

# **SVR Engineering College**

**Autonomous**

Approved by AICTE, New Delhi and Permanently Affiliated to JNTUA, Ananthapuramu, Recognized under 2(F) & 12(B)  
by UGC, An ISO: 9001:2015 Certified Institution, Accredited by NBA & NAAC

**Ayyaluru Metta, Nandyal-518502, Andhra Pradesh**

**Department of Electronics and Communication Engineering (ECE)**



## **Community Service Project**

**Title: Usage of chemicals on fruits &  
vegetables**

**Submitted By:**

**Name of the Student:** P. Shafiya Khathu

**Regd.No:** 22am1a0490

**Year & Semester:** 3-1

**Branch:** Electronics & Communication Engineering

**Section:** B

**Academic Year:** 2024

# **Program Book for Community Service Project**

**Name of the Student:** P.Shafiya Khathu

**Name of the College:** SVR Engineering College

**Registration Number:** 22am1a0490

**Period of CSP:** 09/05/2024 - 07/06/2024

**Name of the Habitation:** Usage of chemicals on fruits and vegetables.

**Address of the community :** Gonavaram.

# Community Service Project Report

**Name of the College** : SVR Engineering College

**Department** : Electronics & Communication Engineering

**Name of the Faculty Guide** : S. Jaya Chandranath

**Duration of the CSP** : From : 09/05/2024 To : 07/06/2024

**Name of the Student** : P.Shafiya Khathu

**Programme of Study** : B-Tech

**Year of Study** : 2024

**Register Number** : 22am1a0490

**Date of Submission** : 30/09/2024

# Student's Declaration

I **P.Shafiya Khathu** a student of UG Program, regd. No: 22am1a0490 of the **Department of Electronics and Communication Engineering**, SVR Engineering College do hereby declare that I have completed the mandatory community service from 09/05/2024 to 07/06/3036 in **Usage of chemicals on fruits and vegetables** under the Faculty Guide ship of **S. Jaya Chandranath**, Department of ECE in SVREC, Ayyaluru Metta, Nandyal.

(Signature and Date)

## Endorsements

**Faculty Guide** : S. Jaya Chandranath

**Head of the Department** : Dr. G. Lakshmi Narayana

**Principal** : Dr. P. Mallikarjuna Reddy

## **Certificate from Official of the Community**

This is to certify that **P. Shafiya Khathu**, regd. no: 22am1a0490 of **SVR Engineering College** underwent community service in **Usage of chemicals on fruits and vegetables** from 09/05/2024 to 07/06/2024.

The overall performance of the Community Service Volunteer during his/her community service is found to be Satisfactory/Good

### **MEMBERS OF THE CSP PROJECT:**

1. P.Shafiya Khathu - 22am1a0490
2. S.Saniya - 22am1a0488
3. A. Sabiya - 22am1a0481
4. S.Md. Sadiq Hussain - 22am1a0482

**Authorized Signatory with Date and Seal**

## **Vision and Mission of the Institute**

### **Vision**

To produce Competent Engineering Graduates & Managers with a strong base of Technical & Managerial Knowledge and the Complementary Skills needed to be Successful Professional Engineers & Managers

### **Mission**

To fulfill the vision by imparting Quality Technical & Management Education to the Aspiring Students by creating Effective Teaching/Learning Environment and providing the State of the Art infrastructure and Resources

## **Vision and Mission of the Department**

### **Vision**

To produce highly skilled, creative and competitive Electronics and Communication Engineers to meet the emerging needs of the society

### **Mission**

- Impart core knowledge and necessary skills in Electronics and Communication Engineering through innovative teaching and learning.
- Inculcate critical thinking, ethics, lifelong learning and creativity needed for industry and society.
- Cultivate the students with all-round competencies, for career, higher education and self-employability.

## **Program Educational Objectives (PEOs)**

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- PEO1: Graduates apply their knowledge of mathematics and science to identify, analyze and solve problems in the field of Electronics and develop sophisticated communication systems.
- PEO2: Graduates embody a commitment to professional ethics, diversity and social awareness in their professional career.
- PEO3: Graduates exhibit a desire for life-long learning through technical training and professional activities.

## **Program Specific Outcomes (PSOs)**

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- PSO1: Apply the fundamental concepts of electronics and communication engineering to design a variety of components and systems for applications including signal processing, image processing, communication, networking, embedded systems, VLSI and control system.
- PSO2: Select and apply cutting-edge engineering hardware and software tools to solve complex Electronics and Communication Engineering problems

[illegible]



## **ACKNOWLEDGEMENTS**

The work presented in this project is all possible by the virtue of the support extended by many people. I take this opportunity to extend my sincere gratitude to everyone for their support.

I express my sincere thanks to Dr.G.LAKSHMI NARAYANA, M. Tech.Ph.D, Professor, Head of the Department of ECE (Electronics And Communication Engineering), SVR Engineering College, Nandyal , for permitting me to do the Community Service Project successfully.

I express my sincere thanks to Mr.N.MD.MOHASINUL HUQ, Assistant Professor, M.Tech, (Ph.D), Department of ECE (Electronics And Communication Engineering), CSP Coordinator, SVR Engineering College, Nandyal, for giving valuable guidance to do the CSP work successfully.

I express my sincere thanks to Dr. P. MALLIKARJUNA REDDY, Ph.D, Principal, SVR Engineering College, Nandyal, for permitting me to do the Community Project work successfully.

I express my sincere thanks to Sri S.VENKATARAMI REDDY garu, Chairman, SVR Engineering College, Nandyal, for permitting me to do the project work successfully.

I express my sincere thanks to Sri S. DINESH REDDY garu, Managing Director, SVR Engineering College, Nandyal, for permitting me to do the project work successfully.

Finally, I thank my other Faculty members, my friends, and my family members who supported me to complete my project works successfully.

# CHAPTER 1: EXECUTIVE SUMMARY

## Summary :

GONAVARAM is a Village in Panyam Mandal in Nandyal District of Andhra Pradesh State, India. Gonavaram village has a population around 1750. The village also has a Government Primary School, serving as an important educational facility for the local children.

As we know in villages so many illiterate people are there. Mostly they don't know what is the use of chemicals in fruits and vegetables which plays a precious role in farming.

In GONAVARAM, there are so many farmers are there. We surveyed the people and make awareness to the people about the farming.

## Learning Objectives:

### Knowledge Objectives:

- Think critically about current farming practices and explore safer options.
- Learn about rules and regulations for safe chemical levels in food.

### Skills Objectives:

- Learn how to research and collect information on chemical usage.
- Understand scientific studies and data on chemical effects

### Behavioral Objectives:

- Make healthier food choices by understanding chemical usage.
- Support farming methods that use fewer chemicals and are better for the environment.

## Learning Outcomes:

- Positive impact to my academic learning.
- Improves my ability to apply what I have learned in the real world.
- Improved ability to understand complexity and ambiguity.
- Improved social responsibility and citizenship skills.
- Learning service as a graduate attribute.
- Greater involvement in community service after graduation.

## CHAPTER 2: OVERVIEW OF THE COMMUNITY

Gonavaram is a village situated in Panyam Mandal, within the Nandyal District of Andhra Pradesh, India. It is part of the Rayalaseema region. The village is approximately 60 kilometers south of the district headquarters in Nandyal and around 8 kilometers from Panyam. The postal code for Gonavaram is 518176, with the postal head office located in Nandivargam. As of 2009, Gonavaram is also recognized as a Gram Panchayat.

### Population of Gonavaram:



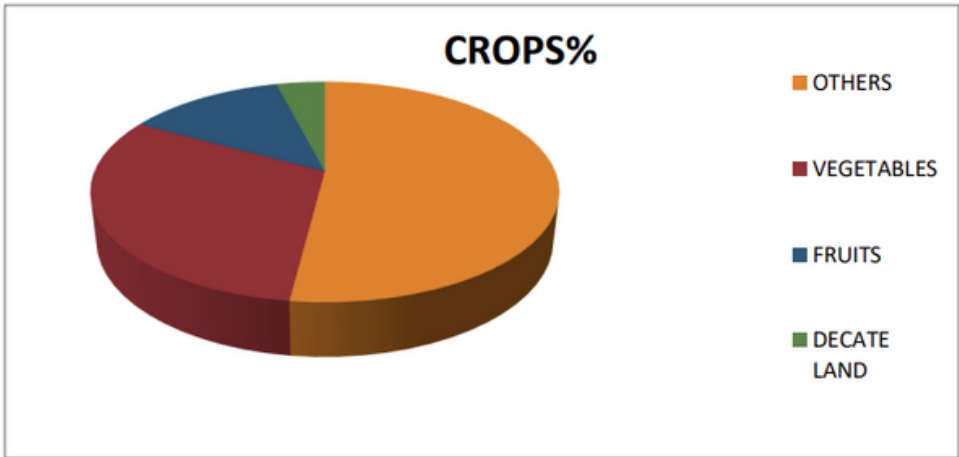
Particulars	Total	Male	Female
Total Population	1,739	899	840
Literate Population	988	603	385
Illiterate Population	751	296	455

The village covers a total geographical area of 850 hectares and has a population of 1,739 people, with 899 males and 840 females. The literacy rate in Gonavaram is 56.81%, with 67.07% of males and 45.83% of females being literate. The village consists of around 406 households.

Gonavaram - Village Overview	
Gram Panchayat :	Gonavaram
Block / Mandal :	Panyam
District :	Nandyal
State :	Andhra Pradesh
Area :	850 hectares
Population :	1,739
Households :	406
Nearest Town :	Nandyal (24 km)

In Gonavaram village, farmers cultivate various vegetables, including brinjal (eggplant), lady's finger, bitter gourd, lemon and others. These crops play a significant role in the agricultural activities of the village, contributing to both local consumption and nearby market supplies.

Farmers primarily cultivate fruit crops such as mangoes, guava, etc. The favorable climate and soil conditions in the region support the cultivation of these fruit-bearing trees, which are significant to the farmer's livelihoods.



## CHAPTER 3 : COMMUNITY SERVICE PART

### INTRODUCTION

Agriculture and households. They enable the quantities and the quality of crops and food to be controlled, and help to limit the many human diseases transmitted by insect or rodent vectors. However, despite their many merits, pesticides are some of the most toxic, environmentally stable and mobile substances in the environment. Their excessive use has a deleterious effect on humans and the environment; their presence in food is particularly dangerous. With their environmental stability, ability to bioaccumulate and toxicity, pesticides may place the human body at greater risk of disease and poisoning [1]. Pesticides enter the environment in various forms (e.g., powders, moistened powders, powders for preparing aqueous solutions, and concentrates for making up emulsions or sprays). Pesticides are of enormous importance in increasing the yields and quality of agricultural products. They are used to:

- control the numbers of pests destroying whole plants or their parts.
- increase the production of animal and plant biomass.
- combat microorganisms causing farm produce to rot and to decay.
- combat algae, bacteria, fungi and weeds.
- combat animal pests damaging crops (e.g., mites, aphids, insects, larvae, and nematodes).
- stimulate or inhibit plant-growth processes (e.g., remove excess flowers, destroy foliage or dry out plants).
- make possible the action of other substances.
- counteract growths on boats and ships.
- kill harmful organisms in farm buildings, the home, hospitals, stores and vehicles.

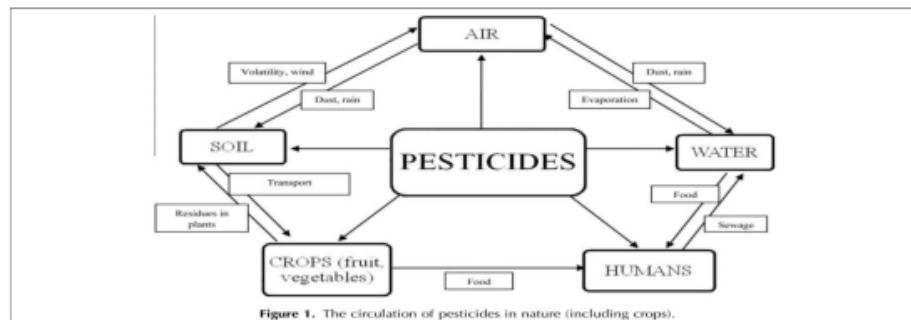


Figure 1. The circulation of pesticides in nature (including crops).

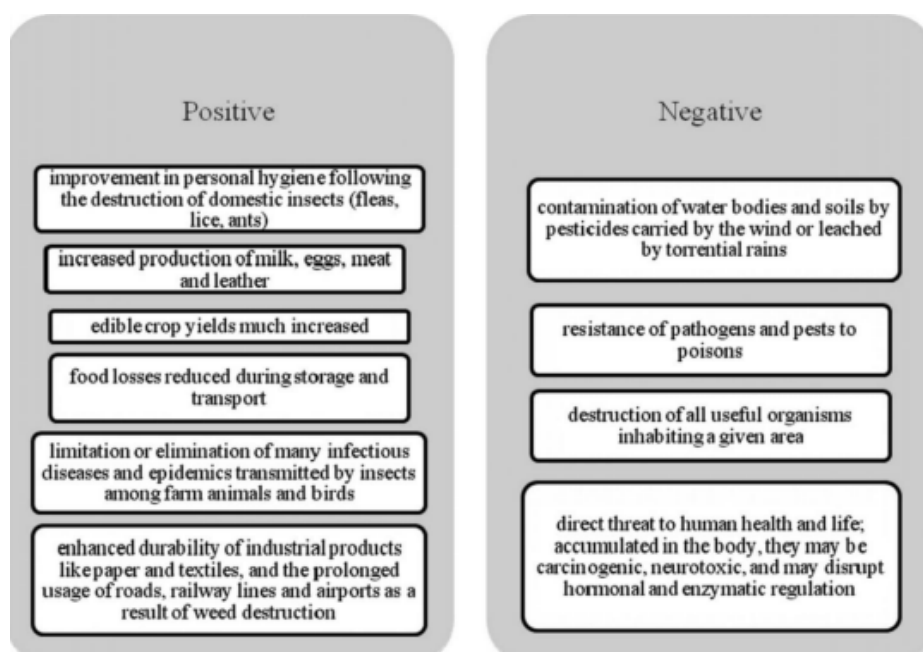
The quantities of pesticides in any particular region depend to a large extent on the intensity of pesticide application and the types of crops grown there. Pesticides have many advantages, but they also do much harm to the environment. lists some of the effects of using pesticides. In view of both positive and negative effects of pesticides, we should aim to achieve full selectivity of their action. Nonetheless, the latest studies show that pesticides still constitute a hazard to the environment and human health. Each year, 140,000 tons of pesticides are sprayed onto crops in the European Union (EU) alone. Fruit and vegetables are the crops most likely to be contaminated by pesticides, particularly grapes, citrus fruits and potatoes. According to data from the EUs Pesticide Action Network, as of 2008, some 350 different pesticides were detected in food produced in the EU. More than 5% of products contained pesticides at levels exceeding the EUs maximum permitted level (MPL). The diversity of their chemical structures, actions and applications makes any classification of pesticides difficult [1]. There are a number of criteria according to which they can be categorized:

- (1) toxicity;
- (2) purpose of application;
- (3) chemical structure;
- (4) environmental stability;
- (5) the pathways by which they penetrate target organisms.



Structurally, they can be divided into inorganic and organic compounds; the inorganic include arsenic insecticides, fluoride insecticides, inorganic herbicides and inorganic fungicides, while the organic comprise organophosphorus pesticides (OPPs) (e.g., dichlorvos, methyl parathion, chlorpyrifos, diazinon, demeton-methyl, phosalone, fonofos, metamidofos, monocrotophos, chlorfenvinphos, fenitrothion, malathion) are the principal group of compounds used to protect plants.

They include all organic compounds containing phosphorus [5,6] and are used to combat pests in industrial plantations, orchards and vegetable cultivation. OPPs usually have an ester structure, decomposing fairly easily on the surfaces and interiors of plants, and in the soil. Their toxicity depends on inhibiting the activity of enzymes controlling the functions of the nervous system, mainly acetyl cholinesterase. They permanently bind the group hydroxylating the enzyme, which prevents acetylcholinesterase from decomposing, and act through contact or systemically. Blockage of cholinesterase activity causes the amount of acetylcholine at the synapses to increase, leading to a state of hyperarousal, and paralysis of the muscles and the main respiratory center. Apart from OPPs, organonitrogen pesticides (ONPs) also play a major part in combating pests [7,8]. ONPs include phenylureas, carbamates, and triazines and their derivatives (e.g., aminocarb, propoxur, carbaryl, simazine, atrazine and propazine). Even though they are less stable in the environment than OCPs, they can get into the human digestive system, thus posing a health hazard.



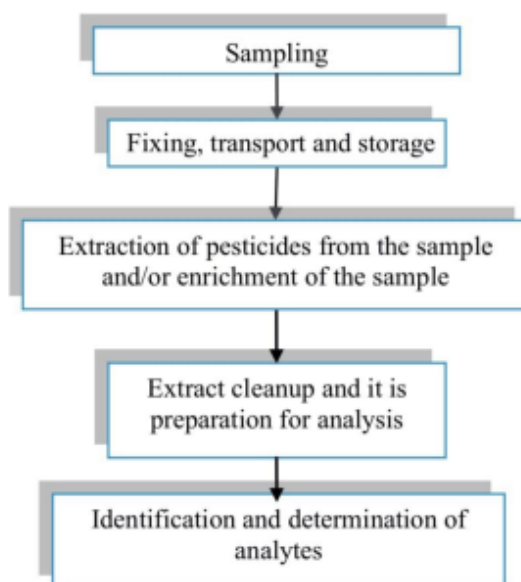
Some carbamate insecticides (e.g., carbaryl) can be teratogenic in large doses and nitrosated to form strongly carcinogenic nitroso-compounds OCPs, including aldrin, chlordane, lindane and DDT, have been withdrawn from use in many countries because they are very toxic towards humans. But, because of their considerable stability in the environment (as long as 30 years), they may still be present there and can be transported by air or water over long distances. While ONPs and OPPs are not very toxic, their improper application can also lead to their presence in farm produce (e.g., fruit and vegetables). Even though they facilitate improvement in crop yields and quality, they do pose a risk to consumers. That is why international organizations have established maximum residue levels (MRLs) of pesticides in food.

Plant foods can be contaminated by pesticides under a great variety of circumstances and at different times preceding their consumption. Many factors can reduce such contamination, (e.g., rainfall, wind, chemical reactions induced by oxygen, moisture, light or plant enzymes) . Pesticides sprayed in liquid form contaminate plants to a greater extent than preparations applied in powder form. The structure of the plant in question is also important because, for example, OCP insecticides accumulate in the waxy layer of the rind of many fruits, especially citrus fruits. It is therefore a matter of urgency that pesticide residues in fruit and vegetables are monitored, because they can put human health at greater risk of various diseases. Any assessment of the state of contamination of fruit and vegetables by pesticides requires knowledge of MRLs. The MRLs of pesticides contained in fruit and vegetables are laid down by the EU. The limit of detection (LOD) of particular pesticides (acephate, aldrin, dichlorvos, fenthion) is 0.01–0.05 mg/ kg. The LOD of simazine is slightly higher – 0.1 mg/kg, rising to 0.25 mg/kg for cherries. An LOD of 5 mg/kg is permissible for malathion in grapes and of 7 mg/kg in samples of tomatoes and Tangerines.

## 2. Determining pesticides in fruit and vegetable samples:

Despite considerable progress in the development of methods for preparing samples for analysis and for the final determination of analytes, the analysis of pesticides in biological samples continues to present challenges to analysts. A number of problems crop up in the analysis of pesticide residues:

- (1) The complexity and the diversity of matrices in biological materials.
- (2) The low concentrations of pesticides in samples of fruit and vegetables.



Target analyses must, therefore, be isolated from matrices and then be enriched before the final determination can be undertaken . The complete procedure for determining pesticide residues in biological materials is complex and consists of several stages, which are summarized.



## **2.1. Preparation of samples for analysis:**

The sample-preparation stage and the operations involved in it can affect the final result. Whether the analysis provides the desired information about the sample therefore depends on its proper, correct preparation. It is extremely important that the sample of material for analysis is homogeneous and representative. A representative sample has a chemical composition that resembles as closely as possible the average composition of the entirety of the analyzed material. The sample should be stored frozen and in the dark. Generally speaking, the sample-preparation process consists of a number of steps. In the case of fruit and vegetables, one such step is the removal of surface contaminants by washing the samples in distilled water. The sample is then dried at elevated or ambient temperature or with the aid of a desiccant. In the next step, the sample is broken up and crushed, or ground in a mill or with pestle and mortar, after which the sample is homogenized. The exact preparation procedure depends on the nature of the material under investigation, and every combination of operations in this procedure can lead to loss of analyses and/or cause additional contamination of the sample.

## **2.2. Isolation (extraction) of pesticides from samples:**

The next stage involves isolation and/or enrichment of target analytes – this is necessary because pesticide concentrations in the various compartments of the environment are low. This stage is essential, as in many cases the available analytical methods are not sufficiently sensitive to carry out a final determination of the trace constituents directly from the sample. Isolation and/or preconcentration mean the transfer of analyses from the primary matrix to a secondary one with the simultaneous removal of interferents and increase in target-analytic concentrations to levels above the LOD of the analytical technique applied. Because pesticide levels in fruit and vegetables are generally low, enrichment of target analytes is common.

### ACTIVITY LOG FOR THE FIRST WEEK

Day	Brief Description of the Daily Activity	Learning Outcome	Person In-Charge Signature
Day-1			
Day-2			
Day-3			
Day-4			

### ACTIVITY LOG FOR THE FIRST WEEK

Day	Brief Description of the Daily Activity	Learning Outcome	Person In-Charge Signature
Day-5			
Day-6			
Day-7			

## WEEKLY REPORT

**Week-1 (From Dt ..... to Dt.....)**

[illegible]

### ACTIVITY LOG FOR THE SECOND WEEK

Day	Brief Description of the Daily Activity	Learning Outcome	Person In-Charge Signature
Day-1			
Day-2			
Day-3			
Day-4			

### ACTIVITY LOG FOR THE SECOND WEEK

Day	Brief Description of the Daily Activity	Learning Outcome	Person In-Charge Signature
Day-5			
Day-6			
Day-7			

## WEEKLY REPORT

**Week-2 (From Dt ..... to Dt.....)**

[illegible]

### ACTIVITY LOG FOR THE THIRD WEEK

Day	Brief Description of the Daily Activity	Learning Outcome	Person In-Charge Signature
Day-1			
Day-2			
Day-3			
Day-4			



### ACTIVITY LOG FOR THE THIRD WEEK

Day	Brief Description of the Daily Activity	Learning Outcome	Person In-Charge Signature
Day-5			
Day-6			
Day-7			

## WEEKLY REPORT

**Week-3 (From Dt ..... to Dt.....)**

[illegible]

### ACTIVITY LOG FOR THE FOURTH WEEK

Day	Brief Description of the Daily Activity	Learning Outcome	Person In-Charge Signature
Day-1			
Day-2			
Day-3			
Day-4			

### ACTIVITY LOG FOR THE FOURTH WEEK

Day	Brief Description of the Daily Activity	Learning Outcome	Person In-Charge Signature
Day-5			
Day-6			
Day-7			

# WEEKLY REPORT

**Week-4 (From Dt ..... to Dt.....)**

[illegible]

**Details of the Socio-Economic Survey of the Village/Habitation. Attach the questionnaire prepared for the survey.**

[illegible]

**Describe the problems you have identified in the community**

[illegible]

[illegible]



**Description of the Community awareness programmes conducted w.r.t the problems and their outcomes.**

[illegible]

**Report of the mini-project work done in the related subject w.r.t the  
habitation/village.**

A mini-project work in the related subject w.r.t the habitation/village. (For ex., a student of Botany may do a project on Organic Farming or Horticulture or usage of biofertilizers or biopesticides or effect of the inorganic pesticides, etc. A student of Zoology may do a project on Aquaculture practices or animal husbandry or poultry or health and hygiene or Blood group analysis or survey on the Hypertension or survey on the prevalence of diabetes, etc. The Report shall be limited to **6** pages.



## **CHAPTER 5: Recommendations and conclusions of the mini project**

## Student Self-Evaluation for the Community Service Project

<b>Name of the Student:</b>		
<b>Registration Number:</b>		
<b>Period of CSP:</b>	<b>From:</b>	<b>To:</b>
<b>Date of Evaluation:</b>		
<b>Name of the person in-charge:</b>		
<b>Address with Mobile Number:</b>		

**Please rate your performance in the following areas:**

**Rating Scale:**                      1 is lowest and 5 is highest rank

1) Oral Communication	1	2	3	4	5
2) Written Communication	1	2	3	4	5
3) Pro activeness	1	2	3	4	5
4) Interaction Ability With Community	1	2	3	4	5
5) Positive Attitude	1	2	3	4	5
6) Self-Confidence	1	2	3	4	5
7) Ability To Learn	1	2	3	4	5
8) Work Plan And Organization	1	2	3	4	5
9) Professionalism	1	2	3	4	5
10) Creativity	1	2	3	4	5
11) Quality Of Work Done	1	2	3	4	5
12) Time Management	1	2	3	4	5
13) Understanding The Community	1	2	3	4	5
14) Achievement Of Desired Outcomes	1	2	3	4	5
15) Overall Performance	1	2	3	4	5

**Date:**

**Signature of the Student**

### Evaluation by the Person in-charge in the Community/Habitation

<b>Student Name:</b>		
<b>Registration No:</b>		
<b>Period of CSP:</b>	<b>From:</b>	<b>To:</b>
<b>Date of Evaluation:</b>		
<b>Name of the person in-charge:</b>		
<b>Address with Mobile Number:</b>		

Please rate the student's performance in the following areas: Please note that your evaluation shall be done independent of the Student's self-evaluation Rating Scale: 1 is lowest and 5 is highest rank

1) Oral Communication 2) Written	1	2	3	4	5
Communication 3) Pro activeness 4)	1	2	3	4	5
Interaction Ability with Community 5)	1	2	3	4	5
Positive Attitude 6) Self-Confidence 7)	1	2	3	4	5
Ability to Learn 8) Work Plan and	1	2	3	4	5
Organization 9) Professionalism 10)	1	2	3	4	5
Creativity 11) Quality Of Work Done	1	2	3	4	5
12) Time Management 13)	1	2	3	4	5
Understanding the Community 14)	1	2	3	4	5
Achievement of Desired Outcomes 15)	1	2	3	4	5
Overall Performance	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5

**Date:**

**Signature of the Supervisor**

**PHOTOS AND VIDEO LINKS**

<b>Photo1</b>	<b>Poto2</b>
<b>Photo3</b>	<b>Photo4</b>
<b>Photo5</b>	<b>Photo6</b>

**Photo7**

**Photo8**

**Photo9**

**Photo10**

**Photo11**

**Photo12**