DEPARTMENT OF HORTICULTURE

SYLLABUS FOR B.Voc HORTICULTURE

2023-24

PITHAPUR RAJAHS GOVERNMENT COLLEGE

Autonomous and Accredited with 'A' Grade by NAAC (3.17 CGPA)
KAKINADA – 533 001, E G Dist., ANDHRA PRADESH
P R GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA, E.G.Dist.
Department of Food Science

P R GOVERNMENT COLLEGE(AUTONOMOUS), KAKINADA, E.G.DT.

Department of Horticulture

The Board of Studies meeting for Horticulture subject during the academic year 2023-24 is conducted at the Dept. of Horticulture on **31st Aug,2023** with Capt. Dr. M. Krishna Rao ,Lecturer –in-Charge in the chair along with the following members.

Name, Designation and Address	**Signature**

1. CHAIR PERSON:

CAPT.DR.M.KRISHNA RAO
Lecturer in-Charge
Dept. of Horticulture
PRGC(A), Kakinada

31/8/23

2. ADIKAVI NANNAYA UNIVERSITY NOMINEE:

DR.J.SUNEETHA
Principal
GDC Kovvur
Mobile: 7013018683
E-mail:drjsuneetha@gcrjy.ac.in

31/8/2023

3. MEMBERS NOMINATED BY EXECUTIVE COUNCIL OF THE COLLEGE:

a. SUBJECT EXPERT 1:

Dr.A.Srinivasa Rao
Lecturer in Botany
Arts College,Rajahmundry
Mobile:9985076306
E-mail:drannabattulasrao@gmail.com

b. SUBJECT EXPERT 2:

DR.M.SULAKSHANA
Lecturer in Botany
ASD Women's Degree College,Kakinada
Mobile:7997633870
E-mail:sulakshanabotany@gmail.com

M. Sulakshana
31/8/2023

c. SUBJECT EXPERT 3:

K.V.V.G.K.VARA PRASAD
Lecturer in-Charge, Botany
GDC(A),Tuni
Mobile:9908876727
E-mail:prasadkommula03@gmail.com

31/8/2023.

Name, Designation and Address **Signature**

d. INDUSTRIAL EXPERT:

SMT P.SWATHI
Assistant Director
Biological Control Laboratory
Department of Agriculture,Kakinada
Mobile:9848350962
E-mail:Swathi3002@yahoo.com

3/8/23

e. ALUMNI MEMBER:

DR.D.R SALOMI SUNEETHA
Professor & Head
Plant Physiology,Biochemistry & Microbiology Dept
Dr.Y.S.R Horticulture University
Venkataramannagudem-534101 W G Dist
Mobile:9491608088
E-mail:salomibiochem@gmail.com

4. MEMBERS FROM THE COLLEGE:

a. FACULTY MEMBER:

MR.PENDURTHI RAJESH
Faculty in Horticulture
PRGC(A),Kakinada
Mobile:9550808269
E-mail:rajesush235@gmail.com

P Rajesh 21/8/23

MR.BANDE ASHOK RAMA RAJU
Faculty in Horticulture
PRGC(A),Kakinada
Mobile:7093492122
E-mail:ashok@prgc.edu.in

21/8/23

b. STUDENT MEMBERS:

Ramu Allu	Student Alumni Member B.Voc Horticulture	A. Ramu
Surla Rajeswari	Student Member III B.Voc Horticulture	S. Rajeswari
Ch.Bala Sai Chandra Prasad	Student Member III B.Voc Horticulture	Ch. B. ch. Sai Prasad
Madhu Babu	Student Member II B.Voc Horticulture	T. R. Madhu babu

Commissionerate of Collegiate Education, AP, Vijayawada

Development of Unit-wise Pedagogy for Conventional Subjects under CBCS

Broad Guidelines and Models

Pedagogy is a set of diverse teaching or instructional strategies and methods used by the teacher in an educational institution to facilitate effective learning by students. Diverse methods are used because learning is dependent on multiple ways but not on any one method such as lecturing. There is no single, universal approach that suits all situations

Pedagogy is the art and science of teaching. Different strategies used in different combinations with different groupings of students will ensure learning outcomes. Some strategies for teaching certain skills and fields of knowledge are more appropriate than the others. Some approaches are better suited to certain student backgrounds, learning styles and abilities. Effective pedagogical practice promotes the wellbeing of students, teachers and the community - it improves students' and teachers' confidence and contributes to their sense of purpose for being at college.

Although it is the privilege of the teacher to choose or design his/her own pedagogical methods it is also his/her responsibility to ensure proper learning by all students in the class. A few pedagogical methods designed and implemented in the last several decades remain time-tested and popular across the world. The effectiveness of ICT and other educational technologies as a support to pedagogy in the recent years was found to be immense.

The following are some of the pedagogical methods commonly practiced. They are given Pedagogical Strategy or method (PS) Numbers for common use in academic and teaching plans.

I. **Common Strategies**: Common pedagogical strategies suggested to be used for preparing teaching plan (preferably in circles and matrices) for each unit of subject syllabus.

Table-1:

Sno	*PS*	*Pedagogic Strategy/Method*	*Practice*	*Advantages*
1	P_1	Lecture	Continuous teaching by a teacher to a large number of students for about one hour	Useful in transmitting organized knowledge in a systematic way
2	P_2	Demonstration	Showing a process with the help of real, dummy or simulated material	Applied for learning a practical aspect along with skills
3	P_3	Question & Answer	Teacher asks questions before, during or after lecture or demo	Feedback on student level of understanding. Useful in assessing teacher's own progress.
4	P_4	Discussion, Debate or Collaboration	Student activity after the lecture, video or other teacher activity. Small groups (Pair-learning: with two students) to large groups.	Spreads knowledge and ideas in students under group learning and consolidates basic learning. . Communication skills are inculcated.

5	P_5	Audio & Video	Play ready-made or teacher made audio/video on the topic	Brings in external expertise and better understanding through visuals or animations
6	P_6	Virtual or Online learning	Students work with computer simulated models and processes. Stored or online. Learning directly through internet utilizing standard resources	Well crafted three dimensional models and processes give inside information and real time feelings. Access to vast and highly qualitative learning resources on the internet. A computer skill is inculcated.
7	P_7	Assignment or Case Study	Easy, medium and critical assignments include compiling of information from standard books to preparing creative solutions and models to problems	Independent learning, critical thinking, judging and creativity are promoted. Writing skills are enhanced.
8	P_8	Study (Research) Project	Students undertake a local problem and make research study on it towards its solution or betterment	Inculcates habit of learning by research. Trains in traits such as identifying problem, survey, collecting compiling and analyzing of information, drawing conclusions, report writing etc. Spoken and written communication skills are enhanced.
9	P_9	Hands on Study	Students work in a field, industry, organization or under a professional for covering especially a practical part of syllabus	Provides on real time experience to students. Gives professional training. Trained in job/work skills.
10	P_{10}	Class Seminar	Student teaches a part of the unit as a supplement to the lecturer	Student independent learning will be consolidated and inculcates such traits as comprehension, teaching skills, interaction , public speaking etc. . Communication skills are enhanced.

II. **Test**: Teaching learning every Unit shall end with a test. This can be denoted as $\mathbf{P_T}$. Test can be used not only as an assessment and measurement tool but also as an effective learning strategy. Questions shall be designed in such a way that the student needs to learn in several dimensions from test to test to answer the questions.

III. **Additional Strategies**: Fifteen more Additional Strategies are given in Table -2. These may be employed by the individual Lecturer based on the subject, unit, classroom situation etc. The teacher may mark **Px** for any of these additional strategies in the teaching plans, cycles and matrices.

Table-2:

Sno	*Pedagogic Strategy/Method*	*Practice*	*Advantages*
1	Quiz	Small student teams compete to answer random questions from the quiz master	Best used for extracting precise but dispersed information
2	Brainstorming	A small or large group of students gather their ideas on new concepts or aspects	Useful in preparing curious background for a new item of learning. . A soft skill is inculcated.
3	Role Play	Students take the role of actual persons in the field and enact the process	Creates a sense of understanding leading to responsible learning. . A soft skill is inculcated.
4	Modeling	Students prepare models of the existing and futuristic situations, real and imaginary. Includes problem solving, physical models, maps, figures and virtual models	Useful in developing skills integrated with knowledge in practical situations. One of the best ways of problem solving. Use of ICT will enhance the outcomes.
5	Peer review	A group of students reviewing the work of other students and also that of authors	Trains in developing insights for better understanding and judging
6	Games & Puzzles	Students solving subject related problems through available game models of designing their own models	Strengthens problem solving traits and invokes use of intelligence
7	Tutorial	Teacher interacting with small groups of students for reviewing the performance of both teacher and students	A good mechanism for obtaining feedback and midway corrections
8	News paper presentation	Teacher or a student presenting the day's matters related to the subject and on-going chapter resulting a discussion for a while	Relates theory to practice, especially the latest practice, a much needed regular intervention
9	Invited lecture	An expert or a faculty teaching a part of the unit in the classroom or at his/her place	Covers the in-house shortages and the students get the advantage of listening to an expert on that topic
10	Panel discussion	Discussing a topic by a panel of teachers, experts or students.	A variety of angles and solutions emerge for a single problem broadening of the

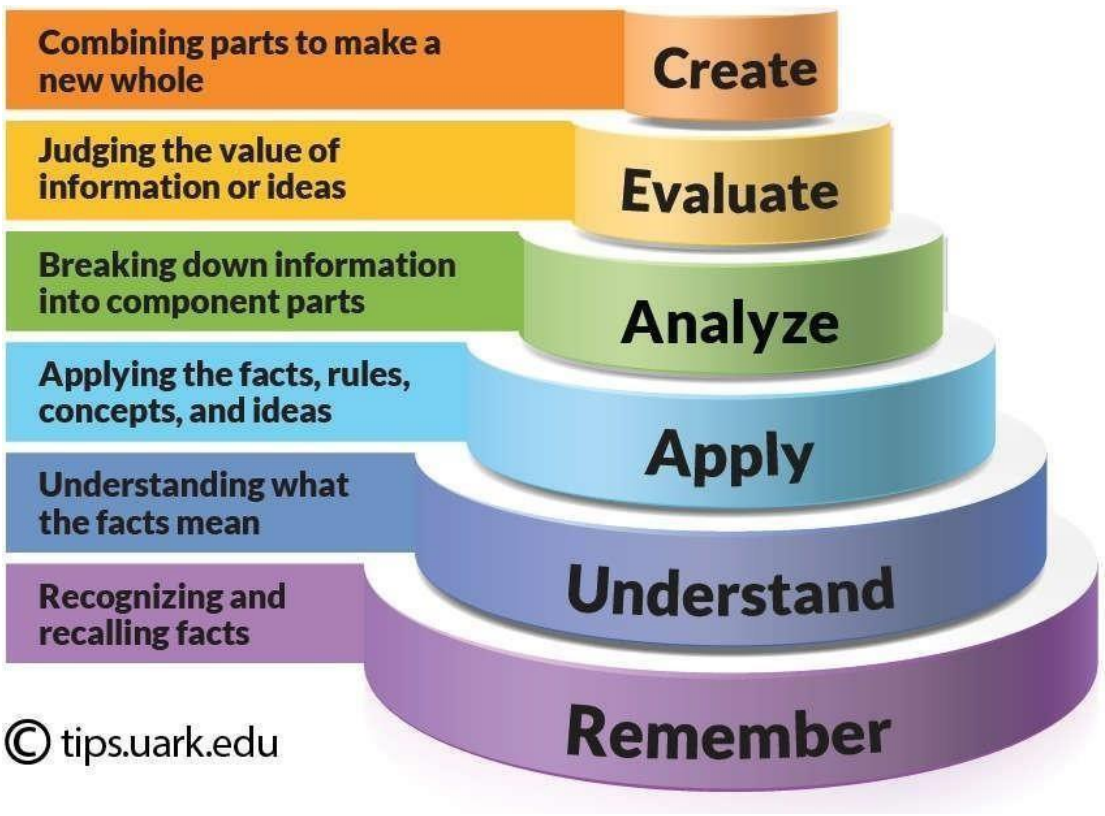
			minds of students. . A soft skill is inculcated.
11	Bulletin board	Students pin the papers they worked out on curricular topics for sharing with others	Motivates students to express themselves, promotes comprehension, writing abilities and freedom of expression.
12	Open text book study	Students study, discuss or answer a test (specially designed) by openly using a standard text book in a session	Motivates a relationship between students and standard books, a life long benefit. Helps in preparing assignments
13	Student magazine	A student magazine is periodically published with academic articles contributed by students	The art of scientifically expressing is encouraged which has both present and future value. It enhances understanding of a standard book or research paper. . A soft skill is inculcated.
14	Report/Review writing	Students write reports or reviews on case studies, projects, books or material	Promotes critical writing and reporting among students. A soft skill is inculcated.
15	Others		

I. Outline Model Pedagogic Strategy Cycle:

There may be one or more Pedagogic cycles for a single unit depending on thenumber and nature of the topics in it.

II. Other aspects:

1. The subject pedagogy development committee members shall examine each unit of each paper of their subject under CBCS and prepare pedagogic strategies for facilitating effective teaching and learning of the unit.
2. The pedagogic strategies can be adopted from the tables 1 & 2 above. If necessary, they may add more strategies suitable to their subject to table -2.
3. They shall prepare teaching plans for each unit and give explanation foot notes so thatteachers across the state will understand the intentions of the committee members
4. A cycle of Pedagogic Strategies shall be given for each unit with relevant footnotes. A model cycle is given below.
5. A list of suggested suitable topics shall also be given for strategies like case study, assignments, models, project work, class seminar, videos and their open online sources (such as Swayam or NPTEL), websites for online learning etc.
6. It is intended to publish the subject-wise teaching plans and circulate them among colleges. Hence, the teaching plans with pedagogic strategies shall be prepared in the best possible way.



A group of cognitive psychologists, curriculum theorists and instructional researchers, and testing and assessment specialists published in 2001 a revision of Bloom's Taxonomy with the title *A Taxonomy for Teaching, Learning, and Assessment*. This title draws attention away from the somewhat static notion of "educational objectives" (in Bloom's original title) and points to a more dynamic conception of classification.

The authors of the revised taxonomy underscore this dynamism, using verbs and gerunds to label their categories and subcategories (rather than the nouns of the original taxonomy).

			Critical Thinking		Evaluation
					Appraise
				Synthesis	Argue
				Arrange	Assess
			Analysis	Assemble	Choose
			Analyze	Categorize	Compare
		Application	Appraise	Collect	Conclude
		Apply	Arrange	Combine	Contrast
	Comprehension	Calculate	Associate	Compose	Convince
	Associate	Change	Breakdown	Construct	Criticize
Knowledge	Classify	Complete	Categorize	Create	Critique
Arrange	Compute	Conduct	Combine	Design	Decide
Cite	Convert	Construct	Connect	Develop	Defend
Collect	Discuss	Demonstrate	Debate	Devise	Determine
Count	Distinguish	Discover	Detect	Explain	Evaluate
Define	Estimate	Dramatize	Determine	Formulate	Grade
Delineate	Explain	Employ	Diagram	Generate	Judge
Describe	Express	Illustrate	Differentiate	Group	Justify
Duplicate	Extend	Interpret	Discriminate	Integrate	Measure
Identify	Extrapolate	Interpolate	Distinguish	Invent	Rank
Label	Generalize	Manipulate	Examine	Manage	Rate
List	Give examples	Modify	Experiment	Modify	Recommend
Match	Indicate	Operate	Infer	Order	Revise
Name	Infer	Predict	Inspect	Organize	Score
Order	Locate	Prepare	Inventory	Plan	Select
Outlines	Paraphrase	Practice	Order	Prescribe	Support
Point	Predict	Produce	Outline	Propose	Value
Quote	Restate	Relate	Point out	Rearrange	
Read	Review	Show	Question	Reconstruct	
Recall	Rewrite	Sketch	Relate	Reorganize	
Recite	Summarize	Solve	Select	Setup	
Recognize	Tell	Translate	Separate	Specify	
Record	Translate	Use	Subdivide	Substitute	
Relate			Test	Tell	
Repeat			Utilize	Transform	
Report					
Reproduce					
Select					
Specify					
State					
Tell					

These “action words” describe the cognitive processes by which thinkers encounter andwork with knowledge:

- Remember
  - Recognizing
  - Recalling
- Understand
  - Interpreting
  - Exemplifying
  - Classifying
  - Summarizing
  - Inferring
  - Comparing

About B.Voc (HORTICULTURE)

The University Grants Commission (UGC) had launched a scheme on 27 February, 2014 for skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) degree with multiple entry and exit points. Considering the implementation modalities, the guidelines of the scheme have been revised in the year 2015.The B.Voc. Programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles and their NOSs along with broad based general education. This would enable the graduates completing B.Voc to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge.

Objectives

1. To provide judicious mix of skills relating to a profession and appropriate content of general education.
2. To ensure that the students have adequate knowledge and skills,so that they are work ready a teach exit point of the programme.
3. To provide flexibility to students by means of pre-defined entry and multiple exit points.
4. To integrate NSQF within the undergraduate level of higher education in order to enhanceemployabilityofthegraduatesandmeetindustryrequirements.Suchgraduatesapartfrommeeting the needs of local and national industry are also expected to be equipped to become part of the global workforce.
5. To provide vertical mobility to students coming out of (a) 10+2 with vocational subjects ;and(b)Community Colleges.

Course Objectives:

To make student

1. Understand the basic concepts of horticulture
2. Understand different types of horticulture products
3. Develop skills in the usage and application of lands caping instruments
4. Understand the technologies of various horticulture products
5. .Acquire knowledge on various types of packaging materials.
6. Understand various forms of herbal products.
7. Acquire knowledge on different types of instrumentation techniques in soil analysis.
8. Understands the importance of preservation techniques.
9. Acquire knowledge on the basic concepts of computers
10. Develop skills in MS word, MS Excel and MS Power Point applications.
11. Develop communication and soft skills.
12. Undergo field training and acquires kills in various instrumentation techniques.
13. Visit organic product industries and understand the functioning of plant.

Course Outcomes:

At the end of the course, the student will be able to

1. Acquire competence and skills in various techniques in fruit and vegetable production technologies.

2. Ready to get a suitable position or job role such as field officer, horticulturist in commercial Industries.
3. Choose for an academic progression under vertical mobility for higher studies. Eligible for various competitive examinations in various posts recruited by State and Central Government.

P.R.GOVERNMENT COLLEGE (AUTONOMOUS) KAKINADA

CURRICULAR FRAMEWORK FOR B.VOC COURSES UNDER NSQF FOR THE YEAR 2023-24

B.Voc HORTICULTURE(Biology stream)

SUBJECT/SEMESTER		I		II		III		IV		V		VI	First and Second Phase (2 Spells)of Apprenticeshipbetween1stand2ndyearan	
		H/W	C	H/W	C	H/W	C	H/W	C	H/W	C			
English		4	3	4	3	4	3					ThirdPhaseofApprenticeshipfortheV/VI		
Second Language(Telugu/Hindi/Sanskrit)		4	3	4	3	4	3							
Life Skill Courses		2	2	2	2	2+2	2+2							
Skill Development Courses		2	2	2+2	2+2	2	2							
Core Subjects														
Major Subject -1	C1to C5Botany (Theory& Practicals)	6/ 4+2	4+1	6/ 4+2	4+1	6/ 4+2	4+1	4+2 4+2	4+1 4+1					
Major Subject -2	C1 to C5 Chemistry (Theory &Practicals)	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1					
Vocational	C1 to C14 including SECHORTICULTURE(Theory& Practicals)	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1	4+2 4+2 4+2 4+2 4+2 4+2	4+1 4+1 4+1 4+1 4+1 4+1			
	C2, C4, C6 (Theory and Lab/Institutional/Industrial Training)HORTICULTURE	2+2	2+1	2+2	2+1	2+2	2+1							
Total Hrs/Week(Academic Credits)		34	28	36	30	36	30	36	30	36	30	12	4	4
Extension Activities														
NCC/NSS/Sports/Extra Curricular									2					
Yoga							1		1					
Extra Credits														
Hrs/W(Total Credits)		34	28	36	30	36	31	36	33	36	30	12	4	4

Marks and Credits distribution(Biology Stream)**

S.No	Course Type	No. of Courses	Course wise Teaching Hrs/Week	Credits for each Course	Total Credits	Each Course Evaluation				Total(Theory +Practical)	Total Marks(Biology Stream**)
						Theory			Practical Biology		
						Continuous Assessment	End Semester	Total			
1	English	3	4	3	9	40	60	100		100	300
2	Second Language	3	4	3	9	40	60	100		100	300
3	Life Skill Courses	4	2	2	8	0	50	50		50	200
4	Skill Development Courses	4	2	2	8	0	50	50		50	200
5	Core/SE –I Botany	5	4+2	4+1	25	40	60	100	50	150	750
6	Core/SE–II Chemistry	5	4+2	4+1	25	40	60	100	50	150	750
7	Vocational Courses(C1to C14)Horticulture	11	4+2	4+1	55	40	60	100	50	150	1650
	VocationalCoursesC2, C4,C6Horticulture	3	2+2	2+1	9		50	50	50	100	300
8	Summer Vacation Internship	2		4	8					100	200
9	Industrial Internship for One full Semester	1		12	12					200	200
10	Extension Activities(Non Academic Credits)										
	NCC/NSS/ Sports/Extra Curricular			2	2						
	Yoga	2		1	2						
	Extra Credits										
	Hrs/W (Total Credits)& Marks	**43**			**172**						**4850**

PITHAPURRAJAH'SGOVERNMENTCOLLEGE(AUTONOMOUS),KAKINADA			
B.VOCCOURSES UNDERNSQFSCHEME			
STUDENTSELIGIBILITYANDFACULTYELIGIBILITY			
S.NO	**NAMEOFTHE COURSE**	**STUDENTS ELIGIBILITY(10+2 Or EQUIVALENT WITHSPECIFIC GROUPIFANY)**	**FACULTYELIGIBILITYWITHSPECIALIZATION**
1	B.VOC(COMMERCIAL AQUACULTURE)	Intermediate/10+2orequivalent With Bi.P.C/Biology	M.Sc Aquaculture/Marine Biology/Zoology with fishery Biology spe
2	B.VOC(HORTICULTURE)	Intermediate/10+2orequivalent With Bi.P.C/Biology	M.Sc Horticulture/Biology/Botany with Horticulture Specialization
3	B.VOC (PHARMACEUTICAL CHEMISTRY)	Intermediate or 10+2 with MPC/BiPC group	M. Pharm/M.Sc(Pharmaceutical Chemistry)/M.Sc(Chemistry)
4	B.VOC(FOOD TECHNOLOGY)	Intermediateor10+2with MPC/BiPC group	M.Sc(Food Technology)/M.Sc(Food Processing)/M.Sc(Food And Nutrition)/M. Sc(Foods, Drugs &Water)
5	B.VOC(JOURNALISM AND MASSCOMMUNICATION)	Intermediateor10+2or equivalent	M.A(Journalism)
6	B.VOC(HOTEL MANAGEMENT)	Intermediate/10+2orequivalent	MBA(Hotel Management/M.Com Hotel Management/M.Com Or MBA with Diploma in Hotel Management

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA
DEPARTMENT OF BOTANY, MICROBIOLOGY&HORTICULTURE

B.Voc HORTICULTURE COURSE STRUCTURE AND SYLLABUS

S. No	VOCATIONAL SUBJECTS		MARKS	CREDITS	MAIN SUBJECTS	MARKS	CREDITS
2	**II Year**	**Semester-III**					
	Core V	Fruit crops production technology	100	4	Botany III	100	4
		Skill components	50	1	Practical III	50	1
	Core VI	Vegetable crop production technology	50	2	Chemistry III	100	4
		Skill components	50	2	Practical III	50	1
	Life skill	Environmental education	50	2	General English	100	3
		Personality development and leadership	50	2	II nd Language	100	3

	Skill Development	Environment audit	50	2			
		Semester-IV					
	Core VII	Commercial floriculture	100	4	Botany V	100	4
		Skill components	50	1	Practical V	50	1
	Core VIII	Medicinal and plantation crops	50	4	Chemistry IV	100	4
		Skill components	50	1	Practical IV	50	1
		Botany IV	100	4	Chemistry V	100	4
		Practical IV	50	1	Practical V	50	1
	Second phase of apprenticeship between Summer vacation						4
	IIIYear	**Semester-V**					
	Core IX	Farm management and marketing	100	4	Soil Microbiology	50	
		Skill components	50	1	Practical	50	
5	Core X	General principles of fruits and Vegetables preservation	100	4	Agriculture microbiology	50	
		Skill components	50	1	Practical	50	
	Core X	Project	150	5	Chemistry	50	
					Practical	50	
6	**IIIYear**	**Semester-VI**					
46							
	Third phase of apprenticeship for the entire VI semester						12

Total Credits 172

Total Marks

It is resolved to introduce the following new courses in the programmes **B.Voc Horticulture,** from the AY 2023-24

S.No	Course Code	Title of the new course	Programmes in which it is introduced
1	Nil	Nil	Nil
2	Nil	Nil	Nil
3	Nil	Nil	Nil
4	Nil	Nil	Nil
5	Nil	Nil	Nil

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA

DEPARTMENT OF HORTICULTURE

Assessment methodology for Internships / On the Job Training / Apprenticeship under the revised CBCS (2020 – 21 onwards)

First internship (After 1st year examinations):Community Service Project

To inculcate social responsibility and compassionate commitment among the students, the summer vacation in the intervening 1st and 2nd years of study shall be for Community Service Project.

Learning outcomes:

- To facilitate an understanding of the issues that confronts the vulnerable /marginalized sections of the society.
- To initiate team processes with the student groups for societal change.
- To provide students an opportunity to familiarize themselves with urban / rural community they live in.
- To enable students to engage in the development of the community.
- To plan activities based on the focused groups.
- To know the ways of transforming the society through systematic programme implementation.

Assessment Model:

There will be only internal evaluation for this internship. Each faculty member is to be assigned with 10 t0 15 students depending upon availability of the faculty members. The faculty member will act as a faculty-mentor for the group and is in-charge for the learning activities of the students and also for the comprehensive and continuous assessment of the students.

The assessment is to be conducted for 100 marks. The number of credits assigned is 4. Later as per the present practice the marks are converted into grades and grade points to include finally in the SGPA and CGPA.

Each student is required to maintain an individual logbook, where he/she is supposed to record day to day activities. The project log is assessed on an individual basis, thus allowing for individual members within groups to be assessed this way. The assessment will take into consideration the individual student's involvementin the assigned work.

While grading the student's performance, using the student's project log, the following should be taken into account -

a. The individual student's effort and commitment.
b. The originality and quality of the work produced by the individual student.
c. The student's integration and co-operation with the work assigned.
d. The completeness of the logbook.

The assessment for the ***Community Service Project implementation*** shall include the following components and based on the entries of Project Log and Project Report:

a. Orientation to the community development
b. Conducting a baseline assessment of development needs
c. Number and Quality of Awareness Programmes organised on beneficiaryprogrammes and improvement in quality of life, environment and social consciousness, motivation and leadership, personality development,etc.
d. Number Quality and Duration of Intervention/service Programmes (Prevention or promotion programs that aim to promote behavioural change in defined community contexts to address social problems) organised.
e. Followup Programmes suggested (Referral Services, Bringing Community Participation)
f. Developing short and mid-term action plans in consultation with local leadership and local government officers.

The **Project Report** should contain

a) Introduction, scope, objectives, and methodology
b) Project specifications (area / background of the work assigned).
c) Problems identified.
d) Analyses of the problems
e) Community awareness programmes conducted w.r.t the problems and their outcomes.
f) Intervention/service programmes taken up
g) Short-term and long term action plan for implementation
h) Recommendations and conclusions.
i) References

The **Project Presentation** is to be made by the student after he/she reportsback to the College. The components for assessment are –

a. assessing the involvement in the project
b. presentation skills
c. final outcome of the project as evinced by the student.

For Example: II MPC-EM

S.No.	Name of the Student	Class & Year of Study	Register Number	Project Log	Project Implementation	Project Report	Presentation	Total
				(20)	(30)	(25)	(25)	(100)

Signature of Project Mentor **Signature of Nominated faculty** **Signature of HOD/ In-Charge**

SEMESTER–III

PR GOVERNMENTCOLLEGE(A), KAKINADA
B.Voc(Horticulture)
SEMESTER-IIICORE-V
FRUIT CROP PRODUCTION TECHNOLOGY

Course Objectives:

- This course is designed to provide science and technology-based information on fruit crop production for a wide range of students, both graduate and undergraduate.
- The course objectives will be met by relating physiological processes of fruit plants to the cultural practices necessary for successful fruit production
- This course is designed to generate a capacity for decision making and problem solving in production based upon knowledge and resources.

UNIT–I

Definition – area and production of fruit crops in INDIA & Andhra Pradesh – Orchard management –Definition-Selection and layout of orchard –Physical features in orchard, Planting systems.

UNIT–II

Study of cultural practices of the following fruit crops, with reference to soil, climate, varieties, methods of propagation, nutrient, irrigation and weed management practices – training and pruning – role of growth regulators – maturity standards for harvesting – postharvest technology of fruit crops – yield – grading – packing – storage and value added products.

UNIT–III

Production technology of following tropical fruits – Mango, Plantain , Papaya,Sapodilla, Guava, Pineapple.

UNIT–IV

Production technology of following sub-tropical and temperate fruits –Apple, Grapevine, -Organic fruit production.

PRACTICALS

1. Selection and layout of orchards and physical features in orchard
2. Different planting systems in fruit crops
3. Description and identification of varieties of Mango and Banana based on flower and Fruit morphology.
4. Description and identification of varieties of Citrus.
5. Description and identification of varieties of Papaya, Sapota, Guava and pineapple.
6. Description and identification of varieties of Pomegranate, Ber.
7. Training and Pruning of Mango, Guava and Citrus.
8. Pre-treatment of Banana suckers and de suckering in Banana
9. Manure & Fertilizer application including Bio-fertilizers in different fruit crops (Methods of application, calculation of the required Manure & Fertilizers based on the nutrient content).
10. Visit to commercial orchards.

SUGGESTEDREADINGS

1. Bose,T.K andMitra,S.K.1990.FruitsTropicalandSubtropical.NayaPrakash,Calcutta.
2. RanjitSingh,1992.Fruits.N.B.T.,NewDelhi.
3. Chattopadhyay, T. K 1997. Text book on Pomology (Fundamentals of fruit growing).Kalyani Publishers, Hyderabad.
4. Chandra,K. L.(ICAR)2002,2001.HandbookofHorticulture.ICAR,NewDelhi.

BLUEPRINT FORQUESTIONSETTER

UNITNO.	ESSAYQUESTIONS10MARKS	SHORTANSWERQUESTIONS5MARKS	VERYSHORTANSWERQUESTIONS2MARKS	MARKS ALLOTEDTOTHE UNIT
UNIT– 1	02	01	02	29
UNIT-2	01	01	02	19
UNIT-3	01	02	02	24
UNIT-4	01	02	02	24
Total No. of Questions	**05**	**06**	**08**	
Total marks Including choice				**96**

SEMESTER III Core-V
Basics of Fruit Science

	P.R.Government College(Autonomous) Kakinada	Program& Semester B.VOC HORTI - II			
Course Code	**Basics of Fruit Science**				
Teaching	Hours Allocated:60 (**Theory**)	L	T	P	C
Pre-requisites:	Knowledge of different tropical ,sub tropical and Fruits	4	0	2	4

L-Lecture; T- Tutorial; P- Practical, C- Credits

PROGRAMME OUTCOMES

PO I: Critical thinking: Take informed actions after identifying the assumptions that frame our thinking actions, checking out the degree to which these assumptions are accurate and valid and looking at our ideas and decisions

PO 2: Students can easily speak, read, write, listen clearly and elicit views to others mediate disagreements and help to reach conclusions in group settings

PO 3: Students can easily understand the Facilitating detailed study of allied branches required to raise the income of farmers

PO 4: The B.VOC HORTI programme creates an understanding about Providing detailed knowledge of horticulture in India and Indian farmers income generating enterprises.

PO 5: After completing B.Sc, B.VOC HORTI programme students can get lot of employment opportunities in various fields such as agriculture, horticulture either in private or government sectors. This programme enables students to establish their ownbusiness in the areas like Aquaculture, Horticulture etc., Students can also pursue higher studies in Botany, Horticulture or Chemistry and they may focus on scientific research also. Acquire the knowledge of practical ability in handling the apparatus and process of methodology

PROGRAMME SPECIFIC OUTCOMES

PSO1: Considers the acquisition, integration, and application of plant-science knowledge expected for horticulturists. This knowledge is often taught in formal classes and through books.

PSO2: The capacity to integrate knowledge across a range of disciplines (e.g., business, soils, pathology), and have the ability to actually perform physical tasks that require practice and training (e.g., grafting).

PSO3: To develop creative skills to solve problems and improve current systems.

PSO4: Sets an expectation that graduates will be able to communicate about more than just the science behind horticulture, but also about the social, spiritual, and cultural importance of plants.

PSO 5: Finally, horticulture graduates ought to have developed leadership skills, learned how to work in teams, and exhibit a high level of professionalism and personal responsibility.

Course Outcomes

On completion of the course, the students will be able to-		Cognitive Domain
CO1	understand the Introduction of Fruit Crops	Remembering /Understanding
CO2	Applicative learning may be enhanced due to their broad sectors applications in various fields.	Application
CO3	Tropical Fruit Crops Production Practices	Analyzing
CO4	Gain knowledge on Sub Tropical and Temperate Fruit Crops	Knowledge & Application
CO5	Understand the Management Practices for Fruit Crops	Understanding & Application

Knowledge **Skill** **Employability** **Entrepreneurship**

CO-PO– PSO Mapping:

- **(1:Slight[Low];2:Moderate [Medium];3:Substantial[High],'-': No Correlation)**

Low=10-25% Moderate=25-60% High=60-100%

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	1	2	2	2	1	2	2	2	2
CO2	3	2	2	2	2	2	1	1	1	1
CO3	1	2	2	2	3	3	2	2	3	1
CO4	1	2	3	2	2	3	1	2	2	2
CO5	1	2	3	2	3	3	1	2	3	3

P R GOVERNMENT COLLEGE (A), KAKINADA
SEMESTER – III CORE – V
FRUIT CROP PRODUCTION TECHNOLOGY
IMPORTANT QUESTION BANK

UNIT– I

Essays

1. Definition of Pomology? Definition of orchard management and selection and layout of orchard.
2. Physical features in Orchard, planting system

Shorts

1. Area and production of fruit crops in Andhra Pradesh
2. Selection and layout of Orchard
3. Planting systems

UNIT– II

Essays

1. Post-harvest technology of fruit crops
2. Training and pruning–role of growth regulators in fruit crops

Shorts

1. Maturity standards for Harvesting
2. Methods of propagation
3. Value added products

UNIT– III

Essays

1. Production technology of Mango
2. Production technology of Guava
3. Production technology of Papaya

Shorts

1. Varieties in Banana
2. Irrigation methods in citrus
3. Nutrient management in sapota

UNIT– IV

Essays

1. Production technology of Pineapple
2. Organic fruit production

Shorts

1. Packing of Apple
2.Commercial propagation of pineapple
3.Value added products of Almond

Very Shorts

1. Orchard
2. Hexagonal planting system
3. Weed management
4. Pruning
5. Grading
6. Tropical fruits
7. Storage
8. Tropical fruits
9. RTS
10. Pear

B.Voc, HORTICULTURE, SEMESTER –III
CORE –V
FRUIT CROP PRODUCTION TECHNOLOGY
MODEL QUESTION PAPER

Time:3hrs **Marks:60**

PART–I

Answer any **THREE** of the following. Draw a neat labeled diagram whenever necessary

3 x 10 = 30

1. Definition of Pomology? Definition of orchard management and selection and layout o for chard.
2. Post-harvest technology of fruit crops
3. Production technology of Mango
4. Production technology of Pineapple

PART–II

Answer any **FOUR** of the following. Draw a neat labeled diagram whenever necessary

4 x 5 = 20

1. Area and production of fruit crops in Andhra Pradesh
2. Maturity standards for Harvesting
3. Varieties in Banana
4. Packing of Apple
5. Selection and layout of Orchard
6. Methods of propagation
7. Irrigation methods in citrus
8. Commercial propagation of pineapple

PART–III

Answer all **FIVE** questions **5 x 2 = 10**

1. Orchard
2. Weed management
3. Grading
4. Storage
5. RTS

B. Voc (Horticulture)

SEMESTER-IIICORE-VI

VEGETABLE CROP PRODUCTION TECHNOLOGY

Course Objectives:

- Describe about origin, area, production, improved varieties, soil and climate requirement for different season vegetable and spice crops.
- Execute various cultivation practices such as time of sowing, or transplanting techniques.
- Analyze harvesting time and techniques of various vegetable and spices crops, storage conditions and requirements as per the cultivated crops.

UNIT-I

Scope and importance of vegetable cultivation – area and production in INDIA & Andhra Pradesh–systems of vegetable cultivation – kitchen garden – truck garden and market garden – gardening for Processing.

UNIT-II

Climate – soil requirement –varieties / hybrids – seed rate – nursery practices – portray nursery – transplanting – manuring – irrigation –fertigation. Weeding –chemical –mechanical weed control – use of growth regulators- special horticultural practices (training, staking, pruning) – physiological disorders, nutrient deficiency and their corrective measures– Maturity indices-harvesting–grading, sorting– packing and storage and yield.
Production technology of the following crops: Tomato, Brinjal, Bhendi,Onion, Beans

UNIT-III

Production technology of the following crops: cucumber – Ridge gourds –ivy gourd - pumpkin -Cabbage– Cauliflower.

UNIT-IV

Production technology of the following root crops Radish – Carrot, Yam, Potato, Leafy vegetables : Amaranth– Palak

PRACTICALS

1. Layout of kitchen garden
2. Classification of vegetable crops
3. Identification and description of Solanaceous vegetable varieties
4. Identification and description of varieties of cucurbits
5. Visit to vegetable farmers' fields, Visit to vegetable markets for study of marketing problems

SUGGESTEDREADINGS

1. Thompson, H. C and Kelly, W. C. 1959. Vegetable Crops. Tata Mc Graw Hill Publishing Co. Ltd., Bombay.
2. Premnath Velyudhan, S and Singh, D. P. 1987. Vegetables for the Tropical RegionICAR,NewDelhi.
3. Shanmugavelu, K. G. 1989. Production Technology of Vegetable Crops. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
4. Chaudhary, B.1992.Vegetables.National BookTrust, NewDelhi.

BLUEPRINT FORQUESTIONSETTER

UNITNO.	ESSAYQUESTIONS10MARKS	SHORTANSWERQUESTIONS5MARKS	MARKS ALLOTED TO THEUNIT
UNIT– 1	01	02	20
UNIT-2	01	02	20
UNIT-3	01	02	20
UNIT-4	02	01	25
TotalNo. of Questions	**05**	**07**	
Total marks Including choice			**85**

SEMESTER III Core-VI
OLERICULTURE

	P.R.Government College(Autonomous) Kakinada	Program& Semester B.VOC HORTI - II			
Course Code **HORT3222**	OLERICULTURE				
Teaching	Hours Allocated:60 (**Theory**)	L	T	P	C
Pre-requisites:	Knowledge of different tropical ,sub tropical and leafy vegetables	4	0	2	4

L-Lecture; T- Tutorial; P- Practical, C- Credits

PROGRAMME OUTCOMES

PO I: Critical thinking: Take informed actions after identifying the assumptions that frame our thinking actions, checking out the degree to which these assumptions are accurate and valid and looking at our ideas and decisions

PO 2: Students can easily speak, read, write, listen clearly and elicit views to others mediate disagreements and help to reach conclusions in group settings

PO 3: Students can easily understand the Facilitating detailed study of allied branches required to raise the income of farmers

PO 4: The B.VOC HORTI programme creates an understanding about Providing detailed knowledge of horticulture inIndia and Indian farmers income generating enterprises.

PO 5: After completing B.Sc, B.VOC HORTI programme students can get lot of employment opportunities in various fields such as agriculture, horticulture either in private or government sectors. This programme enables students to establish their own business in the areas like Aquaculture, Horticulture etc., Students can also pursue higher studies in Botany, Horticulture or Chemistry and they may focus on scientific research also. Acquire the knowledge of practical ability in handling the apparatus and process of methodology

PROGRAMME SPECIFIC OUTCOMES

PSO1: Considers the acquisition, integration, and application of plant-science knowledge expected for horticulturists. This knowledge is often taught in formal classes and through books.

PSO2: The capacity to integrate knowledge across a range of disciplines (e.g., business, soils, pathology), and have the ability to actually perform physical tasks that require practice and training (e.g., grafting).

PSO3: To develop creative skills to solve problems and improve current systems.

PSO4: Sets an expectation that graduates will be able to communicate about more than just the science behind horticulture, but also about the social, spiritual, and cultural importance of plants.

PSO 5: Finally, horticulture graduates ought to have developed leadership skills, learned how to work in teams, and exhibit a high level of professionalism and personal responsibility.

Course Outcomes

On completion of the course, the students will be able to-		Cognitive Domain
CO1	understand the Solanaceous and other vegetable crops	Remembering /Understanding
CO2	Applicative learning may be enhanced due to their broad sectors applications in various fields.	Application
CO3	Introduction to vegetable crops	Analyzing
CO4	Gain knowledge on Root & Tuber crops	Knowledge & Application
CO5	Understand the internal structure and developmental stages in Leguminous vegetables	Understanding & Application

Knowledge	Skill	Employability	Entrepreneurship

CO-PO– PSO Mapping:

- **(1:Slight[Low];2:Moderate [Medium];3:Substantial[High],'-': No Correlation)**

Low=10-25% Moderate=25-60% High=60-100%

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	1	2	2	2	1	2	2	2	2
CO2	3	2	2	2	2	2	1	1	1	1
CO3	1	2	2	2	3	3	2	2	3	1
CO4	1	2	3	2	2	3	1	2	2	2
CO5	1	2	3	2	3	3	1	2	3	3

P R GOVERNMENT COLLEGE (A), KAKINADA
SEMESTER – III, CORE – VI
VEGETABLE CROP PRODUCTION TECHNOLOGY
IMPORTANT QUESTION BANK

UNIT– I

Essays

1. Systems of vegetable cultivation
2. Scope and importance of vegetable cultivation

Shorts

1. Kitchen garden
2. Area and production in AP
3. Gardening for processing

UNIT– II

Essays

1. Production technology of Tomato
2. Production technology of Onion
3. Production technology of Bhendi

Shorts

1. Physiological disorders in chilly
2. Nutrient deficiency in Tomato
3. Horticultural practices(Training, Staking, pruning)

UNIT– III

Essays

1. Production technology of pumpkin
2. Production technology of Cabbage
3. Production technology of Cauliflower

Shorts

1. Use of growth regulators in vegetable production
2. Diseases in Cabbage
3. Sex expressions in Cucurbits

UNIT– IV

Essays

1. Production technology of Carrot
2. Production technology of Potato
3. Production technology of Amaranthus

Shorts

1. Manuring of moringa
2. Propagation of Colacasia
3. Grading of leafy vegetables

VeryShorts

1. Olericulture
2. Hybrid seeds
3. Staking
4. Moringa
5. Radish
6. Horticultural practices in cucumber
7. Uses of palak
8. Portray nursery
9. Maturity indices in potato
10. Storage of root crops

B.Voc, HORTICULTURE, SEMESTER –III

CORE–VI

VEGETABLE CROP PRODUCTION TECHNOLOGY

MODEL QUESTION PAPER

Time:3hrs **Marks:60**

PART–I

Answer any **THREE** of the following questions. Draw a neat labelled diagram whenever necessary. **3X10=30M**

4. 1.Production technology of Tomato
5. Production technology of Onion
6. Production technology of Potato
7. Production technology of Amaranthus
8. Scope and importance of vegetable cultivation

PART–II

Answer any **FOUR** questions **4 X 5 = 20 M**

8. Manuring of moringa
9. Propagation of Alcasia
10. Grading of leafy vegetables
11. Use of growth regulators in vegetable production
12. Diseases in Cabbage
13. Sex expressions in Cucurbits
14. Physiological disorders in chilly

I B.Voc., HORTICULTURE SEMESTER-III,
MODELQUESTION PAPER

Time:2hrs. **TITLE:----------** **Marks:50**

PART–I

Answer any **THREE**of the following questions. Draw a neat labelled diagram whenever necessary

3x10= 30

1. Long answer question from UNIT-1
2. Long answer question from UNIT -2
3. Long answer question from UNIT -3
4. LonganswerquestionfromUNIT-4
5. Long answer question from ANY UNIT

PART–II

Answer any **FOUR** questions **4x5 = 20**

.

1. SAQ from UNIT-1
2. SAQ from UNIT-2
3. SAQ from UNIT-3
4. SAQ from UNIT-4
5. SAQ from ANY one of the UNIT
6. SAQ from ANY one of the UNIT
7. SAQ from ANY one of the UNIT

SEMESTER–IV

PR GOVERNMENTCOLLEGE(A),KAKINADA
B.VOC(Horticulture)
SEMESTER-IV COREVII
COMMERCIAL FLORICULTURE

Course Objectives:

- Historical facts of gardening in India
- The importance of gardening in various eras
- Various styles of gardens present in our country

UNIT-I

Scope and importance of commercial floriculture in India. Present status, Future prospects and strategies needed for improvement. Area, production and exports.

UNIT-II

Classification, species and varieties, climate and soil requirements, propagation, land preparation, planting Manures and fertilizers, cultural operations,(pinching and disbudding) use of growth regulators, harvesting, and yield ,Practices of packaging .
Production technology: Rose, Jasmine, Chrysanthemum, Marigold, Crossandra, lily

UNIT-III

Introduction to protected structures for cut flower production –Study of cut flower, production technology of Carnation, Gerbera, Anthurium, Gladiolus

UNIT-IV

Post-harvest management of cut flowers – Floral decorations, bouquets and dry flowers – Grading, packing and marketing of flowers.

PRACTICALS

1. Propagation methods in chrysanthemum
2. Preparation of nursery bed for flower seeds sowing.
3. Identification of important flower crops and their varieties
4. Training and Pruning of Roses in open and poly houses
5. Propagation of rose by cutting and budding
6. Layering methods for Jasmine propagation
7. Practices in post-harvest management of cut flowers (pre cooling, grading, pulsing, storage, packing and marketing of cut flowers)
8. Field visit to commercial flower growing area

SUGGESTEDREADINGS

1. Randhawa, G. S and Mukhopadhyaya, A. 2004. Floriculture in India. Allied Publishers Pvt.Ltd., New Delhi.
2. Bose,T.K andYadav, L.P.1989.CommercialFlowers.Nayaprakash,Calcutta.
3. Pal, B.P. 1991. The Rose in India. Publications and Information Division ICAR, NewDelhi.
4. Aora, J. S. 2006. Introductory Ornamental Horticulture. Kalyani Publishers, Ludhiana – 141 008.

BLUEPRINT FORQUESTIONSETTER

UNITNO.	ESSAYQUESTIONS10MARKS	SHORTANSWERQUESTIONS5MARKS	VERYSHORTANSWERQUESTIONS 2MARKS	MARKS ALLOTEDTOTHE UNIT
UNIT– 1	02	01	02	29
UNIT-2	01	01	02	19
UNIT-3	01	02	02	24
UNIT-4	01	02	02	24
Total No. of Questions	**05**	**06**	**08**	
Total marks Including choice				**96**

SEMESTER IV Core-VII

Commercial Floriculture

	P.R.Government College(Autonomous) Kakinada	**Program& Semester** B.VOC HORTI - III			
Course Code **HORT7222 A**	**Commercial Floriculture**				
Teaching	Hours Allocated:60 (**Theory**)	L	T	P	C
Pre-requisites:	Knowledge of different tropical ,sub tropical and Flowers	4	0	2	4

L-Lecture; T- Tutorial; P- Practical, C- Credits

PROGRAMME OUTCOMES

PO I: Critical thinking: Take informed actions after identifying the assumptions that frame our thinking actions, checking out the degree to which these assumptions are accurate and valid and looking at our ideas and decisions

PO 2: Students can easily speak, read, write, listen clearly and elicit views to others mediate disagreements and help to reach conclusions in group settings

PO 3: Students can easily understand the Facilitating detailed study of allied branches required to raise the income of farmers

PO 4: The B.VOC HORTI programme creates an understanding about Providing detailed knowledge of horticulture inIndia and Indian farmers income generating enterprises.

PO 5: After completing B.Sc, B.VOC HORTI programme students can get lot of employment opportunities in various fields such as agriculture, horticulture either in private or government sectors. This programme enables students to establish their own business in the areas like Aquaculture, Horticulture etc., Students can also pursue higher studies in Botany, Horticulture or Chemistry and they may focus on scientific research also. Acquire the knowledge of practical ability in handling the apparatus and process of methodology

PROGRAMME SPECIFIC OUTCOMES

PSO1: Considers the acquisition, integration, and application of plant-science knowledge expected for horticulturists. This knowledge is often taught in formal classes and through books.

PSO2: The capacity to integrate knowledge across a range of disciplines (e.g., business, soils, pathology), and have the ability to actually perform physical tasks that require practice and training (e.g., grafting).

PSO3: To develop creative skills to solve problems and improve current systems.

PSO4: Sets an expectation that graduates will be able to communicate about more than just the science behind horticulture, but also about the social, spiritual, and cultural importance of plants.

PSO 5: Finally, horticulture graduates ought to have developed leadership skills, learned how to work in teams, and exhibit a high level of professionalism and personal responsibility.

Course Outcomes

On completion of the course, the students will be able to-		Cognitive Domain
CO1	understand the Basic Concepts of Floriculture	Remembering /Understanding
CO2	Applicative learning may be enhanced due to their broad sectors applications in various fields.	Application
CO3	Analysing the Production Technology	Analyzing
CO4	Gain knowledge on Plant Breeding of Flowering Ornamentals	Knowledge & Application
CO5	Understand the Post Harvest Practices in Floriculture	Understanding & Application

Knowledge	Skill	Employability	Entrepreneurship

CO-PO– PSO Mapping:

- **(1:Slight[Low];2:Moderate [Medium];3:Substantial[High],'-': No Correlation)**

Low=10-25% Moderate=25-60% High=60-100%

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	1	2	2	2	1	2	2	2	2
CO2	3	2	2	2	2	2	1	1	1	1
CO3	1	2	2	2	3	3	2	2	3	1
CO4	1	2	3	2	2	3	1	2	2	2
CO5	1	2	3	2	3	3	1	2	3	3

B.Voc., HORTICULTURE SEMESTER-IV,
PRACTICAL MODEL QUESTION PAPER

Time:2hrs. **TITLE:----------** **Marks:50**

A. Major experiment	1x10m	=10marks
B. Minor experiment	3x6m	=18marks
C. Spotters	6x2m	=12marks
D. Record &Viva	5+5m	=10marks
	Total	-50marks

B.Voc., HORTICULTURE SEMESTER – IV,

CORE – VII MODEL QUESTION PAPER

Time:3hrs. **TITLE:----------** **Marks:50**

PART–I

Answer any **THREE** of the following questions. Draw a neat labelled diagram whenever necessary

3x10= 30

6. Long answer question from UNIT-1
7. Long answer question from UNIT -2
8. Long answer question from UNIT -3
9. LonganswerquestionfromUNIT-4
10. Long answer question from ANY UNIT

PART–II

Answer any **TWO** questions **2x5 = 10**

.

8. SAQ from UNIT-1
9. SAQ from UNIT-2
10. SAQ from UNIT-3
11. SAQ from UNIT-4

PART–III

Answer all the Questions **5 x 2=10**

1. VSAQ from UNIT-1
2. VSAQ from UNIT-2
3. VSAQ from UNIT-3
4. VSAQ from UNIT-4
5. VSAQ from UNIT-1

SEMESTER – IV

CORE – VII

COMMERCIAL FLORICULTURE

IMPORTANTQUESTIONBANK

UNIT– I

Essays

1. Scope and importance of commercial floriculture in India
2. Area, production and exports of flowers in India.

Shorts

1. Strategies needed for improvement
2. Importance of commercial floriculture

UNIT– II

Essays

1. Production technology of Rose
2. Classification of Roses
3. Production technology of chrysanthemum
4. Production technology of Crossandra

Shorts

1. Pinching and disbudding
2. Use of growth regulators
3. Extraction of Jasmine oil

UNIT– III

Essays

1. Production technology of Gerbera
2. Production technology of Carnation
3. Production technology od Gladiolus

Shorts

1. Climate and soil requirement of Anthurium
2. Propagation of Gladiolus
3. Flower gorms of Gerbera

UNIT– IV

Essays

1. Post-harvest management of cut flowers
2. Types of floral arrangement

Shorts

1. Bouquets
2. Dry flowers
3. Packing of flowers

Very shorts

1. Floriculture
2. Exports
3. Cut flowers
4. Marigold harvesting process
5. Gladiolus varieties
6. Marketing of Jasmine
7. Importance of flowers
8. Anthurium varieties
9. Gerbera uses
10. Packing of Roses

B.Voc, HORTICULTURE
SEMESTER -IVCORE –VII
COMMERCIAL FLORICULTURE
MODEL QUESTION PAPER

Time:3hrs **Marks:50**

PART–I

Answer any **THREE** of the following .Draw a neat labeled diagram whenever necessary

3 x 10 = 30

1. Scope and importance of commercial floriculture in India
2. Production technology of Rose
3. Production technology of Gerbera
4. Post-harvest management of cut flowers

PART–II

Answer any **Two** of the following. Draw a neat labeled diagram whenever necessary

2 x 5 = 10

1. Strategies needed for improvement
2. Pinching and disbudding
3. Climate and soil requirement of Anthurium
4. Bouquets

PART–III

Answer all **FIVE** questions **5 x 2 = 10**

1. Floriculture
2. Cut flowers
3. Gladiolus varieties
4. Importance of flowers
5. Packing of roses

B. Voc (Horticulture)
SEMESTER-IV

CORE VIII
MEDICINAL AND PLANTATION CROPS

Course Objectives:

- To impart comprehensive knowledge about the production technology of medicinal
- To develop effective micro propagation system for cost effective quality plant material emphasizing the proper tie up with growers / industries for mass production of tissue-cultured medicinal plants.
- To create optimum awareness and interest amongst the common people about Medicinal Plants

UNIT-I-PLANTATIONCROPS

Production technology of following crops:

Coconut: Uses, Varieties- Tall x dwarf hybrids (T x D), Dwarf x tall hybrids (D x T), Tall x tall hybrids (T x T).Soil, Climate, Propagation – Seed propagation, Selection of seed nuts, selection of seedling for planting. Preparation of pits and planting, Irrigation, Manuring and fertilization, methods of application of fertilizers, weeding. Harvesting, Yield, Storage.

OilPalm: Introduction, uses, varieties, seed propagation, Climate– Sunshine and Temperature Requirement Types of soils for oil palm growing regions, Spacing,Planting, Irrigation, Manuring, Weeding and Mulching Harvesting and yield

Cocoa: Introduction,products/Byproductschocolate,varieties,Climate,Soil,SeedandVegetative propagation, Cuttings, preparation of land, provision of Shade, Spacing, Planting-Cocoa under Natural Shade, Intercropping Irrigation, Manuring, weeding, types of branching, training and pruning, Harvesting.

UNIT-II

Cashew Nut: Introduction, uses, Climate, Soils, varieties/ hybrids, Propagation – Vegetativepropagation,EpicotylgraftingandCuttings.Planting,BranchingPattern,Irrigation,weeding,Manuring,Training and pruning, Rejuvenation, flowering, Harvesting, Yield.

Coffee: Introduction, soil, Climate, types- differences Arabica/robusta, branching, varieties, propagation, Raising nurseries. Preparation of main field and planting, Provision of shade, Advantages of shade, Disadvantages of shade, Irrigation, Manuring, Training and pruning – Trenching, Mulching, Weeding, Liming, Flowering- season of flowering, Fruit set and harvesting and Yield.

UNIT-III-MEDICINALPLANTS

Aloe: Importance and uses, description of plant, species and varieties, soil, climate, land preparation, propagation crop duration, spacing & planting, manuring, irrigation, inter-cultivation, harvesting, yield and chemical composition.

Rauvolfia morinda: Importance and uses, botany, varieties, soil, climate propagation spacing, planting, manuring, irrigation, weeding, harvesting, root yield.

Ashwagandha : Importance and uses, description of plant, varieties, soil, climate, propagation manures, fertilizers and inter cultivation Harvesting, crop duration, method of harvesting drying, grading and yield, chemical constituents.

Vinca rosea : Importance and uses, description of plant, varieties, soil, climate, propagation manures, fertilizers and inter cultivation Harvesting, crop duration, method of harvesting drying, grading and yield, chemical constituent

UNIT-IV

Citronella & Lemongrass : Importance and uses ,botany, varieties, soil, climate, land preparation , propagation, spacing, planting, manures and fertilizers, irrigation, interculture, harvesting &yield of herb and oil.

Mint: Importance and uses, distribution, description of species of mint, varieties, chemical composition and uses, seasons, soil, climate, land preparation, propagation, spacing, planting, manures and fertilizers, irrigation, interculture, harvesting & yield.

PRACTICALS

1. Visit of commercial plantations in the district
2. Collection of locally available medicinal plants, plant description
3. Propagation techniques for two important medicinal plants
4. Visit to nearest medicinal garden
5. Preparation of herbarium of locally available medicinal plants

SUGGESTEDREADINGS

1. Kumar, N.B., Md Abdul khaddar, M., Ranga swamy, P and Iruiappan, I.1997. Introduction to Spices, Plantation Crops and Aromatic Crops. Oxford & IBH, New Delhi.
2. Shanmugavelu, K. G. Kumar, N and Nad Peter, K.V. 2005. Production Technology of Spices and Plantation Crops. Agrosis, Jodhpur.
3. Jain, S. K. 1983. Medicinal plants. National Book Trust, New Delhi. Dastur J F 1982.Medicinalplantsof India and Pakistan. Taraporevala sons andCo.Pvt. Ltd.,Bombay.
4. Atal, E. K and Kapur, B. M. 1982. Cultivation and Utilization of medicinal and aromatic plants. CSIR, New Delhi.

BLUEPRINT FORQUESTIONSETTER

UNITNO.	ESSAYQUESTIONS10MARKS	SHORTANSWERQUESTIONS 5MARKS	MARKS ALLOTED TO THEUNIT
UNIT– 1	01	02	20
UNIT-2	01	02	20
UNIT-3	01	02	20
UNIT-4	02	01	25
Total No. of Questions	**05**	**07**	
Total marks Including choice			**85**

SEMESTER IV

Core-VII

Medicinal & Plantation crops

	P.R.Government College(Autonomous) Kakinada	Program& Semester B.VOC HORTI - III			
Course Code **HORT7222 D**	**Medicinal & Plantation crops**				
Teaching	Hours Allocated:60 (**Theory**)	L	T	P	C
Pre-requisites:	Knowledge of different tropical ,sub tropical and Plantation crops	4	0	2	4

L-Lecture; T- Tutorial; P- Practical, C- Credits

PROGRAMME OUTCOMES

PO I: Critical thinking: Take informed actions after identifying the assumptions that frame our thinking actions, checking out the degree to which these assumptions are accurate and valid and looking at our ideas and decisions

PO 2: Students can easily speak, read, write, listen clearly and elicit views to others mediate disagreements and help to reach conclusions in group settings

PO 3: Students can easily understand the Facilitating detailed study of allied branches required to raise the income of farmers

PO 4: The B.VOC HORTI programme creates an understanding about Providing detailed knowledge of horticulture inIndia and Indian farmers income generating enterprises.

PO 5: After completing B.Sc, B.VOC HORTI programme students can get lot of employment opportunities in various fields such as agriculture, horticulture either in private or government sectors. This programme enables students to establish their own business in the areas like Aquaculture, Horticulture etc., Students can also pursue higher studies in Botany, Horticulture or Chemistry and they may focus on scientific research also. Acquire the knowledge of practical ability in handling the apparatus and process of methodology

PROGRAMME SPECIFIC OUTCOMES

PSO1: Considers the acquisition, integration, and application of plant-science knowledge expected for horticulturists. This knowledge is often taught in formal classes and through books.

PSO2: The capacity to integrate knowledge across a range of disciplines (e.g., business, soils, pathology), and have the ability to actually perform physical tasks that require practice and training (e.g., grafting).

PSO3: To develop creative skills to solve problems and improve current systems.

PSO4: Sets an expectation that graduates will be able to communicate about more than just the science behind horticulture, but also about the social, spiritual, and cultural importance of plants.

PSO 5: Finally, horticulture graduates ought to have developed leadership skills, learned how to work in teams, and exhibit a high level of professionalism and personal responsibility.

Course Outcomes

On completion of the course, the students will be able to-		Cognitive Domain
CO1	understand Introduction to plantation crops	Remembering /Understanding
CO2	Applicative learning may be enhanced due to their broad sectors applications in various fields.	Application
CO3	Analysing the Oil yielding crops	Analyzing
CO4	Gain knowledge on Masticatory Crops	Knowledge & Application
CO5	Understand the Beverage crops	Understanding & Application

Knowledge	Skill	Employability	Entrepreneurship

CO-PO– PSO Mapping:

- **(1:Slight[Low];2:Moderate [Medium];3:Substantial[High],'-': No Correlation)**

Low=10-25% Moderate=25-60% High=60-100%

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	1	2	2	2	1	2	2	2	2
CO2	3	2	2	2	2	2	1	1	1	1
CO3	1	2	2	2	3	3	2	2	3	1
CO4	1	2	3	2	2	3	1	2	2	2
CO5	1	2	3	2	3	3	1	2	3	3

P R GOVERNMENT COLLEGE (A), KAKINADA

SEMESTER– IV CORE – VIII

MEDICINAL AND PLANTATION CROP

IMPORTANTQUESTION BANK

UNIT–I

ESSAYS

1. Production technology of Coconut
2. Production technology of Oil palm
3. Production technology of Cocoa

SHORTS

1. Explain few varieties of coconut
2. Write few varieties of oil palm
3. What are the Byproducts of Cocoa?
4. What are the branching ,training and pruning in Cocoa?

UNIT– II

ESSAYS

1. What is the production technology of Cashew nut?
2. Production technology of Coffee

SHORTS

1. Epicotyl Grafting
2. Differences between Arabica and Robusta
3. Advantages and Disadvantages of shade
4. Flowering and fruits etin Coffee

UNIT– III

ESSAYS

1. Production technology of Aloe
2. Production technology of Rauvolfia
3. Production technology of Ashwagandha

SHORTS

1. What are the importance and uses of Aloevera?
2. Importance and uses of Morinda
3. Explain Drying and grading of Ashwagandha?
4. Root yield of Rauvolfia

UNIT– IV

ESSAYS

1. What is the production technology of Citronella?
2. What is the production technology of Mint?

SHORTS

1. Importance and uses of Lemongrass
2. Importance and uses of Mint
3. Species of Mint

VERYSHORTS

1. Uses of Coconut
2. Propagation of Oil palm
3. Shading types in cocoa
4. Rejuvenation
5. Branching pattern
6. Trenching
7. Chemical properties of Aloe
8. Propagation of Morinda
9. Botany of lemongrass
10. Chemical composition of Mint

B. Voc, HORTICULTURE,

SEMESTER – IV,CORE – VIII

MEDICINAL AND PLANTATION CROPS

MODELQUESTION PAPER

Time:3hrs **Marks:60**

PART–I

Answer any **THREE** of the following questions. Draw a neat labelled diagram when ever necessary. **3X10=30M**

1. Production technology of Coconut
2. Production technology of Oil palm
3. Production technology of Cocoa
4. What is the production technology of Citronella?
5. What is the production technology of Mint?

PART–II

Answer any **FOUR** questions **4 X 5 = 20 M**

1. Explain few varieties of coconut
2. Write few varieties of oil palm
3. What are the By products of Cocoa?
4. Epicotyl Grafting
5. Differences between Arabica and Robusta
6. Advantages and Disadvantages of shade
7. Flowering and fruits etin Coffee

I B.Voc., HORTICULTURE

SEMESTER-IV,MODELQUESTION PAPER

Time:2hrs. **TITLE:----------** **Marks:50**

PART–I

Answer any **THREE** of the following questions. Draw a neat labelled diagram when ever necessary

3x10= 30

1. Long answer question from UNIT-1
2. Long answer question from UNIT-2
3. Long answer question from UNIT-3
4. Long answer question from UNIT-4
5. Long answer question from ANYUNIT

PART–II

Answer any **FOUR** questions **4x5 = 20**

.

1. SAQfromUNIT-1
2. SAQfromUNIT-2
3. SAQfromUNIT-3
4. SAQfromUNIT-4
5. SAQ from ANY one of the UNIT
6. SAQ from anyone of the UNIT
7. SAQ from any one of the UNIT

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA

DEPARTMENT OF HORTICULTURE

Assessment methodology for Internships / On the Job Training / Apprenticeship under the revised CBCS (2020 – 21 onwards)

Second Internship (After 2nd year examinations): Apprenticeship / Internship / On the job training / In-house Project / Off-site Project

To make the students employable, an Apprenticeship / Internship / On the job training / In-house Project / Off-site Project shall be undertaken by the students in the intervening summer vacation between the 2nd and 3rd years.

Learning outcomes

- Explore career alternatives prior to graduation.
- Integrate theory and practice.
- Assess interests and abilities in their field of study.
- Learn to appreciate work and its function towards future .
- Develop work habits and attitudes necessary for job success.
- Develop communication, interpersonal and other critical skills in the future job.
- Build a record of work experience.
- Acquire employment contacts leading directly to a full-time job following graduation from college.
- Acquire additional skills required for world of work.

Assessment Model

There will be only internal evaluation for this internship. Each faculty member is to be assigned with 10 t0 15 students depending upon availability of the faculty members. The faculty member will act as a faculty-mentor for the group and is in- charge for the learning activities of the students and also for the comprehensive and continuous assessment of the students.

The assessment is to be conducted for 100 marks and the credits assigned are 4. Later as per the present practice the marks are converted into grades and grade points to include finally in the SGPA and CGPA.

The weightings shall be:

Project Log	20%
Project Implementation	30%
Project report	25%,
Presentation	25%

Each student is required to maintain an individual logbook, where he/she is supposed to record day to day activities. The project log is assessed on an individual basis, thus allowing for individual members within groups to be assessed this way. The assessment will take into consideration the individual student's involvement in the assigned work.

While grading the student's performance, using the student's project log, the following should be taken into account -

a. The individual student's effort and commitment.
b. The originality and quality of the work produced by the individual student.
c. The student's integration and co-operation with the work assigned.
d. The completeness of the logbook.

The assessment for Project Implementation during ***second internship / Project Work / On the Job Training / Apprenticeship*** shall include the following components and based on the entries of Project Log and Project Report:

a. Involvement in the work assigned
b. Regularity in the work assigned
c. New knowledge acquired
d. New skill acquired

The Project Report should contain

a. Introduction.
b. Project specifications (area / background of the work assigned).
c. Problems taken up.
d. Analysis of the problem.
e. Recommendations and conclusions.

The Project Presentation is to be made by the student after he/she reports back to the College. The components for assessment are –

a. assessing the involvement in the project
b. presentation skills
c. final outcome of the project as evinced by the student.

For Example:

II MPC-EM

S.No.	Name of the Student	Class & Year of Study	Register Number	Project Log	Project Implementation	Project Report	Presentation	Total
				(20)	(30)	(25)	(25)	(100)

Signature of Project Mentor **Signature of Nominated faculty** **Signature of HOD/ In-Charge**

IIIRDB.VOC
HORTICULTURE

SEMESTER – V

P R GOVERNMENT COLLEGE (A), KAKINADA
B. Voc (Horticulture) SEMESTER-
V CORE -XIII
FARM MANAGEMENT AND MARKETING

UNIT I: FARM MANAGEMENT -NATURE AND SCOPE

Farm Management- meaning and scope of Farm Management, Introduction to Agricultural Economics – relationship with other sciences- Economic principles applied to the organization of farm business-principles of variable proportions Determination of optimum input and optimum Output-Principle of Factor substitution-principle of product substitution -Law of Equi-marginal Returns-Opportunity cost Principle-Time comparison principle, meaning, Scope Typical farm management decisions

.

UNIT II: FARM PLANNING AND BUDGETING

Types and system of Farming-Farm Planning-Meaning-Need for farm Planning-Types of Farmplans-simple farm plan and whole farm plan-characteristics of a good farm plan-basic steps in farm Planning-Farm budgeting –meaning-types of farm budgets –Enterprise Budgeting-Partialbudgeting and whole farm budgeting.

UNIT III: FARM RISK MANAGEMENT

Distinction between risk and uncertainty - sources of risk and uncertainty-production and technicalrisks- price risk-financial risk-methods of reducing risks.

UNIT IV: AGRICULTURAL/HORTICULTURAL MARKETING – NATURE ANDSCOPE

Concepts and definition of marketing-scope of agricultural marketing-classification of markets Structure, conduct-performance-market forces-demand and supply-characteristics of agriculturalcommodities-marketing costs and marketing margins-price spread. Marketed and marketable surplus.

SEMESTER IV

Core-VII

Medicinal & Plantation crops

	P.R.Government College(Autonomous) Kakinada	Program& Semester B.VOC HORTI - III			
Course Code	**Farm Management & Marketing**				
Teaching	Hours Allocated:60 (**Theory**)	L	T	P	C
Pre-requisites:	Knowledge of different tropical ,sub tropical and Plantation crops	4	0	2	4

L-Lecture; T- Tutorial; P- Practical, C- Credits

PROGRAMME OUTCOMES

PO I: Critical thinking: Take informed actions after identifying the assumptions that frame our thinking actions, checking out the degree to which these assumptions are accurate and valid and looking at our ideas and decisions

PO 2: Students can easily speak, read, write, listen clearly and elicit views to others mediate disagreements and help to reach conclusions in group settings

PO 3: Students can easily understand the Facilitating detailed study of allied branches required to raise the income of farmers

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PO 5: After completing B.Sc, B.VOC HORTI programme students can get lot of employment opportunities in various fields such as agriculture, horticulture either in private or government sectors. This programme enables students to establish their own business in the areas like Aquaculture, Horticulture etc., Students can also pursue higher studies in Botany, Horticulture or Chemistry and they may focus on scientific research also. Acquire the knowledge of practical ability in handling the apparatus and process of methodology

PROGRAMME SPECIFIC OUTCOMES

PSO1: Considers the acquisition, integration, and application of plant-science knowledge expected for horticulturists. This knowledge is often taught in formal classes and through books.

PSO2: The capacity to integrate knowledge across a range of disciplines (e.g., business, soils, pathology), and have the ability to actually perform physical tasks that require practice and training (e.g., grafting).

PSO3: To develop creative skills to solve problems and improve current systems.

PSO4: Sets an expectation that graduates will be able to communicate about more than just the science behind horticulture, but also about the social, spiritual, and cultural importance of plants.

PSO 5: Finally, horticulture graduates ought to have developed leadership skills, learned how to work in teams, and exhibit a high level of professionalism and personal responsibility.

Course Outcomes

On completion of the course, the students will be able to-		Cognitive Domain
CO1	understand Introduction to plantation crops	Remembering /Understanding
CO2	Applicative learning may be enhanced due to their broad sectors applications in various fields.	Application
CO3	Analysing the Oil yielding crops	Analyzing
CO4	Gain knowledge on Masticatory Crops	Knowledge & Application
CO5	Understand the Beverage crops	Understanding & Application

Knowledge	Skill	Employability	Entrepreneurship

CO-PO– PSO Mapping:

- **(1:Slight[Low];2:Moderate [Medium];3:Substantial[High],'-': No Correlation)**

Low=10-25% Moderate=25-60% High=60-100%

	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	1	2	2	2	1	2	2	2	2
CO2	3	2	2	2	2	2	1	1	1	1
CO3	1	2	2	2	3	3	2	2	3	1
CO4	1	2	3	2	2	3	1	2	2	2
CO5	1	2	3	2	3	3	1	2	3	3

PRACTICALS

1. Visit to a farm (government/ private/ corporate) to study the layout and organization
2. Visit to farm households-collection of data on cost of cultivation
3. Cost concepts -computation
4. Depreciation-methods of computing depreciation
5. Preparation of farm plans and budgets
6. Farm visit to collect information on marketing practices and marketing problems
7. Visit to village shandies/ vegetable market/ farmers markets
8. Visit to wholesale markets/commission mundies for horticultural crops
9. Visit to AGMARK laboratories/ grading centres/cold storage

SUGGESTED READINGS

1. S. S Johl, J.R. Kapur,2006, Fundamentals of Farm Business Management: Kalyani Publishers New Delhi.
2. S. S Acharya and N.L.Agarwal, 2004, Agricultural Marketing in India, Oxford & IBH Publishing Company, New Delhi.

BLUE PRINT FOR QUESTION SETTER

UNIT NO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
UNIT – 1	02	01	02	29
UNIT -2	01	01	02	19
UNIT -3	01	02	02	24
UNIT -4	01	02	02	24
Total No. of Questions	**05**	**06**	**08**	
Total marks Including choice				**96**

P R GOVERNMENT COLLEGE (A), KAKINADA
SEMESTER – V, CORE – XIII
FARM MANAGEMENT AND MARKETING
IMPORTANT QUESTION BANK

UNIT – I

ESSAYS

1. What is a farm management and its scope?
2. What are the economic principles applied to the organization of farm business?
3. What is the law of Equip-Margin returns?

SHORTS

1. What are principle of variable proportions?
2. Determination of optimum Input and optimum Output?
3. what is the time comparison principles?

UNIT – II

ESSAYS

1. What is farming? Types and systems of farming?
2. What are basic steps in farm planning.
3. Types of farm budgets.

SHORTS

1. What is whole plan farm?
2. Characteristics of good farm plan

UNIT – III

ESSAY

1. Distinction between Risk and Uncertainty

SHORTS

1. Methods of reducing risks
2. Sources of risk and uncertainty

UNIT – IV

ESSAY

1. What is the nature and scope of Marketing?
2. What are the classification of Market?
3. Characteristics of agricultural commodities.

SHORTS

1. What are the demands and force and supply of Market?
2. What are the marketing margins?
3. Marketed & Marketable Surplus
4. What is Marketing price spread?

VERY SHORTS

1. What is farming?
2. Whole plan farming
3. Basics steps in farm planning
4. Methods of reducing risks.
5. Definition of Marketing
6. What is price spread?
7. What is Agricultural Marketing?
8. What are the sources of Risk?
9. Budgeting
10. Technical risks.

P R GOVERNMENT COLLEGE (A), KAKINADA
B.Voc, HORTICULTURE LANDSCAPE MANAGEMENT
CORE - XIII
FARM MANAGEMENT AND MARKETING
MODEL QUESTION PAPER

Time: 3hrs **Marks:60**

PART - I

Answer any **THREE** of the following. Draw a neat labelled diagram whenever necessary **3x10=30**

1. What is a farm management and its scope?
2. What are the economic principles applied to the organization of farm business?
3. What is farming? Types and systems of farming?
4. Distinction between Risk and Uncertainty
5. What is the nature and scope of Marketing?

PART – II

Answer any **FOUR** of the following. Draw a neat labelled diagram whenever necessary **4x5=20**

1. What are principle of variable proportions?
2. Determination of optimum Input and optimum Output?
3. What is whole plan farm?
4. Methods of reducing risks
5. Sources of risk and uncertainty
6. What are the classification of Market?
7. Characteristics of agricultural commodities.
8. What are the demands and force and supply of Market?

PART – III

Answer all **FIVE** questions **5x2=10**

1. Definition of Marketing
2. What is price spread?
3. What is farming?
4. Whole plan farming
5. Basics steps in farm planning

P R GOVERNMENT COLLEGE (A), KAKINADA
B. Voc (Horticulture) SEMESTER-
V CORE –XIV
GENERAL PRINCIPLES OF FRUITS AND VEGETABLES PRESERVATION

UNIT I:
Importance of fruit and vegetable Preservation-Definition of preservation- Classify the differentMethods of preservation. Causes of post harvest losses

UNIT II:
Principle of preservation-prevention of microbial decomposition-prevention of self-decompositionby enzymes-prevention of damage by insects, rodents, animals etc. Principles and method of preservation. Preservation by Asepsis, High Temperature, low temperature, Chemicals-Drying, filtration, carbonation, sugar salt, fermentation, acids, oil and spices, antibiotics, irradiation

UNIT III:
Unfermented fruit beverages: Preparation and preservation of unfermented fruit beverages juices,RTS, Nectar, cordial, squash, syrup, crush.
Jams, jellies and Marmalades – Procedure for preparation. Jams: Problems of Jam production.Jelly: Important considerations in jelly making and problems of jelly preparations

UNIT IV:
Preparation of sauces and ketchups, pickle, salads.
Food laws: Fruit Product Order-Food Standardization and Regulatory agencies in Indiapreservatives and colours permitted and prohibited in India

SEMESTER IV

Core-VII

Medicinal & Plantation crops

	P.R.Government College(Autonomous) Kakinada	Program& Semester B.VOC HORTI - III			
Course Code	**GENERAL PRINCIPLES OF FRUITS AND VEGETABLES PRESERVATION**				
Teaching	Hours Allocated:60 (**Theory**)	L	T	P	C
Pre-requisites:	Knowledge of different tropical ,sub tropical and Plantation crops	4	0	2	4

L-Lecture; T- Tutorial; P- Practical, C- Credits

PROGRAMME OUTCOMES

PO I: Critical thinking: Take informed actions after identifying the assumptions that frame our thinking actions, checking out the degree to which these assumptions are accurate and valid and looking at our ideas and decisions

PO 2: Students can easily speak, read, write, listen clearly and elicit views to others mediate disagreements and help to reach conclusions in group settings

PO 3: Students can easily understand the Facilitating detailed study of allied branches required to raise the income of farmers

PO 4: The B.VOC HORTI programme creates an understanding about Providing detailed knowledge of horticulture inIndia and Indian farmers income generating enterprises.

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PROGRAMME SPECIFIC OUTCOMES

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Course Outcomes

On completion of the course, the students will be able to-		Cognitive Domain
CO1	understand Introduction to plantation crops	Remembering /Understanding
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CO5	Understand the Beverage crops	Understanding & Application

Knowledge	Skill	Employability	Entrepreneurship

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CO1	3	1	2	2	2	1	2	2	2	2
CO2	3	2	2	2	2	2	1	1	1	1
CO3	1	2	2	2	3	3	2	2	3	1
CO4	1	2	3	2	2	3	1	2	2	2
CO5	1	2	3	2	3	3	1	2	3	3

PRACTICALS

1. Preparation of syrups and brines
2. Preparation of Jams
3. Preparation of Jellies and marmalades
4. Preparation of RTS/ Squash/syrup
5. Preparation of Candies and preserves
6. Dehydration of Fruits and vegetables
7. Preparation of Pickles (Hot and sweet)
8. Preparation of Sauces
9. Preparation of Ketchups
10. Visit to Processing units

SUGGESTED READINGS

1. Desrosier, N. W. 1959. The Technology of Food Preservation AVI Publishing Co., Inc., Connecticut, USA.
2. Hulme, A. C. 1970. The Biochemistry of Fruits and their Products. Academic Press, London.
3. Lal, G., Siddappa, G. S and Tadon, N. G. L. 1986. Preservation of Fruits and Vegetables ICAR, New Delhi.

BLUE PRINT FOR QUESTION SETTER

UNIT NO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
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UNIT -2	01	01	02	19
UNIT -3	01	02	02	24
UNIT -4	01	02	02	24
Total No. of Questions	**05**	**06**	**08**	
Total marks Including choice				**96**

P R GOVERNMENT COLLEGE (A), KAKINADA
SEMESTER – V, CORE – XIV
GENERAL PRINCIPLES OF FRUITS AND PRESERVATION
IMPORTANT QUESTION BANK

UNIT – I

ESSAYS

1. Definition of preservation. Importance of vegetable preservation?
2. Classification the different methods of preservation.

SHORTS

1. Importance of fruit preservation

UNIT – II

ESSAYS

1. What are the principles of preservation? Explain the prevention of microbial decomposition?
2. What are the chemical process involved in preservation?

SHORTS

1. What is the preservation of self decomposition by enzymes?
2. what are the preservation of Asepsis high and low temperature?

UNIT –III

ESSAYS

1. Explain the unfermented fruit beverage and its preparation of juices, squash, syrup?
2. What is the procedure and preservation of Marmalades and jellies?
3. The important consideration in jelly making and problems of jelly preparation.

SHORTS

1. RTS
2. Cordial
3. Preparation of jam
4. Problems of jam

UNIT – IV

ESSAYS

1. Preparation of ketchup and its uses?
2. What are the causes for spoilage of vegetables?
3. Food standardization and regulatory agencies in India.

SHORTS

1. Pickles
2. Salads
3. Spoilage of vegetables
4. Food order product

VERY SHORTS

1. Rodents
2. Drying
3. Filtration
4. Carbonation
5. Fermentation
6. What is a crush?
7. Few problems for jelly preparation
8. What are the uses of preservation?
9. Ketchup process
10. Food law?

P R GOVERNMENT COLLEGE (A), KAKINADA
B.Voc, HORTICULTURE LANDSCAPE MANAGEMENT
SEMESTER – V, CORE – XIV
GENERAL PRINCIPLES OF FRUITS AND VEGETABLES PRESERVATION
MODEL QUESTION PAPER

Time: 3hrs **Marks:60**

PART - I

Answer any **THREE** of the following. Draw a neat labelled diagram whenever necessary **3x10=30**

1. Definition of preservation. Importance of vegetable preservation?
2. What are the principles of preservation? Explain the prevention of microbial decomposition?
3. Explain the unfermented fruit beverage and its preparation of juices, squash, syrup?
4. What is the procedure and preservation of Marmalades and jellies?
5. What are the causes for spoilage of vegetables?

PART – II

Answer any **FOUR** of the following. Draw a neat labelled diagram whenever necessary **4x5=20**

1. Importance of fruit preservation
2. What is the preservation of self decomposition by enzymes?
3. Preparation of jam
4. Spoilage of vegetables
5. Food order product
6. Pickles
7. RTS
8. The preservation of Asepsis high and low temperature.

PART – III

Answer all **FIVE** questions **5x2=10**

1. Filtration
2. Carbonation
3. Fermentation
4. Ketchup process
5. Food law?

P R GOVERNMENT COLLEGE (A), KAKINADA
B. Voc (Horticulture)
SEMESTER-V CORE -XV
PROJECT

1. Nursery visits
2. Field visits.
3. Agricultural farming
4. Documentation on Gardening
5. Methods of quarantine
6. Preparation of seedlings-Propagation Techniques

P R GOVERNMENT COLLEGE (A), KAKINADA
I B.Voc., HORTICULTURE SEMESTER-V,
PRACTICAL MODEL QUESTION PAPER

Time: 2 hrs. **TITLE: ----------** **Marks: 50**

A. Major experiment	1x10m	= 10 marks
B. Minor experiment	3x6m	= 18 marks
C. Spotters	6x2m	= 12 marks
D. Record & Viva	5+5m	= 10 marks
	Total	- 50 marks

IIIRDB.VOC
HORTICULTURE
SEMESTER – V
Non Core Botany

P R GOVERNMENT COLLEGE (A), KAKINADA
B. Voc (Horticulture)
SEMESTER-V
Non Core botany paper-6
Soil Microbiology

Unit-1: soil micro organisms :-
Soil microbiology-definition, scope, significant developments in soil microbiology, contributions-soil as a natural medium for plant growth-microbial ecology-how does soil support microbial life-soil micro flora-plant growth promoting micro organisms(PGPR)-mycorhiza-organic matter decomposition

Unit-2:Microbial Interactions in The Soil

A. Interactions between microbes-in the soil-positive interactions:-Proto-cooperation(synergism),commensalism,symbiosis(mutualism)-Negative Interactions:-competition, ammensalism (antibiosis or antagonism),parasitism and predation.

B. Plant-microbe interaction:- The Rhizosphere and its effects-microbial activities in rhizosphere-alteration of rhizosphere microflora-root exudates- fungistasis -techniques-rhizosphere and benificial organisms :the Phyllosphere- Charecteristic features of phyllosphere micro flora-phyllosphere effect-microbial communities on leaves-microbial products influencing plant growth

Unit-3:Microbes & nutrient cycles:
Carbon cycle-oxygen, sulphur , phosphorous, iron cycles-nitrogen cycles-nitrification & denitrification- biological nitrogen fixation-"N" fixers-biofertilizers (Biodegradation of Pesticides and Pollutants)

Unit-4:Soil Microbes in Bio remediation & Soil Microbial studies

A. Bioremediation:-Biomagnification & Bioremediation-fungi, Bacteria in Bioremediation-Fate ofpesticides in Soil-Pesticide degrading soil microorganisms-microbes in solid waste disposal (Sanitary land fills & land reclamation)-Composting

B. Methods used in soil microbial studies -sterilization methods – direct microscopic examinationof soil-chemical methods-methods for assaying antibiotics and molecular methods in soil microbiology.

P R GOVERNMENT COLLEGE (A), KAKINADA
III BSC B.Voc (Horticulture)/Semester End
Botany (Noncore) Practical Syllabus., Semester – V
Soil Microbiology

SUGGESTED LABORATORY EXERCISES:

1. Soil testing – Soil analysis
2. Isolation of Actinomycetes through Serial dilution
3. Types of Soil Microbes – Photographs
4. Isolation of Rhizobium through YEMA
5. Cultivation of Azolla in the garden
6. Observation of Specimens like Tikka disease of Ground nut, Red rot of Sugarcane, Wilt of cotton

P R GOVERNMENT COLLEGE (A), KAKINADA
B. Voc (Horticulture)
SEMESTER-V
Non Core botany paper-7

Agriculture Microbiology

Unit-1:Microbes & Soil Fertility

A. Microbes in rhizosphere and Phyllosphere
B. Plant Growth – Promoting microorganisms– mycorrhiza,rhizobia,azospirillum,azotobacter,cyanobacteria,Frankia
C. Outlines of biological nitrogen fixation (non-symbiotic)

Unit-2:Microbes & Plant diseases

A. a general account of different plant pathogens: virus, bacteria
B. symptoms, causal organism, disease cycle-environmental relations, management & control offollowing plant diseases : 1.Viral:bunchy top of banana.,tungro of rice 2.Bacterial:citrus canker., bacterial blight of rice
C. Biological control of plant diseases. biopesticides-biopesticides-nucleopoly hedro virus (NPV),Bacillus thurengenesis, Pseudomonas flouroscence & Trichoderma viridae

Unit-3:Microbes in environment

A. Microorganisms of environment(soil, water & air)
B.Role of micro organisms in nutrient cycling(carbon, nitrogen, phosphorous, sulphur)
C. Microbial interactions -mutualism, commensalism, antagonism, competition, parasitism,predation

Unit-4:Microbes in pollution control

A. Microbes in portable and polluted waters. E.coli & Streptococcus faecalis as indicators of waterpollution.
B. Sanitation of portable water. seawage treatment (primary, secondary & tertiary).outlines of biodegradation of environmental pollutants – pesticides.
C. Solid waste disposal- sanitary landfills, composting
D. Microbiology of air & air sampling methods.

P R GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA
III B. Voc (Horticulture)-Practical Syllabus
AGRICULTURAL MICROBIOLOGY

1. Isolation and enumeration of Rhizosphere microflora
2. Isolation and enumeration of Phyllo sphere microflora
3. Isolation of Rhizobium from legume root nodules.
4. Isolation of Azospirillum and Azotobacter.
5. Staining and observation of VAM fungi.
6. Microbial examination of water by coli form test (Multiple tube Fermentation method)

IIIRD B.VOC
HORTICULTURE

SEMESTER – VITH

PITHAPUR RAJAH'S GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA

DEPARTMENT OF HORTICULTURE

Assessment methodology for Internships / On the Job Training / Apprenticeship under the revised CBCS (2020 – 21 onwards)

Third internship/Apprenticeship (5th/6th Semester period):

During the entire 5th /6th Semester, the student shall undergo Apprenticeship / Internship / On the Job Training. This is to ensure that the students develop hands on technical skills which will be of great help in facing the world of work.

Learning outcomes

- Explore career alternatives prior to graduation.
- Integrate theory and practice.
- Assess interests and abilities in their field of study.
- Learn to appreciate work and its function towards future .
- Develop work habits and attitudes necessary for job success.
- Develop communication, interpersonal and other critical skills in the future job.
- Build a record of work experience.
- Acquire employment contacts leading directly to a full-time job following graduation from college.
- Acquire additional skills required for world of work.

Assessment model for the semester long apprenticeship / on the job training / internships during the V/VI Semester:

The assessment for the V / VI Semester long apprenticeship is for 200 marks and credits assigned are 12.

A monthly report is to be submitted to the teacher guide online within 15 days after the completion of the every month upto four months. The last two months of internship period shall be used for preparation of final project report simultaneously undergoing on the job training / internship / apprenticeship.

The assessment for this internship / on the job training will be both internal and external assessment. The internal assessment will be for 25% of marks which willbe continuous and the assessment by the industry / enterprise / organization where the student does his/her internship will be indicated in grades. This assessment is to be conducted by a responsible person (General Manager / HR Manager / Head of the Division) in consultation with the supervisor under whom the internship was done.

The components of internal assessment during *this* ***third internship / Project Work / On the Job Training / Apprenticeship*** shall include the following components and based on the entries of Project Log and Project Report:

a. Involvement in the work assigned
b. Regularity in the work assigned
c. New knowledge acquired
d. New skill acquired

The Project Report should contain

a. Introduction.
b. Project specifications (area / background of the work assigned).
c. Problems taken up.
d. Analysis of the problem.
e. Recommendations and conclusions.

The Project Presentation is to be made by the student after he/she reports back to the College. The components for assessment are –

a. assessing the involvement in the project
b. presentation skills
c. final outcome of the project as evinced by the student.

There shall be a final evaluation committee comprising of Principal, Teacher Guide, Internal Expert and External Expert nominated by the affiliating University. The final evaluation committee shall consider the following for evaluation –

A. Monthly Reports submitted by the student

B. Final Project Report

C. Grading given by the Company / Business unit / Enterprise where the student has undergone the training. The grades shall be converted into marks on the scale followed by the University.

To evaluate and award marks, the Committee conducts viva voce examination at thecollege.

Example:

Name of the Student:	
Class & Year of Study	
Registered Number	
Internal Assessment Component	**Max. Marks**
1. Project Log	10
2. Project Implementation	20
3. Project Report	10
4. Presentation	10
TOTAL	**50**
External Assessment Component	**Max. Marks**
Performance Assessment by the Evaluation Committee, converting the grades awarded by the industry, enterprise, etc.	**100**
External Viva Voce	**50**
GRAND TOTAL	**200**

P R GOVERNMENT COLLEGE (A), KAKINADA
B.Voc (Horticulture)
SEMESTER-VI CORE -XI
RECENT ADVANCES IN HORTICULTURE

UNIT-I

Watershed management objectives, approaches, steps in watershed development. Importance and principles of organic farming in horticultural crops, sources and importance of organic matter.

UNIT-II

Flower arrangement – Ikabana & western trend, Principles of flower arrangement, tools & equipment, dehydrated flowers, dehydration methods, maintenance of flower shape, procedure for embedding, pot –pourri.

UNIT-III

Bonsai – Suitable plants for Bonsai; Aesthetics with plant parks, classification of Bonsai, requirements of Bonsai pot, Training and pruning, potting & repotting, general care.
Terrarium culture.

UNIT-IV

Apiculture, bee-keeping flora in India, bee-keeping technology, equipment, Honey extraction.
Mushroom production nutritional aspects, recipes. Home scale industry prospect

PRACTICALS

1. Visit to Mushroom production unit.
2. Classification of Bonsai and Steps of growing a Bonsai.
3. Flower arrangement in different styles.
4. Preparation of bouquets.
5. Terrarium Culture.
6. Visit to Apiculture unit.
7. Visit to Drip-Micro irrigation project areas of horticultural farms
8. Visit to local vermin-compost unit.
9. Visit to watershed management centre.

SUGGESTED READINGS

1. Neol Kings bury, 1997. The ultimate planting guide.
2. Chada, K. L and Grewal, J. S. Advances in Horticulture Volume 2,3,4,6 and 12. ICAR, Malhotra Publishing House, New Delhi.
3. Sharma, V. K. Advances in Horticulture. Deep & Deep Publication Pvt. Limited, New Delhi, India.

BLUE PRINT FOR QUESTION SETTER

UNIT NO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
UNIT – 1	02	01	02	29
UNIT -2	01	01	02	19
UNIT -3	01	02	02	24
UNIT -4	01	02	02	24
Total No. of Questions	**05**	**06**	**08**	
Total marks Including choice				**96**

P R GOVERNMENT COLLEGE (A), KAKINADA
SEMESTER – VI, CORE – XVI
RECENT ADVANCES IN HORTICULTURE
IMPORTANT QUESTION BANK

UNIT – I

ESSAY

1. Explain watershed management? what are the steps involved in watershed management?

SHORTS

1. Importance of organic farming in horticultural crops.
2. What are the source and the importance of organic matter?
3. Principles of organic farming.

UNIT –II

ESSAY

1. What is flower arrangement – Ikabana & Western trend and its principles?

SHORTS

1. Tools Equipment used in flower arrangement
2. Explain the methods of Dehydration?
3. What are the basic steps for maintenance of flower shape?
4. Procedure of embedding?

UNIT –III

ESSAYS

1. What is a Bonsai? Which type of plants are suitable for Bonsai? Aesthetics with plant parks
2. Explain the classification of Bonsai?

SHORTS

1. Requirement of Bonsai pots
2. Training and pruning in Bonsai plants
3. Potting & Repotting
4. What is the general care towards Bonsai plants?

UNIT – IV

ESSAY

1. What is Apiculture? Bee-keeping in India and the technology used in Bee-keeping.
2. What is the process of production of Mushroom and its nutritional Aspects?

SHORTS

1. What are the equipment used in Bee-keeping?
2. What are the steps involved in extraction of Honey?
3. What is the home scale industry prospects?

VERY SHORTS

1. What is vermiculite?
2. What is Organic Farming?
3. Apiculture
4. What is Dehydration?
5. Few types of Honey Bee.
6. Varieties of Mushrooms
7. What are the uses of Repotting?
8. Foraging
9. What is potting?
10. Process of Repotting.

P R GOVERNMENT COLLEGE (A), KAKINADA
B.Voc, HORTICULTURE LANDSCAPE MANAGEMENT
SEMESTER – VI, CORE – XVI
RECENT ADVANCES IN HORTICULTURE
MODEL QUESTION PAPER

Time: 3hrs **Marks :60**

PART – I

Answer any **THREE** of the following. Draw a neat labelled diagram whenever necessary **3 x 10 = 30**

1. Explain watershed management? what are the steps involved in watershed management?
2. What is flower arrangement – Ikabana & Western trend and its principles?
3. Explain the classification of Bonsai?
4. What is Apiculture? Bee-keeping in India and the technology used in Bee-keeping.
5. What is a Bonsai? Which type of plants are suitable for Bonsai? Aesthetics with plant parks.

PART – II

Answer any **FOUR** of the following. Draw a neat labelled diagram whenever necessary **4x5=20**

1. What are the source and the importance of organic matter?
2. Explain the methods of Dehydration?
3. What are the basic steps for maintenance of flower shape?
4. Training and pruning in Bonsai plants
5. Potting & Repotting
6. What are the equipment used in Bee-keeping?
7. What are the steps involved in extraction of Honey?
8. What is the home scale industry prospects?

PART – III

Answer all **FIVE** questions **5x2=10**

1. Vermiculite
2. What is Dehydration?
3. Few types of Honey Bee.
4. Varieties of Mushrooms
5. What are the uses of Repotting?

P R GOVERNMENT COLLEGE (A), KAKINADA
B. Voc (Horticulture)
SEMESTER-VI CORE –XII
POST HARVESTING TECHNOLOGY OF HORTICULTURAL CROPS

UNIT-I

Importance of Post-harvest technology of horticultural crops-post harvest losses in the Country-Loss of revenue in the country. Physiological and Biochemical changes: Physiological – Softening, Physiological loss in weight (PLW), texture, respiration and transpiration, Bio-chemical changes – Change in carbohydrates, organic acids, pigments, phenolic compounds, flavoring compounds, enzyme activity.

Study of Maturity – definition of maturity, different methods of judge maturity in horticultural crops like Mango, Banana, Citrus, Papaya, Brinjal, Tomato, Bhendi, coconut, oil palm.

UNIT-II

Physico-chemical changes during development, ripening, storage of fruits and vegetables.

Methods of storage and transportation of horticultural crops

Study of Harvesting, grading, packaging and storage of Fruit crops like Mango, Banana, Citrus, Papaya.

UNIT-III

Study of Harvesting, grading, packaging and storage of vegetable crops like Brinjal, Tomato, Bhendi, Onion, melons and pumpkin.

Study of Harvesting, grading, packaging and storage of plantation crops like coconut, cashew, coffee, oil palm.

UNIT-IV

Study of Harvesting, grading, packaging and storage of medicinal crops like Rauvulfia, Cinchona, Senna.

Study of Harvesting, grading, packaging and storage of flower crops like Roses, gladiolus, gerbera, chrysanthemum.

PRACTICALS

1. Practice in judging the maturity of various horticultural produce
2. Determination of physiological loss in weight and quality
3. Grading of horticultural produce
4. Packing studies in fruits, vegetables by using different packing material
5. Packing studies in plantation crops and cut flowers by using different packing material
6. Methods of storage
7. Methods of transportation
8. Identification of storage pests and diseases
9. Visit to markets, packing houses and cold storages
10. Packing studies in plantation crops and cut flowers by using different packing material

SUGGESTED READINGS

1. Venkatarathnam, L. 1988. Packaging of Fruits and Vegetables in India Agri-Horticultural Society, Hyderabad.
2. Salunkhe, D. K., Bhatt, N. R and Desai, B. B. 1990. Post-harvest Biotechnology of Flowers and Ornamental Plants. Nayaprakash, Calcutta.
3. Pandey, P. H. 1998. Principles and Practice of Post-Harvest Technology. Kalyani Publishers, Ludhiana.

BLUE PRINT FOR QUESTION SETTER

UNIT NO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
UNIT – 1	02	01	02	29
UNIT -2	01	01	02	19
UNIT -3	01	02	02	24
UNIT -4	01	02	02	24
Total No. of Questions	**05**	**06**	**08**	
Total marks Including choice				**96**

P R GOVERNMENT COLLEGE (A), KAKINADA
SEMESTER – VI, CORE –XVII
POST HARVEST TECHNOLOGY OF HORTICULTURAL CROPS
IMPORTANT QUESTION BANK

UNIT – I

ESSAYS

1. What is post-harvest technology of horticultural crops and its importance?
2. What are the post-harvest losses in the country?
3. What are the Bio-chemical changes?
4. What is Maturity? Judge maturity in Bhendi.
5. Different methods of judge maturity in coconut.

SHORTS

1. What is the physiological loss in weight?
2. Different methods of judge maturity in Banana.
3. What is Respiration &Transpiration?
4. Loss of Revenue in country.

UNIT – II

ESSAY

1. What are the methods of storage and transportation of Horticultural crops?

SHORTS

1. Physical changes during development of fruits
2. Harvesting and packaging process of the citrus.
3. Grading and storage of Banana.
4. Harvesting and storage of Papaya.

UNIT – III

ESSAYS

1. The study of harvest, grading, packing and storage of pumpkin.
2. The study of Harvesting, grading and packaging and storage of plantation crop like Coffee.

SHORTS

1. Grading and packaging of Brinjal.
2. Harvesting and storage of Melons
3. Harvesting and packaging process of Oil palm.

UNIT – IV

ESSAYS

1. The study of Harvesting, Grading, packaging and storage of Rauvulfia?
2. The study of Harvesting, Grading, Packaging, and Storage of Chrysanthemum?

SHORTS

1. Harvesting and storage of Senna.
2. Grading and packaging of Gladiolus.
3. Harvesting and packaging of Gerbera.

VERY SHORTS

1. What is Phenolic compounds?
2. Flavoring compound.
3. Uses of cinchona
4. What are plantation crops?
5. Storage of onion
6. Grading of Mango
7. What is a Maturity?
8. What is enzyme activity?
9. Grading of coconut
10. Uses of Medicinal crop’s

P R GOVERNMENT COLLEGE (A), KAKINADA
B.Voc, HORTICULTURE LANDSCAPE MANAGEMENT
SEMESTER – VI, CORE - XVII
POST HARVESTING TECHNOLOGY OF HORTICULTURAL CROPS
MODEL QUESTION PAPER

Time: 3hrs **Marks:60**

PART - I

Answer any **THREE** of the following. Draw a neat labelled diagram whenever necessary **3x10= 30**

1. What is post-harvest technology of horticultural crops and its importance?
2. Different methods of judge maturity in coconut.
3. What are the methods of storage and transportation of Horticultural crops?
4. The study of harvest, grading, packing and storage of pumpkin.
5. The study of Harvesting, Grading, packaging and storage of Rauvulfia?

PART – II

Answer any **FOUR** of the following. Draw a neat labelled diagram whenever necessary **4x5=20**

1. What is the physiological loss in weight?
2. Different methods of judge maturity in Banana.
3. Physical changes during development of fruits
4. Harvesting and packaging process of the citrus.
5. Harvesting and storage of Melons
6. Harvesting and packaging process of Oil palm.
7. Harvesting and storage of Senna.
8. Grading and packaging of Gladiolus.

PART – III

Answer all **FIVE** questions **5x2=10**

1. What is Phenolic compounds?
2. Flavoring compound.
3. Uses of cinchona
4. What are plantation crops?
5. Storage of onion

P R GOVERNMENT COLLEGE (A), KAKINADA
B. Voc (Horticulture)
SEMESTER-VI CORE –XVIII
ORGANIC FARMING

UNIT-I

A. What is Organic Farming?
B. Why Organic Farming?

Detrimental effects of currently chemical dependent farming.

- Reduction of crop production due to depletion of soil Health.
- Pesticide contamination and human health hazard.
- Contamination of food products by pesticides & chemicals.
- Environmental (soil, water, air) pollution.
- Reduction of natural enemies of crop pests.
- Threat to Bio diversity.
- Historical development of Organic Agriculture in India.
- Present status of Organic farming in Andhra Pradesh.

UNIT-II

Types of Farming (Advantage & disadvantage of each system);

- Pure Organic Farming – Definition, Concept & Benefits
- Integrated Farming system (Combination of Organic and Inorganic)
- Mixed Farming
- Inter cropping

Organic Farming (Process):

- Concept of farming system
- Developing organic farms
- Important steps & methods

UNIT-III

- Sources of nutrients for Organic farming
- Organic Manure
- FYM/Rural compost, City compost, Oil cakes,
- Animal wastes, Vermi composts, etc
- Characterization and Nutrients content of the above sources
- Green Manure
- Liquid Manure
- Bio fertilizers

UNIT-IV

Plant Protection Measures:

- Integrated pest & disease managements.
- Organic pesticides, bio-pesticides.
- Inorganic pesticides, disadvantages of their use.
- Seed, seedling and soil Treatment measures.
- Feasibility of complete dependence on organic sources
- Organic Agri-Horticulture in Urban & Semi urban areas.
- Quality Control and certification procedures of Organic products.

PRACTICALS

1. Selection of soil and soil conditioners
2. Preparation of FYM / Rural compost / Vermi compost
3. Preparation of seed bed & raising of seedlings
4. Land preparation
5. Raising of seedlings in pots or seed pans
6. Undertaking pot / container culture of flowers, vegetables, fruit plants
7. Practice training on interculture operations
8. Visit to near Organic Farming at farmer field

SUGGESTED READINGS

1. Steve Gilman. Organic soil fertility management.
2. Sapna E. Thottathil. India's Organic Farming Revolution.
3. Pradyumna Tripathy and Umesh Thapa. Organic Farming in India.

BLUE PRINT FOR QUESTION SETTER

UNIT NO.	ESSAY QUESTIONS 10 MARKS	SHORT ANSWER QUESTIONS 5 MARKS	VERY SHORT ANSWER QUESTIONS 2 MARKS	MARKS ALLOTED TO THE UNIT
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UNIT -3	01	02	02	24
UNIT -4	01	02	02	24
Total No. of Questions	**05**	**06**	**08**	
Total marks Including choice				**96**

P R GOVERNMENT COLLEGE (A), KAKINADA
I B.Voc., HORTICULTURE SEMESTER-VI,
PRACTICAL MODEL QUESTION PAPER

Time: 2 hrs. **TITLE: ----------** **Marks: 50**

A. Major experiment	1x10m	= 10 marks
B. Minor experiment	3x6m	= 18 marks
C. Spotters	6x2m	= 12 marks
D. Record & Viva	5+5m	= 10 marks
	Total	- 50 marks

P R GOVERNMENT COLLEGE (A), KAKINADA
SEMESTER – VI, CORE – XVIII
ORGANIC FARMING
IMPORTANT QUESTION BANK

UNIT – I

ESSAY

1. What is an organic farming?
   a. Reduction of crop production due to depletion of soil health
   b. Reduction of natural enemies of crop pests

SHORTS

1. Environment pollution
2. Pesticide contamination and human health hazard.
3. Present status of organic farming in A.P.

UNIT – II

ESSAYS

1. Types of Farming
2. Integrated farming system
3. Mixed farming
4. Organic farming
5. Concepts of farming system
6. Important steps and methods involved init.

SHORTS

1. Definition of pure organic farming. Concepts& Benefits?
2. Development of organic farms
3. Combination of Inorganic farming system.

UNIT – III

ESSAY

1. What are the sources of nutrients for organic farming?
2. Organic manure
3. FYM
4. Animal waste, vermicost

SHORTS

1. Preparation of Vermicompost
2. What is Green manure?
3. Explain Bio fertilizers

UNIT – IV

ESSAYS

1. Integrated pest & Disease management
2. Organic agro& horticulture in Urban & semi urban areas
3. Seed, Seedling and soil treatment measures.

SHORTS

1. Bio-pesticides
2. Inorganic pesticide, Disadvantages and their uses.
3. Feasibility of complete dependence on organic sources
4. Certification procedures of organic products.

VERY SHORTS

1. What is a quality control?
2. Water pollution
3. Advantages of farming.
4. Inter cropping.
5. Uses of Oilcakes
6. Advantages of animal manures
7. What is Rural compost?
8. Uses of soil treatment
9. What are the organic pesticides?
10. soil pollution.

P R GOVERNMENT COLLEGE (A), KAKINADA
B.Voc, HORTICULTURE LANDSCAPE MANAGEMENT
SEMESTER – VI, CORE – XVIII
ORGANIC FARMING
MODEL QUESTION PAPER

Time: 3hrs **Marks:60**

PART - I

Answer any **THREE** of the following. Draw a neat labelled diagram whenever necessary **3x10=30**

1. What is an organic farming?
   a. Reduction of crop production due to depletion of soil health
   b. Reduction of natural enemies of crop pests
2. Types of Farming
   a. Integrated farming system
   b. Mixed farming
3. Organic farming
   a. Concepts of farming system
   b. Important steps and methods involved in it.
4. What are the sources of nutrients for organic farming?
   a. Organic manure
   b. FYM
   c. Animal waste, vermicompost
5. Integrated pest & Disease management

PART – II

Answer any **FOUR** of the following. Draw a neat labelled diagram whenever necessary **4x5=20**

1. Environment pollution
2. Pesticide contamination and human health hazard.
3. Definition of pure organic farming. Concepts& Benefits?
4. Development of organic farms
5. Combination of Inorganic farming system.
6. Preparation of Vermicompost
7. Feasibility of complete dependence on organic sources
8. Certification procedures of organic products.

PART – III

Answer all **FIVE** questions **5x2=10**

1. What is a quality control?
2. Water pollution
3. Uses of soil treatment
4. What are the organic pesticides?

The BOS Committee Members in the BOS Meeting has resolved the following members to act as the examiners for both paper setting and paper evaluation

S. No	Name of the examiner	Location of Examiner	Mobile number
1	Dr. A. Srinivas Rao	Govt Arts College, Rajahmundry	9985076306
2	K.V.V.G.K Vara Prasad	Government Degree College, Tuni	9908876727
3	Dr. M. Sulakshana	A S D Womens Degree College, Kakinada	7997633870
4	Mrs. Akula Venkata Lakshmi	VSM Degree College of Arts Science & Commerce Ramachandrapuram	9391293659