

SHIVAJI UNIVERSITY, KOLHAPUR



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**Faculty of Interdisciplinary Studies
Structure, Scheme and Syllabus for
Bachelor of Vocation (B. Voc.)**

**Horticulture and Floriculture
Part III- Sem. V & VI**

Syllabus to be implemented from

(Subject to the modifications that will be made from time to time)
Syllabus to be implemented from June, 2022 onwards.

SHIVAJI UNIVERSITY, KOLHAPUR
STRUCTURE AND SYLLABUS OF B.VOC.
Bachelor of Vocation (B.Voc.) – Horticulture and Floriculture

TITLE	: B.Voc. (Horticulture and Floriculture) Syllabus (Semester Pattern) Under Faculty of Interdisciplinary Studies
YEAR OF IMPLEMENTATION	: Syllabus will be implemented from June, 2020
DURATION	: B. Voc. Part I, II and III (ThreeYears) B. Voc. Part I - Diploma (One Year) B. Voc. Part II - Advanced Diploma (Second Year) B. Voc. Part III – Degree (ThirdYear)
PATTERN OF EXAMINATION	: Semester Pattern
• Theory Examination	- At the end of semester as per Shivaji University Rules
• Practical Examination	- i) In the 1 st , 3 rd and 5 th semester of B.Voc. there will be internal assessment of practical record, related report submission and project reports at the end of semester ii) In the second semester of B. Voc. I, there will be internal practical examination at the end of semester iii) In the 4 th and 6 th semester of B. Voc. there will be external practical examination at the end of semester
MEDIUM OF INSTRUCTION	: English/ Marathi.
STRUCTURE OF COURSE	: B. Voc. Part – I, II and III. Two Semester Per Year, Two General Papers per year / semester Three Vocational Papers per Year / Semester Three Practical papers per Year / Semester.

SCHEME OF EXAMINATION :

A) THEORY-

- The theory examination shall be at the end of the each semester.
- All the general theory papers shall carry 40marks and all vocational theory papers shall carry 50marks.
- Evaluation of the performance of the students in theory shall be on the basis of semester examination as mentioned above.
- Question paper will be set in the view of entire syllabus preferably covering each unit of the syllabus.

- **Nature of question paper for Theory examination** (Excluding Business Communication Paper)

- i) There will be seven questions carrying equal marks.

- ii) Students will have to solve any five questions

Que. No. 1 : Short answer type question with internal choice (Two out of Three)

Que. No. 2 to Que. No. 6: Long answer type questions.

Que. No. 7 : Short Notes with internal choice (Two out of Three)

B) PRACTICALS :

Evaluation of the performance of the students in practical shall be on the basis of semester examination. Internal assessment at the end of Semester I, II and III and V and external examination at the end of Semester IV and VI as mentioned separately in each paper

Standard of Passing:

As per the guidelines and rules for B. Voc. (Attached Separately – Annexure I)

Eligibility Criteria:

1. The Eligibility for admission is 10+2 or equivalent, in any stream (Arts/Commerce/Science) from any recognized board or University.
 2. The candidates after with 10+2 year ITI course/ in any branch/trade also eligible for course.
 3. The candidates graduate from any faculty or engineering degree/diploma holders are also eligible.
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Structure of the Course:

B. Voc. –III (Degree) Semester –V

Sr. No.	Paper No.	Title	Theory/ Practical /Project	Marks (Total)	Distribution of Marks	
					Theory	Practical
1	XXXVII	Tissue Culture	Theory/ Practical	50	40	10
2	XXXVIII	Computer Hardware & Networking	Theory/ Practical	50	40	10
3	XXXIX	Post-Harvest Technology for Fruit Crops	Theory	50	50	--
4	XXXX	Value Addition in Flowers	Theory	50	50	--
5	XXXXI	Propagation and Nursery Management for Fruit Crops	Theory	50	50	--
6	XXXXII	Laboratory Work- Post-Harvest Technology for Fruit Crops	Practical	50	--	50
7	XXXXIII	Laboratory Work- Value Addition in Flowers	Practical	50	--	50
8	XXXXIV	Laboratory Work- Propagation and Nursery Management for Fruit Crops	Practical	50	--	50
9	XXXXV	Internship	Practical	50	--	50

B. Voc. –III (Degree) Semester –VI

Sr. No.	Paper No.	Title	Theory/ Practical /Project	Marks (Total)	Distribution of Marks	
					Theory	Practical
1	XXXXVI	Government Policies and Programmes Related to Agriculture	Theory/ Practical	50	40	10
2	XXXXVII	CAD for Outdoor and Indoorscaping	Theory/ Practical	50	40	10
3	XXXXVIII	Organic Horticulture	Theory	50	50	--
4	XXXXIX	Landscaping and Ornamental Gardening	Theory	50	50	--
5	XXXXX	Advances in Landscape Architecture	Theory	50	50	--
6	XXXXXI	Laboratory Work- Organic Horticulture	Practical	50	--	50
7	XXXXXII	Laboratory Work- Landscaping and Ornamental Gardening	Practical	50	--	50
8	XXXXXIII	Laboratory Work- Advances in Landscape Architecture	Practical	50	--	50
9	XXXXXIV	Project	Practical	50	--	50

Scheme of Teaching: B. Voc. – Part III (Degree) Semester – V

Sr. No.	Paper No.	Title	Distribution of workload (Per Week)		
			Theory	Practical	Total
1	XXXVII	Tissue Culture	4	2	6
2	XXXVIII	Computer Hardware & Networking	4	2	6
3	XXXIX	Post-Harvest Technology for Fruit Crops	4	-	4
4	XXXX	Value Addition in Flowers	4	-	4
5	XXXXI	Propagation and Nursery Management for Fruit Crops	4	-	4
6	XXXXII	Laboratory Work- Post-Harvest Technology for Fruit Crops	-	4	4
7	XXXXIII	Laboratory Work- Value Addition in Flowers	-	4	4
8	XXXXIV	Laboratory Work- Propagation and Nursery Management for Fruit Crops	-	4	4
9	XXXXV	Internship	-	-	-
			20	16	36

Scheme of Teaching: B. Voc. – Part III (Degree) Semester –VI

Sr. No.	Paper No.	Title	Distribution of workload (Per Week)		
			Theory	Practical	Total
1	XXXXVI	Government Policies and Programmes Related to Agriculture	4	2	6
2	XXXXVII	CAD for Outdoor and Indoorscaping	4	2	6
3	XXXXVIII	Organic Horticulture	4	-	4
4	XXXXIX	Landscaping and Ornamental Gardening	4	-	4
5	XXXXX	Advances in Landscape Architecture	4	-	4
6	XXXXXI	Laboratory Work- Organic Horticulture	-	4	4
7	XXXXXII	Laboratory Work- Landscaping and Ornamental Gardening	-	4	4
8	XXXXXIII	Laboratory Work- Advances in Landscape Architecture	-	4	4
9	XXXXXIV	Project	-	-	-
			20	16	36

Eligibility for Admission : 10 + 2 from any faculty or equivalent Diploma /Advanced Diploma in any related stream

Eligibility for Faculty : M.Sc./M.B.A.(Agri., Horticulture, Agri. Economics, Agri Business Management, Plant Pathology, Agri. Engineering, Agri. Extension)with NET / SET/Ph.D. M. A (English) with NET/SET for Business Communication

Eligibility for Laboratory Assistant: B.Sc.(Agri.)/ Diploma in Agriculture
Staffing Pattern : In 1stYear of B. Voc. - 1 Full Time and 1 Part Time Lecturer and 1 CHB Lecturer for Business Communication

Laboratory Assistant : For 1stYear of B. Voc. - 1 Part-time

SHIVAJI UNIVERSITY, KOLHAPUR

**B. Voc. Part – III, Semester – V
Horticulture and Floriculture**

Paper – XXXVII : Tissue Culture

Distribution of Workload:

Theory : 04 lectures per week
Practical : 02 lectures per week per batch

Total Marks: 50 Marks (Theory 40 + Practical 10)

Objective : To impart basic accounting knowledge as applicable to business.

Unit –I:

Principles of Totipotency and Morphogenesis, Nutritional requirements of in-vitro cultures

Unit- II:

Techniques of In-vitro cultures: Micro propagation, Anther culture, Pollen culture, Ovule culture, Embryo culture, Test tube fertilization, Endosperm culture, Factors affecting above in-vitro culture; Applications and Achievements

Unit- III:

Soma clonal variation, Types, Reasons: Somatic embryogenesis and synthetic seed production technology; Protoplast isolation, Culture, Manipulation and Fusion; Products of somatic hybrids and cybrids.

Unit - IV:

Secondary plant metabolites-definition-their value as medicinal, aromatic and industrial materials-plant cell and tissue culture as an alternative source of secondary and natural products. Tissue culture as a tool in genetic engineering. Applications in crop improvement.

Practical: Based on the theory units:

Marks: 10

Scheme of Internal Practical Evaluation

10 Marks

- 1) Submission of Record Book
- 2) Viva – Voce

5 Marks
5 Marks

Reference Books:

1. Chawla H S. 2003. Oxford & IBH Publishing Co. Pvt. Ltd. Chawla H. S. Introduction to Plant Biotechnology.
2. Brown, T.A. 1995. Gene cloning an Introduction (3rd edition). Chapman Hill, U.K.
3. Lehninger. 1993. Principles of Biochemistry. CBS Publications, New Delhi. Lewin, B. Genes VII. Oxford University Press, Inc., New York.
4. Watson, J.D., N.H. Hopkins, J.W. Roberts, J.A. Steits and A.M. Weiner. 1987. Molecular
5. Biology of the Gene. The Benjamin/Cummings Publishing Co. Inc. Menlo Park
6. Singh, B.D. 1998. Biotechnology. Kalyani Publications, New Delhi
7. Bhojwani, S.S. and Razdan, M.K. 1993. Plant Tissue Culture. Theory and Practice. Elsevier Science Publications, Netherlands.

Pattern of a Question paper**Tissue Culture****B. Voc. Part – III, Semester – V****Time: 2 hours****Total Marks: 40**

Q.1 Multiple type Question	08
Q.2 Long answer Question (Any 2 out3)	16
Q.3 2 Long answer Question	08
Q.4 Short Type Questions (any 2 out of 3)	08

Practical Evaluation:

Oral and presentation based on units prescribed

10 Marks

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part – III, Semester – V

Horticulture and Floriculture

Paper – XXXVIII : Computer Hardware & Networking

Distribution of Workload:

Theory	: 04 lectures per week
Practical	: 02 lectures per week per batch

Total Marks: 50 Marks (Theory 40 + Practical 10)

Objectives:

- To understand the hardware components of a system.
- To understand basic issues in installing and using software.
- To understand how a network functions and the issues of network security.

Unit –I: Basics of Computer and Hardware

Input & Output Devices, their types and specifications, CPU, Memory devices types primary and secondary, BIOS/ CMOS setting. Study of Motherboard RAM, ROM, CMOS, POST, BUS, (Address, Data, SYSTEM), Connections of various devices such as Display Adapter, Ports (Serial, Parallel) , Modem on the Mother Board, Importance of CPU cooling, Motherboard troubleshooting.

Unit –II: Storage Devices

HDD: HDD types, integrated, SCSI, Magnetic recording, Formatting (Track, Sector) Cluster, Bad Sector, Jumper Setting, Common Problem and its trouble Shooting, External Drive (HDD), Optical Drives. FDD: FDD types and working and its related problem, CD and DVD drives- ROM and Writer, USB Devices, Hub, Pen Drives

Unit –III: Serial Devices & Parallel Devices

Key Board: Switches, Keyboard organization, Key board type, Wireless Keyboard Trouble shooting. Mouse: Mouse type- Scroll & Optical Mouse, Function Connecting Mouse, Trouble shooting Mouse. FILE SYSTEM: Types of file Sequential, index, direct access, creation and updates of file and access method. Printers: Working of DMP, Ink Jet, Laser Printer, line printer, MFP (Multi Functional Printer and its Trouble shooting, Scanners, BOOT PROCESS, POWER SUPPLY, TYPES OF PC'S : Desktop, Laptop, Palmtop.

Unit –IV: Introduction to LAN and WAN networking

Emergence and history of network, What is network, Need of network or benefits of network, Types of networks -LAN and WAN, How to assign IP address mask and gateway, Familiar with ping, ipconfig/all netstat and tracert commands, Types of wan technologies, Explain about structure of intranet and internet

Practical: Based on the theory units:

Marks: 10

Scheme of Internal Practical Evaluation

10 Marks

1) Submission of Record Book

5 Marks

2) Viva – Voce

5 Marks

Reference Books:

1. The Indispensable PC Hardware Book (4th Edition) by Hans-Peter Messmer.
2. USB Mass Storage by Jan Axelson.
3. Bigelow's PC Hardware Desk Reference – 2002 by Stephen J. Bigelow Shivaji University, Kolhapur.
4. PC Architecture. An online book in by Michael Karbo

Pattern of a Question paper
Computer Hardware & Networking
B. Voc. Part – III, Semester – V

Time: 2 hours

Total Marks: 40

Q.1 Multiple type Question

08

Q.2 Long answer Question (Any 2 out of 3)

16

Q.3 2 Long answer Question

08

Q.4 Short Type Questions (any 2 out of 3)

08

Practical Evaluation:

Oral and presentation based on units prescribed

10 Marks

SHIVAJI UNIVERSITY, KOLHAPUR

**B. Voc. Part – III, Semester -V
Horticulture and Floriculture**

Paper - XXXIX: Post-Harvest Technology for Fruit Crops

Total Workload: 04 lectures per week

Distribution of Workload:

Theory: 04 lectures per week.

Total Marks: 50 Marks.

Objectives:

- To facilitate deeper understanding on principles and practices of postharvest management of fruit crops.

Unit – I:

Maturity indices, harvesting practices for specific market requirements, influence of pre-harvest practices, enzymatic and textural changes, respiration, transpiration. Physiology and biochemistry of fruit ripening, ethylene evolution and ethylene management, factors leading to post-harvest loss, pre-cooling.

Unit - II:

Treatments prior to shipment, viz., chlorination, waxing, chemicals, bio control agents and natural plant products. Methods of storage ventilated, refrigerated, MAS, CA storage, physical injuries and disorders

Unit -III:

Packing methods and transport, principles and methods of preservation, food processing, canning, fruit juices, beverages, pickles, jam, jellies, candies.

Unit -IV:

Dried and dehydrated products, nutritionally enriched products, fermented fruit beverages, packaging technology, processing waste management, food safety standards.

Reference Books:

1. Bhutani RC. 2003. Fruit and Vegetable Preservation. Biotech Books.
2. Chadha KL & Pareek OP. (Eds.). 1996 Advances in Horticulture. Vol. IV. Malhotra Publ. House.
3. Haid NF & Salunkhe SK. 1997. Post Harvest Physiology and Handling of Fruits and Vegetables. Grenada Publ.
4. Mitra SK. 1997. Post Harvest Physiology and Storage of Tropical and Sub-tropical Fruits. CABI.
5. Ranganna S. 1997. Hand Book of Analysis and Quality Control for Fruit and Vegetable Products. Tata McGraw-Hill.

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B. Voc. Part – III, Semester -V
Horticulture and Floriculture

Paper- XXXX: Value Addition in Flowers

Total Workload: 04 lectures per week

Distribution of Workload:

Theory: 04 lectures per week.

Total Marks: 50 Marks.

Objectives:

- To develop understanding of the scope and ways of value addition in flowers.

Unit - I:

Prospects of value addition, National and global scenario, production and exports, Women empowerment through value added products making, supply chain management.

Unit -II:

Types of value added products, value addition in loose flowers, garlands, veni, floats, floral decorations, value addition in cut flowers, flower arrangement, styles, Ikebana, morebana, free style, bouquets, button-holes, flower baskets, corsages, floral wreaths, garlands, etc.; Selection of containers and accessories for floral products and decorations

Unit -III:

Dry flowers– Identification and selection of flowers and plant parts; Raw material procurement, preservation and storage; Techniques in dry flower making – Drying, bleaching, dyeing, embedding, pressing; Accessories; Designing and arrangement – dry flower baskets, bouquets, pot-pourri, wall hangings, button holes, greeting cards, wreaths; Packing and storage.

Unit – IV :

Concrete and essential oils; Selection of species and varieties (including non-conventional species), extraction methods, Packing and storage, Selection of species and varieties, Types of pigments, carotenoids, anthocyanin, chlorophyll, betalains; Significance of natural pigments, Extraction methods; Applications.

Reference Books:

1. Bhattacharjee SK. 2006. Advances in Ornamental Horticulture. Vols. I-VI. Pointer Publ.
2. Chadha KL.1995. Advances in Horticulture. Vol.XII. Malhotra Publ. House.
3. Lauria A & Victor HR. 2001. Floriculture – Fundamentals and Practices Agrobios.
4. Prasad S & Kumar U. 2003. Commercial Floriculture. Agrobios.
5. Reddy S, Janakiram B, Balaji T, Kulkarni S & Misra RL. 2007. Hightech Floriculture. Indian Society of Ornamental Horticulture, New Delhi.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. Part – III, Semester -V
Horticulture and Floriculture

Paper- XXXXI : Propagation and Nursery Management for Fruit Crops

Total Workload: 04 lectures per week

Distribution of Workload:

Theory: 04 lectures per week.

Total Marks: 50 Marks.

Objective:

- To Familiarization with principles and practices of propagation and nursery management for fruit crops.

Unit - I:

Introduction, life cycles in plants, cellular basis for propagation, sexual propagation, apomixis, polyembryony, chimeras. Principles factors influencing seed germination of horticultural crops, dormancy, hormonal regulation of germination and seedling growth. Seed quality, treatment, packing, storage, certification, testing. Asexual propagation, rooting of cuttings in hotbeds. Layering – principle and methods.

Unit - II:

Budding and grafting – selection of elite mother plants, methods. Establishment of bud wood bank, stock, scion and inter stock, relationship – Incompatibility. Rejuvenation through top working – Progeny orchard and scion bank.

Unit - III:

Micro-propagation – principles and concepts, commercial exploitation in horticultural crops. Techniques - in vitro clonal propagation, direct organogenesis, embryogenesis, micrografting, meristem culture. Hardening, packing and transport of micro-propagules.

Unit - IV:

Nursery – types, structures, components, planning and layout. Nursery management practices for healthy propagule production.

Reference Books:

1. Hartmann HT & Kester DE. 1989. Plant Propagation – Principles and Practices. Prentice Hall of India.
2. Bose TK, Mitra SK & Sadhu MK. 1991. Propagation of Tropical and Subtropical Horticultural Crops. Naya Prokash.
3. Peter KV. (Ed.). 2008. Basics of Horticulture. New India Publ. Agency.
4. Singh SP. 1989 Mist Propagation. Metropolitan Book Co.
5. Rajan S & Baby LM. 2007. Propagation of Horticultural Crops. New India Publ. Agency.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. Part – III, Semester -V
Horticulture and Floriculture

Paper- XXXXII : Laboratory work - Post-Harvest Technology for Fruit Crops
(Practical)

Total Workload: 04 lectures per week

Distribution of Workload:

Practical - 04 lectures per week per Batch

Total Marks: 50 Marks. (Practical 50)

Objectives:

- To facilitate deeper understanding on principles and practices of postharvest management of fruit crops.

Practicals:

1. Analyzing maturity stages of commercially important horticultural crops, improved packing and storage of important horticultural commodities, physiological loss in weight of fruits and vegetables,
2. Estimation of transpiration, respiration rate, ethylene release and
3. Study of vase life extension in cut flower using chemicals,
4. Estimation of quality characteristics in stored fruits and vegetables,
5. Cold chain management - visit to cold storage and CA storage units, visit to fruit and vegetable processing units, project preparation, evaluation of processed horticultural products.

Scheme of practical evaluation

Internal practical evaluation

50marks

i) Submission of practical record book

20marks

ii) Submission of visit report

15marks

iii) Viva–Voce

15marks

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**B. Voc. Part – III, Semester -V
Horticulture and Floriculture**

Paper- XXXXIII: Laboratory work - Value Addition in Flowers (Practical)

Total Workload: 04 lectures per week

Distribution of Workload:

Practical - 04 lectures per week per Batch

Total Marks: 50 Marks. (Practical 50)

Practicals:

1. Practices in preparation of bouquets, button-holes, flower baskets, corsages, floral wreaths, garlands with fresh flowers;
2. Techniques in flower arrangement;
3. Techniques in floral decoration;
4. Identification of plants for 56 dry flower making;
5. Practices in dry flower making;
6. Preparation of dry flower baskets, bouquets, pot-pourri, wall hangings, button holes, greeting cards, wreaths, etc.;
7. Visit to dry flower units, concrete and essential oil extraction units.

Scheme of practical evaluation

Internal practical evaluation

- i) Submission of practical record book
- ii) Submission of visit report
- iii) Viva–Voce

50marks

20marks

15marks

15marks

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SHIVAJI UNIVERSITY, KOLHAPUR

**B. Voc. Part – III, Semester -V
Horticulture and Floriculture**

Paper- XXXXIV: Laboratory work - Propagation and Nursery Management for Fruit Crops (Practical)

Total Workload: 04 lectures per week

Distribution of Workload:

Practical - 04 lectures per week per Batch

Total Marks: 50 Marks. (Practical 50)

Objectives:

- To Familiarization with principles and practices of propagation and nursery management for fruit crops

Practical

1. Anatomical studies in rooting of cutting and graft union, construction of propagation structures,
2. Study of media and PGR. Hardening – case studies, micro propagation,
3. Explant preparation, media preparation, culturing – in vitro clonal propagation,
4. Meristem culture, shoot tip culture, axillary bud 15 culture,
5. Direct organogenesis, direct and indirect embryogenesis, micro grafting, hardening. Visit to TC labs and nurseries.

Scheme of practical evaluation

Internal practical evaluation

- i) Submission of practical record book
- ii) Submission of visit report
- iii) Viva–Voce

50marks

20marks

15marks

15marks

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SHIVAJI UNIVERSITY, KOLHAPUR

**B. Voc. Part – III, Semester -V
Horticulture and Floriculture**

Paper- XXXXV: Internship

Total Marks: 50 Marks.

Preamble:

Exposure of students to a particular job and a profession or industry is the major need of this internship. While they might have an idea about what a job is like, they won't know until they actually perform it, if students gain the training and learn skills to do the job it will benefit them.

The main objectives of this course is to gain practical insight of Industry/ Company/ Boutique/ Retail Stores/ Malls The students will be:

- Expose the students to the work environment
- Familiarize and adapt to the workplace
- Understand the methods, techniques and practices followed in the place of training

Course Outcomes: After completion of the course, student will be able to:

- i. understand the working structure of the industry/ company
- ii. analyze the methods adopted in the training place
- iii. correlate to the theoretical knowledge gained in the college
- iv. recognize the challenges in the training place
- v. discover the nuances of the workplace and appreciate it

Scheme of internship evaluation

Internal internship evaluation

50 marks

i) Submission of visit report

30 marks

ii) Viva–Voce

20 marks

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SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part – III, Semester –VI Horticulture and Floriculture

Paper – XXXXVI : Government Policies and Programmes Related to Agriculture

Total Workload: 06 lectures per week

Distribution of Workload:

Theory:	04 lectures per week
Practical:	02 lectures per week per batch

Total Marks: 50 Marks (Theory 40 + Practical 10)

Objectives:

- To acquaint with various Government Policies related to Agriculture in Maharashtra and India.
- To familiarise with five year plans and Panchayathiraj system in India

Unit –I: Introduction

Introduction to agricultural policies of Maharashtra and of India - need and importance - National Agricultural Policy in brief.

Unit –II: Agricultural Policies

Agricultural policies regarding land and labour Agricultural policies regarding land -need and scope for land reforms - Abolition of intermediaries - Tenancy reforms - Ceiling on land holdings - appraisal of land reforms.-Size pattern of operational holdings, problem of subdivision and fragmentation of holdings. Agricultural policies regarding labour - present position of agricultural labour – minimum wages - abolition of bonded labour Recommendations of the National Commission on Rural Labour – NREGP. Agricultural policies regarding seeds and fertilizers - Agricultural policies regarding seeds - National Seeds Policy -varietal development and plant variety protection – seed production - quality assurance - seed distribution and marketing - infrastructure facilities - transgenic plant varieties - import of seeds and planting material - export of seeds -promotion of domestic seed industry Agricultural policies regarding fertilizers. Fertilizer pricing policy - payment of subsidy. Agricultural policies regarding plant protection chemicals – pesticide production and consumption in India - protection of consumers from adverse impacts of pesticides. Agricultural policies regarding irrigation, machinery, technology etc.

Unit –III: Agricultural Policies Regarding Credit

Agricultural policies regarding credit - Co-operatives and rural credit – Commercial banks and rural credit - Regional Rural Banks - Lead Bank Scheme - NABARD. Agricultural policies of Maharashtra and of India- regarding agricultural products and their marketing, export and prices - food security.

Unit –IV: Five Year plans and Panchayathiraj

Concept of planned growth- Five Year Plans-Government policies and programs in agriculture and rural development. IADP - IAAP- IWDP- Watershed development Programmes- IRDP- NREGP- SGSY - etc. Peoples' Plan- Decentralised planning- current Plans - Agricultural development programmes and schemes of the dept. of Agriculture liaison with Local Self Government. Panchayati raj system and institutions- gramasabha- Preparation of plan projects in agriculture.

Practical: Based on the theory units:

Marks: 10

Scheme of Practical Examination

10 marks

1) Submission of Record book

5 marks

2) Viva – Voce

5 marks

Reference Books:

1. Government of India. Five year Plan Documents.
2. Government of India. Economic Survey. Published by Planning Commission (various issues)

Pattern of a Question paper
Government Policies and Programmes Related to Agriculture
B. Voc. Part – III, Semester – VI

Time: 2 hours

Total Marks: 40

Q.1 Multiple type Question

08

Q.2 Long answer Question (Any 2 out3)

16

Q.3 2 Long answer Question

08

Q.4 Short Type Questions (any 2 out of 3)

08

Practical Evaluation:

Oral and presentation based on units prescribed

10 Marks

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. Part – III, Semester – VI
Horticulture and Floriculture

Paper – XXXXVII : CAD for Outdoor and Indoorscaping

Total Workload: 06 lectures per week

Distribution of Workload:

Theory: 04 lectures per week

Practical: 02 lectures per week per batch

Total Marks: 50 Marks (Theory 40 + Practical 10)

Objectives:

- To impart basic knowledge about the operation of Computer Aided Designing (CAD) in landscape garden designing..

Unit –I:

Exposure to CAD (Computer Aided Designing) – Applications of CAD in landscape garden designing, 2D drawing by AUTOCAD, 3D drawing by ARCHICAD, 3D drawing by 3D MAX software, Creating legends for plant and non-plant components, Basics of Photoshop software in garden designing.

Unit –II:

2D drawing methods, AUTOCAD Basics, Coordinate systems in AUTOCAD LT 2007, Point picking methods, Toolbars and Icons, File handling functions, Modifying tools, Modifying comments, Isometric drawings, Drafting objects. Making sample drawing for outdoor and indoor garden by AUTOCAD 2D Drawing techniques, making layout.

Unit –III:

3D drawing methods, ARCHICAD file system, Tools and Infobox, modification tools, structural elements, GDL objects (Grid Dimensional Linking), Creation of garden components through ARCHICAD.

Unit –IV:

ARCHICAD organization tools, Dimensioning and detailing of designs, Attribute settings of components, Visualization tools for landscape preview, Data management, plotting and accessories for designing, Inserting picture using photoshop, Making sample drawing for outdoor and indoor gardens.

Practical: Based on the theory units:

Marks: 10

Scheme of Internal Practical Evaluation

10 marks

1) Submission of Record book

5marks

2) Viva-Voce

5marks

Reference Books:

1. Christine Wein-Ping Yu 1987. Computer-aided Design: Application to Conceptual Thinking in Landscape Architecture. amazon.com

Pattern of a Question paper
CAD for Outdoor and Indoorscaping
B. Voc. Part – III, Semester – VI

Time: 2 hours

Total Marks: 40

Q.1 Multiple type Question

08

Q.2 Long answer Question (Any 2 out3)

16

Q.3 2 Long answer Question

08

Q.4 Short Type Questions (any 2 out of 3)

08

Practical Evaluation:

Oral and presentation based on units prescribed

10 Marks

SHIVAJI UNIVERSITY, KOLHAPUR

B. Voc. Part – III, Semester – VI Horticulture and Floriculture

Paper – XXXXVIII: Organic Horticulture

Total Workload: 04 lectures per week

Distribution of Workload:

Theory: 04 lectures per week.

Total Marks: 50 Marks.

Objectives:

- To develop understanding of organic horticulture production system including GAP.

Unit –I:

Organic horticulture – definition, synonyms and misnomers, principles, methods, merits and demerits. Organic farming systems, components of organic horticultural systems, different organic inputs, their role in organic horticulture, role of bio fertilizers, bio dynamics and the recent developments.

Unit –II:

EM technology and its impact in organic horticulture, indigenous practices of organic farming, sustainable soil fertility management, and weed management practices in organic farming, biological/natural control of pests and diseases, organic horticulture in quality improvement.

Unit –III:

GAP - Principles and management, HACCP exercise, certification of organic products and systems, agencies involved at national and international levels, standards evolved by different agencies.

Unit –IV:

Constraints in certification, organic horticulture and export, IFOAM and global scenario of organic movement, post-harvest management of organic produce.

Reference Books:

1. Claude A, Vandana S, Sultan I, Vijaya L, Korah M & Bernard D. 2000. *The Organic Farming Reader*. Other Indian Press, Goa.
2. Gaur AC, Neblakantan S & Dargan KS. 1984 *Organic Manures*. ICAR.
3. Lampkin N & Ipswich. 1990. *Organic Farming*. Farming Press. London.
4. Lampkin NH & Padel S. 1992. *The Economics of Organic Farming - An International Perspective*. CABI.
5. Palaniappan & Annadurai. 2008. *Organic Farming- Theory and Practise*. Scientific Publ.
6. Peter KV. 2008. (Ed.). *Basics of Horticulture*. New India Publ. Agency. New Delhi.
7. Rao S. 1977. *Soil Microorganism and Plant Growth*. Oxford & IBH.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. Part – III, Semester – VI
Horticulture and Floriculture

Paper – XXXIX: Landscaping and Ornamental Gardening

Total Workload: 04 lectures per week

Distribution of Workload:

Theory: 04 lectures per week.

Total Marks: 50 Marks.

Objectives:

- To Familiarization with principles and practices of landscaping and ornamental gardening.

Unit –I:

Landscape designs, types of gardens, English, Mughal, Japanese, Persian, Spanish, Italian, Vanams, Buddha garden; Styles of garden, formal, informal and free style gardens. Urban landscaping, Landscaping for specific situations, institutions, industries, residents, hospitals, roadsides, traffic islands, dam sites, IT parks, corporates.

Unit –II:

Garden plant components, arboretum, shrubbery, fernery, palmatum, arches and pergolas, edges and hedges, climbers and creepers, cacti and succulents, herbs, annuals, flower borders and beds, ground covers, carpet beds, bamboo groves; Production technology for selected ornamental plants.

Unit –III:

Lawns, Establishment and maintenance, special types of gardens, vertical garden, roof garden, bog garden, sunken garden, rock garden, clock garden, colour wheels, temple garden, sacred groves.

Unit –IV:

Bio-aesthetic planning, eco-tourism, theme parks, indoor gardening, therapeutic gardening, non-plant components, water scaping, xeriscaping, hard scaping.

Reference Books:

1. Bose TK, Maiti RG, Dhua RS & Das P. 1999. *Floriculture and Landscaping*. Naya Prokash.
2. Lauria A & Victor HR. 2001. *Floriculture – Fundamentals and Practices* Agrobios.
3. Nambisan KMP.1992. *Design Elements of Landscape Gardening*. Oxford & IBH.
4. Randhawa GS & Mukhopadhyay A. 1986. *Floriculture in India*. Allied Publ.
5. Sabina GT & Peter KV. 2008. *Ornamental Plants for Gardens*. New India Publ. Agency.
6. Valsalakumari et al. 2008. *Flowering Trees*. New India Publ. Agency.
7. Woodrow MG.1999. *Gardening in India*. Biotech Books.

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. Part – III, Semester – VI
Horticulture and Floriculture

Paper – XXXXX : Advances in Landscape Architecture

Total Workload: 04 lectures per week

Distribution of Workload:

Theory: 04 lectures per week.

Total Marks: 50 Marks.

Objectives:

- To update knowledge on the recent trends in the field of landscape architecture and developing practical skills.

Unit –I:

Commercial landscape gardening- History, Plant identification and ecology, Materials of garden design, Design making by different garden styles and types. Expenses to model landscaping units of all category, Creativity and communication skills for landscape architect, Way of designing a commercial landscape project.

Unit –II:

Assessing site and plants adaptability for different locations, Landscape engineering (Topographical) survey and designing concept), special techniques in garden landscaping (Burlaping, waterscaping, hardscaping, lawn making, topiary styles specializing, bioaesthetic planning).

Unit –III:

Preparation and drawing of site plan, learning the basics in computer aided design (CAD) for developing a garden landscape plan, handling soft landscape materials (AUTOCAD & ARCHICAD), GIS as a tool for spatial designing.

Unit –IV:

Contemporary landscaping, Environmental landscaping, Industrial and institutional landscaping, Public and private garden making, playground landscaping, Case study with the successful landscapist, Budget / Project cost estimating, Execution strategies, Assessing a successful design in site.

Reference Books:

1. Bose TK, Maiti RG, Dhua RS & Das, P. 1999. *Floriculture and Landscaping*. Naya Prokash.
2. Nambisan KMP. 1992. *Design Elements of Landscape Gardening*. Oxford & IBH..

SHIVAJI UNIVERSITY, KOLHAPUR
B. Voc. Part –III, Semester -VI
Horticulture and Floriculture

Paper- XXXXXI: Laboratory Work- Organic Horticulture

Total Workload: 04 lectures per week

Distribution of Workload:

Practical - 04 lectures per week per Batch

Total Marks: 50 Marks. (Practical 50)

Practicals:

1. Features of organic orchards, working out conversion plan,
2. Input analysis manures, nutrient status assessment of manures, bio composting, bio fertilizers and their application, panchagavya preparation and other 20 organic nutrients application,
3. Methods of preparation of compost, vermicompost, green manuring, preparation of neem products and application,
4. BD preparations and their role, EM technology and products, biological/natural control of pests and diseases,
5. Soil solarization, frame work for GAP, case studies, HACCP analysis, residue analysis in organic products, documentation for certification, visit to fields cultivated under organic practices

Scheme of practical evaluation

Internal practical evaluation

50marks

i) Submission of practical record book

20marks

ii) Submission of visit report

15marks

iii) Viva–Voce

15marks

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SHIVAJI UNIVERSITY, KOLHAPUR

**B. Voc. Part – III, Semester -VI
Horticulture and Floriculture**

Paper- XXXXXII: Laboratory Work- Landscaping and Ornamental Gardening

Total Workload: 04 lectures per week

Distribution of Workload:

Practical - 04 lectures per week per Batch

Total Marks: 50 Marks. (Practical 50)

Practicals:

1. Selection of ornamental plants, practices in preparing designs for home gardens, industrial gardens, institutional gardens, corporates, avenue planting,
2. Practices in planning and planting of special types of gardens, burlapping, lawn making, planting herbaceous and shrubbery borders,
3. Project preparation on landscaping for different situations,
4. Visit to parks and botanical gardens, case study on commercial landscape gardens.

Scheme of practical evaluation

Internal practical evaluation

50marks

i) Submission of practical record book

20marks

ii) Submission of visit report

15marks

iii) Viva–Voce

15marks

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SHIVAJI UNIVERSITY, KOLHAPUR

**B. Voc. Part – II, Semester -VI
Horticulture and Floriculture**

Paper- XXXXXIII: Laboratory Work- Advances in Landscape Architecture

Total Workload: 04 lectures per week

Distribution of Workload:

Practical - 04 lectures per week per Batch

Total Marks: 50 Marks. (Practical 50)

Practicals:

1. Commercial landscaping, Plant identification, Materials of garden design, Design making by different garden styles and types.
2. Way of designing a commercial landscape project, visit to model ornamental nursery.
3. Assessing site and plants adaptability for different locations, Landscape engineering (Topographical survey and designing concept), special techniques in garden landscaping (Burlaping, waterscaping, hardscaping, lawn making, topiary styles specializing, bioaesthetic planning).
4. Preparation and drawing of site plan, learning the basics in computer aided design (CAD) for developing a garden landscape plan, handling soft landscape materials (AUTOCAD & ARCHICAD), GIS as a tool for spatial designing.
5. Contemporary landscaping, Environmental landscaping, Industrial and institutional landscaping, Public and private garden making, playground landscaping, Case study with the successful landscapist, Budget/Project cost estimating, Execution.

Scheme of practical evaluation

Internal practical evaluation

50marks

i) Submission of practical record book

20marks

ii) Submission of visit report

15marks

iii) Viva–Voce

15marks

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SHIVAJI UNIVERSITY, KOLHAPUR

**B. Voc. Part – II, Semester -VI
Horticulture and Floriculture**

Paper- XXXXXIV: Project

Total Marks: 50 Marks.

Students must submit detailed project report related topics on Case study with the successful landscapist, Budget/Project cost estimating, preparation and drawing of site plan for landscaping, model ornamental nursery etc.

Annexure I

Standard of Passing:

- A.** For B.Voc Programme total credits shall be 180 with 30 Credits for each Semester.
There shall be 12 Credits for theory and 18 credits for practical per semester.
- B.** Subject wise credits are mentioned in the concerned syllabus of every B.Voc. Program.
- C.** The standard of passing shall be 35% where the student will have to score 18 marks out of 50, 14 marks out of 40 and 4 marks out of 10.
- D.** Rules of ATKT are mentioned below:
 - I.** Internal examination will be compulsory for all students. If the student is absent/ fail in internal examination then he/ she will have to clear the Internal Examination. However, ATKT rules will be followed in respect of theory and practical papers only. Then students is allowed to keep term in the third and fifth semester even if he/ she has failed in the three or less than three heads (i.e. theory and practical) of passing each semester. However he/ she shall have to clear all the papers of semester I & II before taking admission to the fifth semester.
 - II.** In the B.Voc. Part – II, every student has to complete internship of concerned industry.

Award of Degree:

- B.Voc. is a six semester integrated course spread over the period of 3 years. The course of B.Voc. will be 3 years integrated course commencing from the years as mentioned below:
 - a) B. Voc. Part – I : Semester I and II - Diploma
 - b) B. Voc. Part – II : Semester III and IV - Advanced Diploma
 - c) B. Voc. Part – III : Semester V and VI - B. Voc. Degree
- The candidate may take exit after one year of successful completion of the course. After successful completion of one year (Semester I to II) the candidate will get Diploma. After successful completion of two years (Semester III & IV), the candidate will get 'Advanced Diploma', The students those who have completed the entire three years (Semester V & VI) integrated course shall be awarded B.Voc. Degree programme, inclusive of Diploma and Advanced Diploma.
- The candidate admitted for direct 2nd year or 3rd year will got Class (First/ Second/ Pass Class) as per their performance for B.Voc.

Scheme of Mark:**Grading Chart:****A. Grading Chart of 100 points:**

Sr. No.	Marks Obtained	Numerical Grade (Grade Point)	CGPA	Letter Grade
1	Absent	0 (Zero)	-	-
2	0 – 34	0 (Zero)	0.0 – 4.99	F (Fail)
3	35 – 44	5	4.50 – 5.49	C (Satisfactory)
4	45 – 54	6	5.50 – 6.49	B (Average)
5	55 – 64	7	6.50 – 7.49	B+ (Good)
6	65 – 74	8	7.50 – 8.49	A (Very Good)
7	75 – 84	9	8.50 – 9.49	A+ (Excellent)
8	85 - 100	10	9.50 – 10.	O (Outstanding)

B. Grading Chart of 50 points:

Sr. No.	Marks Obtained	Numerical Grade (Grade Point)	CGPA	Letter Grade
1	Absent	0 (Zero)	-	-
2	0 – 17	0 (Zero)	0.0 – 4.99	F (Fail)
3	18 – 22	5	4.50 – 5.49	C (Satisfactory)
4	23 – 27	6	5.50 – 6.49	B (Average)
5	28 – 32	7	6.50 – 7.49	B+ (Good)
6	33 – 37	8	7.50 – 8.49	A (Very Good)
7	38 – 42	9	8.50 – 9.49	A+ (Excellent)
8	43 - 50	10	9.50 – 10.	O (Outstanding)

Note:

- i. Marks Obtained ≥ 0.5 shall be rounded off to next higher digit.
- ii. The SGPA & CGPA shall be rounded off to 2 decimal points.
- iii. Marks obtained in 50 marks or 200 marks paper shall be converted to 100 marks.

Calculation of SGPA & CGPA**1. Semester Grade Point Average (SGPA)**

$$\text{SGPA} = \frac{\sum (\text{Course Credits} \times \text{Grade Points Obtained}) \text{ of a semester}}{\sum (\text{Course Credits}) \text{ of respective Semester}}$$

2. Cumulative Grade Point Average (CGPA)

$$\text{CGPA} = \frac{\sum (\text{Total Credits of a semester} \times \text{SGPA of a respective semester}) \text{ of all semesters}}{\sum (\text{Total Course Credits}) \text{ of all Semester}}$$