

# LEARNING OUTCOME BASED VOCATIONAL CURRICULUM

**JOB ROLE: Solanaceous Crop Cultivator**

(QUALIFICATION PACK: Ref. Id. AGR/Q0402)

**SECTOR: Agriculture**

**Classes 9 and 10**

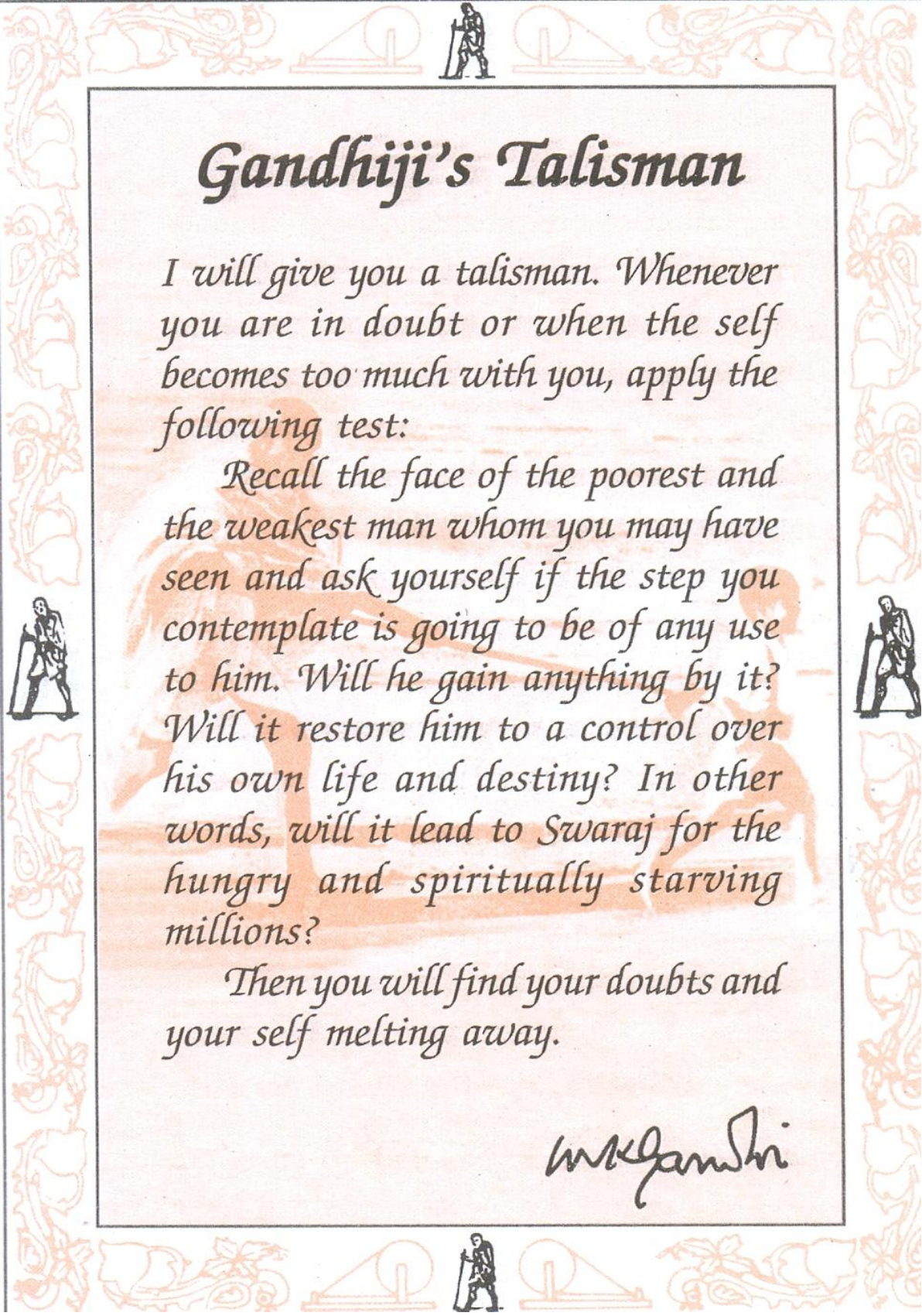


**PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION**

(a constituent unit of NCERT, under MHRD, Government of India)

**Shyamla Hills, Bhopal- 462 013, M.P., India**

<http://www.psscive.ac.in>



## Gandhiji's Talisman

*I will give you a talisman. Whenever you are in doubt or when the self becomes too much with you, apply the following test:*

*Recall the face of the poorest and the weakest man whom you may have seen and ask yourself if the step you contemplate is going to be of any use to him. Will he gain anything by it? Will it restore him to a control over his own life and destiny? In other words, will it lead to Swaraj for the hungry and spiritually starving millions?*

*Then you will find your doubts and your self melting away.*

*M.K. Gandhi*

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CURRICULUM**

**Agriculture-Solanaceous Crop Cultivator**

June, 2017

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<http://www.psscive.ac.in>

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**Published by:**

Joint Director  
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# FOREWORD

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The Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE) a constituent of the National Council of Educational Research and Training (NCERT) is spearheading the efforts of developing learning outcome based curricula and courseware aimed at integrating both vocational and general qualifications to open pathways of career progression for students. It is a part of Centrally Sponsored Scheme of Vocationalisation of Secondary and Higher Secondary Education (CSSVSHSE) launched by the Ministry of Human Resource Development, Government of India in 2012. The PSS Central Institute of Vocational Education (PSSCIVE) is developing curricula under the project approved by the Project Approval Board (PAB) of *Rashtriya Madhyamik Shiksha Abhiyan (RMSA)*. The main purpose of the learning outcome based curricula is to bring about the improvement in teaching-learning process and working competences through learning outcomes embedded in the vocational subject.

It is a matter of great pleasure to introduce this learning outcome based curriculum as part of the vocational training packages for the job role of Solanaceous Crop Cultivator. The curriculum has been developed for the secondary students of vocational education and is aligned to the National Occupation Standards (NOSs) of a job role identified and approved under the National Skill Qualification Framework (NSQF).

The curriculum aims to provide children with employability and vocational skills to support occupational mobility and lifelong learning. It will help them to acquire specific occupational skills that meet employers' immediate needs. The teaching process is to be performed through the interactive sessions in classrooms, practical activities in laboratories and workshops, projects, field visits, and professional experiences.

The curriculum has been developed and reviewed by a group of experts and their contributions are greatly acknowledged. The utility of the curriculum will be adjudged by the qualitative improvement that it brings about in teaching-learning. The feedback and suggestions on the content by the teachers and other stakeholders will be of immense value to us in bringing about further improvement in this document.

Hrushikesh Senapaty  
*Director*  
*National Council of Education Research and Training*

# PREFACE

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India today stands poised at a very exciting juncture in its saga. The potential for achieving inclusive growth are immense and the possibilities are equally exciting. The world is looking at us to deliver sustainable growth and progress. To meet the growing expectations, India will largely depend upon its young workforce. The much-discussed demographic dividend will bring sustaining benefits only if this young workforce is skilled and its potential is channelized in the right direction.

In order to fulfil the growing aspirations of our youth and the demand of skilled human resource, the Ministry of Human Resource Development (MHRD), Government of India introduced the revised Centrally Sponsored Scheme of Vocationalisation of Secondary and Higher Secondary Education that aims to provide for the diversification of educational opportunities so as to enhance individual employability, reduce the mismatch between demand and supply of skilled manpower and provide an alternative for those pursuing higher education. For spearheading the scheme, the PSS Central Institute of Vocational Education (PSSCIVE) was entrusted the responsibility to develop learning outcome based curricula, student workbooks, teacher handbooks and e-learning materials for the job roles in various sectors, with growth potential for employment.

The PSSCIVE firmly believes that the vocationalisation of education in the nation need to be established on a strong footing of philosophical, cultural and sociological traditions and it should aptly address the needs and aspirations of the students besides meeting the skill demands of the industry. The curriculum, therefore, aims at developing the desired professional, managerial and communication skills to fulfil the needs of the society and the world of work. In order to honour its commitment to the nation, the PSSCIVE has initiated the work on developing learning outcome based curricula with the involvement of faculty members and leading experts in respective fields. It is being done through the concerted efforts of leading academicians, professionals, policy makers, partner institutions, Vocational Education and Training experts, industry representatives, and teachers. The expert group through a series of consultations, working group meetings and use of reference materials develops a National Curriculum. Currently, the Institute is working on developing curricula and courseware for over 100 job roles in various sectors.

We extend our gratitude to all the contributors for selflessly sharing their precious knowledge, acclaimed expertise, and valuable time and positively responding to our request for development of curriculum. We are grateful to MHRD and NCERT for the financial support and cooperation in realising the objective of providing learning outcome based modular curricula and courseware to the States and other stakeholders under the PAB (Project Approval Board) approved project of *Rashtriya Madhyamik Shiksha Abhiyan* (RMSA) of MHRD.

Finally, for transforming the proposed curriculum design into a vibrant reality of implementation, all the institutions involved in the delivery system shall have to come together with a firm commitment and they should secure optimal community support. The success of this curriculum depends upon its effective implementation and it is expected that the managers of vocational education and training system, including subject teachers will make efforts to create better facilities, develop linkages with the world of work and foster a conducive environment as per the content of the curriculum document.

The PSSCIVE, Bhopal remains committed in bringing about reforms in the vocational education and training system through the learner-centric curricula and courseware. We hope that this document will prove useful in turning out more competent Indian workforce for the 21<sup>st</sup> Century.

RAJESH P. KHAMBAYAT  
*Joint Director*  
*PSS Central Institute of Vocational Education*

# ACKNOWLEDGEMENTS

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On behalf of the team at the PSS Central Institute of Vocational Education (PSSCIVE) we are grateful to the members of the Project Approval Board (PAB) of *Rashtriya Madhyamik Shiksha Abhiyan* (RMSA) and the officials of the Ministry of Human Resource Development (MHRD), Government of India for the financial support to the project for development of curricula.

We are grateful to the Director, NCERT for his support and guidance. We also acknowledge the contributions of our colleagues at the Technical Support Group of RMSA, MHRD, RMSA Cell at the National Council of Educational Research and Training (NCERT), National Skill Development Agency (NSDA) and National Skill Development Corporation (NSDC) and Agriculture Skill Council of India (ASCI) for their academic support and cooperation.

We are grateful to the contributors for their earnest efforts and contributions in the development of this learning outcome based curriculum. Their names are acknowledged in the list of contributors. The contributions of the course coordinator Uadal Singh and the reviewer R. Elanchezhian, Principal Scientist ICAR-Indian Institute of Soil Science, NabiBagh, Bairasia Road, Bhopal are thankfully acknowledged.

The contributions made by Vinay Swarup Mehrotra, Professor and Head, Curriculum Development and Evaluation Centre (CDEC), Vipin Kumar Jain, Associate Professor and Head, Programme Planning and Monitoring Cell (PPMC) and Dipak Shudhalwar, Associate Professor, Department of Engineering & Technology, PSSCIVE in development of the curriculum for the employability skills are duly acknowledged.

Special thanks are due to Sunil Prajapati, Consultant, Horticulture, Department of Agriculture & Animal Husbandry, PSSCIVE, Bhopal, for contribution in drafting and editing the document and bringing it in its present form.

PSSCIVE Team



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# 1. COURSE OVERVIEW

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## **COURSE TITLE: Agriculture – Solanaceous Crop Cultivator**

The Solanaceous crop Cultivator is responsible for cultivating Solanaceous crop on a given piece of land. The responsibilities include from procurement of seed to marketing of farm produce in the market.

The job of the Solanaceous Crop Cultivator involves cultivation of Solanaceous crop as per the package of practices recommended for a particular agronomic climate zone, type of soil, rainfall pattern and climatic condition to achieve the yield as per the genetic potential of given variety and sell the produce as per the competitive market prices without distress sale. The job requires the individual to have: Ability to work independently, bearing risks and must have ability to work hard and take decisions pertaining to his area of work. The individual should be result oriented and should be responsible for his / her own learning and working. Individual should be able to comprehend basic arithmetic and algebraic principle. Should be able to access and analyze various opportunities & threats pertaining to climatic and market conditions

**COURSE OUTCOMES:** On completion of the course, students should be able to:

- Apply effective oral and written communication skills to interact with people and customers;
- Identify the principal components of a computer system;
- Demonstrate the basic skills of using computer;
- Demonstrate self-management skills;
- Demonstrate the ability to provide a self-analysis of entrepreneurial skills and abilities;
- Demonstrate the knowledge of the importance of green skills in meeting the challenges of sustainable development and environment protection
- Identify and control hazards in the workplace that pose a danger or threat
- Understand Seed selection & seedling production
- Demonstrate Soil preparation and transplanting in Solanaceous crops
- Understand Soil nutrient management in vegetable crops
- Demonstrate Weed control and management in vegetable crops
- Demonstrate pest and disease management in vegetable crops
- management in vegetable crops
- Understand Harvest and post harvest management in Solanaceous crop

**COURSE REQUIREMENTS:** The learner should have the basic knowledge of science.

**COURSE LEVEL:** This is a beginner level course. On completion of this course, a student can take up an Intermediate level course for a job role in Agriculture, such as Tuber Crop Cultivator in Class XI and Class XII.

<b>COURSE DURATION:</b>	<b>400 hrs</b>
Class 9	: 200 hrs
Class 10	: 200 hrs
<hr/>	
<b>Total</b>	<b>: 400 hrs</b>
<hr/>	

## 2. SCHEME OF UNITS

This course is a planned sequence of instructions consisting of Units meant for developing employability and vocational competencies of students of Class 9 and 10 opting for vocational subject along with general education subjects. The unit-wise distribution of hours and marks for Class 9 is as follows:

<b>CLASS 9</b>			
<b>Units</b>		<b>No. of Hours for Theory and Practical 200</b>	<b>Max. Marks for Theory and Practical 100</b>
<b>Part A</b>	<b>Employability Skills</b>		
	Unit 1: Communication Skills-I	20	10
	Unit 2: Self-management Skills-I	10	
	Unit 3: Information and Communication Technology Skills-I	20	
	Unit 4: Entrepreneurial Skills-I	15	
	Unit 5: Green Skills-I	10	
	<b>Total</b>	<b>75</b>	<b>10</b>
<b>Part B</b>	<b>Vocational Skills</b>		
	Unit 1: Introduction to Horticulture	20	30
	Unit 2: Seed selection and seedling production	30	
	Unit 3: Soil preparation and transplanting	25	
	Unit 4: Nutrient management in vegetable crops	20	
	<b>Total</b>	<b>95</b>	<b>30</b>
<b>Part C</b>	<b>Practical Work</b>		
	Practical Examination	06	15
	Written Test	01	10
	Viva Voce	03	10
	<b>Total</b>	<b>10</b>	<b>35</b>
<b>Part D</b>	<b>Project Work/Field Visit</b>		
	Practical File/Student Portfolio	10	10
	Viva Voce	05	05
	<b>Total</b>	<b>15</b>	<b>15</b>
<b>Part E</b>	<b>Continuous and Comprehensive Evaluation (CCE)</b>		
	<b>Total</b>	<b>05</b>	<b>10</b>
	<b>Grand Total</b>	<b>200</b>	<b>100</b>

The unit-wise distribution of hours and marks for Class 10 is as follows:

<b>CLASS 10</b>			
	<b>Units</b>	<b>No. of Hours for Theory and Practical 200</b>	<b>Max. Marks for Theory and Practical 100</b>
<b>Part A</b>	<b>Employability Skills</b>		
	Unit 1: Communication Skills – II	20	<b>10</b>
	Unit 2: Self-management Skills – II	10	
	Unit 3: Information and Communication Technology Skills – II	20	
	Unit 4: Entrepreneurial Skills – II	15	
	Unit 5: Green Skills – II	10	
	<b>Total</b>	<b>75</b>	
<b>Part B</b>	<b>Vocational Skills</b>		
	Unit 1: Irrigation management in vegetable crops	15	<b>30</b>
	Unit 2: Weed control and management in vegetable crops	15	
	Unit 3: Integrated pest and disease management in vegetable crops	20	
	Unit 4: Harvest and post harvest management in Solanaceous crop	30	
	Unit 5: Occupational Health, Hygiene and First Aid Practices	15	
	<b>Total</b>	<b>95</b>	<b>30</b>
<b>Part C</b>	<b>Practical Work</b>		
	Practical Examination	06	15
	Written Test	01	10
	Viva Voce	03	10
	<b>Total</b>	<b>10</b>	<b>35</b>
<b>Part D</b>	<b>Project Work/Field Visit</b>		
	Practical File/Student Portfolio	10	10
	Viva Voce	05	05
	<b>Total</b>	<b>15</b>	<b>15</b>
<b>Part E</b>	<b>Continuous and Comprehensive Evaluation (CCE)</b>		
	<b>Total</b>	<b>05</b>	<b>10</b>
	<b>Grand Total</b>	<b>200</b>	<b>100</b>

### 3. TEACHING/TRAINING ACTIVITIES

The teaching and training activities have to be conducted in classroom, laboratory/workshops and field visits. Students should be taken to field visits for interaction with experts and to expose them to the various tools, equipment, materials, procedures and operations in the workplace. Special emphasis should be laid on the occupational safety, health and hygiene during the training and field visits.

## **CLASSROOM ACTIVITIES**

Classroom activities are an integral part of this course and interactive lecture sessions, followed by discussions should be conducted by trained vocational teachers. Vocational teachers should make effective use of a variety of instructional aids, such as audio-video materials, colour slides, charts, diagrams, models, exhibits, hand-outs, online teaching materials, etc. to transmit knowledge and impart training to the students.

## **PRACTICAL WORK IN LABORATORY/WORKSHOP**

Practical work may include but not limited to hands-on-training, simulated training, role play, case based studies, exercises, etc. Equipment and supplies should be provided to enhance hands-on learning experience of students. Only trained personnel should teach specialized techniques. A training plan that reflects tools, equipment, materials, skills and activities to be performed by the students should be submitted by the vocational teacher to the Head of the Institution.

## **FIELD VISITS/ EDUCATIONAL TOUR**

In field visits, children will go outside the classroom to obtain specific information from experts or to make observations of the activities. A checklist of observations to be made by the students during the field visits should be developed by the Vocational Teachers for systematic collection of information by the students on the various aspects. Principals and Teachers should identify the different opportunities for field visits within a short distance from the school and make necessary arrangements for the visits. At least three field visits should be conducted in a year.

## **4. ASSESSMENT AND CERTIFICATION**

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**U**pon successful completion of the course by the candidate, the Central/ State Examination Board for Secondary Education and the respective Sector Skill Council will certify the competencies.

The National Skills Qualifications Framework (NSQF) is based on outcomes referenced to the National Occupation Standards (NOSs), rather than inputs. The NSQF level descriptors, which are the learning outcomes for each level, include the process, professional knowledge, professional skills, core skills and responsibility. The assessment is to be undertaken to verify that individuals have the knowledge and skills needed to perform a particular job and that the learning programme undertaken has delivered education at a given standard. It should be closely linked to certification so that the individual and the employer could come to know the competencies acquired through the vocational subject or course. The assessment should be reliable, valid, flexible, convenient, cost effective and above all it should be fair and transparent. Standardized assessment tools should be used for assessment of knowledge of students. Necessary arrangements should be made for using technology in assessment of students.

### **KNOWLEDGE ASSESSMENT (THEORY)**

**Knowledge Assessment** should include two components: one comprising of internal assessment and second an external examination, including theory examination to be

conducted by the Board. The assessment tools shall contain components for testing the knowledge and application of knowledge. The knowledge test can be objective paper based test or short structured questions based on the content of the curriculum.

### WRITTEN TEST

It allows candidates to demonstrate that they have the knowledge and understanding of a given topic. Theory question paper for the vocational subject should be prepared by the subject experts comprising group of experts of academicians, experts from existing vocational subject experts/teachers, subject experts from university/colleges or industry. The respective Sector Skill Council should be consulted by the Central/State Board for preparing the panel of experts for question paper setting and conducting the examinations.

The blue print for the question paper may be as follows:

**Duration: 3 hrs**

**Maximum Marks: 30**

	Typology of Question	No. of Questions			Marks
		Very Short Answer (1 mark)	Short Answer (2 Marks)	Long Answer (3 Marks)	
1.	Remembering – (Knowledge based simple recall questions, to know specific facts, terms, concepts, principles, or theories; identify, define or recite, information)	2	1	2	10
2.	Understanding – (Comprehension – to be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase, or interpret information)	1	2	2	11
3.	Application – (Use abstract information in concrete situation, to apply knowledge to new situations: Use given content to interpret a situation, provide an example, or solve a problem)	0	1	1	05
4.	High Order Thinking Skills – (Analysis & Synthesis – Classify, compare, contrast, or differentiate between different pieces of information; Organize and/ or integrate unique pieces of information from a variety of sources)	0	1	0	02
5.	Evaluation – (Appraise, judge, and/or justify the value or worth of a decision or outcome, or to predict outcomes based on values)	0	1	0	02
	<b>Total</b>	<b>3x1=3</b>	<b>6x2=12</b>	<b>5x3=15</b>	<b>30 (14 questions)</b>

### SKILL ASSESSMENT (PRACTICAL)

Assessment of skills by the students should be done by the assessors/examiners on the basis of practical demonstration of skills by the candidate, using a competency checklist. The competency checklist should be developed as per the National Occupation Standards (NOSs) given in the Qualification Pack for the Job Role to bring about necessary consistency in the quality of assessment across different sectors and Institutions. The student has to demonstrate competency against the performance criteria defined in the National Occupation Standards and the assessment will indicate that they are 'competent', or are 'not yet competent'. The assessors assessing the skills of the students should possess a current experience in the industry and should have undergone an effective training in assessment

principles and practices. The Sector Skill Councils should ensure that the assessors are provided with the training on the assessment of competencies.

Practical examination allows candidates to demonstrate that they have the knowledge and understanding of performing a task. This will include hands-on practical exam and viva voce. For practical, there should be a team of two evaluators – the subject teacher and the expert from the relevant industry certified by the Board or concerned Sector Skill Council. The same team of examiners will conduct the viva voce.

**Project Work** (individual or group project) is a great way to assess the practical skills on a certain time period or timeline. Project work should be given on the basis of the capability of the individual to perform the tasks or activities involved in the project. Projects should be discussed in the class and the teacher should periodically monitor the progress of the project and provide feedback for improvement and innovation. Field visits should be organised as part of the project work. Field visits can be followed by a small-group work/project work. When the class returns from the field visit, each group might be asked to use the information that they have gathered to prepare presentations or reports of their observations. Project work should be assessed on the basis of practical file or student portfolio.

**Student Portfolio** is a compilation of documents that supports the candidate's claim of competence. Documents may include reports, articles, photos of products prepared by students in relation to the unit of competency.

**Viva voce** allows candidates to demonstrate communication skills and content knowledge. Audio or video recording can be done at the time of viva voce. The number of external examiners would be decided as per the existing norms of the Board and these norms should be suitably adopted/adapted as per the specific requirements of the vocational subject. Viva voce should also be conducted to obtain feedback on the student's experiences and learning during the project work/field visits.

## CONTINUOUS AND COMPREHENSIVE EVALUATION

Continuous and Comprehensive Evaluation (CCE) refers to a system of school-based evaluation of students that covers all aspects of student's development. In this scheme, the term 'continuous' is meant to emphasize that evaluation of identified aspects of students 'growth and development' is a continuous process rather than an event, built into the total teaching-learning process and spread over the entire span of academic session. The second term 'comprehensive' means that the scheme attempts to cover both the scholastic and the co-scholastic aspects of students' growth and development. For details, the CCE manual of Central Board of Secondary Education (CBSE) or the guidelines issued by the State Boards on the procedure for CCE should be followed by the Institutions.

## 5. UNIT CONTENTS

### CLASS 9

#### Part A: Employability Skills

Sino.	Units	Duration (Hrs)
1.	Communication Skills - I	20
2.	Self-management Skills - I	10
3.	Information and Communication Technology Skills-I	20



4.	Entrepreneurial Skills - I	15
5.	Green Skills - I	10
	<b>Total</b>	<b>75</b>

<b>Unit 1: Communication Skills – I</b>			
<b>Learning Outcome</b>	<b>Theory</b>	<b>Practical</b>	<b>Duration (20 Hrs)</b>
1. Demonstrate knowledge of various methods of communication	1. Methods of communication - Verbal - Non-verbal - Visual	1. Writing pros and cons of written, verbal and non-verbal communication 2. Listing do's and don'ts for avoiding common body language mistakes	<b>05</b>
2. Identify elements of communication cycle	1. Meaning of communication 2. Importance of communication skills 3. Elements of communication cycle– (I) sender, (ii) ideas, (iii) encoding, (iv) communication channel, (v) receiver, (vi) decoding, and (vii) feedback	1. Draw a diagram of communication cycle 2. Role plays on communication process related to the sector/job role	<b>05</b>
3. Identify the factors affecting our perspectives in communication	1. Perspectives in communication 2. Factors affecting perspectives in communication - Visual perception - Language - Past experience - Prejudices - Feelings - Environment	1. Group discussion on factors affecting perspectives in communication 2. Sharing of experiences on factors affecting perspectives 3. Sharing experiences on factors affecting communication at workplace	<b>05</b>
4. Demonstrate the knowledge of basic writing skills	1. Writing skills related to the following: (I) Phrases (II) Kinds of sentences (III) Parts of sentence	1. Demonstration and practice of writing sentences and paragraphs on topics related	<b>05</b>

	(IV) Parts of speech (V) Use of articles (VI) Construction of a paragraph	to the subject	
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<b>Unit 2: Self-management Skills – I</b>			
<b>Learning Outcome</b>	<b>Theory</b>	<b>Practical</b>	<b>Duration (10 Hrs)</b>
1. Describe the meaning and importance of self-management	1. Meaning of self-management 2. Positive results of self-management 3. Self-management skills	1. Identification of self-management skills 2. Strength and weakness analysis	<b>05</b>
2. Identify the factors that helps in building self-confidence	1. Factors that help in building self-confidence – social, cultural, and physical factors 2. Self-confidence building tips – getting rid of the negative thoughts, thinking positively, staying happy with small things, staying clean, hygienic and smart, chatting with positive people, etc.	1. Role play exercises on building self-confidence 2. Use of positive metaphors/ words 3. Positive stroking on wakeup and before going bed 4. Helping others and working for community	<b>05</b>

<b>Unit 3: Information and Communication Technology Skills – I</b>			
<b>Learning Outcome</b>	<b>Theory</b>	<b>Practical</b>	<b>Duration (20 Hrs)</b>
1. Describe the role of Information and Communication Technology (ICT) in day-to-day life and workplace	1. Introduction to ICT 2. Role and importance of ICT in personal life and at workplace 3. ICT in our daily life (examples) 4. ICT tools - Mobile, tab, radio, TV, email, etc.	1. Discussion on the role and importance of ICT in personal life and at workplace. 2. Preparing posters / collages for showing the role of ICT at workplace	<b>04</b>
2. Identify components of basic computer system and their functions	1. Computer system - Central Processing Unit (CPU), memory, motherboard, storage devices 2. Hardware and software of a computer system 3. Role and functions of Random Access	1. Connecting the cables and peripherals to the Central Processing Unit 2. Starting and shutting down a computer	<b>07</b>

	<p>Memory(RAM) and Read Only Memory(ROM)</p> <p>4. Role and functions of Central Processing Unit</p> <p>5. Procedure for starting and shutting down a computer</p>	<p>3. Group discussion on the various aspects of hardware and software</p>	
<p>3. Demonstrate use of various components and peripherals of computer system</p>	<p>1. Peripherals devices and their uses – mouse, keyboard, scanner, webcam, etc. of a computer system</p>	<p>1. Identification of various parts and peripherals of a computer</p> <p>2. Demonstration and practice on the use of mouse</p> <p>3. Demonstration and practice on the use of keyboard</p> <p>4. Demonstration of the uses of printers, webcams, scanner and other peripheral devices</p> <p>5. Drawing diagram of computer system and labelling it</p>	<b>05</b>
<p>4. Demonstrate basic computer skills</p>	<p>1. Primary operations on a computer system – input, process, storage, output, communication networking, etc.</p>	<p>1. Identification of the various input and output units and explanation of their purposes</p>	<b>04</b>

**Unit 4: Entrepreneurial Skills - I**

<b>Learning Outcome</b>	<b>Theory</b>	<b>Practical</b>	<b>Duration (15 Hrs)</b>
<p>1. Identify various types of business activities</p>	<p>1. Types of businesses – service, manufacturing, hybrid</p> <p>2. Types of businesses found in our community</p> <p>3. Business activities around</p>	<p>1. Prepare posters of business activities found in cities/villages, using pictures</p> <p>2. Discuss the various types of activities,</p>	<b>09</b>

<b>Unit 4: Entrepreneurial Skills - I</b>			
<b>Learning Outcome</b>	<b>Theory</b>	<b>Practical</b>	<b>Duration (15 Hrs)</b>
	us	generally adopted by small businesses in a local community 3. Best out of waste 4. Costing of the product made out of waste 5. Selling of items made from waste materials 6. Prepare list of businesses that provides goods and services in exchange for money 7.	
2. Demonstrate the knowledge of distinguishing characteristics of entrepreneurship	1. Meaning of entrepreneurship development 2. Distinguishing characteristics of entrepreneurship 3. Role and rewards of entrepreneurship	1. Prepare charts showing advantages of entrepreneurship over wages 2. Group discussions on role and features of entrepreneurship 3. Lectures/presentations by entrepreneurs on their experiences and success stories 4. Identify core skills of successful entrepreneur	<b>06</b>

<b>Unit 5: Green Skills - I</b>			
<b>Learning Outcome</b>	<b>Theory</b>	<b>Practical</b>	<b>Duration (10 Hrs)</b>
1. Demonstrated the knowledge of the factors influencing natural resource conservation	1. Introduction to environment, 2. Relationship between society and environment, ecosystem and factors causing imbalance 3. Natural resource conservation 4. Environment protection and conservation	1. Group discussion on hazards of deteriorating environment 2. Prepare posters showing environment conservation 3. Discussion on various factors that influence our environment	<b>05</b>

2. Describe the importance of green economy and green skills	1. Definition of green economy 2. Importance of green economy	1. Discussion on the benefits of green skills and importance of green economy 2. Prepare a Poster showing the importance of green economy with the help of newspaper/magazine cuttings	<b>05</b>
<b>Total</b>	<b>34</b>	<b>41</b>	<b>75</b>

## Part B: Vocational Skills

Sino.	Units	Duration (Hrs)
1.	Introduction to Horticulture	20
2.	Seed Selection and Seedling Production	30
3.	Soil Preparation and Transplanting	25
4.	Nutrient Management in Vegetable Crops	20
	<b>Total</b>	<b>95</b>

<b>Unit 1: Introduction to Horticulture</b>			
Learning Outcome	Theory (08 hrs)	Practical (12 hrs)	Duration (20 Hrs)
1. Describe the present status and prospects of Horticulture in India	1. Define Horticulture 2. Importance of horticulture in daily life 3. Prospects of Horticulture in India	1. Enlist the major horticultural crops in India and your locality	5
2. Classify and categorize horticulture crops	1. Branches of horticulture 2. Different horticultural crops and their major growing regions in India	1. Draw a diagram depicting the classification of horticultural crops	5
3. Carry out important horticultural operations	1. Horticultural operations viz. training, pruning and transplanting	1. Visit to a nursery/ Horticulture farm for Demonstration of pruning, Training and transplanting of seedlings 2. Practice of pruning	5
4. Describe olericulture and importance of	1. Olericulture 2. Importance of vegetable in human	1. Demonstrate the availability of nutrients through vegetables	5

<b>Unit 1: Introduction to Horticulture</b>			
<b>Learning Outcome</b>	<b>Theory (08 hrs)</b>	<b>Practical (12 hrs)</b>	<b>Duration (20 Hrs)</b>
vegetable in human diet	diet	using charts/pictures	

<b>Unit 2: Seed Selection and Seedling Production</b>			
<b>Learning Outcome</b>	<b>Theory (12 hrs)</b>	<b>Practical (18 hrs)</b>	<b>Duration (30 Hrs)</b>
1. Select the seed & procurement of seed	<ol style="list-style-type: none"> <li>1. Various characteristics of seed with their suitability to the location</li> <li>2. Characteristics of healthy varieties</li> <li>3. Demand of various varieties in the market</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify various and appropriate variety (including hybrid) of Solanaceous crops</li> <li>2. Identify various vendors / suppliers (including government nurseries /department) of the seed that are certified</li> <li>3. Procure seeds in appropriate quantity</li> <li>4. Identify market rates for Solanaceous crop seeds (such as tomato, capsicum,)</li> </ol>	<b>5</b>
2. Prepare seed bed	<ol style="list-style-type: none"> <li>1. Preparing the site for seed bed</li> <li>2. Soil sterilization – solarisation and chemical treatment</li> <li>3. Seed treatment techniques with chemicals</li> </ol>	<ol style="list-style-type: none"> <li>1. Demonstration of the procedure of preparation of various types of seed beds – raised, sunken, level</li> </ol>	<b>5</b>
3. Plant seeds on a seed bed or containers	<ol style="list-style-type: none"> <li>1. Factors affecting seed germination – seed viability, seed pests and diseases, etc.</li> <li>2. Factors to be considered while planting seeds on seed bed and polybags/ trays – time, depth, etc.</li> </ol>	<ol style="list-style-type: none"> <li>1. Estimating how much seed is required to grow a given number of area for each crop</li> <li>2. Planting seeds in the poly bags/trays to aid in the cultivation of Solanaceous crops</li> <li>3. Counting the number of seeds that have germinated so as to assess mortality rate</li> </ol>	<b>10</b>
4. Manage nursery for Solanaceous crops cultivation	<ol style="list-style-type: none"> <li>1. Advantages and disadvantages of soil nursery or tray method</li> <li>2. Depth and spacing of planting seedlings in case of soil nursery</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify soil nursery or tray method for growing seedlings</li> <li>2. Plant the seed at correct depth and appropriate spacing</li> </ol>	<b>5</b>

	&tray for Solanaceous crops	3. Water the seedling at appropriate time with appropriate method	
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<b>Unit 3: Soil Preparation and Transplanting in Solanaceous Crops</b>			
<b>Learning Outcome</b>	<b>Theory (10 hrs)</b>	<b>Practical (15 hrs)</b>	<b>Duration (25 Hrs)</b>
1. Prepare Soil for transplanting	<ol style="list-style-type: none"> <li>1. Importance of Soil testing</li> <li>2. Various authorized centers of soil testing</li> <li>3. Level of soil tillage including depth of ploughing and appropriate equipments for plugging</li> <li>4. Distance between ridges and furrows</li> <li>5. Requirement of farm yard manure and fertilizer in appropriate quantity</li> </ol>	<ol style="list-style-type: none"> <li>1. Enlist the authorised soil testing centres in your state.</li> <li>2. Prepare the land with ridges and furrows</li> <li>3. Application of farm yard manure and fertilizers</li> </ol>	<b>10</b>
2. Apply transplanting of the seedlings	<ol style="list-style-type: none"> <li>1. Appropriate time for planting by taking in to account of soil, climatic conditions</li> <li>2. Planting equipments (shovel or trowel)</li> <li>3. Spacing between rows and plants</li> <li>4. Advantages and disadvantages of intercropping and types of plant to be intercropped</li> <li>5. Advantages of crop rotation</li> </ol>	<ol style="list-style-type: none"> <li>1. Demonstration Transplanting of seedling at appropriate stage and spacing</li> </ol>	<b>15</b>

<b>Unit 4: Soil Nutrient Management in Vegetable Crops</b>			
<b>Learning Outcome</b>	<b>Theory (08 hrs)</b>	<b>Practical (12 hrs)</b>	<b>Duration (20 Hrs)</b>
1. Describe the Macro & micronutrients in soil and its testing	1. Elements / components under macro & micro nutrients 2. Function of each macro & micro nutrient 3. Advantages & disadvantages of particular macro & micro nutrients	1. Understand the basic macro & micro nutrients with their functions 2. Undertake testing of soil to determine its nutrient and fertilizer needs from authorized laboratory 3. Collect soil testing report	<b>10</b>
2. Apply manures, fertilizers and biofertilizers	1. Types of organic manures (farm yard manure, compost, green manure, vermicompost), fertilizers and biofertilizers 2. Methods of application of manures, fertilizers and biofertilizers 3. Time of application of manures, fertilizers and biofertilizers	1. Visit to a Vegetable farm for applying manures and fertilizers as per the recommended dose to various vegetables	<b>10</b>
<b>Total</b>	<b>38</b>	<b>57</b>	<b>95</b>

## CLASS 10

### Part A - Employability Skills

<b>S.No.</b>	<b>Units</b>	<b>Duration (Hrs)</b>
1.	Communication Skills – II	20
2.	Self-management Skills - II	10
3.	Information and Communication Technology Skills – II	20
4.	Entrepreneurial Skills – II	15
5.	Green Skills - II	10
<b>Total</b>		<b>75</b>

<b>Unit 1: Communication Skills - II</b>			
<b>Learning Outcome</b>	<b>Theory</b>	<b>Practical</b>	<b>Duration (20 Hrs)</b>
1. Demonstrate knowledge of various methods of communication	1. Methods of communication (I) Verbal (II) Non-verbal (III) Visual	1. Writing pros and cons of written, verbal and non-verbal communication 2. Listing do's and don'ts for avoiding common	<b>05</b>



		body language mistakes	
2. Provide descriptive and specific feedback	<ol style="list-style-type: none"> <li>1. Communication cycle and importance of feedback</li> <li>2. Meaning and importance of feedback</li> <li>3. Descriptive feedback - written comments or conversations</li> <li>4. Specific and non-specific feedback</li> </ol>	1. Constructing sentences for providing descriptive and specific feedback	<b>03</b>
3. Apply measures to overcome barriers in communication	<ol style="list-style-type: none"> <li>1. Barriers to effective communication – types and factors</li> <li>2. Measures to overcome barriers in effective communication</li> </ol>	<ol style="list-style-type: none"> <li>1. Enlisting barriers to effective communication</li> <li>2. Applying measures to overcome barriers in communication</li> </ol>	<b>04</b>
4. Apply principles of communication	<ol style="list-style-type: none"> <li>1. Principles of effective communication</li> <li>2. 7 Cs of effective communication</li> </ol>	<ol style="list-style-type: none"> <li>1. Constructing sentences that convey all facts required by the receiver</li> <li>2. Expressing in a manner that shows respect to the receiver of the message</li> <li>3. Exercises and games on applying 7Cs of effective communication</li> </ol>	<b>03</b>
5. Demonstrate basic writing skills	<ol style="list-style-type: none"> <li>2. Writing skills to the following:                             <ul style="list-style-type: none"> <li>(VII) Sentence</li> <li>(VIII) Phrase</li> <li>(IX) Kinds of Sentences</li> <li>(X) Parts of Sentence</li> <li>(XI) Parts of Speech</li> <li>(XII) Articles</li> <li>(XIII) Construction of a Paragraph</li> </ul> </li> </ol>	1. Demonstration and practice of writing sentences and paragraphs on topics related to the subject	<b>05</b>

<b>Unit 2: Self-management Skills - II</b>			
<b>Learning Outcome</b>	<b>Theory</b>	<b>Practical</b>	<b>Duration (10 Hrs)</b>
1. Apply stress management techniques	1. Meaning and importance of stress management	1. Exercises on stress management techniques – yoga,	<b>06</b>

	<ol style="list-style-type: none"> <li>2. Stress management techniques – physical exercise, yoga, meditation</li> <li>3. Enjoying, going to vacations and holidays with family and friends</li> <li>4. Taking nature walks</li> </ol>	<p>meditation, physical exercises</p> <ol style="list-style-type: none"> <li>2. Preparing a write-up on an essay on experiences during a holiday trip</li> </ol>	
3. Demonstrate the ability to work independently	<ol style="list-style-type: none"> <li>1. Importance of the ability to work independently</li> <li>2. Describe the types of self-awareness</li> <li>3. Describe the meaning of self-motivation and self-regulation</li> </ol>	<ol style="list-style-type: none"> <li>1. Demonstration on working independently</li> <li>2. goals</li> <li>3. Planning of an activity</li> <li>4. Executing tasks in a specific period, with no help or directives</li> <li>5. Demonstration on the qualities required for working independently</li> </ol>	<b>04</b>

<b>Unit 3: Information and Communication Technology Skills– II</b>			
<b>Learning Outcome</b>	<b>Theory</b>	<b>Practical</b>	<b>Duration (20 Hrs)</b>
1. Distinguish between different operating systems	<ol style="list-style-type: none"> <li>1. Classes of operating systems</li> <li>2. Menu, icons and task bar on the desktop</li> <li>3. File concept, file operations, file organization, directory structures, and file-system structures</li> <li>4. Creating and managing files and folders</li> </ol>	<ol style="list-style-type: none"> <li>1. Identification of task bar, icons, menu, etc.</li> <li>2. Demonstration and practicing of creating, renaming and deleting files and folders, saving files in folders and sub-folders, restoring files and folders from recycle bin</li> </ol>	<b>17</b>
2. Apply basic skills for care and maintenance of computer	<ol style="list-style-type: none"> <li>1. Importance and need of care and maintenance of computer                             <ol style="list-style-type: none"> <li>(I) Cleaning computer components</li> <li>(II) Preparing maintenance schedule</li> <li>(III) Protecting</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Demonstration of the procedures to be followed for cleaning, care and maintenance of hardware and software</li> </ol>	<b>03</b>

	computer against viruses (IV) Scanning and cleaning viruses and removing SPAM files, temporary files and folders		
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**Unit 4: Entrepreneurial Skills - II**

Learning Outcome	Theory	Practical	Duration (15 Hrs)
1. List the characteristics of successful entrepreneur	1. Entrepreneurship and society 2. Qualities and functions of an entrepreneur 3. Role and importance of an entrepreneur 4. Myth about entrepreneurship 5. Entrepreneurship as a career option	1. Writing a note on entrepreneurship as career option 2. Collecting success stories of first generation and local entrepreneurs 3. Listing the entrepreneurial qualities – analysis of strength and weaknesses 4. Group discussion of self-qualities that students feel are needed to become successful entrepreneur 5. Collect information and related data for a business 6. Make a plan in team for setting up a business	<b>15</b>

**Unit 5: Green Skills - II**

Learning Outcome	Theory	Practical	Duration (10 hrs)
1. Demonstrate the knowledge of importance, problems and solutions related to sustainable development	1. Definition of sustainable development 2. Importance of sustainable development 3. Problems related to sustainable development	1. Identify the problem related to sustainable development in the community 2. Group discussion on the importance of respecting and conserving indigenous knowledge and cultural heritage 3. Discussion on the	<b>10</b>

		responsibilities and benefits of environmental citizenship, including the conservation and protection of environmental values	
		4. Preparing models on rain water harvesting, drip / sprinkler irrigation, vermin-compost, solar energy, solar cooker, etc.	
<b>Total</b>	<b>38</b>	<b>37</b>	<b>75</b>

### Part B–Vocational Skills

Sino.	Units	Duration (Hrs)
1.	Irrigation Management In Vegetable Crops	15
2.	Weed Control And Management In Vegetable Crops	15
3.	Integrated Pest and Disease Management in Vegetable Crops	20
4.	Harvest and Post Harvest Management in Solanaceous Crop	30
5.	Occupational Health, Hygiene and First Aid Practices	15
	<b>Total</b>	<b>95</b>

Unit 1: Irrigation Management in Vegetable Crops			
Learning Outcome	Theory (06 hrs)	Practical (09 hrs)	Duration (15 Hrs)
1. Describe the importance of irrigation	1. Irrigation and micro-irrigation 2. Quality of irrigation water 3. Quantity of water required for the specific crop and its affect on its yield 4. Frequency of irrigation required at various stage of plant growth	1. Enlist the different qualities of irrigation water	<b>5</b>
2. Identify irrigation system	1. Characteristics of good irrigation systems 2. Different types of irrigation system available 3. Quantity of water required for the specific crop and its affect on its	1. Visit to an agricultural farm and identify the various types of irrigations systems 2. Interact with micro irrigation expert and get feedback on the	<b>5</b>

<b>Unit 1: Irrigation Management in Vegetable Crops</b>			
<b>Learning Outcome</b>	<b>Theory (06 hrs)</b>	<b>Practical (09 hrs)</b>	<b>Duration (15 Hrs)</b>
	yield 4. Frequency of irrigation required at various stage of plant growth 5. Various types of micro irrigation equipments to be used (mistifiers, drippers, sprinklers, foggers, etc) 6. Relative advantages and disadvantages of irrigation equipments	usage of specific applicable irrigation methods to be adopted at the farm	
3. Irrigate the vegetable crop	1. Suitability of different methods of irrigation 2. Advantage and disadvantage of methods of irrigation 3. Critical stages of irrigation in vegetable crops 4. Selection of the best time of the day to irrigate the crops	1. Ensure appropriate water supply at various life stages of the crop as per each stage requirement 2. Enlist the different components of drip irrigation system	<b>5</b>

<b>Unit 2: Weed Control and Management in Vegetable Crops</b>			
<b>Learning Outcome</b>	<b>Theory (06 hrs)</b>	<b>Practical (09 hrs)</b>	<b>Duration (15 Hrs)</b>
1. Describe the importance of weeds	1. Define weeds 2. Major weeds of Vegetable crops	1. Enlist the major weeds found in your school campus	<b>5</b>
2. Identify the Weeds	1. Various types of Weed (broadleaf, grass weed etc) 2. Types of weed and their efficient control methods	2. Identify the types of weed in the vegetable crops	<b>5</b>
3. Apply weed Management at various stages of plant cycle	1. Advantages and disadvantages of weeding methods (herbicide & mechanical) 2. Critical stages of weed control (first weeding time) 3. Use of different methods to control weeds such as plastic mulch 4. Procedures involved in	1. Demonstration of procedure for controlling weeds through application of physical, cultural, biological and chemical methods	<b>5</b>

<b>Unit 2: Weed Control and Management in Vegetable Crops</b>			
<b>Learning Outcome</b>	<b>Theory (06 hrs)</b>	<b>Practical (09 hrs)</b>	<b>Duration (15 Hrs)</b>
	soil solarization		

<b>Unit 3: Integrated Pest and Disease Management in Vegetable Crops</b>			
<b>Learning Outcome</b>	<b>Theory (08 hrs)</b>	<b>Practical (12 hrs)</b>	<b>Duration (20 Hrs)</b>
1. Identify pests and understand their behavior	<ol style="list-style-type: none"> <li>Importance of safe production and safe produce</li> <li>Vegetable crop growing conditions (soil conditions, temperature etc)</li> <li>Advantages of natural enemies</li> </ol>	<ol style="list-style-type: none"> <li>Identify types of pests (cutworm, nematode, leaf miner fly, potato tuber moth, aphid) in vegetable crops</li> <li>Identify stages of crop and pest incidence</li> <li>Diagnose symptoms and extent of damage</li> <li>Understand natural enemies of the pest such as lady bird, ground beetles,</li> </ol>	<b>5</b>
2. Carry out the identification of diseases	<ol style="list-style-type: none"> <li>Common diseases of vegetable crops and control measures</li> <li>Describe pesticides and its uses</li> </ol>	<ol style="list-style-type: none"> <li>Visit to a vegetable farm/field and Identify early symptoms of various types of diseases</li> <li>Understand the different mode of transmissions of disease from implements, vectors, water, rain, wind</li> </ol>	<b>10</b>
3. Recognize preventive and curative measures	<ol style="list-style-type: none"> <li>Use of resistant varieties</li> <li>Various mechanical control- traps, sticky plates etc)</li> <li>Advantages of biological control of insects, pest &amp; diseases</li> <li>Handling tools and equipment</li> <li>National and international standards on pesticide residues</li> </ol>	<ol style="list-style-type: none"> <li>Demonstration of pruning of the diseases affected plant part</li> <li>Enlist the types of biological, mechanical and chemical measures of disease control</li> </ol>	<b>5</b>

<b>Unit 4: Harvest and Post Harvest Management in Solanaceous Crop</b>			
<b>Learning Outcome</b>	<b>Theory (12 hrs)</b>	<b>Practical (18 hrs)</b>	<b>Duration (30 Hrs)</b>

<b>Unit 4: Harvest and Post Harvest Management in Solanaceous Crop</b>			
<b>Learning Outcome</b>	<b>Theory (12 hrs)</b>	<b>Practical (18 hrs)</b>	<b>Duration (30 Hrs)</b>
1. Identify the Stage of harvesting	<ol style="list-style-type: none"> <li>1. Define harvesting indices</li> <li>2. Differentiate between maturity and ripening</li> <li>3. Differentiate between climacteric and non-climacteric</li> <li>4. Types of maturity indices (physical and chemical)</li> <li>5. Harvesting the Solanaceous crop at right Stage</li> </ol>	<ol style="list-style-type: none"> <li>1. Select right time of Harvesting given crops</li> <li>2. Identified climacteric and non-climacteric Vegetable</li> <li>3. Picked the vegetable as per harvesting standards</li> <li>4. Demonstrate the use of harvesting tools</li> </ol>	<b>05</b>
2. Describe harvesting technique	<ol style="list-style-type: none"> <li>1. Methods of harvesting</li> <li>2. Tools and container used for harvesting</li> <li>3. Time of harvesting</li> <li>4. Precaution taken during harvesting</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify tools and implement used in harvesting</li> <li>2. Properly harvesting vegetable of given crops</li> </ol>	<b>05</b>
3. Harvesting the Solanaceous vegetables	<ol style="list-style-type: none"> <li>1. Harvesting based on demand of type in the market (in case of tomatoes)</li> <li>2. Ideal time of harvest (climatic conditions, distance from the market)</li> <li>3. Proper harvesting methods</li> </ol>	<ol style="list-style-type: none"> <li>1. Harvest the crop at appropriate stage</li> <li>2. Harvest the crop at right time</li> <li>3. Harvest the crop based on use and distance from the market</li> <li>4. Identify the appropriate harvesting method</li> <li>5. Undertake grading of the crops</li> <li>6. Undertake packing of the crops</li> <li>7. Maintain ideal storage condition</li> </ol>	<b>10</b>
4. Storage & post harvest management	<ol style="list-style-type: none"> <li>1. Grading of crop based on size, color and quality</li> <li>2. Packaging of crop with appropriate material and method</li> <li>3. Ideal storage condition (temperature, moisture, etc)</li> <li>4. Market rates of the crop</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify the right market for sale of produce</li> <li>2. Analyze the right time for sale considering the periodical demand for the produce</li> <li>3. Coordinate and negotiate with procurement assistant of the buyer for best price</li> </ol>	<b>10</b>

<b>Unit 5: Occupation Health, Hygiene and First Aid Practices</b>			
<b>Learning Outcome</b>	<b>Theory (06 hrs)</b>	<b>Practical (09 hrs)</b>	<b>Duration (15 Hrs)</b>
1. Recognize and adopt strategies for	<ol style="list-style-type: none"> <li>1. Types of hazards</li> <li>2. Common hazards at Vegetable Farm</li> </ol>	<ol style="list-style-type: none"> <li>1. Reading of the manuals for tools, equipment</li> </ol>	<b>5</b>

<b>Unit 5: Occupation Health, Hygiene and First Aid Practices</b>			
<b>Learning Outcome</b>	<b>Theory (06 hrs)</b>	<b>Practical (09 hrs)</b>	<b>Duration (15 Hrs)</b>
preventing hazardous conditions and work practices	3. Principles of safety and health 4. Procedure and steps to be taken to report any accident, incident or problem without delay to an appropriate person 5. Applicable hygiene and safety standards, regulations, and codes for Vegetable Farm	and materials used at Vegetable Farm 2. Demonstration of the correct and safe use of tools, equipment and materials 3. Demonstration of the correct and safe storage of tools, equipment and materials 4. Discussion on the procedure for reporting any accident, incident or problem without delay to an appropriate person and taking action to reduce further danger	
2. Administer first aid or undertake most important action in a life-threatening emergency	1. Procedure for providing first aid in case of medical emergency – cut, burns, bites, grazes, bruises electric shock, external bleeding, etc.	1. Demonstration of basic first aid practices adopted for cut, burns, snake bites, grazes, bruises, external bleeding, dog bites, bee bites, and other injuries 2. Demonstration of first aid care for a conscious and an unconscious victim with an obstructed airway	<b>5</b>
3. Undertake physical and biological methods of treating waste materials	1. Procedure for treating waste materials using physical and biological methods	1. Disposing waste safely and correctly in a designated area	<b>5</b>
<b>Total</b>	<b>38</b>	<b>57</b>	<b>95</b>

## 6. ORGANISATION OF FIELD VISITS

In a year, at least 3 field visits/educational tours should be organised for the students to expose them to the activities in the workplace.



Visit a Vegetable Farm and observe the following: Location, Site, Office building, Store, Pot yard, Packing Yard, Seed bed, Nursery bed, Water tank/Tube well, Gate and fencing. During the visit, students should obtain the following information from the owner or the supervisor of the Vegetable Farm:

1. Area under Cultivation and its layout
2. Types of vegetable raised
3. Name of varieties grown
4. Number of crops raised annually
5. Total production of particular vegetable grown annually
6. Sale procedure
7. Manpower engaged
8. Total expenditure of growing vegetables
9. Total annual income
10. Profit/Loss (Annual)
11. Any other information

## 7. LIST OF EQUIPMENT AND MATERIALS

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The list given below is suggestive and an exhaustive list should be prepared by the vocational teacher. Only basic tools, equipment and accessories should be procured by the Institution so that the routine tasks can be performed by the students regularly for practice and acquiring adequate practical experience.

1. Farmacyard Manure
2. Fertilizers
3. Garden Hand Tools
4. Garden Hoes
5. Garden Knife
6. Garden Rake
7. Garden/Digging Fork
8. Garden/Digging Spade
9. Hand Screens/Sieves
10. Hoe
11. Hori Hori Knife
12. Knapsack Sprayer
13. Leaf Rake
14. Long Handle Hoes
15. Loppers or Pruning Saw
16. Plastics Baskets
17. Poly bags (different sizes)
18. Plug trays
19. Pruners
20. Rabbiting Spade

21. Sanitizers
22. Secateurs
23. Seed Cleaner
24. Seed Treating Equipment
25. Shovels and Specialty Spades
26. Soil Scoop
27. Sprinkler Irrigation Unit
28. Drip Irrigation Unit
29. Dutch Hand Hoe
30. Trowels
31. Vermicompost
32. Water Hose
33. Watering Can
34. Wheelbarrow or Garden Cart

## 8. VOCATIONAL TEACHER'S/ TRAINER'S QUALIFICATION AND GUIDELINES

Qualification and other requirements for appointment of vocational teachers/trainers on contractual basis should be decided by the State/UT. The suggestive qualifications and minimum competencies for the vocational teacher should be as follows:

S.No.	Qualification	Minimum Competencies	Age Limit
1.	Post-graduation in Horticulture from a recognized Institute/University, with at least 1 year work/teaching experience	<ul style="list-style-type: none"> <li>• Effective communication skills (oral and written)</li> <li>• Basic computing skills.</li> </ul>	18-37 years (as on Jan. 01 (year))  Age relaxation to be provided as per Govt. rules

Vocational Teachers/Trainers form the backbone of Vocational Education being imparted as an integral part of Rashtriya Madhyamik Shiksha Abhiyan (RMSA). They are directly involved in teaching of vocational subjects and also serve as a link between the industry and the schools for arranging industry visits, On-the-Job Training (OJT) and placement.

These guidelines have been prepared with an aim to help and guide the States in engaging quality Vocational Teachers/Trainers in the schools. Various parameters that need to be looked into while engaging the Vocational Teachers/Trainers are mode and procedure of selection of Vocational Teachers/Trainers, Educational Qualifications, Industry Experience, and Certification/Accreditation.

The State may engage Vocational Teachers/Trainers in schools approved under the component of Vocationalisation of Secondary and Higher Secondary Education under RMSA in the following ways:

(i) directly as per the prescribed qualifications and industry experience suggested by the PSS Central Institute of Vocational Education(PSSCIVE), NCERT or the respective Sector Skill Council(SSC)

OR

(ii) through accredited Vocational Training Providers accredited under the National Quality Assurance Framework (NQAF\*) approved by the National Skill Qualification Committee on 21.07.2016. If the State is engaging Vocational Teachers/Trainers through the Vocational Training Provider (VTP), it should ensure that VTP should have been accredited at NQAF Level 2 or higher.

\* *The National Quality Assurance Framework (NQAF) provides the benchmarks or quality criteria which the different organisations involved in education and training must meet in order to be accredited by competent bodies to provide government-funded education and training/skills activities. This is applicable to all organizations offering NSQF-compliant qualifications.*

The educational qualifications required for being a Vocational Teacher/Trainer for a particular job role are clearly mentioned in the curriculum for the particular NSQF compliant job role. The State should ensure that teachers / trainers deployed in the schools have relevant technical competencies for the NSQF qualification being delivered. The Vocational Teachers/Trainers preferably should be certified by the concerned Sector Skill Council for the particular Qualification Pack/Job role which he will be teaching. Copies of relevant certificates and/or record of experience of the teacher/trainer in the industry should be kept as record.

To ensure the quality of the Vocational Teachers/Trainers, the State should ensure that a standardized procedure for selection of Vocational Teachers/Trainers is followed. The selection procedure should consist of the following:

- (i) Written test for the technical/domain specific knowledge related to the sector;
- (ii) Interview for assessing the knowledge, interests and aptitude of trainer through a panel of experts from the field and state representatives; and
- (iii) Practical test/mock test in classroom/workshop/laboratory.

In case of appointment through VTPs, the selection may be done based on the above procedure by a committee having representatives of both the State Government and the VTP.

The State should ensure that the Vocational Teachers/Trainers who are recruited should undergo induction training of 20 days for understanding the scheme, NSQF framework and Vocational Pedagogy before being deployed in the schools.

The State should ensure that the existing trainers undergo in-service training of 5 days every year to make them aware of the relevant and new techniques/approaches in their sector and understand the latest trends and policy reforms in vocational education.

The Head Master/Principal of the school where the scheme is being implemented should facilitate and ensure that the Vocational Teachers/Trainers:

- (i) Prepare session plans and deliver sessions which have a clear and relevant purpose and which engage the students;

- (ii) Deliver education and training activities to students, based on the curriculum to achieve the learning outcomes;
- (iii) Make effective use of learning aids and ICT tools during the classroom sessions;
- (iv) Engage students in learning activities, which include a mix of different methodologies, such as project based work, team work, practical and simulation based learning experiences;
- (v) Work with the institution's management to organise skill demonstrations, site visits, on-job trainings, and presentations for students in cooperation with industry, enterprises and other workplaces;
- (vi) Identify the weaknesses of students and assist them in upgradation of competency;
- (vii) Cater to different learning styles and level of ability of students;
- (viii) Assess the learning needs and abilities, when working with students with different abilities
- (ix) Identify any additional support the student may need and help to make special arrangements for that support;
- (x) Provide placement assistance

Assessment and evaluation of Vocational Teachers/Trainers is very critical for making them aware of their performance and for suggesting corrective actions. The States/UTs should ensure that the performance of the Vocational Teachers/Trainers is appraised annually. Performance based appraisal in relation to certain pre-established criteria and objectives should be done periodically to ensure the quality of the Vocational Teachers/Trainers. Following parameters may be considered during the appraisal process:

1. Participation in guidance and counselling activities conducted at Institutional, District and State level;
2. Adoption of innovative teaching and training methods;
3. Improvement in result of vocational students of Class X or Class XII;
4. Continuous upgradation of knowledge and skills related to the vocational pedagogy, communication skills and vocational subject;
5. Membership of professional society at District, State, Regional, National and International level;
6. Development of teaching-learning materials in the subject area;
7. Efforts made in developing linkages with the Industry/Establishments;
8. Efforts made towards involving the local community in Vocational Education
9. Publication of papers in National and International Journals;
10. Organisation of activities for promotion of vocational subjects;
11. Involvement in placement of students/student support services.

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