or Prokaryotes,
- 3.4 Gram Positive & Negative, Cocci, Bacillus, Sporosarcina Clostridium.

Module- IV: Soil Microorganisms in Biodegradation of Pesticides and Herbicides

(15 Hrs)

- 4.1 Soil microorganisms; beneficial organisms & harmful organisms.
- 4.2 Biodegradation of soil microbes.
- 4.3 Pesticide, its classification, uses.
- 4.4 Herbicides; its classification bio pesticides.

Books Recommended:

1. Plant Pathology, 5th Edition Jan 2005 By, Geogre N. Agricos.
2. Introduction To Principles of Plant Pathology Paperback – 10 Jul 2017 By, R.S. Singh
3. Plant Bacteriology Clarence I. Kado
4. Fundamentals of Bacterial Plant Pathology By, Masao Goto

5. Fundamentals of plant pathology –N. G. Ravichandra.
6. Microbiology, mycology & plant pathology- Dr. Kailash Agraval,
7. Plant pathology & plant diseases – A. Mishra.
8. The name of disease in plant –Robert P. Scheffer.
9. Mechanisms of resistance of plant diseases –A.S. Slusarenko.
10. Diseases of field and Horticulture crop & their management- Dr. M.M.Khan.

Note: (If any - such as)

1. In theory examination, the weightage to numerical problems should not exceed 30%.
2. Students can use scientific calculators in theory examination

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Discipline Specific Core Course (DSC– C-II)
Title: Herbal Aromatic Medicinal Plants

Paper No.: IV

Theory: 4 lectures/week

Credits: 04

Total Marks: 50 (Theory)

.....
Course Outcome:

- To study the various herbal aromatic & medicinal plants.
- To understand cultivation practises of herbal & medicinal plants.
- To study the various Aromatic plant & their production.
- To understand economic important of Aromatic plant.
- To know uses of parts of medicinal & aromatic plants.

Module- I: Introduction to Herbal. (15 Hrs)

- 1.1 Introduction of herbal plants.
- 1.2 Classification of herbal plants on the basis of parts utilized.
- 1.3 Properties of herbal plants.
- 1.4 Cultivation practices of herbal Plants

Module- II: Classification of Medicinal plants (15 Hrs)

- 2.1 Introduction of medicinal plants.
- 2.2 Classification of Medicinal Plants on basis of parts used.
- 2.3 Properties of Medicinal plants.
- 2.4 Cultivation practices of medicinal plants.

Module- III: Introduction of Aromatic plants (15 Hrs)

- 3.1 Introduction of aromatic plants.
- 3.2 Classification, uses & aromatic Plants
- 3.3 properties and economic importance.
- 3.4 Essential oil & its production.

Module- IV :Economic importance of Plants (15 Hrs)

- 4.1 Importance of Aromatic plants.
- 4.2 Economic importance of plants.
- 4.3 Demand for essential oils, aroma chemicals drugs
- 4.4 Pharmaceuticals in the world market since two decades.

Books Recommended:

1. Principles of Horticulture. Mac Millan, New York.
2. Plant propagation - Principles and practices. Prentice-Hall, New Delhi.

3. Handbook of Horticulture, ICAR, New Delhi.Choudhury, B.1983. Vegetables. National Book Trust, New Delhi.
4. Herbal & Aromatic plant –Dr. Himaori Panda.
5. Medicinal & Arimatic plant –R.K.Gupta.
6. Cultivation & Utilization of Aromatic plant –M. B. Sing
7. Medicinal & Aromatic plant - Dr. V.K. Agrawal.
8. Herable drugs for manegment of infectious diseases – Rakesh Sindhu.
9. Herbal & aromatic plant - R.S.Shing
10. Aromatic plant – R.C.Gupta.Scheme of Internal

Note: (If any - such as)

1. In theory examination, the weightage to numerical problems should not exceed 30%.
2. Students can use scientific calculators in theory examination

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Discipline Specific Core Course (DSC– C-III)
Title: Water Management including Micro irrigation.

Paper No.: V

Theory: 4 lectures/week

Credits: 04

Total Marks: 50 (Theory)

.....
Course Outcome:

- To understand Water Management.
- To know types of Irrigation Methods.
- To study Importance of Modern techniques of irrigation.
- To study types & classification of Micro irrigation

Module- I: Importance of Irrigation

(15 Hrs)

- 1.1 Water & its Importance in the field of sustainable agriculture.
- 1.2 Water, translocation of nutrient and dissipation of heat.
- 1.3 Water resource management.
- 1.4 Importance of irrigation.

Module- II: Properties of Water

(15 Hrs)

- 2.1 Properties of water
- 2.2 physical and chemical properties of water
- 2.3 Understanding groundwater.
- 2.4 Water molecule, hydrogen ions and one oxygen ions.

Module- III: Irrigation introduction & classification

(15 Hrs)

- 3.1 Irrigation Definition.
- 3.2 Localised Irrigation, Fertigation.
- 3.3 Supplied supplementary water.
- 3.4 Types of irrigation –Surface irrigation Sprinkle & drip irrigation

Module- IV: Micro irrigation

(15 Hrs)

- 4.1 Introduction Micro irrigation
- 4.2 Micro irrigation system, definition. Advantages and disadvantages.
- 4.3 Types Micro irrigation
- 4.4 Classification of Micro irrigation

Books Recommended:

1. Water Management in India By, P. C. Bansil
2. Water Resources, Conservation and Management By, S.N. Chatterjee
3. Drip irrigation - Affred H. steel c.
4. Sprinkle & drip irrigation – Ranjit Kumbhar Biswas.
5. Water management including micro irrigation – Dr. R. Suresh.
6. Fundamental of irrigation on farm water management – Dr. Tiwari
7. Micro irrigation system systems design – Dr. K.N. Tiwari

8. Micro irrigation theory – Dr. R. Suresh
9. Waste Water Treatment and Water Management By, Anamika Srivastava

Note: (If any - such as)

1. In theory examination, the weightage to numerical problems should not exceed 30%.
2. Students can use scientific calculators in theory examination.)

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– C-I)
Title: Introductory Plant Pathology.

Paper No.: VI

Theory: 4 lectures/week

Credits: 02

Total Marks: 50 (Practical)

.....

Course Outcome: The students will acquire knowledge of

- To know Fundamentals of plant pathology.
- To study control measures for better crop production.
- Identification of the mycology flora
- To identify different diseases
- To know about symptoms

List of Practicals:

1. Disease collection & prepare album.
2. Identification & symptoms of diseases on plant crop.
3. Role of chemicals as preventive & curative.
4. Spraying techniques & safety measures.
5. Submission of digital photo of at least ten disease plant with brief description
6. Identification of locality available common plant diseases
7. Identification & classification of plant pathology
8. Collection and preservation of plant disease samples
9. Staining and identification of plant pathogenic bacteria
10. Identification of plant disease symptoms

Laboratory Requirements:

1. Glassware, slides, beakers, cylinder, pipettes, bottles, microscopes, reagents, test kit, gloves, bloodlancet, etc

Student Instructions:

1. Perform all the laboratory activity described in the laboratory manual.
2. Always wash hand before you work with specimen.
3. Be very careful with glassware and Microscope.
4. Avoid skin contact
5. Never leave used slides or plant materials on the floor.
6. All the chemical used in the laboratory are toxic if swallowed.
7. Mouth pipetting should be avoided.
8. Must be careful with cracked glassware, especially when you wash slides.
9. Acid alcohol used in tests, contain acid that cause burns on skin and clothes.
10. Put a mask, gloves and apron before you work in laboratory.

Nature of Practical Question Paper:

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– C-I)
Introductory Plant Pathology.
Practical Examination

Time: 3 hours

Total Marks: 50

1. Major Experiment	20 Marks
2. Minor Experiment	10 Marks
3. Spotting/ Identification	10 Marks
4. Viva –voce	05 Marks
5. Journal	05 Marks

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– C-II)
Title: Herbal Aromatic Medicinal Plants.

Paper No.: VII

Theory: 4 lectures/week

Credits: 02

Total Marks: 50 (Practical)

.....

Course Outcome: The students will acquire knowledge of

- To make students study about herbal & aromatic crops.
- Perform all the laboratory / field activity described in the laboratory manual.
- Data Collection of various herbal aromatic & medicinal plants.
- Cultivation practises of herbal & medicinal plants.
- To study the various Aromatic plant & their production.
- Economic important of Aromatic plant.

List of Practicals:

1. Identification & classification of medicinal plants.
2. Cultivation practises of various aromatic medicinal plants.
3. PHT of major plants.
4. Processing of Aromatic plants to get essential oils.
5. Identification of locality available common medicinal plant
6. Study of basic tools/ instrument/ apparatus use in making herbal medicines
7. Submission of digital photo of at least ten medicinal plants with taxonomy.
8. Cultivation maintenance & reporting at least 5 medicinal plants.
9. Cultivation maintenance & reporting at least 5 aromatic plants within surrounding of house.
10. Study of taxonomy: scientific names of aromatic plants.

Laboratory Requirements:

Glassware, slides, beakers, cylinder, pipettes, bottles, microscopes, reagents, test kit, gloves, etc.

Student Instructions:

1. Perform all the laboratory activity described in the laboratory manual.
2. Always wash hand before you work with specimen.
3. Be very careful with glassware and Microscope.
4. Avoid skin contact
5. Never leave used slides or plant materials on the floor.
6. All the chemical used in the laboratory are toxic if swallowed.
7. Mouth pipetting should be avoided.
8. Must be careful with cracked glassware, especially when you wash slides.
9. Acid alcohol used in tests, contain acid that cause burns on skin and clothes.
10. Put a mask, gloves and apron before you work in laboratory.

Nature of Practical Question Paper:

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– C-II)
Title: Herbal Aromatic Medicinal Plants

Practical Examination

Time: 3 Hrs.

Total Marks: 50

1. Major Experiment	20 Marks
2. Minor Experiment	10 Marks
3. Identification / Spotting	10 Marks
4. Viva-voce	05 Marks
5. Journal	05 Marks

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– C-III)
Title: Water Management including Micro irrigation.

Paper No.: VIII

Theory: 4 lectures/week

Credits: 02

Total Marks: 50 (Practical)

.....

Course Outcome: The students will acquire knowledge of

- To make students study about sprinklers for crop irrigation.
- To understand head of water management operations.
- To understand Minimize Water wastage Management.
- To know types of Irrigation Methods.
- To study Importance of Modern techniques of irrigation.

List of Practicals:

1. Study of farm irrigation systems.
2. To study the sources of water.
3. To study design choosing methods of irrigation.
4. To study the different types of irrigation.
5. Calculation the cost of irrigation.
6. Submission of digital photographs of Micro irrigation, with brief description.
7. To study the different types of irrigation pumps.
8. To study and calculate maintenance and precautions Greenhouse's irrigation installation system.
9. To study Irrigation Scheduling
10. Calculation of Irrigation Efficiency Parameters
11. Study of Irrigation Structures
12. Determination of total hardness of water

Laboratory Requirements:

Glassware, slides, beakers, cylinder, pipettes, bottles, microscopes, reagents, test kit, gloves, etc.

Student Instructions:

1. Perform all the laboratory activity described in the laboratory manual.
2. Always wash hand before you work with specimen.
3. Be very careful with glassware and Microscope.
4. Avoid skin contact
5. Never leave used slides or plant materials on the floor.
6. All the chemical used in the laboratory are toxic if swallowed.
7. Mouth pipetting should be avoided.
8. Must be careful with cracked glassware, especially when you wash slides.
9. Acid alcohol used in tests, contain acid that cause burns on skin and clothes.
10. Put a mask, gloves and apron before you work in laboratory.

Nature of Practical Question Paper:

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– C-III)
Title: Water Management including Micro irrigation

Practical Examination

Time: 3 Hrs.

Total Marks: 50

1. Major Experiment	20 Marks
2. Minor Experiment	10 Marks
3. Identification / Spotting	10 Marks
4. Viva-voce	05 Marks
5. Journal	05 Marks

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. III
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– C-IV)
Title: Project/Field Work/Industrial Visit/Study Tour.

Paper No.: IX

Theory: 2 lectures/week

Credits: 02

Total Marks: 50 (Practical)

.....

Course Outcome: The students will acquire knowledge of

1. Provide huge practical experience and theoretical knowledge in different circumstances
2. Improve the skills, growth, development and communication process.
3. Stimulate interest and motivation.
4. Strengthen observations and perception skills.
5. Know the opportunity in an Agriculture field/ sector.

Important Note: Field Work/Industrial Visit/Study Tour should be of **minimum five days** in or out of

Maharashtra / India

Suggested Places: Government or Private Agriculture Institutes, Laboratories, Colleges, Agrimall, Nursery, Gardens, Tissue culture labs, Biotech research centre etc.

1. In Maharashtra: Any suitable place.
2. Out of Maharashtra: Any suitable place.

Nature of Evaluation: Internal

Shivaji University Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. IV
Advanced Diploma in Sustainable Agriculture Management
Generic Elective Compulsory Course (GEC– D) Paper
Title: Fundamental of financial Accounting- II

Paper No: XI

Theory: 4 lectures/week

Practical: 2 lectures/week/batch

Credits: 04

Total Marks: 50 (Theory 40 + Internal 10)

Course Outcomes: The students will acquire knowledge of

1. Basic accounting knowledge as applicable to business
2. Computerized accounting system
3. Generation of accounting reports
4. Preparation of receipts and payment
5. Preparation of Income and expenditure account and balance sheets.

Content of syllabus:

Module- I: Computerized Accounting System.

(15 Hrs)

1. Introduction.
2. Concept, components, features.
3. Importance and utilization of computerized accounting system.

Module- II: Computer Application through accounting package tally

(15 Hrs)

1. Creation of company, group, ledger accounts, feeding of accounting data, receipts, payments, purchase, sales, contra, journal, credit note & debit note.
2. Inventory information – groups, items & valuation.
3. Generation of various accounting reports.

Module- III: Accounts of professionals

(15 Hrs)

1. Preparation of receipts and payment account.
2. Income and expenditure account and balance sheets of nonprofit organization.

Module- IV: Single entry system

(15 Hrs)

1. Conversion of single-entry system into double entry system.

Practicals (Based on the above Units):

1. Understanding computerized accounting practices applied in different retail mails in & around Kolhapur city.
2. Practical problems based on computerized accounting using tally.
3. Practical problems on preparation of receipts and payment account.
4. Preparation of income and expenditure account and balance sheet of non-profit making organizations.

Books Recommended:

1. Theory and Practice of Computer Accounting, Rajan Chaugule and Dhaval Chaugule.
2. Advanced Accountancy, S.C. Jain and K.L. Narang.
3. Advanced Accountancy, M.C. Shukla and T.S. Garewal.
4. Advanced Accountancy, S. N. Maheshwari.

Note: (If any - such as)

1. In theory examination, the weightage to numerical problems should not exceed 30%.
2. Students can use scientific calculators in theory examination.).

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. IV
Advanced Diploma in Sustainable Agriculture Management
Discipline Specific Core Course (DSC– D-I)
Title: Plant Pathology: Diseases of field crops & management.

Paper No.: XII

Credits: 04

Theory: 4 lectures/week

Total Marks: 50 (Theory)

.....
Course Outcome:

- To study, identify & control measures of Plant Pathology & their management
- To study Control Management of Diseases
- To study Fundamentals of Bacterial Plant Pathology
- To understand Disease Transmission
- Importance of field crops

Module -I: Disease Transmission

(15 Hrs)

- 1.1 Transmission (Dissemination) of Bacteria.
- 1.2 Modes of disseminated; agency of seed, air and water.
- 1.3 Air borne transmission through insects and mites.
- 1.4 Soil borne transmission through nematodes and fungus.

Module -II: Field Crops Diseases (Kharif crops)

(15 Hrs)

- 2.1 Diseases of field crops cereals
- 2.2 Diseases Pulses in kharif crops.
- 2.3 Identification, symptoms
- 2.4 Control measures.

Module -III: Field Crops Diseases (Major cash crops)

(15 Hrs)

- 3.1 Diseases of field crops including major crops, &
- 3.2 Diseases horticultural in kharif crops.
- 3.3 Identification, symptoms &
- 3.4 Control measures.

Module -IV: Control Management of Diseases

(15 Hrs)

- 4.1 Biological control
- 4.2 Cultural control.
- 4.3 Chemical control of diseases
- 4.4 Organic approach towards control of diseases.

Books Recommended:

- 1.Plant Pathology, 5th Edition Jan 2005 By, Geogre N. Agricos.
- 2.Introduction to Principles of Plant Pathology Paperback – 10 Jul 2017 By, R.S. Singh

3. Plant Bacteriology Clarence I. Kado
4. Fundamentals of Bacterial Plant Pathology By, Masao Goto
5. Diseases of field crop & their management – S.Prathasarathrathy
6. Crop diseases & their management – Grirish chand, Santhosh Kumar.
7. Biological management of diseses of crop – P .Narayanasamy.
8. Intrigrate plant diseases manegment –R. C. Sharma, J. N. Sharma.
9. Insect pest & disease management – Sushma Sharma

Note: (If any - such as)

1. In theory examination, the weightage to numerical problems should not exceed 30%.
2. Students can use scientific calculators in theory examination.)

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. IV
Advanced Diploma in Sustainable Agriculture Management
Discipline Specific Core Course (DSC– D-II)
Title: Livestock Production & Management.

Paper No.: XIII

Credits: 04

Theory: 4 lectures/week

Total Marks: 50 (Theory)

.....
Course Outcome:

- To study & understand importance of livestock production & management.
- To study Health Care in Livestock.
- To study housing Systems in Livestock
- To know Fundamentals Opportunities in Livestock Industry.
- Importance of livestock production

Module -I: Scope & importance of Livestock industry

(15 Hrs)

- 1.1 Scope of Livestock in Indian Economy Livestock Census.
- 1.2 Trends in Livestock Production.
- 1.3 Opportunities in Livestock Industry
- 1.4 Importance of . Livestock Industry.

Module -II: Definitions in Livestock

(15 Hrs)

- 2.1 Terminology Used in Livestock Production.
- 2.2 Type Livestock
- 2.3 Breed; introduction, types,
- 2.4 Classification of Breed.

Module -III: Health Care in Livestock

(15 Hrs)

- 3.1 Animal Health Cover, Herd health programme.
- 3. 2 Basic Treatment.
- 3.3 Control over mortality.
- 3.4 Maintain & necessary step to keep the Livestock farm healthy.

Module – IV: Housing Systems in Livestock

(15 Hrs)

- 4.1 Housing Systems of Poultry.
- 4.2 Types of systems of housing poultry units.
- 4.3 Importance of housing system for Livestock
- 4.4 Housing for different livestock and poultry

Books Recommended:

1. A Textbook Of Animal Husbandry By, G. C. Banerjee
2. Animal Husbandry And Dairy Science By, Jagdish Prasad
3. Glimpses of Indian Veterinary Science By, Rishendra Verma

4. Managing healthy livestock producing – Devid K. Beeds.
5. Livestock & poultry production management & planning – Ramesh Nandan
6. Livestock production Management – C.K. Thomas.
7. Dairy bovine production –C.K. Thomas.
8. Goat Production and Health Management- by S K Jindal
9. Humane Livestock Handling- by Temple Grandin
10. A Textbook of Economic Zoology- by Islam Aminul

Note: (If any - such as)

1. In theory examination, the weightage to numerical problems should not exceed 30%.
2. Students can use scientific calculators in theory examination.)

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. IV
Advanced Diploma in Sustainable Agriculture Management
Discipline Specific Core Course (DSC– D-III)
Title: Agricultural Finance & Cooperation.

Paper No.: XIV

Credits: 04

Theory: 4 lectures/week

Total Marks: 50 (Theory)

.....
Course Outcome:

- To understand Agricultural Finance & Cooperation.
- To study role of public & private financing agencies.
- To understand Public and Private Finance in farm management.
- To Study of receipts, expenses and net earnings on different farms in the same locality national agricultural policies.
- To study Importance of Farm Budgeting

Module- I: Importance of Finance

(15 Hrs)

- 1.1 Importance of Public Finance.
- 1.2 Education to agricultural development are been provided by government.
- 1.3 Study of storage structure
- 1.4 Role in Indian agriculture finance.

Module- II: Public & Private Finance

(15 Hrs)

- 2.1 Public and Private Finance; introduction,
- 2.2 Types of. Public and Private Finance
- 2.3 Advantages & Disadvantages.
- 2.4 Importance of Public & Private Finance

Module- III: Public Finance & its operation

(15 Hrs)

- 3.1 Public Finance; Introduction.
- 3.2 Types.
- 3.34 Importance of Public Finance & its operation
- 3.3 Advantages of public finance in farm management.

Module- IV: Importance of Farm Budgeting

(15 Hrs)

- 4.1 Advantages of Farm Budgeting
- 4.2 Evaluation of old plan with guidance to the farmers to adopt a new farm plan with advantage.
- 4.3 Study of receipts, expenses and net earnings on different farms in the same locality national agricultural policies.
- 4.4 Efficient and economical use of resources; improvements in farm management practices.

Books:

1. A Textbook of Agricultural Economics - Dr. C.B. Singh, Dr. R.K. Singh
2. Agricultural Economy of India: Current Status and Issues- Malvika Singh
3. Agricultural Marketing In India- S. S. Acharya- Agricultural Economics
4. Principles of Agricultural Economics- Andrew Barkley, Paul W. Barkley
5. Agriculture finance, banking & co-operation – P.K. Krishna Sankar.

6. Agriculture finance & management – S. Subba Reddy ,P. Raghuram.
7. Agriculture finance & co –operation – R.K. Raut.
8. Agriculture marketing in India –N.L. Agrawal
9. Agriculture economics - S. Subba Reddy.
10. Fundamentals Of Agricultural Economics- by Singh A.

Note: (If any - such as)

1. In theory examination, the weightage to numerical problems should not exceed 30%.
2. Students can use scientific calculators in theory examination.)

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. IV
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– D-I)
Title: Plant Pathology: Diseases of field crops & management.

Paper No.: XV

Credits: 02

Theory: 4 lectures/week

Total Marks: 50 (Practical)

Course Outcome: The students will acquire knowledge of

- To make students study about diseases of field crops.
- To study symptoms & control measures to enhance crop production.
- To understand basic plant pathology.
- Identify & control measures of Plant Pathology field crops & their management
- Control Management of Diseases
- Fundamentals of Bacterial Plant Pathology
- Understand Disease Transmission

List of Practicals:

1. Introduction to basic laboratory equipment's need for plant pathology
2. Collection of fungal, bacterial & viral affected plant specimens.
3. Equipment needed to prevent & control disease
4. Preparation of slides to identify fungus & bacterial growth. Disease collection & prepare album.
5. Identification & symptoms of diseases on plant crop.
6. Role of chemicals as preventive & curative.
7. Spraying techniques & safety measures.
8. Summation of digital photo of at least ten disease plant with brief description
9. Identification of locality available common plant diseases
10. Study of fungicides on different pathogens.

Laboratory Requirements:

Glassware, slides, beakers, cylinder, pipettes, bottles, microscopes, reagents, test kit, gloves, etc.

Student Instructions:

1. Perform all the laboratory activity described in the laboratory manual.
2. Always wash hand before you work with specimen.
3. Be very careful with glassware and Microscope.
4. Avoid skin contact
5. Never leave used slides or plant materials on the floor.
6. All the chemical used in the laboratory are toxic if swallowed.
7. Mouth pipetting should be avoided.
8. Must be careful with cracked glassware, especially when you wash slides.
9. Acid alcohol used in tests, contain acid that cause burns on skin and clothes.
10. Put a mask, gloves and apron before you work in laboratory.

Nature of Practical Question Paper:

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. IV
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– D-I)
Title: Plant Pathology: Diseases of field crops & management.

Practical Examination**Time: 3 Hrs.****Total Marks: 50**

1. Major Experiment	20 Marks
2. Minor Experiment	10 Marks
3. Identification / Spotting	10 Marks
4. Viva-voce	05 Marks
5. Journal	05 Marks

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. IV
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– D-II)
Title: Livestock Production & Management.

Paper No.: XVI

Credits: 02

Theory: 4 lectures/week

Total Marks: 50 (Practical)

Course Outcome: The students will acquire knowledge of

- To make students study about Livestock Production & Management.
- To understand operations in Dairy unit & Poultry industry.
- To study & understand importance of livestock production & management.
- To study Health Care in Livestock.
- To study housing Systems in Livestock
- To know Fundamentals Opportunities in Livestock Industry.

List of Practicals:

1. Identification of Domestic Livestock animals.
2. Visit to a Dairy Unit
3. Types of cattle farms.
4. Study of external part of Livestock
5. Economic traits of Livestock & poultry
6. Demonstration of specific gravity fat % total solid, solids not fat.
7. Economic of dairy & Goat swine farming.
8. Demonstration of cream separation
9. Visit Poultry farm & care.
10. financial calculation: Livestock animals

Laboratory Requirements:

Glassware, slides, beakers, cylinder, pipettes, bottles, microscopes, reagents, test kit, gloves, etc.

Student Instructions:

1. Perform all the laboratory activity described in the laboratory manual.
2. Always wash hand before you work with specimen.
3. Be very careful with glassware and Microscope.
4. Avoid skin contact
5. Never leave used slides or plant materials on the floor.
6. All the chemical used in the laboratory are toxic if swallowed.
7. Mouth pipetting should be avoided.
8. Must be careful with cracked glassware, especially when you wash slides.
9. Acid alcohol used in tests, contain acid that cause burns on skin and clothes.
10. Put a mask, gloves and apron before you work in laboratory.

Nature of Practical Question Paper:

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. IV
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– D-II)
Title: Livestock Production & Management.

Practical Examination

Time: 3 Hrs.**Total Marks: 50**

1. Major Experiment	20 Marks
2. Minor Experiment	10 Marks
3. Identification / Spotting	10 Marks
4. Viva-voce	05 Marks
5. Journal	05 Marks

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. IV
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– D-III)
Title: Agricultural Finance & Cooperation.

Paper No.: XVII
Theory: 4 lectures/week

Credits: 02
Total Marks: 50 (Practical)

.....

Course Outcome: The students will acquire knowledge of

- To know Agricultural Finance & Cooperation.
- To role of public & private agency in Agricultural Sector.
- To study role of public & private financing agencies.
- To understand Public and Private Finance in farm management.
- To Study of receipts, expenses and net earnings on different farms in the same locality national agricultural policies.
- To study Importance of Farm Budgeting

List of Practicals:

1. Importance of Finance in Agriculture.
2. NABARD and its important role.
3. Role of Nationalized Banks for Indian Agriculture.
4. Study PACS.
5. Visit to Credit Cooperative Society.
6. Seminar on various topic
7. Preparation of repayment plant
8. Visit to district central co-operative bank (DCCB) to study its role function & producer for available loan –fixation of scale finance
9. Analysis of progress & performance of commercial bank RRB' using published data.
10. Determination of most profitable level of capital use

Laboratory Requirements:

Glassware, slides, beakers, cylinder, pipettes, bottles, microscopes, reagents, test kit, gloves, etc.

Student Instructions:

1. Perform all the laboratory activity described in the laboratory manual.
2. Always wash hand before you work with specimen.

3. Be very careful with glassware and Microscope.
4. Avoid skin contact
5. Never leave used slides or plant materials on the floor.
6. All the chemical used in the laboratory are toxic if swallowed.
7. Mouth pipetting should be avoided.
8. Must be careful with cracked glassware, especially when you wash slides.
9. Acid alcohol used in tests, contain acid that cause burns on skin and clothes.
10. Put a mask, gloves and apron before you work in laboratory.

Nature of Practical Question Paper:

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. IV
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– D-III)
Title: Agricultural Finance & Cooperation.

Practical Examination

Time: 3 Hrs.

Total Marks: 50

1. Major Experiment	20 Marks
2. Minor Experiment	10 Marks
3. Identification / Spotting	10 Marks
4. Viva-voce	05 Marks
5. Journal	05 Marks

Shivaji University, Kolhapur
Bachelor of Vocation (B. Voc.) Part II - Sem. IV
Advanced Diploma in Sustainable Agriculture Management
Skill Enhancement Course (SEC– D-IV)
Title: Project/Field Work/Industrial Visit/Study Tour.

Paper No.: XVIII

Credits: 02

Theory: 2 lectures/week

Total Marks: 50 (Practical)

.....

Course Outcome: The students will acquire knowledge of

1. Provide huge practical experience and theoretical knowledge in different circumstances
2. Improve the skills, growth, development and communication process.
3. Stimulate interest and motivation.
4. Strengthen observations and perception skills.
5. Know the opportunity in an Agriculture field/ sector.

Important Note: Field Work/Industrial Visit/Study Tour should be of **minimum five days** in or out of

Maharashtra / India

Suggested Places: Government or Private Agriculture Institutes, Laboratories, Colleges, Agrimall, Nursery, Gardens, Tissue culture labs, Biotech research centre, Market yard etc.

1. In Maharashtra: Any suitable place.
2. Out of Maharashtra: Any suitable place.

Nature of Evaluation: Internal