

 Estd. 1962 "A++" Accredited by NAAC (2021) With CGPA 3.52	SHIVAJI UNIVERSITY, KOLHAPUR 416 004, MAHARASHTRA PHONE : EPABX - 2609000, BOS Section - 0231-2609094, 2609487 Web : www.unishivaji.ac.in Email: bos@unishivaji.ac.in शिवाजी विद्यापीठ, कोल्हापूर, ४१६ ००४, महाराष्ट्र दूरध्वनी - इपीबीएक्स - २०६०९०००, अभ्यासमंडळे विभाग : ०२३१- २६०९०९४, २६०९४८७ वेबसाईट : www.unishivaji.ac.in ईमेल : bos@unishivaji.ac.in	 
---	--	--

Ref.: SU/BOS /Voc. / 222

Date: 06 - 07- 2026

The Principal,
 All concerned Affiliated Colleges /Institutions,
 Shivaji University, Kolhapur

**Subject : Regarding Syllabi of B. Voc. Part II Programme under the Faculty of
 Inter- Disciplinary Studies as per National Education Policy 2020 (2.0)**

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 following B. Voc. Part II Programme under the Faculty of Inter-Disciplinary Studies, as per National Education Policy 2020 (2.0).

1	B. Voc. Food Processing Technology	6	B Voc. Tourism And Service Industry
2	B. Voc Sustainable Agriculture	7	B. Voc. Building Technology & Interior Designing
3	B. Voc. Automobile	8	B. Voc. Printing And Publishing
4	B. Voc. Graphic & Design	9	B. Voc. Nutrition And Dietetics
5	B. Voc. Nursing And Hospital Management	10	B. Voc. Sustainable Agriculture Management

This syllabus (nature of question paper and equivalence etc) shall be implemented from the academic year **2026-2027** onwards. A soft copy containing the syllabus is attached herewith and it is also available on university website www.unishivaji.ac.in NEP-2020 (Online Syllabus).

The question papers on the pre-revised syllabi of above-mentioned programmes will be set for the examinations to be held in October /November 2026 & March/April 2027. 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



Dy Registrar

Encl. : as above

Copy to: For information and necessary action

1	The I/C Dean, Faculty of IDS	7	P.G.Admission Section
2	Director, Board of Examination and Evaluation	8	Affiliation T. 1 & T. 2 Section
3	The Chairman, Respective Board of Studies	9	Appointment A & B Section
4	All On Exam Section	10	P.G.Seminar Section
5	Eligibility Section	11	I. T. Cell
6	Computer Centre	12	Internal Quality Assurance Cell (IQAC)

SHIVAJI UNIVERSITY, KOLHAPUR



Accredited By NAAC with 'A++' Grade with CGPA 3.52

Structure and Syllabus in Accordance with

National Education Policy- 2020

With Multiple Entry and Multiple Exit

Syllabus for

Bachelor of Vocation [B. Voc.]-Part II, NEP-2.0

Sustainable Agriculture Management- Part-II

Semester- III and IV

UNDER

Faculty of Interdisciplinary Studies

Revised Syllabus to be implemented from Academic Year 2026-2027 onwards

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

SHIVAJI UNIVERSITY, KOLHAPUR
Revised Syllabus for the Bachelor of Vocation in
SUSTAINABLE AGRICULTURE MANAGEMENT

(As per NEP- 2.0)

Applicable from the Academic Year 2026 – 27

- 1. Title:** B. Voc. II – Sustainable Agriculture Management Degree Program, Shivaji University, Kolhapur Revised Syllabus as per NEP 2020 - 2.0
- 2. Faculty:** Faculty of Interdisciplinary Studies
- 3. Year of Implementation:** From June 2026
- 4. Preamble (Sustainable Agriculture Management):**

The B. Voc. Sustainable Agriculture Management Part II Program is designed to provide advanced knowledge and practical exposure to students in the field of agriculture. Agriculture sector is an integral part of development and economic growth of a nation. Agriculture plays a key role in the economy of developing countries and provides food, income and job opportunities to a significant portion of population. The curriculum of Agriculture studies offers a wide range of learning and paves way to widespread opportunities to learners as professionals or entrepreneurs. Some of the agriculture core and allied areas that are designed in the curriculum are - Plant Sciences, Agronomy, Entomology, Agricultural Economics, Agricultural Extension and Communication, Genetics and Plant Breeding, Plant Pathology, Horticulture, Crop Modelling, Animal Sciences, Soil Science, Crop Physiology, Agricultural Engineering, Agro Forestry, Food Science, Seed Science and Technology, Microbiology, Floriculture, Vegetable Science, Production Techniques and Pest Management etc. Agriculture study is a fine blend of classroom teaching and hands-on training at the field. Therefore, the teaching pedagogy is an excellent mix of these two aspects of learning. Complete plan of teaching discourse is shared with the stakeholders and the faculty follows the teaching plan as per the schedule. Ability Enhancement Courses in English aim to improve communication and professional skills. Value Education and Environmental Studies create awareness about responsible tourism and sustainability. Community Engagement Program connects students with real-world tourism practices and social responsibilities. Open Elective courses like Financial Accounting support managerial and financial understanding.

- 5. Program Outcomes (PO):**

PO1: Applying the knowledge of crop cultivation, crop improvement, soil and crop

management for sustainable organic agricultural production and development.

PO2: Analysing and identifying complex agricultural problems and formulating ethical solutions using principles of agricultural science, engineering, and business.

PO3: Developing innovative processes, products, and technologies to meet the challenges in agriculture and farming practices.

PO4: To impart firsthand knowledge on agriculture and allied sciences.

PO5: To impart in-depth practical knowledge in agriculture and allied sciences.

PO6: To provide extensive knowledge on Agri-allied sectors like livestock, Poultry.

PO7: To disseminate different technologies through various extension activities.

PO8: To identify and overcome the problems encountered in day-to-day agriculture.

PO9: To provide knowledge on commercial agricultural production practices.

PO10: To make students competitive in pursuing higher studies.

6. Course Outcomes (CO):

CO1: Understanding scientific principles of crop and livestock production, acquiring practical skills in farming and farm management.

CO2: Developing critical thinking and analytical abilities to solve agricultural problems, gaining knowledge of agribusiness and economics.

CO3: Understanding the role of agriculture in national economies and sustainability, and honing communication, teamwork, and ethical professional behaviour.

CO4: Students will know the different agribusiness opportunities and will get necessary managerial skills.

CO5: Students will raise the nurseries of different vegetables crops for commercial Sale.

CO6: Students will produce biocontrol agents like Trichoderma, Pseudomonas and bio fertilisers like phosphobacteria for commercial marketing.

CO7: Understand the concepts, structure, and significance of the Sustainable Agriculture.

CO8: Utilize digital tools and marketing techniques for promoting Agriculture products and services.

CO9: Evaluate sustainable Agriculture tourism practices including eco-tourism and agro-tourism initiatives.

CO10: Develop problem-solving, entrepreneurial, and managerial skills in agricultural operations.

7. Objectives of a Bachelor of Vocation (B. Voc.):

1. To empower students with practical, industry-relevant skills in eco-friendly farming, combining technical knowledge with economic viability.
 2. To provide judicious mix of skills relating to a profession and appropriate content of General Education.
 3. To ensure that the students have adequate knowledge and skills, so that they are work ready at each exit point of the programme.
 4. To provide flexibility to the students by means of pre-defined entry and multiple exit points.
 5. To integrate NSQF within the undergraduate level of higher education in order to enhance employability of the graduates and meet industry requirements. Such graduates apart from meeting the needs of local and national industry are also expected to be equipped to become part of the global workforce.
 6. To provide vertical mobility to students coming out of 10+2 with vocational subjects.
 7. To encourage entrepreneurship and self-employment opportunities in the Sustainable agriculture service sector.
8. **Duration of the Course:** The B. Voc. II Course (Sustainable Agriculture Management) (Level 5.0) will be of Two Semesters (Sem. II and Sem IV).
9. **Medium of Instruction:** English.
10. **Eligibility for Admission to B. Voc. Part II (Level 5.0):**
- i. The students passing or ATKT the B. Voc. Part-I (or Undergraduate Certificate in Sustainable Agriculture Management) shall be allowed to enter upon the B. Voc. Part-II OR
 - ii. An Examination of any other Statutory University or an examining Body recognized as equivalent there to.
11. **Scheme of Teaching and Examination:**
- i. Each theory course paper constitutes of 4-5 units, which require 30 hours of teaching lectures and there shall be two lectures per theory (2 Cr) course per week.
 - ii. B. Voc. II Tourism and Service Industry Course will be of 44 Credits (1100 marks).
 - iii. Examination of each **theory course** shall be of **50 marks** (30 university examination + 20 internal assessment). University examination of 30 marks (1.5 hours' duration) will be conducted at the end of each Semester. Internal assessment of 20 marks will be done before the semester examination during each semester.
 - iv. Examination for a practical course shall be 50 marks per semester.

- v. Pattern and Nature, marking scheme for theory and Practical Examination for Major Specific SEC and VSC courses are included in syllabus.
- vi. Question papers will be set in the view of the entire syllabus and preferably covering each unit of the syllabus. Weightage should be provided for each unit as per the hours allotted for teaching.

12. **Structure of course:** Given in Framework Chart

13. **Standard of Passing:** The standard of passing shall be as per the following table.

	Semester End Exam	Internal Assessment	Course Exam (Total)
Maximum Marks	30	20	50
Minimum Marks required for passing	12	8	20

- i. There shall be a separate head of passing for semester-end examination and internal examination.
- ii. Minimum 20 marks out of 50 are required for passing of practical examination of each course.
- iii. **Assessment:** The NEP 2020 emphasizes upon formative and continuous assessment rather than summative assessment. Therefore, the scheme of assessment should have components of these two types of assessments. Assessment has to have correlations with the learning outcomes that are to be achieved by a student after completion of the course
 - a) **Continuous Assessment:** Assignments, projects, presentations, seminars and quizzes
 - b) **Examinations:** Midterm, finals, or comprehensive exams.
 - c) **Research Projects/Dissertation/Thesis:** Evaluated through submission and viva-voce
 - d) **Grading System:** Standardized letter grades, percentages, or CGPA

Letter Grades and Grade Points:

The Semester Grade Point Average (SGPA) is computed from the grades as a measure of the student's performance in a given semester. The SGPA is based on the grades of the current term, while the Cumulative GPA (CGPA) is based on the grades in all courses taken after joining the program of study. The HEIs may also mention marks obtained in each course and a weighted average of marks based on marks obtained in all the semesters taken together for the benefit of students.

Computation of SGPA and CGPA: UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA)

Letter Grade	Grade Point
O (Outstanding)	10
A+ (Excellent)	9
A (Very Good)	8
B+ (Good)	7
B (Above Average)	6
C (Average)	5
P (Pass)	4
F (Fail)	0
Ab (Absent)	0

1. The SGPA is the ratio of the sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e.

$$\text{SGPA (S}_i\text{)} = \frac{\sum (C_{ix}G_i)}{\sum C_i}$$

Where C_i is the number of credits of the i^{th} course and G_i is the grade point scored by the student in the i^{th} course.

2. The Cumulative Grade Point Average (CGPA) is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$\text{CGPA} = \frac{\sum (C_{ix}S_i)}{\sum C_i}$$

Where S_i is the SGPA of the i^{th} semester and C_i is the total number of credits in that.

14. Nature of Question paper and scheme of marking:

- Theory question paper: Maximum marks -30
- Total No. of questions – 3
- All questions are compulsory.
- Question No.1 is MCQ type (10 Marks).
- Question number 2 is long answer type question Carries 10 marks.
- Question number 3 is short answer type question carries 10 marks.

(Nature of question paper is provided at the end of syllabus.)

SHIVAJI UNIVERSITY, KOLHAPUR NEP 2.0: Credit Framework for B. Voc. Undergraduate (UG) Programme under Faculty of Interdisciplinary Studies B. Voc. In Sustainable Agriculture Management										
Level	Semester	COURSES			OE	VSC/SEC	AEC/VEC/IKS	OJT/FP/CEP/ CC/ RP	Total Credit	Degree/Cum/Cr. MEME
		Course –I	Course -II	Course -III			IKS			
4.5	I	DSC-I (2) DSC-II (2) DSC P-I (2)	DSC-I (2) DSC-II (2) DSC P-I (2)	DSC-I (2) DSC-II (2) DSC P-I (2)	OE -1 (T/P) (2)	-	IKS-I (2) Introduction to IKS	-	22	UG Certificate 44
	II	DSC-III (2) DSC-IV (2) DSC P-II (2)	DSC – III (2) DSC-IV (2) DSC P-II (2)	DSC-III (2) DSC-IV (2) DSC P-II (2)	OE-2 (T/P) (2)	-	VEC-I (2) (Democracy, Election and constitution)	-	22	
Credits		8(T)+4(P)= 12	8(T)+4(P)= 12	8(T)+4(P)=12	2+2 =4	-	2 + 2= 4	-	44	Exit Option: 4 Credits NSQF/Internship/Skill Courses
		MAJOR		MINOR						
5.0	III	Major-V (2) Major-VI (2) Major P-III (2)	-	Minor-V (2) Minor-VI (2) Minor P-III (2)	OE -3 (T/P) (2)	VSC- I (2) (P) (Major Specific) SEC-I (2) (T/P)	AEC-I (2) English	CC-I (2)	22	UG Diploma 88
	IV	Major-VII (2) Major-VIII (2) Major P-IV (2)	-	Minor-VII (2) Minor-VIII (2) Minor P-IV (2)	OE-4 (T/P) (2)	SEC-II (2) (T/P)	AEC-II (2) English VEC-II (2) (Environmental Studies)	CEP-I (2)	22	
Credits		8(T)+4(P)= 12	-	8(T)+4(P)=12	2+2= 4 (T/P)	4 (T/P) +2 (P)=6	2 + 4= 6	2 + 2= 4	44	Exit Option: 4 Credits NSQF/Internship/Skill Courses
5.5	V	Major-IX (2) Major-X (2) Major P-V (4)	Major-I(ELEC) (2) Major P-I (ELEC) (2)	-	OE-5 (T/P) (2)	VSC-II (2) (Major Specific) (P)	AEC-III (2) English	OJT (4)	22	UG Degree 132
	VI	Major-XI (2) Major-XII (2) Major P-VI (4)	Major-II (ELEC) (2) Major P-II (ELEC) (2)	-	-	VSC-III (2) (P) (Major Specific) SEC-III (2) (T/P)	AEC-III (2) English IKS-2(Major Specific) (2)	FP (2)	22	
Credits		8 (T) + 8 (P) = 16	4 (T) + 4 (P) = 8	-	2 (T/P)	2 (T/P) +4 (P) = 6	2 + 4 = 6	4+2 = 6	44	
Total Credits		40+20=60		24	10	12	16	10	132	Exit Option

B. Voc. – Sustainable Agriculture Management- Part II NEP-2020.

Titles of Papers

Sem.	Course	Code	Paper No.	Title of Paper
III	I	Major-V	B. Voc. Paper- V	Introduction to Plant Pathology
		Major-VI	B. Voc. Paper- VI	Herbal Aromatic Medicinal Plants
		Major P-III	B. Voc. Practical –III	Based Upon Major- V and VI
	II	Minor-V	B. Voc. Paper- V	Water Management including Micro-irrigation
		Minor-VI	B. Voc. Paper- VI	Ornamental Plants
		Minor-P-III	B. Voc. Practical –III	Based Upon Minor- V and VI
	OE -III	Open Elective	Practical (2)	Cultivation methods in Agronomic crops
	VSC-I	Vocational Skill Courses	Practical (2)	VSC- Floriculture
	SEC-I	Skill Enhancement Courses	Practical (2)	SEC-
	AEC-I English	Ability Enhancement Courses	Theory (2)	English
	CC-I	Co-Curricular Courses	2 Cr	As specifies in credit frame work
IV	I	Major-VII	B. Voc. Paper- VII	Live Stock Production and Management
		Major-VIII	B. Voc. Paper- VIII	Crop Production Technology
		Major P-IV	B. Voc. Practical –IV	Based Upon Major- VII and VIII
	II	Minor-VII	B. Voc. Paper- VII	Agriculture Finance and Cooperation
		Minor-VIII	B. Voc. Paper- VIII	Diseases of field Crops and Management
		Minor-P-IV	B. Voc. Practical –IV	Based Upon Minor- VII and VIII
	OE -IV	Open Elective	Practical (2)	Precision Farming
	SEC-II	Skill Enhancement Courses	Practical (2)	Apiculture
	AEC-II English	Ability Enhancement Courses	Theory (2)	English
	VEC-II	Value Education Courses	Practical (2)	Environmental Studies
	CEP-I	Community Engagement Program	Practical (2)	Project Report

- Student Contact Hrs. Per week: 36 hrs.
- Theory and Practical Lectures: 60 Minutes Each
- **DSC:** Discipline Specific Course
- **MAJOR:** Mandatory/Elective
- **MINOR:** Course may be from different disciplines of same faculty of DSC Major.
- **OE (Open Elective):** Chosen compulsorily from faculty other than that of the Major.
- **VSC/SEC: Vocational Skill Courses (MAJOR related)/Skill Enhancement Courses**
- **AEC/ VEC / IKS:** Ability Enhancement Courses (English, Modern Indian Language)/Value Education Courses/ Indian Knowledge System (Generic & Specific))
- **OJT/FP/RP/CEP/CC:** On-Job Training (Internship/Apprenticeship) / Field Project (Major related)/ Research Projects (Major related) Community Engagement (Major related)/ Co-Curricular Courses (CC) such as Health & Wellness, Yoga Education, Sport, and Fitness, Cultural activities, NSS/NCC and Fine /applied/visual/performing Arts / Vivek Vahini etc.
- Total marks for B. Voc.- UG Diploma: 1100
- Total credits for B. Voc.- UG Diploma: 44

Eligibility for Admission:

- i. The students passing or ATKT the B. Voc. Part-I shall be allowed to enter upon the B. Voc. Part-II
- OR
- ii. An Examination of any other Statutory University or an examining Body recognized as equivalent there to.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. III
Major– B. Voc.- Paper-V.

Introduction to Plant Pathology

Theory: 30 Hours

Credits: 02

Unit 1	1 Fundamentals of Plant Pathology Introduction: Importance of plant diseases, scope and objective of Plant Pathology. History of Plant Pathology with special reference to Indian work. Terms and concept in Plant Pathology. Pathogenesis. diseases triangle	8 Hrs.
Unit 2	Diseases, definition, introduction & classification Classification of plant diseases. Important Plant pathogenic organism fungi. Bacteria. Phytoplasma, viruses and nematodes with example of diseases caused by them. Diseases due to abiotic causes.	7 Hrs.
Unit 3	Classification of Fungi & Bacteria Fungi: general character, definition of fungus, reproduction (Asexual and Sexual). Nomenclature, classification of fungi. Bacteria: general morphological characters, basic methods reproduction. Viruses: nature of properties, structure and transmission.	8 Hrs.
Unit 4	Soil Microorganisms in Biodegradation Soil microorganisms; Introduction and classification, beneficial organisms & harmful organisms. Biodegradation of soil microbes.	7 Hrs.

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 and Horticulture crop & their manegment- Dr. M.M.Khan.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. III
Major– B. Voc. Paper-VI.

Herbal Aromatic Medicinal Plants
Theory: 30 Hours Credits: 02

Unit 1	: Introduction to Herbal Introduction of herbal plants. Classification of herbal plants on the basis of parts utilized. Properties of herbal plants. Cultivation practices of herbal Plants	8 Hrs.
Unit 2	Classification of Medicinal plants Introduction of medicinal plants. Classification of Medicinal Plants on basis of parts used. Properties of Medicinal plants. Cultivation practices of medicinal plants.	7 Hrs.
Unit 3	Introduction of Aromatic plants Introduction of aromatic plants. Classification, uses & aromatic Plants properties and economic importance. Essential oil & its production.	8 Hrs.
Unit 4	Economic importance of Plants Importance of Aromatic plants. Economic importance of plants. Demand for essential oils, aroma chemicals drugs Pharmaceuticals in the world market since two decades.	7 Hrs.

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 & Aromatic plant –R.K.Gupta.
6. Cultivation & Utilization of Aromatic plant –M. B. Sing
7. Medicinal & Aromatic plant - Dr. V.K. Agrawal.
8. Herbal drugs for management of infectious diseases – Rakesh Sindhu.
9. Herbal & aromatic plant - R.S.Shing
10. Aromatic plant – R.C.Gupta. Scheme of Internal

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. III
Major Practical-III based on Paper-V and VI
Introduction to Plant Pathology &
Herbal Aromatic Medicinal Plants

Practical:

Group-I

1. Disease collection & prepare album.
2. Identification & symptoms of diseases on plant crop.
3. Submission of digital photo of at least ten disease plant with brief description.
4. Identification of plant disease symptoms.
5. Spraying techniques & safety measures.
6. Identification of locality available common plant diseases

Practical:

Group-II

1. Identification & classification of medicinal plants.
2. Identification of locality available common medicinal plants.
3. Submission of digital photo of at least ten medicinal plants with taxonomy.
4. Cultivation maintenance & reporting at least 5 medicinal plants and 5 aromatic plants.
5. Study of basic tools/ instrument/ apparatus use in making herbal medicines.

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.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. III
Minor– B. Voc. Paper-V.

Water Management including Micro irrigation.

Theory: 30 Hours

Credits: 02

Unit 1	Importance of Irrigation	8 Hrs.
	Water & its Importance in the field of sustainable agriculture. Water, translocation of nutrient and dissipation of heat. Water resource management. Importance of irrigation.	
Unit 2	Properties of Water	7 Hrs.
	Properties of water: Physical and chemical properties of water Understanding groundwater. Water molecule, hydrogen ions and one oxygen ions.	
Unit 3	: Irrigation introduction & classification	8 Hrs.
	Irrigation Definition. Localised Irrigation, Fertigation. Supplied supplementary water. Types of irrigation –Surface irrigation Sprinkle and drip irrigation	
Unit 4	Micro irrigation	7 Hrs.
	Introduction Micro irrigation Micro irrigation system, definition. Advantages and disadvantages. Types Micro irrigation 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

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. III
Minor– B. Voc. Paper-VI.
Ornamental Plants

Theory: 30 Hours

Credits: 02

Unit 1	Introduction to Ornamental Plants: History, definitions, scope of ornamental horticulture, aesthetic values, Floriculture industry, Importance, area and production, industrial importance of ornamental plants and flowers. Importance, classification.	8 Hrs.
Unit 2	General Aspects of Ornamental Plants: Design values and general cultivation aspects for ornamental plants viz. annuals, biennials herbaceous perennials, grasses and bulbous ornamentals. shrubs, climbers, trees, indoor plants, palms and cycads,	7 Hrs.
Unit 3	Importance of Garden: Importance, design and establishment of garden features/components viz. hedge, edge, borders, flower beds, bridges, paths, drives, fences, garden walls, gates, carpet bed, arbour, Patio, decking, retaining walls, shade garden, sunken garden, roof garden, terrace garden, pebble garden, rockery, pools, waterfalls, fountains, bog garden, avenue planting and children garden	8 Hrs.
Unit 4	Maintenance of Garden: Lawn types, establishment and maintenance. Importance of Garden adornments viz. floral clock, bird bath, statutes, sculptures, lanterns, water basins, garden benches etc. Importance of flower arrangement, Ikebana, techniques, Bottle garden.	7 Hrs.

Books Recommended:

1. Ornamental Plants for Gardening- T. K. Bose, L. P. Yadav
2. Fundamentals of Ornamental Hort. and Landscape Gardening- J. S. Arora
3. Ornamental Horticulture- Gary L. McDaniel
4. Ornamental Horticulture Principles and Practices- Jack E. Ingels
5. Plant Biotechnology in Ornamental Horticulture- A. Altman, M. Ziv, Qazi
6. Landscape Gardening and Ornamental- Padi Mahesh, Nasir Hamid Masoodi, Qazi Altaf, Dharavath Poojitha, Vankadavath Nagaraju.
7. Commercial Ornamental Crops: Traditional and Loose Flowers- T. K. Bose, L. P. Yadav
8. Ornamental Horticulture A Little Giant in the Tropics- Tito J. Rimando
9. Diseases of Ornamental Plants in India- R. S. Singh
10. Introductory Ornamental Horticulture- J. S. Arora

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. III
Minor Practical-III based on Paper-V and VI
Water Management including Micro irrigation &
Ornamental Plants

Practical:

Group-I

1. Determination of total hardness of water.
2. To study the different types of irrigation pumps.
3. To study design choosing methods of irrigation.
4. To study and calculate maintenance and precautions Greenhouse's irrigation installation system.
5. Study of Irrigation Structures.
6. Submission of digital photographs of Micro irrigation, with brief description

Practical:

Group-II

1. Planning and designing and establishment of garden features viz. lawn, hedge and edge.
2. Rockery, water garden, carpet bedding, shade garden, roof garden, Study and creation of terrariums, vertical garden.
3. Study and identification of ornamental plants and Identification of annual flowers
4. Identification of perennial flowers, ornamental trees, shrubs, climbers and creepers.
Identification of indoor ornamental plants, cacti and succulents.
5. Preparation of nursery beds
Media preparation for pot plants
Seed sowing in nursery beds and trays
Potting and repotting techniques
Propagation through stem cuttings

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. III
Open Elective III- Cultivation Methods in Agronomic Crops

Credits: 02

Unit 1	Agronomy of field crops	8 Hrs.
	Importance, origin, soil and climatic requirement – area, production and productivity in World, India. Systems of cultivation of various crops.	
Unit 2	Crop management	7 Hrs.
	Crop management - season, varieties, seed rate, seed treatment, sowing, density and geometry, growth stages, critical stages for input requirement - nutrient, irrigation.	
Unit 3	Weed management in crops	8 Hrs.
	Weed management - Types of weeds with examples, after cultivation - harvest and processing- storage - byproducts - cropping systems.	
Unit 4	Harvesting of crops	7 Hrs.
	Season of harvesting, Quality and quantity management of crops, storage of crops	

Books Recommended:

1. Modern Techniques of Raising Field Crops- Chhidda Singh, Prem Singh, Rajbir.
2. Crop Management- S. S. Walia, U. S. Walia
3. Cultivation of Agricultural Crops: A Complete Guide- S. V. Patil, Rajakumar G. R.
4. Cultivation Techniques in Modern Agriculture- Prasann Kumar, Pawan Kumar Bharati
5. Cultivation Techniques for Agriculture Crops: Cereals and Pulses- Prasann Kumar, Pawan Kumar Bharati
6. Agronomic Handbook: Management of Crops, Soils and Their Fertility- J. Benton Jones.
7. Agronomic Crops: Volume 1 Production Technologies- Mirza Hasanuzzaman.
8. Principles of Agronomy- T. Yellamanda Reddy, G. H. Sankara Reddi
9. Fundamentals of Agronomy- Arun Katayyan.
10. Handbook of Agriculture- Indian Council of Agricultural Research

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. III
Vocational Skill Courses- VEC-I
Practical
FLORICULTURE
Theory: 30 Hours Credits: 02

Practical:

1. Identification of plant Flowers.
2. Planning, designing and establishment of garden features.
3. Roof garden, Water Garden, Carpet bedding, Shade Garden
4. Study and creation of Terrariums.
5. Study and creation of Vertical Garden.
6. To study about different flower arrangements.
7. Bonsai practicing and training
8. Identification of indoor ornamental plants
9. Fertilizer application methods in floriculture crops
10. Pest and disease identification in ornamentals
11. Harvesting of cut flowers
12. Visit to commercial flower nursery
13. Use of growth regulators in floriculture
14. Preparation of garlands and floral decorations

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.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. III
Skill Enhancement Course- SEC-I
Plant Diseases
Theory: 30 Hours Credits: 02

Practical:

1. Identification of plant diseases
2. Diseases of cereal crops
3. Diseases of ornamental plants
4. Disease spread mechanism in agronomic crops
5. Weeds in Fields
6. Insect pest in Crops
7. Disease management of crops
8. Integrated Disease management of crops
9. Collection and submission of diseases
10. Project report on Fungicides

Student Instructions:

11. Perform all the laboratory activity described in the laboratory manual.
12. Always wash hand before you work with specimen.
13. Be very careful with glassware and Microscope.
14. Avoid skin contact
15. Never leave used slides or plant materials on the floor.
16. All the chemical used in the laboratory are toxic if swallowed.
17. Mouth pipetting should be avoided.
18. Must be careful with cracked glassware, especially when you wash slides.
19. Acid alcohol used in tests, contain acid that cause burns on skin and clothes.
20. Put a mask, gloves and apron before you work in laboratory.

SHIVAJI UNIVERSITY, KOLHAPUR

**B. Voc. Part II (Sustainable Agriculture Management) NEP 2.0 Syllabus with effect
from June 2026**

B. Voc. II- Sem. III

Co-Curricular Courses (CC-I)

Yoga Education

(Credits: 02)

Note: For this course, follow the common syllabus and evaluation guidelines issued by the university separately.

Examination Pattern: -

- | | |
|---|----------|
| 1. Participation in activities | 30 marks |
| 2. Seminar, Report, Group Discussion, Viva Voce, etc. | 20 marks |

.....

B.Voc. II
(Sustainable Agriculture Management)
Semester-IV

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. IV
Major– B. Voc. Paper-VII.

Livestock Production & Management.

Theory: 30 Hours

Credits: 02

Unit 1	Scope & importance of Livestock industry Scope of Livestock in Indian Economy Livestock Census. Trends in Livestock Production. Opportunities in Livestock Industry Importance of . Livestock Industry.	8 Hrs.
Unit 2	Definitions in Livestock Terminology Used in Livestock Production. Type Livestock Breed; introduction, types, Classification of Breed.	7 Hrs.
Unit 3	Health Care in Livestock Animal Health Cover, Herd health programme. Basic Treatment. Control over mortality. Maintain & necessary step to keep the Livestock farm healthy.	8 Hrs.
Unit 4	Housing Systems in Livestock Housing Systems of Poultry. Types of systems of housing poultry units. Importance of housing system for Livestock Housing for different livestock and poultry	7 Hrs.

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

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. IV
Major– B. Voc. Paper-VIII.

Crop Production Technology

Theory: 30 Hours

Credits: 02

Unit 1	Cereals Rice, Maize, - Origin, geographic distribution, economic importance, soil and climatic requirements, varieties, cultural practices (from land preparation to harvest) and yield.	8 Hrs.
Unit 2	Millets Sorghum, Pearl millet, small millets - Finger millet, Foxtail millet, little millet, Kodo millet, Barnyard millet and Proso millet - Origin, geographic distribution, economic importance, soil and climatic requirement, varieties, cultural practices and yield.	7 Hrs.
Unit 3	Oil Seeds Groundnut, sesame, Soybean- Origin, and geographic distribution, economic importance, soil and climatic requirement, varieties, cultural practices, yield.	8 Hrs.
Unit 4	Pulses Redgram, Blackgram, Greengram, , Cowpea, - Origin, geographic distribution, economic importance, soil and climatic requirement, varieties, cultural practices and yield.	7 Hrs.

References:

1. Scientific Crop Production in India. Rama publishing House, Meerut. Ahlawat, I.P.S., Om Prakash and G.S. Saini. 1998.
2. Modern techniques of raising field crops. Oxford and IBH Publishing Co. Pvt. Ltd, New Delhi. Chidda Singh. 2010.
3. Crop management under irrigated and rainfed conditions. Kalyani Publishers, New Delhi. Singh. S.S. 2015.
4. Agronomy of field crops. Kalyani publishers, New Delhi. Joshi, M. 2015. Reddy, S.R. 2012.
5. Textbook of Field crops. PHI Learning Pvt. Ltd., New Delhi ICAR 2015.
6. Hand book of Agriculture. Indian Council of Agriculture, New Delhi.
7. Crop production Guide 2012. Directorate of Agriculture, Chennai.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. IV
Major Practical-IV based on Paper-VII and VIII
Livestock Production & Management and
Crop Production Technology

Practical:

Group-I

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 of dairy & Goat swine farming.
6. Visit Poultry farm & care

Practical:

Group-II

1. Identification of cereals, millets, pulses and oilseed crops in the crop cafeteria.
2. Practicing various nursery types and main field preparation for rice crop.
3. Acquiring skill in different seed treatment techniques in important kharif crops.
4. Study of yield parameters and estimation of yield in cereals and millets.
5. Acquiring skill in using seed drill for sowing operations
6. Visit to farmers field / research stations to study the cultivation techniques of cereal, millets, pulses, cotton and oilseeds.

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.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. IV
Minor– B. Voc. Paper-VII.
Agricultural Finance & Cooperation
Theory: 30 Hours Credits: 02

Unit 1	Importance of Finance	8 Hrs.
	1.1 Importance of Public Finance.	
	1.2 Education to agricultural development provided by government.	
	1.3 Study of storage structure	
	1.4 Role in Indian agriculture finance.	
Unit 2	Public & Private Finance	7 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	
Unit 3	Public Finance & its operation	8 Hrs.
	3.1 Public Finance; Introduction.	
	3.2 Types.	
	3.3 Importance of Public Finance & its operation	
	3.4 Advantages of public finance in farm management.	
Unit 4	Importance of Farm Budgeting	7 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.	

References:

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.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. IV
Minor– B. Voc. Paper-VIII.
Diseases of field crops & management
Theory: 30 Hours Credits: 02

Unit 1	Disease Transmission	8 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.	
Unit 2	Field Crops Diseases (Kharif crops)	7 Hrs.
	2.1 Diseases of field crops cereals 2.2 Diseases Pulses in kharif crops. 2.3 Identification, symptoms 2.4 Control measures.	
Unit 3	: Field Crops Diseases (Major cash crops)	8 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.	
Unit 4	Control Management of Diseases	7 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
10. Plant pathology- Sharma, Singh.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. IV
Minor Practical-IV based on Paper-VII and VIII
Agricultural Finance & Cooperation and
Diseases of field crops & management

Practical:

Group-I

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 plan
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

Practical:

Group-II

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.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. IV
Open Elective- IV

Precision Farming
Credits: 02

List of Practical: -

Group-I

1. Study of Concepts and Components of Precision Farming
2. Study and Use of Global Positioning System (GPS) in Agriculture
3. Introduction to Geographic Information System (GIS) for Farm Mapping
4. Interpretation of Remote Sensing Data in Crop Monitoring
5. Preparation of Soil Fertility Maps using Grid Sampling
6. Delineation of Management Zones in Precision Farming
7. Yield Monitoring and Yield Mapping Techniques
8. Calibration of Variable Rate Fertilizer Applicator

Group-II

9. Sensor-Based Nitrogen Management using SPAD/Green Seeker
10. Use of Leaf Color Chart (LCC) in Nutrient Management
11. Design and Layout of Precision Drip Irrigation System
12. Automation of Irrigation using Soil Moisture Sensors
13. Application of Drones in Crop Monitoring and Spraying
14. Site-Specific Weed Management Techniques
15. Use of Decision Support Systems (DSS) in Crop Management
16. Field visit to Precision Agriculture farm

Books Recommended:

1. A Handbook of Precision Agriculture: Principles and Applications edited by Ancha Srinivasan.
2. Precision Farming: A New Approach by Tulasa Ram, Shiv Kumar Lohan, Ranveer Singh & Purshotam Singh.
3. Precision Farming & Protected Cultivation: Concepts and Applications by Sanjeev Kumar, S. N. Saravaiya, A. K. Pandey.
4. Artificial Intelligence for Precision Agriculture edited by Pethuru Raj, N. Gayathri & Kathrine.
5. Remote Sensing in Precision Agriculture edited by Salim Lamine et al.

शिवाजी विद्यापीठ, कोल्हापूर
बी .व्होक .भाग II (शाश्वत शेती – NEP 2020 (2.0)
सेमिस्टर IV – मुक्त निवड विषय IV
विषय :अचूक शेती) Precision Farming)
सिद्धांत :30 तास) श्रेयांक 2

प्रात्यक्षिकांची यादी :

गट :I

1. अचूक शेतीची संकल्पना व घटकांचा अभ्यास
2. शेतीमध्ये ग्लोबल पोजिशनिंग सिस्टम (GPS) चा अभ्यास व वापर
3. शेत नकाशा तयार करण्यासाठी भौगोलिक माहिती प्रणाली (GIS) ची ओळख
4. पीक निरीक्षणासाठी रिमोट सेन्सिंग डेटाचे विश्लेषण
5. ग्रीड नमुना पद्धतीने मृदा सुपीकता नकाशा तयार करणे
6. अचूक शेतीमध्ये व्यवस्थापन क्षेत्रांचे (Management Zones) विभाजन
7. उत्पादन निरीक्षण (Yield Monitoring) व उत्पादन नकाशांकन तंत्र
8. चल दर खत यंत्राचे (Variable Rate Fertilizer Applicator) कॅलिब्रेशन

गट :II

9. SPAD / ग्रीन सीकर वापरून सेन्सर आधारित नत्र व्यवस्थापन
10. पोषक व्यवस्थापनासाठी पानांचा रंग तक्ता (Leaf Color Chart - LCC) वापरणे
11. अचूक ठिबक सिंचन प्रणालीची रचना व आराखडा तयार करणे
12. मृदा आर्द्रता सेन्सर वापरून सिंचनाचे स्वयंचलन
13. पीक निरीक्षण व फवारणीमध्ये ड्रोनचा वापर
14. स्थानविशिष्ट तण व्यवस्थापन तंत्र
15. पीक व्यवस्थापनासाठी निर्णय सहाय्य प्रणाली (DSS) चा वापर
16. अचूक शेती करणाऱ्या शेताला शैक्षणिक भेट

संदर्भ :

1. Ancha Srinivasan (संपादक). अचूक शेतीचे मार्गदर्शन: तत्वे आणि अनुप्रयोग (A Handbook of Precision Agriculture: Principles and Applications)
2. Tulasa Ram, Shiv Kumar Lohan, Ranveer Singh & Purshotam Singh. अचूक शेती: एक नवीन दृष्टिकोन (Precision Farming: A New Approach)
3. Sanjeev Kumar, S. N. Saravaiya, A. K. Pandey. अचूक शेती आणि संरक्षित शेती: संकल्पना व अनुप्रयोग (Precision Farming & Protected Cultivation: Concepts and Applications)
4. Pethuru Raj, N. Gayathri & Kathrine (संपादक). अचूक शेतीसाठी कृत्रिम बुद्धिमत्ता (Artificial Intelligence for Precision Agriculture)
5. Salim Lamine et al. (संपादक). अचूक शेतीमध्ये दूरसंवेदी तंत्रज्ञान (Remote Sensing in Precision Agriculture)

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. IV
Skill Enhancement Course- SEC-II
Apiculture
Credits: 02

Practical:

- 1.3. Morphology and Identification of bee species (3 examples)
- 4-5. Plant species in Apiculture
6. Identification of Casts (Queen, Drone, and worker)
7. Equipment's in beekeeping (Bee Boxes)
8. Disease and Pests in beekeeping
9. Study of Structure of Honey comb
10. Extraction of Honey and wax
11. Reduction of adulteration in honey
12. Visit to Apiary.

Books Recommended:

1. Principles and Practices of Apiculture by D. Elumalai et al. covers biology, colony management, honey & products, diseases, pollination, marketing, etc.
2. Textbook of Apiculture (Beekeeping) by D.K. Belsare, R.K. Singh, S.D. Belsare & R.H. Deshmukh

broad coverage including modern tech, bee products & livelihood.
3. Beekeeping: A Concise Guide by Dharam P. Abrol good comprehensive reference covering colony management, products, diseases & marketin.)
4. Beekeeping: A Comprehensive Guide to Bees and Beekeeping by Dharam P. Abrol big reference work with detailed practical and scientific inf.
5. Understanding Apiculture by Ashok Kumar introductory to intermediate student book.
6. Perspectives in Indian Apiculture by R.C. Mishra focus on Indian apiculture, management & agro-ecology.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- Sem. IV
Community Engagement Programme
Practical
Credits: 02

1. Introduction to community Engagement
2. Field ethics and safety
3. Development of Communication skill for community engagement
4. Community Based Activities (Any 2 activities to be selected)

Module 1 Survey and data analysis

1. Survey and documentation of major crops in surrounding region
2. Preparation of Checklist
3. Survey of weeds and Pests.

Module 2 Orientation and training

1. Orientation of farmers regarding organic farming
2. Awareness of farmers about hazardous effects of chemical uses in Agri. Production

Module 3 Knowledge sharing and cultural preservation

1. Orientation on preservation of traditional knowledge of agricultural, seed varieties and farming rituals.
2. Awareness of farmers on Soil health improvement water conservation, pollution in sustainable manner.

Module 4 Farmer Empowerment

1. Farmers meet organization at village/local level for providing information on skills and resources in sustainable agriculture like preparation of bio-fertilizers, biopesticide, Petrocorp farming etc.
 2. Attending farmer meet/Gram Sabha at local level and sharing benefits of Agro-processing units, Agro-tourism, smart and precision farming, value added business etc.
- ☐ Submission of report on activities conducted

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. II- Sustainable Agriculture Management- NEP 2020(2.0)
Semester- III and IV
Nature of Question Paper

Time: 1:30 Hrs

Total Marks- 30.

Solve questions from the following.

Q. 1 Multiple choice Question 06 Marks

- i.
- ii.
- iii.
- iv.
- v.
- vi.

Q. 2 Long answer Question (Any Two out of three) 12 Marks

- i.
- ii.
- iii.

Q. 3 Short Answer Questions (Any Four out of six) 12 Marks

- i.
- ii.
- iii.
- iv.
- v.
- vi.

Internal Assessment 20 Marks

1. Home Assignment
2. Class Assignment (Tutorial Type)
3. Quiz
4. Mid-Term Test

Nature of Practical Question Paper

Internal practical examination 50 marks

1. Group I - 20 Marks
2. Group II- 20 Marks
3. Submission of Certified Journal 10 Marks