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कौशल विकास और उद्यमशीलता मंत्रालय
MINISTRY OF SKILL DEVELOPMENT AND ENTREPRENEURSHIP

Directorate General of Training

PILOT COMPLETION REPORT

Submitted By

AMMACHILABS

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24.10.2024

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1. INTRODUCTION

The Ministry of Skill Development and Entrepreneurship (MSDE), through its SANKALP scheme and in collaboration with the Directorate General of Training (DGT) and the National Instructional Media Institute (NIMI), has launched a pioneering project to establish "Skill-eLabs" in vocational education. Conceptualised, and implemented by AMMACHI Labs, a research centre at Amrita Vishwa Vidyapeetham, this initiative aims to transition vocational education and training (VET) into the digital space, enhancing resilience, accessibility, and quality, especially in response to the COVID-19 pandemic.

The initial phase of the project developed Skill e-Labs to facilitate immersive and interactive learning through simulated workshops and laboratories. These Skill e-Labs, accessible in English and Hindi, incorporate high-quality 3D simulations, virtual and augmented reality modules, and comprehensive assessments. The pilot phase focused on two critical job roles: Solar Technician and Electronics Mechanic, with an expert committee finalising skill exercises and developing various digital learning components.

From 10 June 2024 to 4 July 2024, the Skill e-Labs suite was piloted across two government ITIs and two NSTIs in India, successfully training 160 students and 18 instructors. The pilot assessed the initiative's potential for scaling across other ITIs/NSTIs and its effects on skill acquisition, retention, and confidence. The response from the institution heads, instructors and students was overwhelmingly positive.

The Skill-eLabs pilot study demonstrated significant positive outcomes across both student performance and instructor experiences. Students who used Skill-eLabs showed improved overall performance, enhanced practical skills, and increased adherence to safety protocols compared to the control group. Notably, when control group students later received Skill-eLabs training, the performance gap disappeared, highlighting the effectiveness of the digital learning tools. Instructors reported a substantial increase in their confidence to integrate technology into teaching, with median levels rising from 5.0 to 9.0 (out of 10) after the intervention. Both 3D simulations and AR/VR technologies were highly rated by instructors and students for enhancing learning engagement and practical skill development. While some technical challenges were noted, there was unanimous consensus among instructors recommending the Skill-eLabs package for future trainees, citing its ability to combine theory with hands-on training and boost employability.

This report provides a detailed account of the operational aspect of the pilot implementation. **The impact evaluation will be covered in a separate report, detailing the data collected, findings, and recommendations.**

2. OBJECTIVES FOR THE PILOT STUDY

The objectives of the pilot study are as follows:

- **To assess skill acquisition** among Skill-eLabs participants by comparing their performance to a control group, and evaluating their proficiency in completing tasks during both simulated and traditional practical assessments.
- **To evaluate retention and recall abilities** by measuring participants' capacity to retain information and apply it practically after the training.
- **To investigate participants' perceived confidence** by assessing changes in their self-perceived abilities and confidence levels before and after Skill-eLabs training.

In addition to the above objectives, the study will also perform the following:

- To explore whether Skill-eLabs training can help all students, especially lower-achieving students in ITIs improve their learning outcomes and approach the performance levels of higher-achieving students from NSTIs**.**
- To explore how the Skill-eLabs package influences instructors' confidence in using technology and their perceptions of its ease of integration into vocational training.
- **Recommendations for Expansion:** The study will provide insights and suggestions for effectively scaling up the development of Skill-eLabs across ITIs and NSTIs.
- **Recommend Implementation and Adoption Strategies:** The report will outline suggestions for the successful implementation and adoption of Skill-eLabs.

The detailed findings of the study, recommendations and strategies will be elaborated in the Impact Evaluation Report.

3. INSTITUTIONS AND PARTICIPANT SUMMARY

The pilot trained 160 students and 17 instructors at four institutions (see Table 1).

SNo	Institute Name	Count of Students		Count of Instructors	
		Electronics Mechanic	Solar Technician	Electronics Mechanic	Solar Technician
1	NSTI Mumbai	20	20	2	2
2	NSTI Dehradun	20	20	2	2

3	Govt. ITI, Jhajjar, Haryana	20	20	2	3
4	Govt. ITI, Bicholim, Goa	20	20	2	2

Table 1: Count of students and instructors who participated in the pilot

The number of instructors trained was 17, compared to the 32 instructors originally planned in the proposal. This discrepancy occurred because the institutions had fewer instructors available, as indicated in the table above for each trade.

Refer to **Appendix A: Institution Heads Confirmation - Staff Strength** for formal confirmation from the institutional heads regarding available staff strength for the pilot.

4. SKILL-ELABS PACKAGE

AMPLE platform – www.skillelabs.com

The Skill-eLabs package used in the pilot included three exercises each, for the trades, Solar Technician and Electronics Mechanic developed as part of the project.

The Skill-eLabs package consisted of videos, 3D simulations, Augmented Reality modules, Virtual Reality modules and multiple-choice questions. The exercises and the packages for each trade are shared below:

Sl No	Exercise Name		AR Module	VR Module
1	To construct a home lighting system using solar panel	Video & Simulation	Solar Panel Placement Explorer	Roof Top assembling of three solar panels and installation of PCU and Batteries
2	To assemble, install and commission of Solar Water Pump	Video & Simulation		
3	To construct 1 KW Solar PCU to 1 KW Solar panel Installation	Video & Simulation		

Table 2: Mapping with skill lab components for Solar Technician and Electronic Mechanic Trade

Sl No	Exercise Name and Numbers	3d Simulation	AR Module	VR Module
1	familiarisation Identification, Dismantling, Assembling and Testing of LCD/LED TV (296, 297, 299, 300)	Video & Simulation	Interactive Parts Identification and Animation	NA

2	Troubleshoot the faults in the given LED/LCD TV for “No Power Issue” and Test the TV (301 and 302)	Video & Simulation		
3	Troubleshoot the faults “No picture & No sound” Issue with the given LED/LCD TV and Test TV (301 and 302)	Video & Simulation		

Table 3: Mapping with skill lab components for Electronic Mechanic Trade

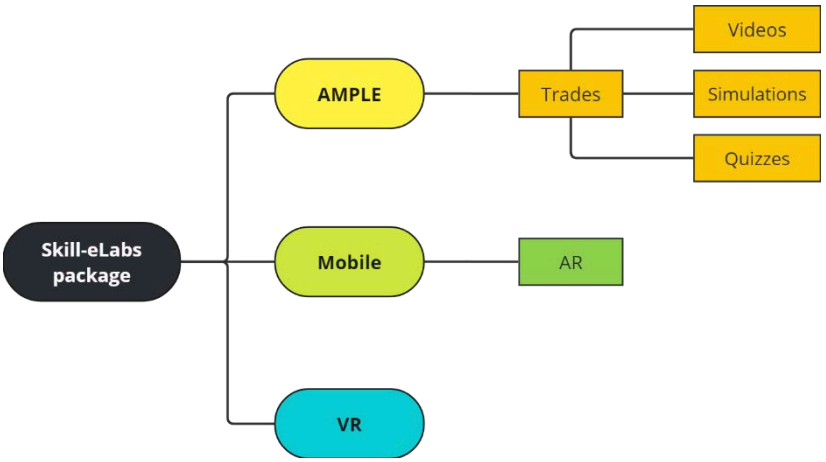


Figure 1: Skill-eLab Components

Delivery platform: The Skill-eLabs packages were delivered through the AMPLE platform of Amrita Vishwa Vidyapeetham. The AMPLE platform is a Learning and Content Management System used to create courses and assign students to take courses. It supports various media, including WebGL which is the format for 3D Simulations. While the AMPLE platform was utilised for onboarding students, course management, and content delivery (videos, 3D simulations, quizzes and surveys), the AR modules were delivered on mobile phones (APK), and the Virtual Reality module utilised the VR headsets.

Equipment and Infrastructure: One high-end VR-supported desktop and 2 virtual reality headsets, procured as part of the project were installed and utilised for the project at each institution. Additionally, ten rented laptops were utilised to conduct the pilots. Each institution arranged for the internet, and the infrastructure required to conduct the pilot.

As part of the delivery of the course, students were first on boarded onto the AMPLE platform, and provided training on platform use. Each day, the students logged into the platform to take the course under the guidance of Amrita mentors, and their instructors.

5. IMPLEMENTATION PROCESS

5.1 Team

Two teams from Amrita consisting of a senior researcher, and four associates/ mentors were deployed for the pilot. Each team covered one NSTI and one Govt. ITI each, as per the schedule highlighted in the diagram below.

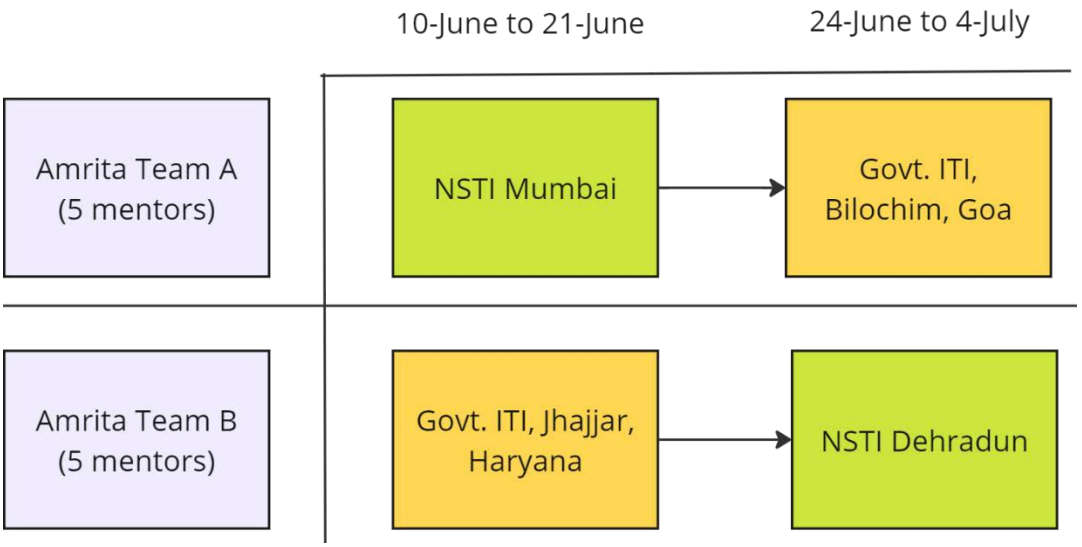


Figure 2: Pilot Schedule managed by two Amrita teams

5.2 Pre-Pilot Activities

Before the pilot, each institution was contacted to prepare accordingly. Each institute provided the following:

1) List of the students for the Solar Technician Trade and the Electronics Mechanic Trade for the pilot.
2) List of available instructors of the Solar Technician and the Electronics Mechanic trades for the pilot.
3) Confirmation that the students will get oriented on the theoretical sections of the exercises covered in the Skill-eLabs package and will not complete the practical exercises, prior to the pilot.
4) Confirmation that the Infrastructure will be made available to assess the practical skills of students for the selected exercises.
5) Confirmation on the availability of internet and facilities to run the pilot.

Refer to **Appendix B: Pre-Pilot checklists,** the filled-in checklists, that were sent back from the Institutions

5.3 Overview of Pilot Methodology

Participants: In each institution, 20 students were selected from the Solar Technician trade, and another 20 students were selected from the Electronic Mechanic trade. Overall, 40 students were selected from each institution, totaling 160 students from all four institutions. For the Electronic Mechanic trade, 20 student trainees were randomly selected from a pool of 40 students.

Evaluation Design: In this pilot study, the student trainees were divided into experimental and control groups within each trade. In each group of 20 student trainees, split evenly into 10 students each for the experimental and control groups. Total of 160 student trainees were divided into two as 80 students were in the experimental and 80 students were considered under the control group.

The experimental group began with the Skill eLab packages and followed on with the traditional practical exercises. Conversely, the control group started with the traditional practical exercises for one exercise, then were introduced to the Skill eLab package. This setup allowed for different comparisons to be conducted at various stages of the study.

To address the objectives mentioned above, questionnaires were administered. These questionnaires included both quantitative and qualitative questions, following a mixed-methods approach. Different sets of questions were designed for the experimental and control groups of students to capture their specific experiences and feedback.

The details of the impact evaluation design will be elaborated on in the Impact Evaluation Report.

5.4 Pilot Activities

The 10-day offline implementation was conducted in four institutions, in two training segments. During the first 5 days, training was provided to Solar Technician trainees, and during the remaining 5 days, training was provided to Electronic Mechanic trainees. On Day 1, two mentors trained the trainers in 3D simulations, AR, and VR simulations. For the remaining days, trainers participated in the trainees' training programs. Each trainer then engaged with both experimental and control group student training programs alongside the mentors.

Below is a high-level breakdown of the activities during the 10-day pilot at each institution.

Sl No	Day	Activity
Launch of Pilot & Solar Technician		
1	Day 1	• Introduction meeting with Principal, Instructors and Students • Student Roll Number allotment and division of students into control group and experimental group. • Technology and Skill-eLabs package familiarisation sessions for experimental group students, and instructors for the Solar Technician trade • AMPLE setup for students • Equipment setup • Obtained consent forms from students
Solar Technician Pilot		
2	Day 2 to Day 5	• Experimental group: Pretest, Skill-eLabs packages for 3 exercises, Quiz, post-test, Practical and evaluation by instructor, Feedback from students • Control group: Pretest, Practical, Evaluation by Instructor, Skill-eLab packages for 3 exercises, Student feedback
Electronics Mechanic Pilot		
3	Day 6 to Day 10	• Experimental group: Pretest, Skill-eLabs packages for 3 exercises, Quiz, post-test, Practical and evaluation by instructor, Feedback from students • Control group: Pretest, Practical, Evaluation by Instructor, Skill-eLab packages for 3 exercises, Student feedback
Certification Ceremony		
4	Day 10	• Concluding Ceremony, Certificate Distribution, Experience Sharing, Attendance & Consolidated Activity Report Submission • Signed copy of Asset transfer form.

Table 4: High-Level: Activities During the 10-Day Pilot at Each Institution

See **Appendix C: Detailed 10-day Pilot Schedule**

6. PILOT SUMMARY AT EACH INSTITUTION

The activities at each centre followed the activities listed in section 5.4. A summary of activities is shared for each institution.

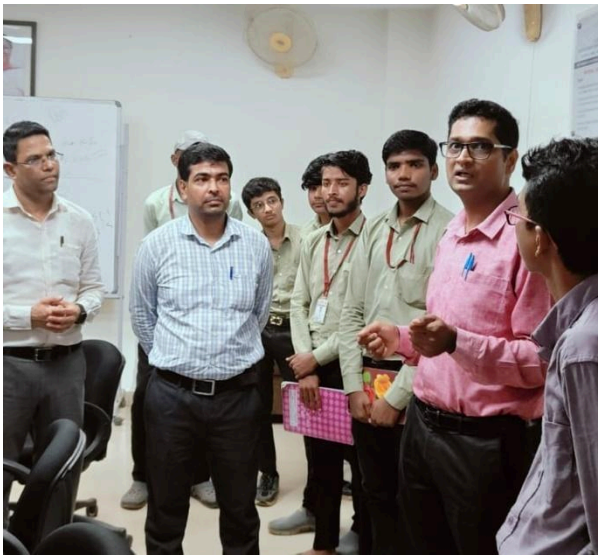
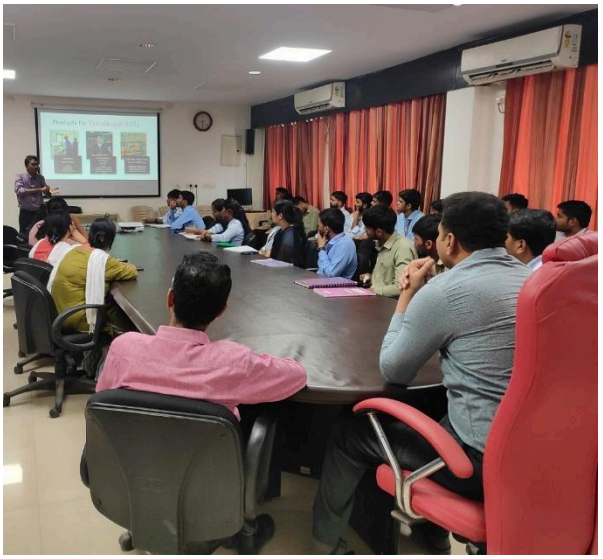
6.1 NSTI Mumbai (10-June to 21-June)

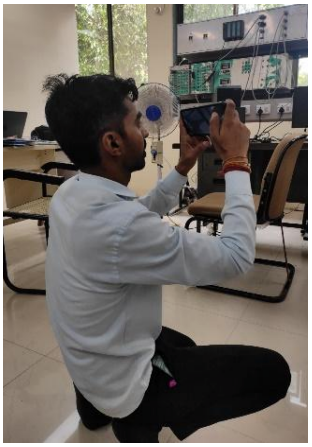
The NSTI Mumbai pilot conducted between 10th June and 21st June, provided training for 20 students and 3 instructors in Solar Technology, and 20 students and 2 instructors in the Electronics Mechanic trade. The summary of activities is described below.

1. Pilot Launch and Technology familiarisation for Trainers and Students

On 10th June, the pilot program at NSTI Mumbai commenced with a meeting involving the Joint Director, NSTI Mumbai. During this meeting, the project scope, pilot study schedule, and expected outcomes were thoroughly discussed. The launch event included distinguished guests including Shri Ketan P. Patel (Joint Director, NSTI Mumbai), Dr. Naresh Kumar Chauhan (Deputy Director, NSTI Mumbai), Shri Sujay Barik and Shri Nitesh A. Patil (Solar Training Officers, NSTI Mumbai), and Smt. Ruchi Rai and Smt. Purnima Sarkar (Electronics Mechanic Training Officers, NSTI Mumbai).

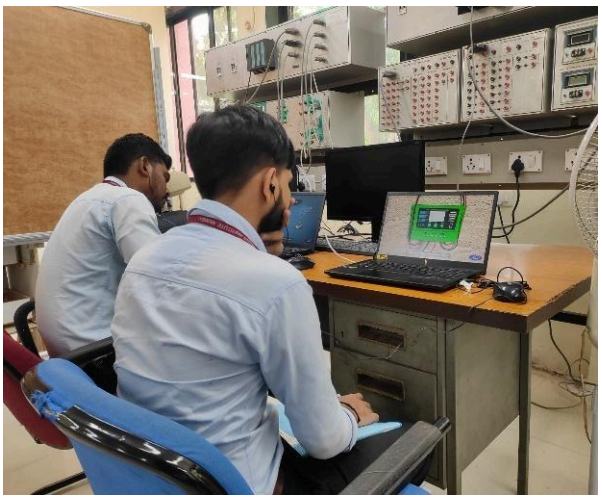
Additionally, a meeting was conducted with Solar Technician trade students and trainers, outlining the project was presented, and control and experimental groups were formed. Trainers' training included detailed discussions with two solar instructors who familiarised themselves with the VR headset, AR modules, and solar simulation. Furthermore, 10 students from the experimental group engaged with electronic mechanic trade videos and simulations. The initial phase enrolled 20 students each for the two trades, with skilled solar technician trainers who had received training from Germany.

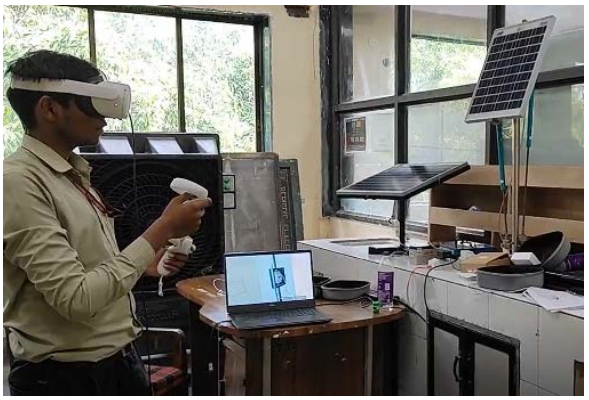






2. Pilot for Solar Technicians Students

The pilot conducted from 11th June to 15th June provided training to the Solar Technician students. The control group completed practicals for home lighting systems, pretests, and teacher evaluations. While the experimental group engaged in exercises 1 and 2, familiarising themselves with 3D simulations, AR, and VR modules. Trainers provided valuable feedback on the simulations, familiarised themselves with VR, and completed their testing. All 20 students completed the VR solar simulations. Data was collected from both trainees and trainers. Positive engagement and feedback was received from both trainers and trainees.



3. Pilot for Electronic Mechanic Students

The pilot for Electronic Mechanic students began on 15th June and continued until 21st June. An introductory session was held with 20 electronic mechanic students and 2 trainers, who were allocated into control and experimental groups. The experimental group completed Exercises 1 and 2 of the Solar trade and VR modules. The control group completed traditional practicals and became familiar with the simulations. The experimental group completed Simulations 1, 2, and 3, as well as AR familiarisation. Both groups provided positive feedback and testimonials. The students demonstrated high performance in assessments, and both trainers and trainees provided positive feedback.


4. Conclusion

The certification distribution ceremony was organised on the last day 21st June for all the students. During the closing ceremony, positive responses were received from student trainees and the instructors. The Joint Director emphasised the safety scenarios provided by this training and the potential to save materials during training.

5. Challenges Faced

Challenge	Description	Improvement
Internet Issues	Consistent problems with internet connectivity. This was solved using personal hotspots.	Ensure reliable internet connection for future implementations. Establish backup internet options or offline modes for essential components.
Trainer Technology Familiarity	Some trainers were slow to grasp new technology and required additional training.	Provide additional training sessions for trainers to ensure they are able to use new technology competently. The use of a buddy/mentor is recommended.
Student Preparation	Some students had already completed the practical despite requests to institution	Ensure the institution adheres to the original guidelines and obtain formal communication in this matter.
Language Barriers	Hindi simulations were difficult to comprehend for some students as they	Offer translations in multiple languages or provide additional language support.

	were more comfortable in Marathi.	
Resource Availability	Limited availability of trainers (due to other commitments) and equipment for practicals caused delays.	Ensure adequate resources and personnel are available to avoid delays in the training schedule.

Table 5: Challenges faced and suggested improvements from Mumbai Pilot Study

6.2 Govt. ITI, Jhajjar, Haryana (10-June to 21-June)

The pilot at Govt.ITI, Jhajjar, Haryana was successfully conducted from 10th June to 21st June, training 20 students and 2 instructors in Solar Technology, and 20 students and 2 instructors in the Electronics Mechanic trade. Training lasted five days for each trade, with tests before and after to measure learning. Feedback showed the program was effective in teaching safety and practical skills.

The summary of activities is shared below.

1. Pilot Launch and Technology familiarisation for Trainers and Students

The Skill eLabs Pilot Study Program at Govt. ITI, Jhajjar, Haryana, started on June 10, 2024. It began with an inaugural ceremony chaired by the Principal, Shri Jeetpal. The Amrita team conducted a presentation about the project, and provided an overview of the 10-day schedule. This was followed by the technology familiarisation for trainers and students. The pilot involved 20 students and 2 instructors from each trade, split into experimental and control groups.

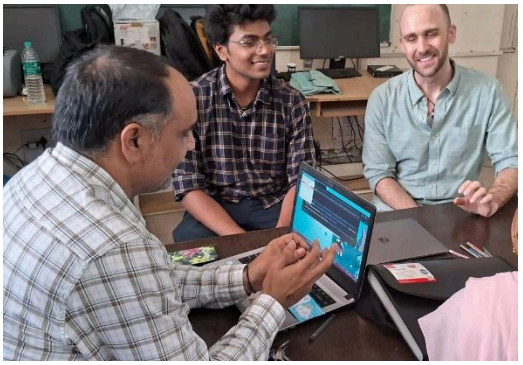
2. Pilot for Solar Technicians Students

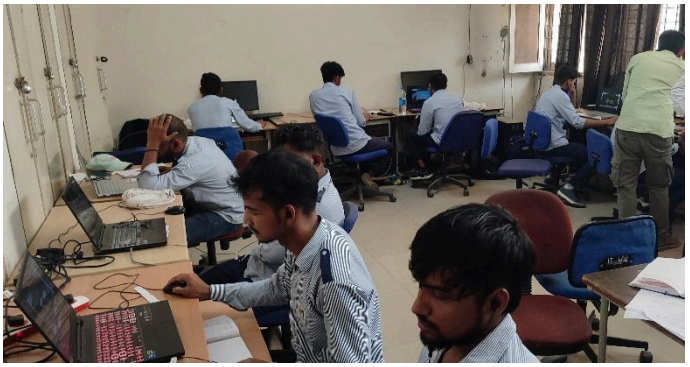
The Solar Technician pilot, conducted between 11th June to 14th June, included 20 participants. The experimental group completed the common pretest, simulations 2 and 3, various assessments, and posttests. The control group completed practical exercise 3, pretests, and teacher evaluations, and achieved all planned goals.

Precise voice recordings were maintained, and icebreaking sessions helped keep students motivated. Mobile hotspots ensured a seamless experience. On 12th June, the experimental group completed "Rooftop installation" practical, while the control group completed three solar trade simulations. On 13th June, the experimental group finished the exercise 1 simulation, post-tests, usability tests, AR module study, and VR familiarisation. The control group completed the rooftop practical round 2, post-tests, usability tests, AR module study, and VR familiarisation. By the 14th of June, both groups completed VR sessions, student feedback collection, and teacher analysis, which was then followed by a thank you ceremony.

3. Pilot for Electronic Mechanic Students

The pilot for Electronic Mechanic students ran from 15th June to 21st June. The experimental group completed simulations 1, 2, and 3, along with pretests, while the control group focused on practicals, AR sessions, and familiarisation with the Skill-eLabs package. Strategies to improve training and motivation included incentives such as rewards for performance, group learning, and knowledge sharing amongst students. On 18th June, the experimental group completed simulations 1, 2, and 3 with pretests, and the control group completed practicals, AR sessions, and familiarisation. The next day, the experimental group completed practicals and AR sessions, while the control group finished all three simulations of the Skill-eLabs package, and completed AR post-tests, and usability tests. Instructors and high-performing students were briefed for testimonials. By 20th June, the experimental group completed exercise 3 and usability forms, while the control group completed practical round 2, posttest voice recordings, and student feedback collection. Five students volunteered to guide instructors through simulations and AR/VR as part of the last day's training.





4. Conclusion

The program ended on June 21, 2024, with a visit from Ms. Shefali Sharma of the Sankalp Team, who attended the closing ceremony and gave out certificates. Follow-up sessions to address any questions and refresher courses were also held. Trainers showed interest in adding the Skill eLabs package to the regular curriculum. Further training programs are being considered. The program was covered by local media, highlighting its importance in vocational education. Overall, the pilot was a success, with positive feedback from students and trainers.

5. Challenges Faced

Challenge	Description	Improvement
Power Supply Ports	Insufficient power supply ports.	Bring extension cords or each institution to keep ready power supply/ extension cords to ensure all devices can be powered simultaneously.
Internet Connectivity	Internet connection to LAN failed, requiring the use of hotspots, which slowed familiarisation.	Coordinate with the institution to pre-check internet connectivity – wifi/ LAN before the arrival of the team.
Experimental Group Students Using Unauthorised Resources	Experimental group students frequently used ChatGPT and searched the web for answers.	Ensure strict adherence to protocols. Collect their phones before starting simulations to ensure they focus on the training material.
Time Management	Occasionally ran out of time to complete practical's for experimental setup students as planned.	Allocate additional time or reschedule to ensure all planned activities are completed.
Student VR-related concerns	Some students experienced headaches with VR.	Monitor students' usage time and provide breaks to avoid strain. Educate students on the proper use of VR headsets.
AR Utilisation	Only a few students had mobile phones supporting AR	Institutions to have at least a few AR Core supported tablets that students can use for AR exercises
VR Room Space	Limited open room for VR; only one person can use it at a time.	Arrange a larger space or schedule VR sessions to ensure all students get ample time to practise.
Power Outages	Frequent power outages delayed VR sessions, affecting student grasp.	Schedule alternative activities during outages and have backup power solutions if possible.
Student familiarisation with VR	Students took time to learn VR.	Start familiarisation from day 1 in future implementations to give students more time to adapt.
Practical Difficulties	Some experimental group students faced difficulties with practicals despite initial briefings.	Provide additional support and step-by-step guidance during practical sessions to ensure all students understand the tasks.

Table 6: Challenges faced and suggested improvements from Haryana Pilot Study

These concerns were addressed prior to the team travelling to the next institution.

6.3 NSTI Dehradun (24-June to 4-July)

The pilot at NSTI Dehradun was successfully conducted from 24th June to 4th July, training 20 students and 3 instructors in Solar Technology, and 20 students and 2 instructors in the Electronics Mechanic trade. The summary of activities is shared below.

1. Pilot Launch and Technology familiarisation for Trainers and Students

The Solar Technician pilot at NSTI Dehradun began on 24th June 2024. The day started with a meeting involving the Training Officer, the Principal, and the Electronic Mechanic Training Officer to discuss the project's objectives and the activities planned for the next 10 days. A formal inaugural ceremony was conducted, which included a lamp-lighting ceremony attended by the Principal Sri. Naresh Kumar, instructors, and the Electronics Mechanic and Solar Technician students. During the ceremony, trainers were briefed on the planned activities, and Solar Technician students were divided into experimental and control groups, with accounts created for all students. For the experimental group, familiarisation sessions were held, including an AR session. The rest of the day was dedicated to instructors' training, where three instructors familiarised themselves with the Electronic Mechanic Simulation-1 and the basics of VR and controls.

2. Pilot for Solar Technician Students

Over the next few days, the experimental group of students completed Solar simulations 1, 2, and 3, with five students receiving full VR familiarisation. The control group students completed their AR session and were later familiarised with the Skill e-Labs package. On 27th June, the experimental group started trying out the VR simulations, guided by a trained Solar Instructor, while the control group completed their practicals in Rooftop installation, surpassing their previous records.

Both groups completed their VR simulations from start to finish, guided by mentors and instructors. Data collection and student feedback were carried out throughout the process. As per the request from the NSTI Training Officer, simulations and videos were installed on several computers in the Electronic Mechanics Lab and a classroom.




3. Pilot for Electronic Mechanic Students

The pilot for Electronic Mechanic students commenced on 29th June 2024. The first day involved briefing the students about the program and collecting signed consent forms. The students were divided into experimental and control groups. The experimental group completed familiarisations with Ample and simulations, as well as the AR module. By 1st July, the experimental group had completed simulations 1, 2, and 3, with all pretests recorded and usability surveys conducted. Seven students received familiarisation with the VR module. The control group completed their first round of practicals, focusing on the familiarisation of TV components, and teachers' evaluations were also conducted. The Regional Director and the Principal tried out VR and simulations.

On 2nd July, the experimental group successfully completed practicals and an AR session, with pending students finishing their VR sessions. The control group finished all three simulations of the Skill e-Labs package and their VR sessions. Electronic Mechanic instructors did a revision on VR and simulations. By 3rd July, the experimental group had completed all data collection activities and post-test recordings, while the control group finished practical round 2 and post-test recordings. The day ended with a meeting between the NSTI team, Amrita team, NIMI, DGT, Sankalp, and SMEs. Google forms were filled out by students, instructors, and the institute.

The program also featured a Yoga and Meditation session organised by the Amrita Team, further enriching the experience.




4. Conclusion

The 10-day pilot program at NSTI Dehradun concluded on 4th July 2024 with a closing ceremony attended by Brahmachari Adv. Promod Ji, M.A Math as the Chief Guest, along with the Regional Director, Principal, instructors, and students. During the ceremony, feedback was provided by all attendees. Certificates were distributed to both students and instructors. Instructor evaluations were conducted, and instructors demonstrated teaching VR, AR, and simulations. The program concluded with a group photo, marking the successful completion of the pilot study.


6.4 Govt. ITI, Bicholim, Goa (24-June to 4-July)

The pilot at Govt. ITI, Bilochim, Goa was successfully conducted from 24th June to 4th July, training 20 students and 2 instructors in Solar Technology, and 20 students and 3 instructors in the Electronics Mechanic trade. The summary of activities is shared below.

1.Pilot Launch and Technology familiarisation for Trainers and Students

On 24th June, the pilot program commenced with a meeting involving Principal Kapil, group instructors, and vocational instructors. Principal Kapil Sir expressed his enthusiasm and support after personally experiencing the 3D simulations, AR, and VR modules. Trainers from the Solar Technician trade familiarise themselves with

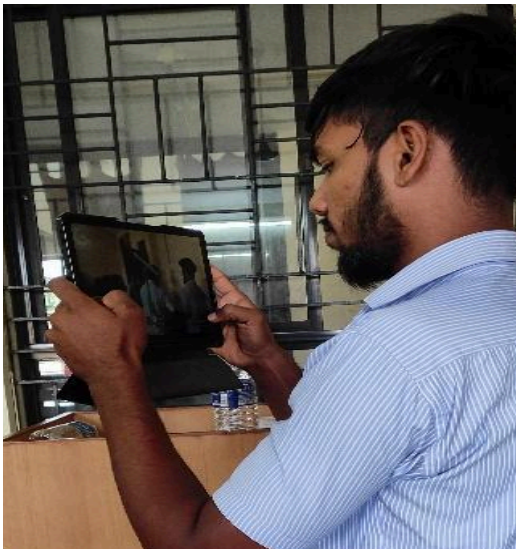
all the 3D simulations and VR. Subsequent days included VR familiarisation for control group students and trainers, as well as setting up the necessary hardware and software for simulations. Despite persistent internet connectivity issues, the trainers effectively set up and utilised VR headsets, and positive feedback was received from both students and trainers on the effectiveness of the simulations.

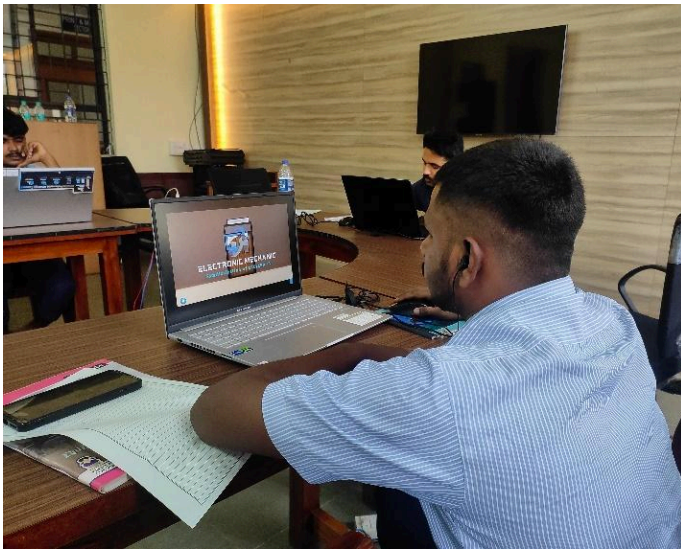
2.Pilot for Solar Technician

On 25th June, training sessions for control group students included pretest, practical and simulation exercises. On 26th June, training was extended to both control and experimental groups, incorporating 3D simulations and practical tests. Although internet issues affected data collection, student motivation was increased through small rewards. By 28th June, VR testing and post-test questionnaires were completed, with positive feedback highlighting the simulations' effectiveness. The program concluded on 4th July with final practical tests, feedback collection, asset transfer, and certificate distribution.

3.Pilot for Electronics Mechanic

The pilot for Electronics Mechanic students started on 29th June, with training and practical tests revealing higher skill and motivation levels compared to Solar trade students. Continued exercises and tests were conducted for both experimental and control groups, efficiently completed by 1st July. A video conference on 2nd July allowed Principal trainers and students to share their feedback with MSDE DGT and NIMI. The final days involved completing AR exercises, post-tests, and feedback collection were completed as planned.





4.Conclusion Event

The 10-day pilot training program at Bicholim Govt. ITI concluded on 4th July. The closing ceremony was attended by the principal, all group instructors, trainers, and student trainees. Certificates were distributed, and students and trainers shared their experiences, expressing their satisfaction and appreciation for the innovative training approach. The event marked a successful conclusion to the pilot program, and highlighted the enthusiasm and positive impact on all participants.

5.Challenges Faced

Challenge	Description	Improvement
Internet Connectivity	Persistent internet connectivity problems due to a cable issue from the provider, which affected real-time data collection and online resource access.	Ensure a reliable internet connection for future implementations. Establish backup internet options or offline modes for essential components.
Student Motivation	Many students initially showed a lack of interest and motivation, particularly among the Solar Technician trade students.	Implement strategies such as providing small rewards and engaging activities. Understand underlying reasons for low motivation and tailor engagement strategies. Provide regular

		motivational sessions and career counselling.
Technical Setup	Initial challenges in setting up technical infrastructure, including VR headsets and simulation software.	Ensure thorough pre-setup checks and have technical support available during the initial days. Train local staff in basic troubleshooting strategies.
Engagement with New Students	A few students dropped out during the pilot, and additional students were inducted. The introduction of new students during the pilot led to difficulties in maintaining consistent training.	Establish a structured onboarding process for new participants. Provide catch-up sessions or materials to ensure new students quickly align with the rest of the group.

Table 7: Challenges faced and suggested improvements from Goa Pilot Study

Refer to **Appendix D: Consolidated Activity Report and Attendance** of each centre, to see detailed activities at each centre, and the attendance reports. These reports were submitted to the Principal of all participating institutions after each pilot was completed.

7. CERTIFICATION FOR THE PARTICIPANTS

A significant milestone of the pilot program was the awarding of a certificate of achievement to acknowledge participants' attendance and accomplishments. The certificate was jointly issued by NIMI, and Amrita Vishwa Vidyapeetham on behalf of MSDE and DGT.

Achievement Certificates for Students: The students who completed the Skill e-Labs-based training program were awarded achievement certificates. These certificates were a formal recognition of their dedication and proficiency in the Skill-eLabs package-based training in Solar Technician and Electronics Mechanic. To qualify for these certificates, students completed a comprehensive assessment process that evaluated their performance across various modules through online tests and practical assessments.

The achievement certificates awarded are a valuable credential that can enhance employability in the current job market.

Participation Certificates for Instructors: Instructors involved in the pilot program received participation certificates. These certificates acknowledged their vital role in facilitating the training and their commitment to integrating innovative teaching methodologies into their curricula. The instructors' participation was crucial for:

- **Guiding Students:** Providing support and guidance to students as they navigated through the new and advanced training modules.
- **Training Implementation:** Ensuring the effective implementation of the Skill e-Labs content and technologies, such as 3D simulations, AR, and VR.
- **Feedback:** Offering insightful feedback on provided training modules, which was instrumental in refining and improving the content for future iterations.

The participation certificates recognized the instructors' efforts to enhance vocational education through the adoption of cutting-edge technology and innovative teaching practices.

Awarding certificates played a crucial role in motivating participants and validating their engagement with the Skill e-Labs program. For students, the achievement certificates provided a sense of accomplishment and tangible proof of their newly acquired skills. For instructors, the participation certificates highlighted their contribution to pioneering a new approach to vocational training. Overall, the certification process underscored the program's success in fostering skill development and professional growth among both students and educators.

Refer to **Appendix E: Certificate List,** for the full list of students and instructors, who were awarded the certificates.

8. KEY INSIGHTS FROM IMPLEMENTATION

The challenges faced during the pilot implementation of the Skill-eLabs project across multiple institutions provided valuable insights into the integration of advanced technologies in vocational education. The following section summarises the key challenges encountered and the insights, and will inform future implementation, ensuring a more effective and seamless training experience for both students and instructors.

- **Internet Connectivity Issues**:

    - **Challenge**: Consistent problems with internet connectivity across multiple locations, requiring the use of personal hotspots.
    - **Insight**: Reliable internet is crucial for the success of Skill-eLabs, highlighting the need for stable internet connections or offline alternatives.
- **Trainer Participation and Preparation**:
    - **Challenge**: Trainers needed additional training, particularly in handling new technologies like VR and AR.
    - **Insight**: Comprehensive and continuous training for trainers is essential to ensure they are confident and competent in using advanced educational tools. Adapting peer-to-peer learning, and buddy/mentor to scaffold the technology onboarding will help. ***One recommendation is to enable NSTI trainers to be Master Trainers in technology adoption. The master trainers can train the trainers at ITIs, and provide mentoring in technology usage. A short certificate program could be implemented on Technology Enabled Teaching and Learning, and all trainers required to be certified.***
- **Student Engagement and Motivation**:
    - **Challenge**: Initial lack of interest and motivation among some students. This was seen more in Government ITI students.
    - **Insight**: Engagement strategies, such as providing small rewards, incorporating interactive activities, and understanding the underlying reasons for low motivation, are effective in improving student participation.
- **Equipment and Technical Setup**:
    - **Challenge**: Initial struggles with setting up and using equipment, such as VR headsets and simulation software.
    - **Insight**: Pre-setup checks, thorough training, and having technical support available can mitigate initial setup challenges.
- **Language and Content Localization**:
    - **Challenge**: Difficulty in understanding Hindi simulations for some students in Goa, Maharashtra.
    - **Insight**: Offering translations in multiple languages and tailoring content to fit the students' needs can significantly improve comprehension and learning outcomes.
- **Space and Infrastructure**:
    - **Challenge**: Limited space for VR sessions and insufficient power supply ports.
    - **Insight**: Adequate planning for physical space and infrastructure requirements is necessary to facilitate smooth training sessions.
- **Practical Implementation Variations**:
    - **Challenge**: Differences in practical tests based on available equipment at each institution.

    - **Insight**: Standardising practical setups or ensuring flexibility in curriculum implementation can help maintain consistency across different institutions.
- **Student Health and Well-being**:
    - **Challenge**: Some students experienced headaches and discomfort with VR use.
    - **Insight**: Monitoring usage time, providing breaks, and educating students on proper VR usage are important to ensure student well-being.
- **Feedback and Data Collection**:
    - **Challenge**: Slow feedback collection process, due to student's lack of proficiency in typing in English/Hindi, and lack of detailed responses. This led to the team shifting to voice recordings.
    - **Insight**: Implement alternative feedback methods, such as voice recordings or video feedback, and provide training on giving constructive and detailed feedback.
- **Adaptation to New Students**:
    - **Challenge**: Integrating new students during the pilot led to training pace issues.
    - **Insight**: A structured and digitized onboarding process and catch-up sessions are crucial to ensure new students can quickly align with ongoing training without disrupting the current batch.

By addressing these insights, future implementations of the Skill-eLabs project can be more effective, ensuring a smoother and more impactful vocational training experience.

9. ASSET PROCUREMENT AND INSTALLATION

As part of the Skill e-Labs project, specific hardware and equipment were procured for each of the four participating institutions. This included:

- A high-end VR desktop and UPS
- Two VR headsets
- Accompanying accessories

At each institution, the following steps were meticulously followed:

1. **Delivery and Installation**: The assets were delivered to each institution, installed, and verified to be in proper working condition.

2. **Software and Content Setup**: Necessary software and the Skill e-Labs content were installed on the provided hardware to ensure full functionality and readiness for use.

3. **Instructor Training**: Instructors at each institution were trained in the usage of the new equipment, to ensure they were fully prepared to integrate the technology into their teaching methods.

4. **Confirmation of Receipt**: An asset transfer form was signed by each institution, confirming the receipt and working condition of each asset.

This ensured that all participating institutions were equipped and prepared to utilise the advanced technology provided by the Skill e-Labs project, laying a solid foundation for the successful implementation of the pilot program.

Equipment	Items	Quantity	NSTI Dehradun	NSTI Mumbai	Govt. ITI Jhajjar	Govt. ITI, Bilochim
High-end VR Desktop	CPU	1	verified	verified	verified	verified
	Monitor	1	verified	verified	verified	verified
	Wireless Keyboard	1	verified	verified	verified	verified
	Port cable	1	verified	verified	verified	verified
	1100VA/660W,230 V UPS	1	verified	verified	verified	verified
VR Headset and Accessories	Meta Oculus Quest 2 - 128GB	2	verified	verified	verified	verified
	Quest 2 Touch Controller - Left	2	verified	verified	verified	verified
	Quest 2 Touch Controller - Right	2	verified	verified	verified	verified
	Carrying Case	2	verified	verified	verified	verified
	Charging Cables - C to C Type	2	verified	verified	verified	verified
	15w Power Adapter	2	verified	verified	verified	verified
	Oculus Link Cable	2	verified	verified	verified	verified
	Meta Quest 2 Adjustable Strap	2	verified	verified	verified	verified
	3 Pin Socket	2	verified	verified	verified	verified

Table 8: Asset transfer form signed by each institution

NSTI Mumbai

Govt. ITI, Jhajjar, Haryana

NSTI Dehradun

Govt. ITI, Bilochim, Goa

Asset handover photographs from the four institutions

Appendix F: **Signed Asset Transfer Forms**, contains the signed forms from each of the four institutions confirming the receipt, installation and working condition of the equipment.

10. SKILL ELABS CONTENT – FEEDBACK FROM INSTRUCTORS / STUDENTS

The Skill e-Labs package for Solar Technicians and Electronics Mechanics, consisting of videos, 3D simulations, AR, VR, and assessment modules, was delivered to the four participating institutions. Upon deployment, students and trainers engaged with the modules and provided valuable feedback on areas for improvement. This feedback was meticulously collected, with critical issues prioritised and addressed before the second phase of deployment, ensuring that

the subsequent batch of students received updated content. Following the completion of the pilot program on 4th July, additional feedback was reviewed, and further content adjustments were made. The corrections/issues primarily related to the Solar Technician 3D simulations and VR modules. There were no issues identified for the Electronics Mechanics modules. Identified issues were addressed and made available in the updated release.

This iterative process of content delivery, feedback collection, prioritisation, and continuous refinement ensured the quality and usability of the Skill e-Labs training materials for both students and trainers.

Refer to **Appendix G: Content Feedback from Pilot**, to view the list of feedback received. and **Appendix H: Minutes of Approval from NIMI Experts of the fixes**

11. MEDIA COVERAGE

The pilot implementation of the Skill e-Labs project, the first of its kind, garnered extensive coverage in local media outlets, highlighting its significance and impact on vocational education. Prominent publications such as Amar Ujala Newspaper, Oscar News Line, Jhajjar Bhaskar Newspaper, and Hari Bhoomi Newspaper featured detailed reports on the project.

This widespread media attention will play a crucial role in raising awareness about the innovative approach to vocational training adopted by the Skill e-Labs initiative. By showcasing the project's use of advanced technologies like 3D simulations, AR, and VR, the media coverage emphasised the potential of these tools to enhance the learning experience and skill acquisition for students. Furthermore, the positive reception and interest from the media underscored the importance of modernising vocational education to meet current industry standards and demands.

The coverage also helped in promoting the collaboration between the Ministry of Skill Development and Entrepreneurship (MSDE), Directorate General of Training (DGT), National Instructional Media Institute (NIMI), and Amrita Vishwa Vidyapeetham. It highlighted the collective effort to improve the quality and accessibility of vocational training, particularly in response to the challenges posed by the COVID-19 pandemic. Overall, the media's focus on the Skill e-Labs project not only celebrated its pioneering efforts but also encouraged broader adoption and support for similar initiatives in the future.

दैनिक भास्कर झज्जर भास्कर 16-06-2024

दैनिक भास्कर

संकल्प पायलट प्रोजेक्ट • आईटीआई गुढ़ा में 10 दिवसीय प्रशिक्षण आरंभ

स्किल इंडिया ; चार स्थानों पर युवाओं की ट्रेनिंग शुरू, इनमें झज्जर भी शामिल

भास्कर न्यूज | झज्जर

केंद्र सरकार की स्किल इंडिया मिशन के तहत देश के चिंके चार स्थानों पर युवाओं को तकनीकी ट्रेनिंग देना शुरू कर दी गई है। इनमें हरियाणा के झज्जर आईटीआई को चुना गया है। राजकीय औद्योगिक प्रशिक्षण संस्थान गुढ़ा में कौशल विकास एवं उद्यमिता मंत्रालय के संकल्प प्रोजेक्ट के अंतर्गत एक महत्वपूर्ण पायलट प्रोजेक्ट का शुभारंभ हुआ है। राजकीय औद्योगिक प्रशिक्षण संस्थान के प्रांगण में कौशल विकास एवं उद्यमिता मंत्रालय के संकल्प प्रोजेक्ट के अंतर्गत नेशनल इंस्ट्रक्शनल मीडिया इंस्टीट्यूट (निमी), चेन्नई तथा अमृता विश्व विद्यापीठ, केरल के सौजन्य से व्यवसायिक ट्रेनिंग के भविष्य के सशक्तिकरण विषय पर दस दिवसीय पायलट प्रोजेक्ट भारत में व्यवसायिक प्रशिक्षण संस्थानों के स्तर को उच्चतम स्थान पर ले जाना है। संस्थान प्रधानाचार्य जीतपाल ने बताया कि यह पायलट प्रोजेक्ट देश में केवल चार प्रमुख संस्थानों में शुरू किया गया है, इसमें झज्जर गुढ़ा का संस्थान एक महत्वपूर्ण भूमिका निभा रहा है। एफसटी आई, देहरादून, एफसटीआई, मुंबई, जीआईटीआई गोवा तथा जीआईटीआई के अलावा स्थानीय गुढ़ा में ही चलाया जा रहा है। इस प्रोजेक्ट के अंतर्गत इलेक्ट्रॉनिक्स मैकेनिक्स और सोलर टेक्नीशियन को मानकों, दिशा-निर्देशों और एसओपी के विकास के माध्यम से व्यापक प्रशिक्षण प्रदान किया जा रहा है। इस महत्वपूर्ण अभियान का हिस्सा बनने के लिए केरल के प्रतिष्ठित अमृता विश्व विद्यापीठ से पांच सदस्यों की टीम ने इस परियोजना में सक्रिय भाग लिया है। यह प्रोजेक्ट व्यापक रूप से व्यावसायिक प्रशिक्षण संस्थानों के शिक्षा प्रदान के माध्यम से भारत में एक नई ऊर्जा और उत्कृष्टता का संदेश देने का उद्देश्य रखता है।

राजकीय औद्योगिक प्रशिक्षण संस्थान झज्जर एट गुढ़ा में चल रहे कार्यक्रम में प्रशिक्षण लेते छात्र व अनुदेशक

Newspaper: Dainik Bhaskar (16.06.2024)

आईटीआई गुढ़ा में दस दिवसीय प्रशिक्षण शुरू

■ इसके अलावा यह प्रोजेक्ट देहरादून, मुंबई व गोवा में चलाया जा रहा

हरिभूमि न्यूज ▶▶| झज्जर

झज्जर। आईटीआई गुढ़ा में चल रहे शिविर में प्रशिक्षण लेते छात्र व अनुदेशक।

राजकीय औद्योगिक प्रशिक्षण संस्थान गुढ़ा में कौशल विकास एवं उद्यमिता मंत्रालय के संकल्प प्रोजेक्ट के अंतर्गत शनिवार को एक पायलट प्रोजेक्ट का शुभारंभ किया गया। प्रोजेक्ट के अंतर्गत नेशनल इंस्ट्रक्शनल मीडिया इंस्टीट्यूट चेन्नई तथा अमृता विश्व विद्यापीठ केरल द्वारा चलाए जा रहे इस दस दिवसीय पायलट प्रोजेक्ट का मुख्य उद्देश्य भारत में व्यावसायिक प्रशिक्षण संस्थानों के स्तर को उच्चतम स्थान पर ले जाना है। संस्थान के प्राचार्य जीतपाल ने बताया कि यह पायलट प्रोजेक्ट देश में केवल चार प्रमुख संस्थानों में शुरू किया गया है जिसमें झज्जर आईटीआई भी शामिल है। इसके अलावा यह प्रोजेक्ट देहरादून, मुंबई व गोवा में चलाया जा रहा है। प्रोजेक्ट के अंतर्गत इलेक्ट्रॉनिक्स मैकेनिक्स और सोलर टेक्नीशियन के मानकों, दिशा-निर्देशों और एसओपी के विकास के माध्यम से व्यापक प्रशिक्षण प्रदान किया जा रहा है। केरल के अमृता विश्वविद्यापीठ से पांच सदस्यीय टीम ने इस परियोजना में भाग लिया।

Newspaper: Hari Bhoomi (16.06.2024)

संकल्प पायलट प्रोजेक्ट के तहत आईटीआई एट गुढा में 10 दिवसीय प्रशिक्षण आरंभ

- देश के केवल 5 स्थानों पर चल रहा है पायलट प्रोजेक्ट, एट गुढ़ा आईटीआई भी उनमें शामिल- सिमुलेशन आधारित शिक्षा विकसित करने का दिया जाएगा प्रशिक्षण

ऑस्कर न्यूज लाईन (झज्जर)

राजकीय औद्योगिक प्रशिक्षण संस्थान झज्जर एट गुढा ने कौशल विकास एवं उद्यमिता मंत्रालय के संकल्प प्रोजेक्ट के अंतर्गत एक महत्वपूर्ण पायलट प्रोजेक्ट का शुभारंभ किया है। राजकीय औद्योगिक प्रशिक्षण संस्थान के प्रांगण में कौशल विकास एवं उद्यमिता मंत्रालय के संकल्प प्रोजेक्ट के अंतर्गत नेशनल इंस्ट्रक्शनल मीडिया इंस्टीट्यूट (निमी), चेन्नई तथा अमृता विश्व विद्यापीठ, केरल के सौजन्य से व्यवसायिक ट्रेनिंग के भविष्य के सशक्तिकरण विषय पर दस दिवसीय पायलट प्रोजेक्ट चलाया जा रहा है। इस प्रोजेक्ट का मुख्य उद्देश्य भारत में व्यावसायिक प्रशिक्षण संस्थानों के स्तर को उच्चतम स्थान पर ले जाना है। संस्थान के प्रधानाचार्य जीतपाल ने जानकारी देते हुए बताया कि यह पायलट प्रोजेक्ट देश में केवल चार प्रमुख संस्थानों में शुरू किया गया है, जिसमें झज्जर एट गुढा का संस्थान एक महत्वपूर्ण भूमिका निभा रहा है। एन.एस.टी.आई, देहरादून, एन.एस.टी.आई, मुंबई, जी.आई.टी.आई गोवा तथा जी.आई.टी.आई के अलावा स्थानीय झज्जर एट गुढा में ही चलाया जा रहा है। इस प्रोजेक्ट के अंतर्गत इलेक्ट्रॉनिक्स मैकेनिक्स और सोलर टेक्नीशियन को मानकों, दिशा-निर्देशों और एसओपी के विकास के माध्यम से व्यापक प्रशिक्षण प्रदान किया जा रहा है। इस महत्वपूर्ण अभियान का हिस्सा बनने के लिए केरल के प्रतिष्ठित अमृता विश्व विद्यापीठ से पांच सदस्यों की टीम ने इस परियोजना में सक्रिय भाग लिया है। यह प्रोजेक्ट व्यापक रूप से व्यावसायिक प्रशिक्षण संस्थानों के शिक्षा प्रदान के माध्यम से भारत में एक नई ऊर्जा और उत्कृष्टता का संदेश देने का उद्देश्य रखता है। यह प्रोजेक्ट सरकार के स्किल इंडिया मिशन के साथ मिलकर देशवासियों के शिक्षा और कौशल विकास में महत्वपूर्ण पहल का हिस्सा है।

Newspaper:Oscar News Line(16.06.2024)

'संकल्प' प्रोजेक्ट के लिए गुढ़ा आईटीआई चयनित

झज्जर। राजकीय औद्योगिक प्रशिक्षण संस्थान झज्जर एट गुढ़ा का चयन कौशल विकास एवं उद्यमिता मंत्रालय के ''संकल्प'' प्रोजेक्ट के लिए हुआ है।

इसके तहत तेशनल इंस्ट्रक्शनल मीडिया इंस्टिट्यूट (निमी), चेन्नई तथा अमृता विश्व विद्यापीठम केरल के सौजन्य से व्यावसायिक ट्रेनिंग के भविष्य के सशक्तिकरण विषय पर दस दिवसीय पायलट प्रोजेक्ट चलाया शुरू किया गया है। यह पायलट प्रोजेक्ट भारतवर्ष में केवल चार संस्थान एनएसटीआई, देहरादून, एनएसटीआई, मुंबई, जीआईटीआई गोवा तथा जीआईटीआई झज्जर एट गुढ़ा में ही चलाया जा रहा है। देश में राजकीय औद्योगिक प्रशिक्षण संस्थान झज्जर एट गुढ़ा का चयन किया गया है। इस प्रोजेक्ट के अंतर्गत इलैक्ट्रोनिक्स, मैकेनिक तथा सोलर टेक्नीशियन व्यवसायों के छात्रों तथा संबंधित अनुदेशकों को प्रशिक्षण दिया जा रहा है। इस प्रशिक्षण में व्यवसायों में मानकों, दिशा-निर्देशों और एसओपी के विकास के माध्यम से विकसित करना है।

इसका उद्देश्य भारत में व्यवसायिक प्रशिक्षण संस्थानों में सिमुलेशन आधारित शिक्षा विकसित करने और इसे बढ़ाने के लिए साक्ष्य आधारित रणनीतियां और दिशा-निर्देशन करना है। संस्थान के प्रधानाचार्य जीतपाल ने बताया कि इस प्रशिक्षण के लिए केरल के प्रतिष्ठित अमृता विश्व विद्यापीठान से पांच सदस्यों की टीम आईटीआई में आई हुई हैं। संवाद

Newspaper:Amar Ujala (16.06.2024)

आईटीआई गुढ़ा में "संकल्प" प्रोजेक्ट का सफलतापूर्वक समापन

ऑस्कर न्यूज लाईन (झज्जर)

Newspaper:Oscar News Line(22.06.2024)

Images of Newspaper clippings that covered the Skill-eLabs pilot

12. INTERACTION OF STAKEHOLDERS WITH PARTICIPANTS

The engagement and interaction of stakeholders with participants were pivotal to the successful implementation and monitoring of the Skill e-Labs pilot program. The concerted efforts of the SANKALP team from the Ministry of Skill Development and Entrepreneurship (MSDE), National Instructional Media Institute (NIMI), and Directorate General of Training (DGT) ensured a thorough understanding of on-ground activities at the four institutions involved in the pilot.

To facilitate seamless communication and real-time updates, a WhatsApp group was created, including representatives from SANKALP, NIMI, DGT, Amrita Vishwa Vidyapeetham, and subject matter experts (SMEs) appointed by NIMI. The Amrita team deployed at the pilot institutions posted daily updates with photographs, keeping all stakeholders informed and allowing for immediate sharing of views or clarifications. This proactive communication strategy ensured transparency and rapid resolution of any issues that arose during the pilot.

On-Site Visits:

One significant event was the visit by the SANKALP team to Govt. ITI, Jhajjar, Haryana on 21 June. During this visit, Ministry representative Ms. Shefali Sharma participated in the certificate distribution ceremony and interacted with the principal, trainers, students, and the Amrita team. This direct engagement provided an invaluable opportunity to receive immediate feedback from the beneficiaries of the pilot through discussions, testimonials, and personal interactions. The feedback from the visit helps fine-tune and improve delivery for the subsequent pilot batches.

Video Conferences and Interactions: Two video conferences, chaired by the Director of SANKALP and attended by representatives from NIMI, DGT, Amrita, and NIMI-appointed SMEs, were conducted on 2 July and 3 July with Govt. ITI Bicholim and NSTI Dehradun, respectively. These video conferences facilitated interactions of the project stakeholders with the principals, trainers, and students. The interactions were overwhelmingly positive, with trainers and students sharing their comments and perspectives on the Skill e-Labs package. This direct communication channel allowed all project stakeholders to understand feedback directly from the target audience, including students, trainers, and institution heads.

MSDE-DGT-NIMI Interaction with Govt.ITI, Bilochim, Goa (2-Jul)

MSDE-DGT-NIMI Interaction with NSTI Dehradun (3-Jul)

13. CONCLUSION

The pilot implementation of the Skill-eLabs project, conducted from 10th June to 4th July 2024, was a resounding success. Over the course of the pilot, 160 students and 18 instructors across two government ITIs and two NSTIs received comprehensive training in Solar Technician and Electronics Mechanic modules. The project introduced high-quality 3D simulations, virtual and augmented reality modules, and comprehensive assessments, significantly enhancing the learning experience.

Participants, including institution heads, instructors, and students, provided overwhelmingly positive feedback, highlighting the project's potential to transform vocational education. The structured approach, combining theoretical knowledge with practical applications through advanced technology, proved to be highly effective. Despite some challenges, such as internet connectivity issues and technical difficulties, proactive strategies implemented ensured smooth execution and valuable insights regarding future scaling.

Overall, the pilot has demonstrated the feasibility and benefits of integrating digital tools into vocational training, paving the way for broader adoption and further development. The next phase will detail the impact evaluation, which will provide comprehensive data on the outcomes and recommendations for continued improvement and expansion of the Skill-eLabs initiative.

14. Appendix A: Institutional Heads Confirmation - Staff Strength

1.Summary List of Instructors from the institutions

Instructor List from Institutions	
Institute	**Pilot Program Participation:**
GITI Jhajjar, Haryana	Smt. Omwati,Electronics Mech Instructor
	Sh. Jogender Deshwal,Electronics Mech Instructor
	Sh. Pardeep Gaurav, Solar Technician
	Sh. Deepak Joon,Electrician Instructor
	Sh Pawan Kumar,Group Instructor
NSTI Dehradun	Mr. Manish Mamgain , Training Officer Electronics Mechanic
	Mr. Sabhajeet Yadav, Junior Consultant, Electronic Mechanic
	Mr. Ajeet Tomar, Junior Vocational Consultant, Solar Technician
	Ms. Supriya Badoni, Guest Faculty, Solar Technician
GITI, Bicholim Goa	Shri. Rama Vaigankar, V.I (Electronics Mechanic)
	Mrs. Vindhiya Fal Dessai, V.I T (IT)
	Shr. Bibin Abraham, V.I (Solar Technician)
	Shri. Rajat R. Halarnkar, V.I (Wireman)
NSTI - Mumbai	Mrs. Purnima Sarkar, Vocational Instructor, Electronic Mechanic Course
	Smt. Ruchi Rai, Vocational Instructor,Electronic Mechanic Course
	Mr. Sujay Barik, Vocational Instructor, Solar Technician Course
	Mr. Nitesh Patil, Training Officer, Solar Technician Course

2.Individual Mail from the Institution head with the list of instructors for both the trades who were available for the pilot.

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Subject ;Confirmation of Faculty Strength and Participation in Pilot Program

NSTI, Mumbai <nsti-mumbai@dgt.gov.in>
To: harikumar s <harikumar.s@ammachilabs.org>
Cc: KETANKUMAR PATEL <Patel.ktan@gov.in>, rdsde mha-msde <rdsde.mha-msde@gov.in>

Sir,

As per the trailing email, the
Faculties available for the Electronic Mechanic and Solar Technician Trades are:

Electronic Mechanic Course:
1. Mrs. Purnima Sarkar, Vocational Instructor
2. Smt. Ruchi Rai, Vocational Instructor

Solar Technician Course:
1. Mr. Sujay Barik, Vocational Instructor

Trained faculties under the pilot program are:

Electronic Mechanic Course:
1. Mrs. Purnima Sarkar, Vocational Instructor
2. Smt. Ruchi Rai, Vocational Instructor (Attended only two days)

Solar Technician Course:
1. Mr. Sujay Barik, Vocational Instructor
2. Mr. Nitesh Patil, Training Officer

This is for your information.

सादर/Regards,
केतनकुमार पटेल / Ketankumar Patel
संयुक्त निदेशक / Joint Director
भारत सरकार / Government of India
कौशल विकास और उद्यमिता मंत्रालय / Ministry of Skill Development & Entrepreneurship
प्रशिक्षण महानिदेशालय / Directorate General of Training (DGT)
राष्ट्रीय कौशल प्रशिक्षण संस्थान / National Skill Training Institute
मुंबई / Mumbai
Phone / Fax.: +91 - 22 - 24053560
Website: www.nstimumbai.dgt.gov.in
e-mail: nsti-mumbai@dgt.gov.in

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Harikumar S <harikumar.s@ammachilabs.org>

Subject: Confirmation of Faculty Strength and Participation in Pilot Program

Manish Mamgain <m.mamgain@gov.in> Tue, Aug 20, 2024 at 9:23 AM
To: harikumar s <harikumar.s@ammachilabs.org>
Cc: ajay balakrishnan <ajay.balakrishnan@ammachilabs.org>, NIRMALYA NATH <n.nath@gov.in>, nath nirmalya <nath_nirmalya@rediffmail.com>, sentash@gmail.com

Sir,
The following Faculties are engaged and attended the pilot program.
1. Mr. Manish Mamgain , Training Officer Electronics Mechanic
2. Mr. Sabhajeet Yadav, Junior Consultant, Electronic Mechanic
3. Mr. Ajeet Tomar, Junior Vocational Consultant, Solar Technician
4. Ms. Supriya Badoni, Guest Faculty, Solar Technician

with regards,
Manish Mamgain
Training Officer
NSTI DGT,
Ministry of Skill Development & Entrepreneurship,
Green Park, Niranjanpur,Dehrdun-248171
Phone: 09456124696
Email: m.mamgain@gov.in

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Harikumar S <harikumar.s@ammachilabs.org>

Subject: Confirmation of Faculty Strength and Participation in Pilot Program

Principal GITI Jhajjar at Gudha <jhajjaratgudha.giti@gmail.com> Wed, Aug 21, 2024 at 11:08 AM
To: Harikumar S <harikumar.s@ammachilabs.org>

Dear Sir,
as per your requirement the following information is

Faculty Strength:
1. Smt. Omwati,Electronics Mech Instructor
2. Sh. Jogender Deshwal,Electronics Mech Instructor
3.Sh. Pardeep Gaurav, Solar Technician

Pilot Program Participation:
1. Smt. Omwati,Electronics Mech Instructor
2. Sh. Jogender Deshwal,Electronics Mech Instructor
3.Sh. Pardeep Gaurav, Solar Technician
4. Sh. Deepak Joon,Electrician Instructor
5. Sh Pawan Kumar,Group Instructor

Thanks & Regards
[Quoted text hidden]
--
Respected Sir/Madam
Please find the attachment.

Warm Regards

Jeetpal
Principal
Govt. Industrial Training Institute Jhajjar at Gudha

SDIT Department, Haryana

+91-9896333377 | http://www.itijhajjar.com
V.P.O Gudha, Rohtak Road Near Railway Phatak

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Harikumar S <harikumar.s@ammachilabs.org>

Subject: Confirmation of Faculty Strength and Participation in Pilot Program

Bicholim ITI <bicholim-iti.goa@nic.in> Tue, Aug 20, 2024 at 10:45 AM
To: harikumar s <harikumar.s@ammachilabs.org>

Sir,

With reference to the trailing mail the information pertaining to this institute is as follows
1. Faculty Strength: 04 Nos.
2. Pilot Program Participation:
   a) Shri. Rama Vaigankar, V.I (Electronics Mechanic)
   b) Mrs. Vindhiya Fal Dessai, V.I T (IT)
   c) Shr. Bibin Abraham, V.I (Solar Technician)
   d) Shri. Rajat R. Halarnkar, V.I (Wireman)

Submitted for Information and further needful.

Thanks & Regards,

Kapil P. Aigal
Principal (Sr. Scale),
Bicholim Govt. ITI,
Valshi, Bicholim, Goa
Ph: 0832-2362315
Mob.No: 9923693684
Website:www.itibicholim.goa.gov.in

15.Appendix B: Pre-Pilot checklists from the Institutions

Check List

INSTRUCTIONS:

Please fill the document in detail.

This information will help us plan the pilot effectively and anticipate and plan for any risks/ challenges.

If any questions, reach out to deepu.ds@ammachilabs.org

Institution Name : NSTI Mumbai

Address: National Skill Training Institute, V. N. Purav Marg, Opp. Priyadarshini (RCF), Chunabhatti, Sion, Mumbai-400022

Primary contact point name: Swapndeep Chaouhan, Assistant Director

Phone: 8878555764

Email address: swapndeep.ch17@dgt.gov.in

Please provide the feedback/ answer from NSTIs side:

#	List of Items	Feedback
1	Availability of Solar Technician Trade for CTS	Yes
2	Availability of Electronic Mechanic Trade for CTS	No CTS but CITS is available
3	The practical sessions of selected exercises should not be taught before the pilot study Solar Technician exercise numbers: 79, 175, 107	Ok

	Electronic Mechanic exercise numbers: 296, 297, 299, 300, 301 and 302	No CTS
4	Should only be taught relevant theory – 1 week before the pilot	Ok
5	List of students and instructors for the study (Provide all the students list)	List of Student Attached as Annexure A Trainers are 1) Ruchi Rai for Elect. Mech. 2) Purnima Sarkar for Elect. Mech. 3) Sujay Barik for Solar Tech.
6	Room Specifications: One room measuring 5 meters in length and width	Available
7	Furniture**:**	
	Two computer tables with chairs.	Available
	Twenty student chairs, each with a facility to place a laptop.	Available
8	Electrical Setup: As required for the setup	ok
9	Internet: Wi-Fi/Internet connectivity with a minimum speed of 20 Mbps, suitable for running VR headsets and laptops	ok
10	Working days and working hours for the pilot study (the start time and end time of the study)	Monday to Friday (09 AM to 05:30 PM)

	(we would need 8 hours per day for the pilot; for a continuous period of 10 working days – including Saturdays)	
11	Ability to work on Saturdays for pilot study	May arrange
12	Availability of a practical lab for solar Trade – share photos.	Yes, Attached as Annexure B
	Availability of Home lighting System exercise	
	Availability of solar water Pump exercise	
	Availability of 1 Kw solar panel and PCU installation exercise	
13	Availability of a practical lab for electronic Mechanic – share photos.	Yes, Attached as Annexure C
	Availability of LED/LCD TV along with all the accessories (Please let the specification of TV)	
14	Share any challenges to the pilot implementation. Example:Holidays, election duty, semester breaks etc.	
15	If there are any other comments or feedback.	

Recommended dates for pilot study

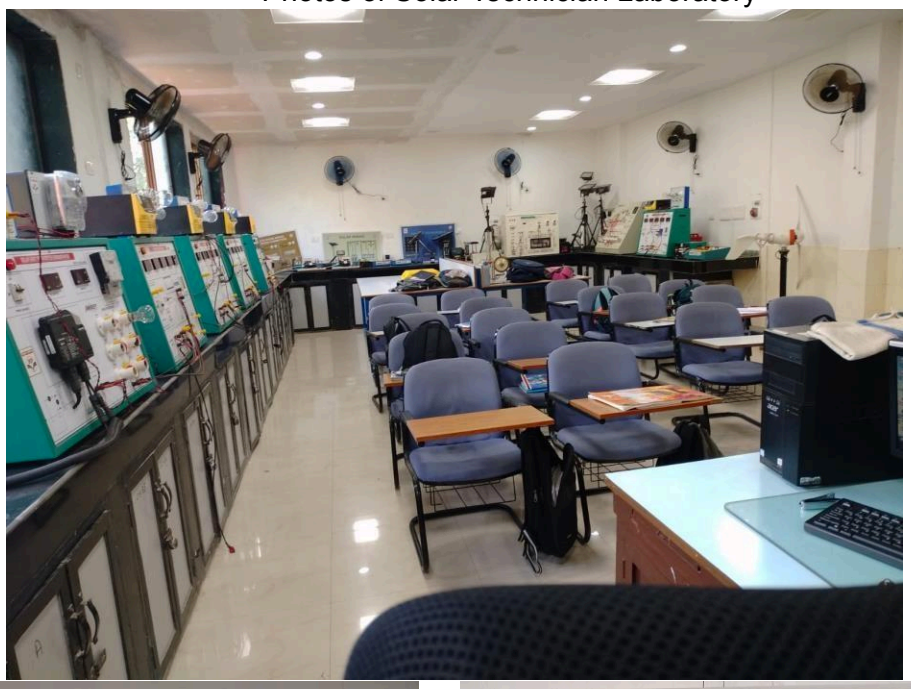
Sl No	Institute	Recommended dates (option 1)	Recommended dates (option 1)
1	NSTI Mumbai, Maharashtra		

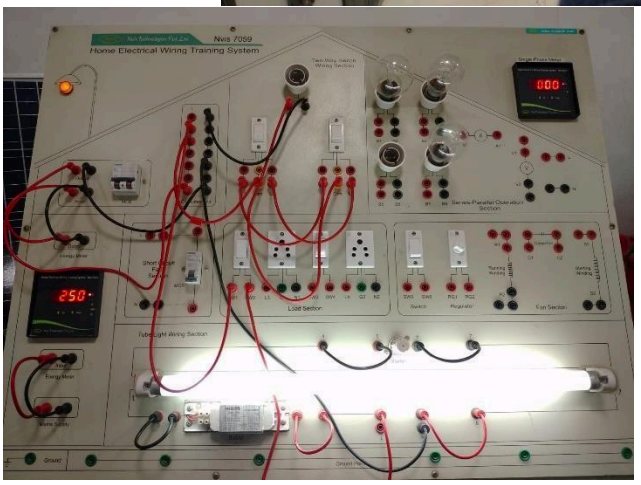
Sign off

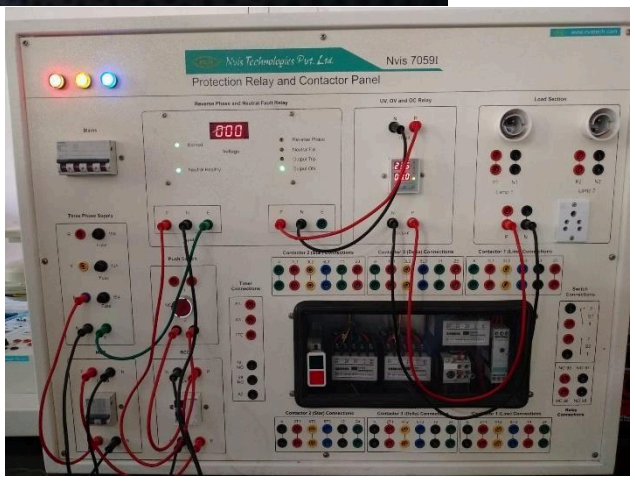
Sl No	Name	Designation and contact information	Signature
1	Swapndeep Chaouhan	Assistant Director, NSTI Mumbai	

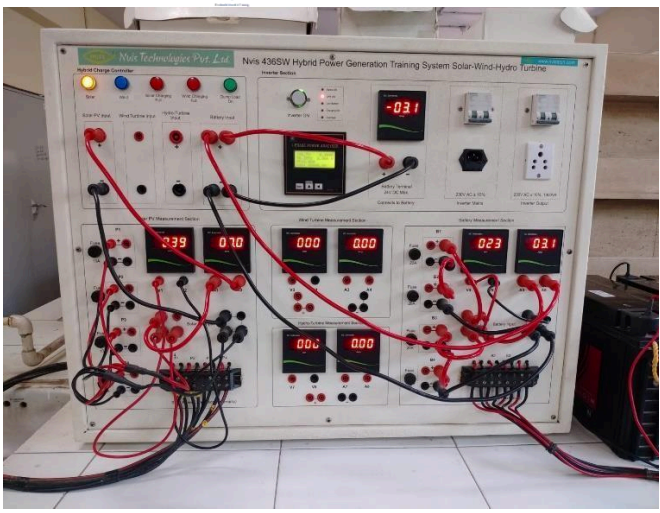
Annexure:-B

Photos of Solar Technician Laboratory



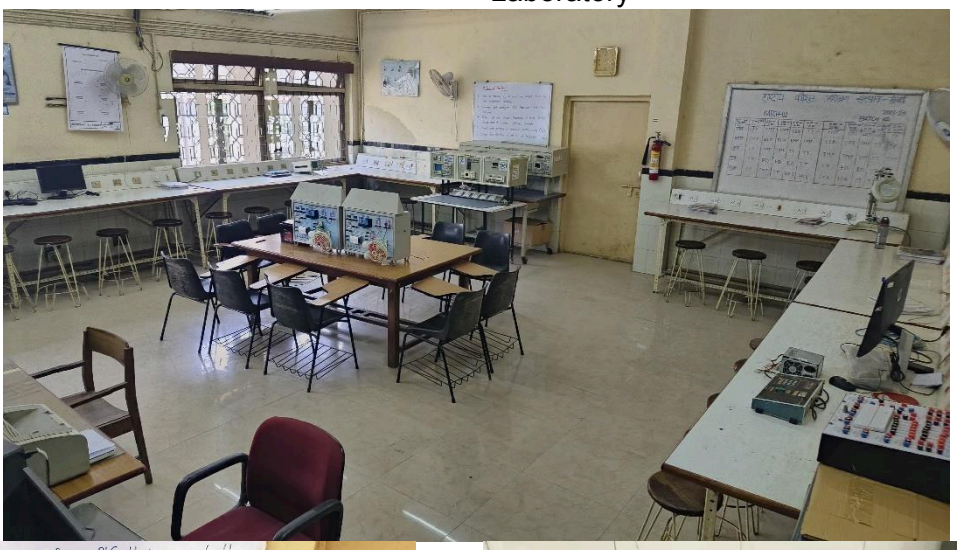





Nvis 436SW Hybrid Power Generation Training System Solar-Wind-Hydro Turbine

Annexure:-C

Photos of Electronic Mechanic Laboratory



Check List

INSTRUCTIONS:

Please fill the document in detail.

This information will help us plan the pilot effectively and anticipate and plan for any risks/ challenges.

If any questions, reach out to deepu.ds@ammachilabs.org

Institution Name: NSTI Dehradun

Address: National Skill Training Institute Dehradun, Uttarakhand **Primary contact point name:** Manish Mamgain, Training Officer **Phone:** 9456124696

Email address: m.mamgain@gov.in

Please provide the feedback/ answer from NSTI side:

#	List of Items	Feedback
1	Availability of Solar Technician Trade for CTS	YES
2	Availability of Electronic Mechanic Trade for CTS	NOT CTS Its CITS (Instructor Course)
3	The practical sessions of selected exercises should not be taught before the pilot study. Solar Technician (79, 175, 107) Electronic Mechanic (296, 297, 299, 300, 301 and 302)	In Solar it's ok, but for Electronics Mechanic theory and practical already done. However, it will be more effective learning on 3d Simulation & AR modules.
4	Should only be taught relevant theory – 1 week before the pilot.	ok

5	List of students and instructors for the study (Provide all the students list).	Attached
6	Room Specifications: One room measuring 5 meters in length and width.	Available
7	Furniture:	
	Two computer tables with chairs.	ok
	Twenty student chairs, each with a facility to place a laptop.	ok
8	Electrical Setup: As required for the setup.	ok
9	Internet: Wi-Fi/Internet connectivity with a minimum speed of 20 Mbps, suitable for running VR headsets and laptops	ok
10	Working days and working hours for the pilot study (the start time and end time of the study) (we would need 8 hours per day for the pilot; for a continuous period of 10 working days – including Saturdays)	9AM -5:30PM
11	Ability to work on Saturdays for pilot study	ok

12	Availability of a practical lab for solar Trade – share photos.	Yes
	Availability of Home lighting System exercise	Yes
	Availability of solar water Pump exercise	Yes
	Availability of 1 Kw solar panel and PCU installation exercise	No
13	Availability of a practical lab for electronic Mechanic – share photos.	YES
	Availability of LED/LCD TV along with all the accessories (Please let the specification of TV)	YES SONY LED 43" & SONY LED 22"
14	Share any challenges to the pilot implementation. Example: holidays, election duty, semester breaks etc.	At present No
15	If there are any other comments or feedback.	No

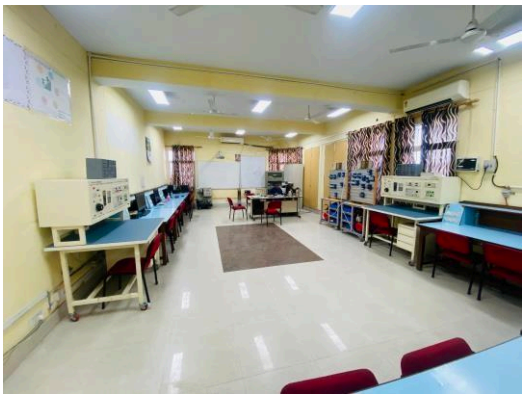
Recommended dates for pilot study

Sl No	**Institute**	**Recommended dates (option 1)**	**Recommended dates (option 1)**
1	NSTI Dehradun, Uttarakhand	6/5/24-16/5/24 including Saturday for Pilot Project Only	

Sign off

Sl No	Name	Designation and contact information	Signature
1	Manish Mamgain	Training Officer, NSTI Dehradun	

Electronics Lab & Classroom Pictures:



Solar Technician Lab & Classroom Pictures:

List of Faculties

1. Shri Manish Mamgain Training Officer Electronics
2. Shri Ajeet Tomar, Junior Vocational Consultant Solar Technician

List of Trainees CITS Electronic Mechanic

S.No	Trainees Name
1	CHET RAM MEENA
2	MAMTA RANI
3	DEEPA PANT
4	MANISH MEENA
5	VIVEK KUMAR
6	AMBRISH KUMAR CHAURASIYA
7	PRAMOD SWAMI
8	CARAT GIRI
9	ARVIND KUMAR
10	POOJA ARYA
11	RICHA KUMARI
12	PRIYANKA KUMARI
13	REKHA
14	KISHAN JAGARIYA
15	SUNIL DUTT DHAYANI
16	SATYAM PATEL
17	MANOJ KUMAR
18	RAJA KUMAR
19	DINESH KUMAR
20	SATVEER

21	JASPAL
22	VISHNU PRAKASH SINGH
23	POOJA GOND
24	SHAHRUKH KHAN
25	AJAY KUMAR
26	AMIT KUMAR JOSHI
27	NARESH PARIHAR
28	NIKETA VERMA
29	RAHUL YADAV
30	HEMANT GAUTAM
31	AMAN KUMAR
32	SONIA
33	CHANDRA PRIYA ASHOK
34	DINESH KUMAR
35	KM. NISHA VERMA
36	ALOK KUMAR
37	MITHUN KUMAR MAHTO
38	MOHIT KUMAR SAXENA
39	SAURABH KUMAR
40	SANDEEP KUMAR
41	AMIT SINGH
42	RAHUL DEV
43	RAHUL TIWARI
44	SHATRUGHAN
45	BRIJESH KUMAR YADAV
46	ANUJ KUMAR MAURYA

List of Trainees CTS Solar Technician

S.No	Trainees Name
1	VINAYAK KASHYAP
2	PIYUSH KASHYAP
3	RAHUL KUMAR
4	ANAMIKA
5	KARAN JEET
6	RAHUL KUMAR

7	YUVRAJ SINGH DHARMSHAKTU
8	SHIVAM KUMAR
9	RAJ RATAN
10	AKASH KUMAR
11	SUSHANT CHAUDHARY
12	ANIL JATAV
13	YOGENDRA JATAV
14	RAHUL TIWARI
15	AMAN KUMAR
16	VINOD MAURYA
17	AJAY KOHLI
18	PUSKAR SINGH
19	RANI
20	KRISHNA MADHAV YADAV

GOVT. INDUSTRIAL TRAINING INSTITUTE , JHAJJAR AT GUDHA
VPO. Gudha, Distt. Jhajjar, Haryana Pin-124103
Email:-jhajjaratgudha.giti@gmail.com (office) aaa.gitijhajjar@gmail.com **(Apprenticeship)**

To

The Executive Director
National Instructional Media Institute (NIMI)
CTI Campus Guindy
Industrial Estate, Guindy, Chennai-6, 60032

Memo No.: 517 Dated : 12-04-24

Subject : Regarding AR/VR Pilot Project.

In reference of directorate letter Memo. No. S-1/SDIT/Virtual Reality/2024/4956 Dated : 04/04/2024 the requisite information is sent to you in prescribed attached proforma. This is for your information and necessary action please.

Principal
Govt. Industrial Training Institute
Jhajjar at Gudha

Endst. No. 518 Dated : 12-04-24

A Copy of above is forwarded to the Director Skill Development and Industrial Training Department, Panchkula, Haryana for information and necessary action.

Principal
Govt. Industrial Training Institute
Jhajjar at Gudha

Dear Sir

Please accept the information from **Govt ITI Jhajjar at Gudha** for your reference.

Details of feedback from ITI

#	List of Items	ITI Jhajjar at Gudha
1	**Availability of Solar Technician Trade for CTS**	YES
2	**Availability of Electronic Mechanic Trade for CTS**	YES
3	**The practical sessions of selected exercises should not be taught before the pilot study. Solar Technician (79, 175, 107), Electronic Mechanic (296, 297, 299, 300, 301 and 302)**	Okay
4	**Should only be taught relevant theory – 1 week before the pilot.**	Okay
5	**List of students and instructors for the study (Provide all the students list).**	Attached
6	**Room Specifications: One room measuring 5 meters in length and width.**	Available
7	**Furniture:**	
	Two computer tables with chairs.	Available
	Twenty student chairs, each with a facility to place a laptop.	Available
8	**Electrical Setup: As required for the setup.**	Available
9	**Internet: Wi-Fi/Internet connectivity with a minimum speed of 20 Mbps, suitable for running VR headsets and laptops**	Available
10	**Working days and working hours for the pilot study (the start time and end time of the study)**	WILL BE DECIDED ACCORDINGLY
11	**Ability to work on Saturdays for pilot study**	NO
12	**Availability of a practical lab for solar Trade – share photos.**	Attached
	Availability of Home lighting System exercise	NO

	Availability of solar water Pump exercise	NO
	Availability of 1 Kw solar panel and PCU installation exercise	YES 12V, 1KW SOLAR SYSTEM
13	**Availability of a practical lab for electronic Mechanic – share photos.**	Attached
	Availability of LED/LCD TV along with all the accessories (Please let the specification of TV)	**LED TV(Trainer Kit):** 20 Inch Full HD LED Colour TV,PAL/NTSC Video Format,Study Board Indicators,Various Sections of LED TV alog with the test Points and switch faults. **LCD TV(Trainer Kit):** 21 Inch Full HD LCD Colour TV,PAL/NTSC Video Format,Study Board Indicators,Various Sections of LCD TV alog with the test Points and switch faults.
14	**Share any challenges to the pilot implementation. Example: holidays, election duty, semester breaks, etc.**	Election Duty
15	**If there are any other comments or feedback. / Pls mention the Election date**	There is election of Member of Parliament on 25th May 2024 in Haryana. Maximum staff will be on Election Duty.The counting will be on 4th June 2024.
16	**Recommended / Suggested dates for pilot study**	Please plan after 2nd Week of June 2024 due to election.

Full address:

Government Industrial Training Institute, Jhajjar at Gudha, Near Railway Fatak, VPO Gudha,District Jhajjar, Pin:124103

Contact no:

Sh. Pawan Kumar-9416763853

Sh. Deshpal 9992824826

Principal
GITI Jhajjar at Gudha

Pre-Pilot Checklist – Govt.ITI, Bilochim, Goa

Details of feedback from ITI

#	List of Items	ITI Goa
1	**Availability of Solar Technician Trade for CTS**	Yes
2	**Availability of Electronic Mechanic Trade for CTS**	Yes
3	**The practical sessions of selected exercises should not be taught before the pilot study. Solar Technician (79, 175, 107), Electronic Mechanic (296, 297, 299, 300, 301 and 302)**	OK
4	**Should only be taught relevant theory – 1 week before the pilot.**	OK
5	**List of students and instructors for the study (Provide all the students list).**	Attached
6	**Room Specifications: One room measuring 5 meters in length and width.**	Available
7	**Furniture:**	
	Two computer tables with chairs.	Available
	Twenty student chairs, each with a facility to place a laptop.	Available
8	**Electrical Setup: As required for the setup.**	Can be arranged
9	**Internet: Wi-Fi/Internet connectivity with a minimum speed of 20 Mbps, suitable for running VR headsets and laptops**	Available
10	**Working days and working hours for the pilot study (the start time and end time of the study)**	10 am to 5.30 pm
11	**Ability to work on Saturdays for pilot study**	OK
12	**Availability of a practical lab for solar Trade – share photos.**	Available

	Availability of Home lighting System exercise	Available
	Availability of solar water Pump exercise	Available
	Availability of 1 Kw solar panel and PCU installation exercise	Available
13	**Availability of a practical lab for electronic Mechanic – share photos.**	Available
	Availability of LED/LCD TV along with all the accessories (Please let the specification of TV)	LCD TV 46” LED TV 24“
14	**Share any challenges to the pilot implementation. Example: holidays, election duty, semester breaks, etc.**	Instructor of Solar trade on election duty.
15	**If there are any other comments or feedback. / Pls mention the Election date**	
16	**Recommended / Suggested dates for pilot study**	10.05.2024

Full address:

Bicholim Government I.T.I, Valshi Bicholim-Goa

403504

Contact no:

Shri. Kapil Aigal, Principal

9923693684 Shri. Vinod Satkalkar, G.I

9923633129

16.Appendix C: Detailed 10 day Pilot Schedule

Activities - Day 1

Sl No	Task	Activities	Time	Details
1	Meet with NSTI/ITI Institution Head	Introduction about the project, our plan and support required	45 minutes	
2	Launch Event:Meeting with Principal, Instructors, Students	Introduction to the project, sharing expectations, pilot schedule etc. and confidentiality about the control group and experimental group	45 minutes	
4	Student Orientation & Account Creation	Announce the students for the both the groups and separate them & Account/mail creation for AMPLE	30 minutes	
5	Experimental group skill-eLabs package and technology familiarisation and Instructor training	familiarisation of experimental group - AMPLE platform, skill lab packages - 3D Simulation, AR, VR, Intro about the study	3 hours	10 students,10 laptops and 2 mentors
		Instructor training - AMPLE platform, skill lab packages - 3D Simulation, AR, VR, Intro about the study	3 hours	2 laptops, 4 trainers and 2 mentors

Activities - Day 2 to 10

		Experimental Group			Control Group		
Day	Sno	Task	Time	Details	Task	Time	Details
SOLAR TECHNICIAN							
Day 2	1	Pretest	15min	10 Laptop, 2 mentor, 2 instructor	Pretest	15 min	Pretest on Paper, 2 mentors, 2 instructor
	2	Pretest for exercise 3	10min		Practicals	6 hrs	2 mentors, 2 instructors

	3	video	15min	10 Laptop, 2 mentor, 2 instructors	Teachers Evaluation	15 min	2 mentors, 2 instructors- on paper
	4	Skill -e lab exercise 3	2hrs	10 Laptop, 2 mentor, 2 instructors			
	5	Quiz	15min	10 Laptop, 2 mentor, 2 instructors			
	6	Post test for exercise 3	15min	10 Laptop, 2 mentor, 2 instructors			
	7	Pretest for exercise 1	10min				
	8	video	15min	10 Laptop, 2 mentor, 2 instructors			
	9	Skill -e lab exercise 1	2hrs	10 Laptop, 2 mentor, 2 instructors			
	10	Quiz	15min	10 Laptop, 2 mentor, 2 instructors			
	11	Post test for exercise 1	15min	10 Laptop, 2 mentor, 2 instructors			
	12	Practicals - 3 students	2 hr	2 mentors, 2 instructors	familiarisation of Skill elabs	1hr	10 Laptop, 2 mentor, 2 instructors
	13	Teachers Evaluation	15 min	2 mentors, 2 instructors			
			8 hr 20 min			**7.5hours**	

Day 3	17	Practicals - 7 students	4 hrs	1 mentors, 1 instructors	Pretest for exercise 1	15min	10 Laptop, 2 mentor, 2 instructors
	18	Teachers Evaluation	15 min	2 mentors, 2 instructors	video	10min	10 Laptop, 2 mentor, 2 instructors
	19	AR for 3 already completed students and for each student completing the practical	1 hr	1 mentors, 1 instructors	Skill -e lab exercise 1	2hrs	10 Laptop, 2 mentor, 2 instructors
	20	VR for 3 already completed students and for each student completing the practical	2 hr	1 mentors, 1 instructors	Quiz	15min	10 Laptop, 2 mentor, 2 instructors
					Pretest for exercise 2	15min	
	21				video	10min	10 Laptop, 2 mentor, 2 instructors
	22				Skill -e lab exercise 2	2hrs	10 Laptop, 2 mentor, 2 instructors
	23				Quiz	15min	10 Laptop, 2 mentor, 2 instructors
					Pretest for exercise 3	15min	
	24				video	10min	10 Laptop, 2 mentor, 2 instructors

	25				Skill -e lab exercise 3	2hrs	10 Laptop, 2 mentor, 2 instructors
	26				Quiz	15min	10 Laptop, 2 mentor, 2 instructors
			7 hr 15 min			**8 hours**	
Day 4	27	Pretest for exercise 2	10min		Practicals	8hrs	2 mentors, 2 instructors
	28	video	10min	10 Laptop, 2 mentor, 2 instructors			
	29	Skill -e lab exercise 2	2hrs	10 Laptop, 2 mentor, 2 instructors			
	30	Quiz	15min	10 Laptop, 2 mentor, 2 instructors			
	31	Post test for exercise 2	15min	10 Laptop, 2 mentor, 2 instructors			
	32	Post Test	15min	10 Laptop, 2 mentor, 2 instructors			
	33	VR	3 hrs	4 headsets, 2 mentors, 2 instructors			
	34	AR	1.5 hrs				
			7 hr 35			8 hrs	

			min				
Day 5	34	Student's experience	1 hour		AR	1.5 hr	2 mentors, 2 instructors
	35	Teachers Analysis	30 min		VR	3 hrs	4 headsets, 2 mentors, 2 instructors
	36	Other practical	6 hours		Student's experience	1 hour	
	37	Students feedback	1 hour		Teachers Analysis	30 min	
	38				Comparison Feedback	2 hrs	
			8 hours 30 mnts			8 hours	
	Pending Tasks						
	ELECTRONIC MECHANIC (day 6 onwards till day 10)						
Day 6	1	Pretest	15min	10 Laptop, 2 mentor, 2 instructor	Pretest	15 min	Pretest on Paper, 2 mentors, 2 instructor
	2	Pretest for exercise 1-EM	10min		Practicals	6 hrs	2 mentors, 2 instructors
	3	video	15min	10 Laptop, 2 mentor, 2 instructors	Teachers Evaluation	15 min	2 mentors, 2 instructors- on paper
	4	Skill -e lab exercise 1-EM	2hrs	10 Laptop, 2 mentor, 2 instructors			

	5	Quiz	15min	10 Laptop, 2 mentor, 2 instructors			
	6	Post test for exercise 1-EM	15min	10 Laptop, 2 mentor, 2 instructors			
	7	Pretest for exercise 2-EM	10min				
	8	video	15min	10 Laptop, 2 mentor, 2 instructors			
	9	Skill -e lab exercise 2-EM	2hrs	10 Laptop, 2 mentor, 2 instructors			
	10	Quiz	15min	10 Laptop, 2 mentor, 2 instructors			
	11	Post test for exercise 2-EM	15min	10 Laptop, 2 mentor, 2 instructors			
	12	Practicals - 3 students-	2 hr	2 mentors, 2 instructors	familiarisation of Skill elabs	1hr	10 Laptop, 2 mentor, 2 instructors
	13	Teachers Evaluation	15 min	2 mentors, 2 instructors			
	14						
	15						
	16						
			8 hr 20 min			**7.5hours**	

Day 7	17	Practicals - 7 students	4 hrs	1 mentors, 1 instructors	Pretest for exercise 1	15min	10 Laptop, 2 mentor, 2 instructors
	18	Teachers Evaluation	15 min	2 mentors, 2 instructors	video	10min	10 Laptop, 2 mentor, 2 instructors
	19	AR for 3 already completed students and for each student completing the practical	1 hr	1 mentors, 1 instructors	Skill -e lab exercise 1	2hrs	10 Laptop, 2 mentor, 2 instructors
	20				Quiz	15min	10 Laptop, 2 mentor, 2 instructors
					Pretest for exercise 2	15min	
	21				video	10min	10 Laptop, 2 mentor, 2 instructors
	22				Skill -e lab exercise 2	2hrs	10 Laptop, 2 mentor, 2 instructors
	23				Quiz	15min	10 Laptop, 2 mentor, 2 instructors
					Pretest for exercise 3	15min	
	24				video	10min	10 Laptop, 2 mentor, 2 instructors
	25				Skill -e lab exercise 3	2hrs	10 Laptop, 2 mentor, 2 instructors
	26				Quiz	15min	10 Laptop, 2 mentor, 2 instructors

			5 hr 15 min			**8 hours**	
Day 8	27	Pretest for exercise 3	10min		Practicals	8hrs	2 mentors, 2 instructors
	28	video	10min	10 Laptop, 2 mentor, 2 instructors			
	29	Skill -e lab exercise 3	2hrs	10 Laptop, 2 mentor, 2 instructors			
	30	Quiz	15min	10 Laptop, 2 mentor, 2 instructors			
	31	Post test for exercise 3	15min	10 Laptop, 2 mentor, 2 instructors			
	32	Post Test	15min	10 Laptop, 2 mentor, 2 instructors			
	33						
	34	AR	1.5 hrs				
			4 hr 35 min			**8 hrs**	
Day 9 and Day 10	34	Student's experience	1 hour		AR	1.5 hr	2 mentors, 2 instructors
	35	Teachers Analysis	30 min				
	36	Other practical	6 hours		Student's experience	1 hour	

	37	Students feedback	1 hour		Teachers Analysis	30 min	
	38				Comparison Feedback	2 hrs	
			8 hours 30 minutes			**5 hours**	
	Pending Tasks						

17.Appendix D: Consolidated Activity Reports and Attendance

Daily Attendance and Activity Sheet

Simulated Skill Training Packages for VET

10-June-2024, 9.30 Am to 5.30Pm

Activities

- Meeting with Joint Director: Discussed the scope of the project, pilot study schedule and expected outcomes.
- Formal inauguration with all the stakeholders: A formal meeting conducted with joint director, deputy director, all the trainers and trainees. Joint director and deputy director informed all about the advantages of this training.
- Formal meeting with Solar Technician Trade Students and Trainers: We have presented the project at a higher level and informed everyone will get same chance to proceed with the skill lab. But in a different way so that is why divided into two groups, the control experimental group. Group formation is also done in this session.
- Trainers Training: Very detailed discussion done with two solar instructors. They have played solar simulation home lighting system. Trainers familiar with VR headset by playing the first step game. Also, they familiarized with two AR modules. Around 4 hours they played with three modalities. They have also gone through the videos of the home lighting system.
- Familiarization of experimental Group: All the 10 students played the electronic mechanic trade videos and simulations. They are ready for day 2.

11-June-2024, 9.30 Am to 5.30Pm

Activities

- Control Group study: All the 10 students completed the practical for home lighting systems along with pretest and teachers evaluation.
- Control group students completed the familiarization of 3d simulation, AR and VR modules
- Experimental group students completed exercise 1 and exercise 2
- Arranging all the data from students in respective folders

12-June-2024, 9.30 Am to 5.30Pm

Activities

- Control Group study: All the 10 students completed the exercise 1, 2 and 3 using skill lab.
- Experimental group students completed practical for home lighting system
- Experimental group completed the AR simulation test.
- Familiarization with VR done with experimental students again today.
- Setting up the desktop at Solar Lab and copied all the simulations to the desktop. VR software requirements also completed.

13-June-2024, 9.30 Am to 5.30Pm

Activities

- Control Group study: All the 10 students completed practical for home lighting system.
- Experimental group students completed third exercise of skill lab
- Control group completed the AR simulation test.
- Solar VR started with the students.
- One of the trainer completed all the simulations test using the desktop. VR also he tested using the desktop. He is confidence with testing of the VR setting up.

14-June-2024, 9.30 Am to 5.30Pm

Activities

- All the 20 students completed VR solar simulations. Three VR headsets were arranged and one pair students tested for 15 minutes each. Later VR was opened for all the students.
- Collected all the data from trainees and trainers.
- We have conducted a closing ceremony with the presence of Mr. Swapndeep Chaohan and trainers. All the trainees are really happy and talk positive things about the skill lab package.

	Solar Technician Trade					
Sl No	Name	Day 1	Day 2	Day 3	Day 4	Day 5
1	Chavan Yuvraj Narhari	P	P	P	P	P
2	Ujgare prashik Bhagwat	P	P	P	P	P
3	Rathod Avinash Attam	P	P	P	P	P
4	Shedage Akash Haridas	P	P	P	P	P
5	Gaikward Bharat Baliram	P	P	P	P	P
6	Vaidya Devdatt Devendra	P	P	P	P	P
7	Yadav Anujkumar Harinath	P	P	P	P	P
8	Vedant Rajesh Mahapankar	P	P	P	P	P
9	Khilare Prashant Balu	P	P	P	P	P
10	Gavare Rohan Sachin	P	P	P	P	P
11	Jagtap Soham Anil	P	P	P	P	P
12	Bhure Krish Vinay	P	P	P	P	P
13	Anshu	P	P	P	P	P
14	Ghase Siddhes Ravindra	P	P	P	P	P
15	Kamble Hritik Bhujang	P	P	P	P	P
16	Pawar Jeet Vidyadhar	A	A	P	P	P
17	Monika	P	P	P	P	P
18	Sushil Singh Kushwaha	P	P	P	P	P
19	MUKESH SINGH KUSHAVAHA	P	P	P	P	P
20	Aabha kumari	P	P	P	P	P
21	suneel Kumar	P	P	P	P	P

Attendance – Teachers

Sl No	Name	Signature
1	Shri Sujay Barik 10/06/24 to 14/06/24	Sujay Barik.
2	Shri Nitesh A.Patil (10/06/24 to 14/06/24)	

15-June-2024, 9.30 Am to 5.30Pm

Activities

- Conducted a small introduction session with the 20 electronic mechanic students and 2 trainers.
- Divided the students into control group and experimental group.
- The experimental group got familiarized with exercises 1 and 2 of solar trade.
- Conducted an interactive session with the control group and got them familiarized with the VR.
- Started familiarization of Electronic Mechanic Training Officers Smt Ruchi Rai, and Smt Purnima Sarkar.

18-June-2024, 9.30 Am to 5.30Pm

Activities

- Simulation 1, 2 and 3 completed for experimental group. Third assessment and post test need to be completed for 4 or 5 students.
- Control group students completed the traditional practical 1. Also completed the familiarization of simulations.
- Both students completed the AR familiarization

19-June-2024, 9.30 Am to 5.30Pm

Activities

- Control group students completed the training the skill lab package.
- Experimental group students completed the practical.
- Both student groups completed the AR testing also

20-June-2024, 9.30 Am to 5.30Pm

Activities

- Completed the video coverage for the trainees training, trainers training and testimonial from trainees and trainers
- Experimental group students completed the student feedback
- Control group students completed the student feedback
- Started the formalities for the asset transfer

21-June-2024, 9.30 Am to 5.30Pm

Activities

- Control group students completed the traditional practical 1
- Collected all the data from trainees and trainers.
- We have conducted a closing ceremony.

Attendance – Students

	Electronic Mechanic Trade					
Sl No	Name	Day 1	Day 2	Day 3	Day 4	Day 5
1	Chaitanya dadheech	P	P	P	P	P
2	Pujit	P	P	P	P	P
3	Ravi Kishore Jaysurya	P	P	P	P	P
4	Uday Kumar	P	P	P	P	P
5	Rohit Kumar	P	P	P	P	P
6	Sweta Kashyap	P	P	P	P	P
7	Punam Kumari	P	P	P	P	P
8	Chaitali Rajendra Sawant	P	P	P	P	P
9	Nitin	P	P	P	P	P
10	Rishabh Kumar	P	P	P	P	P
11	Anuruddha pratap singh	P	P	P	P	P
12	Chandrashekhar.L. kosame	P	P	P	P	P
13	Sahil Kumar	P	P	P	P	P
14	Ankur Verma	P	P	P	P	P
15	Abhishek Chaurasiya	P	P	P	P	P
16	Navanit Pasavan	P	P	P	P	P
17	Arvind Kumar	P	P	P	P	P
18	Rahul Uikey	P	P	P	P	P
19	Sumit Singh	P	P	P	P	P
20	komal wagh	P	P	P	P	P

Attendance – Teachers

Sl No	Name	Signature
1	Smt Ruchi Rai 15/06/24 to	
2	Smt Purnima Sarkar 15/06/24 to 21/06/24 (today)	Purnima Sarkar 21/06/24

Name and Signature of Amrita Team lead

Deepu. D. S

21/06/24

Daily Attendance and Activity Sheet
Pilot Study Skill eLabs at NSTI, Dehradun

Practical conducted for Solar students: Rooftop installation exercise.
Practical conducted for Electronics Mechanic students: familiarisation of LED/LCD TV.

24th June 2024 - 09.00 AM to 05.30 PM

Activities

Meeting with the Training Officer: On the first day a meeting with the Electronic Mechanic Training Officer and the Principal was organized. Discussed with both of them about the Project and its objectives and what the team is
going to do in the next 10 days in NSTI.

Formal inaugural ceremony: A formal inaugural ceremony was conducted with a lamp lighting ceremony. The Principal, instructors and all the Electronics Mechanic and Solar Technician students attended.
Subsequently the trainers were briefed on the planned activities.
Solar trade students were divided into Experimental and Control Groups. Accounts created for all Solar students.
familiarisation sessions held for the Experimental Group students.

An AR session was also conducted for the Experimental Group.
The day otherwise was exclusively reserved for the Instructor's training where the 3 instructors got familiarisation in Electronic Mechanic Simulation-1 alongwith the basics of VR and controls.

25th June 2024 - 09.00 AM to 05.30 PM

Activities

For the Experimental Group, students began using the Skill e-labs package. They completed Solar simulations 1,2 and 3. Five students received full VR familiarisation. For the Control Group, 10 students completed the AR session of the package.

For the instructor training, Solar instructors completed Simulations 1,2 and 3. They also underwent VR familiarisation. The Acting Principal too tried out VR and
simulations.

26th June 2024 - 09.00 AM to 05.30 PM

Activities

Experimental Group students completed their practicals much faster than the recorded time for Control Group students.
Control Group finished 3 simulations of the Solar Trad and they were familiarised with the Skill e-Labs package. The familiarisation of Simulations were done by a Solar Instructor.

27th June 2024 - 09.00 AM to 05.30 PM

Activities

Experimental Group students started trying out the VR simulation. One Solar Instructor was trained to do VR from end-to-end. And he was able to guide the students through the whole simulation afterwards.

The Control Group students completed their practicals - Rooftop installation round 2 beating their records in round 1.

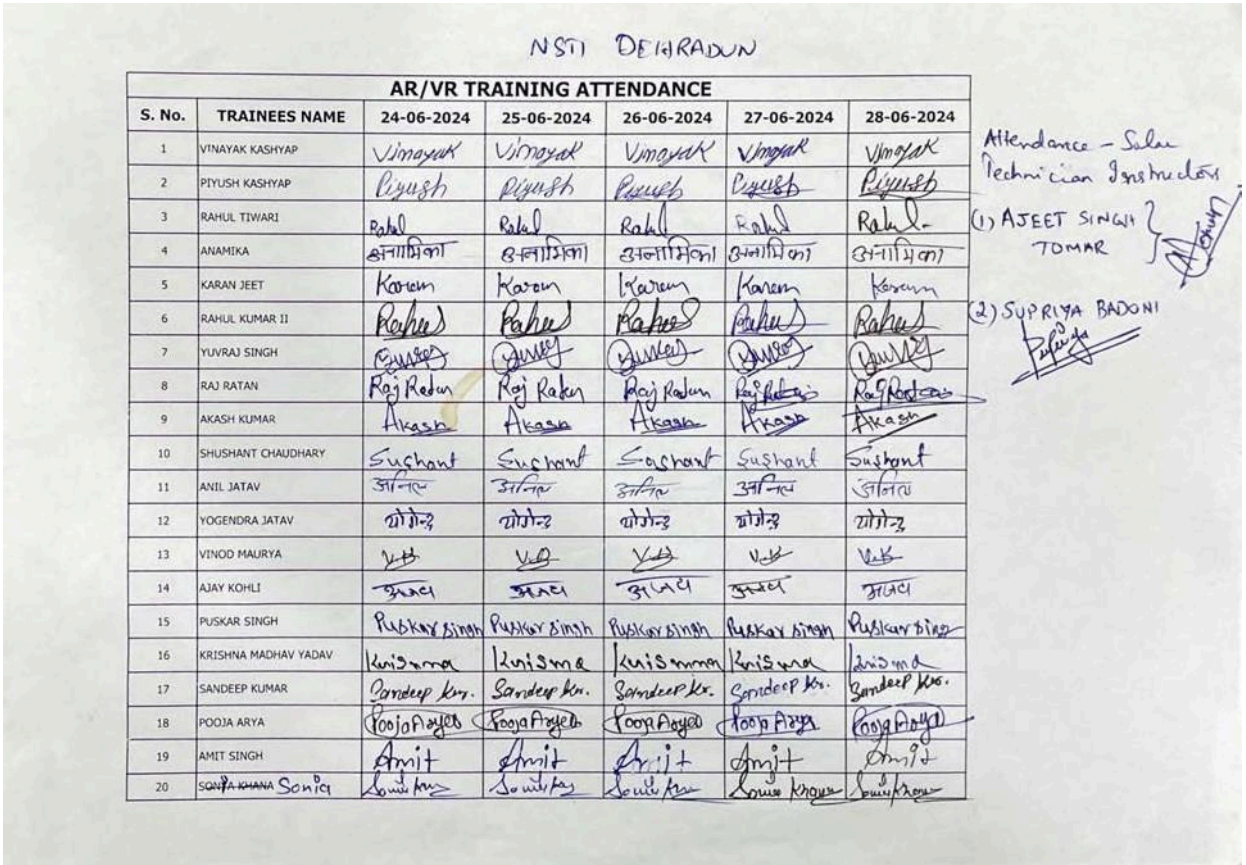
Also the pending data collection was done and students' feedbacks were also collected.

28th June 2024 - 09.00 AM to 05.30 PM

Activities

Both the Experimental and Control Groups completed their VR simulations from end-to-end beginning with our mentors and instructors guiding them. Collected pending data and also reviewed data collected so far.

As per the request from the NSTI Training Officer, simulations and videos were installed in 7 computers in Electronic Mechanics Lab and in one of the classrooms.



NSTI DEHRADUN

AR/VR TRAINING ATTENDANCE

S. No.	TRAINEES NAME	24-06-2024	25-06-2024	26-06-2024	27-06-2024	28-06-2024
1	VINAYAK KASHYAP	Vinayak	Vinayak	Vinayak	Vinayak	Vinayak
2	PIYUSH KASHYAP	Piyush	Piyush	Piyush	Piyush	Piyush
3	RAHUL TIWARI	Rahul	Rahul	Rahul	Rahul	Rahul
4	ANAMIKA	अनामिका	अनामिका	अनामिका	अनामिका	अनामिका
5	KARAN JEET	Karan	Karan	Karan	Karan	Karan
6	RAHUL KUMAR II	Rahul	Rahul	Rahul	Rahul	Rahul
7	YUVRAJ SINGH	Yuvraj	Yuvraj	Yuvraj	Yuvraj	Yuvraj
8	RAJ RATAN	Raj Ratan	Raj Ratan	Raj Ratan	Raj Ratan	Raj Ratan
9	AKASH KUMAR	Akash	Akash	Akash	Akash	Akash
10	SHUSHANT CHAUDHARY	Sushant	Sushant	Sushant	Sushant	Sushant
11	ANIL JATAV	अनिल	अनिल	अनिल	अनिल	अनिल
12	YOGENDRA JATAV	योगेन्द्र	योगेन्द्र	योगेन्द्र	योगेन्द्र	योगेन्द्र
13	VINOD MAURYA	Vinod	Vinod	Vinod	Vinod	Vinod
14	AJAY KOHLI	अजय	अजय	अजय	अजय	अजय
15	PUSKAR SINGH	Puskar Singh	Puskar Singh	Puskar Singh	Puskar Singh	Puskar Singh
16	KRISHNA MADHAV YADAV	Krishna	Krishna	Krishna	Krishna	Krishna
17	SANDEEP KUMAR	Sandeep Kr.	Sandeep Kr.	Sandeep Kr.	Sandeep Kr.	Sandeep Kr.
18	POOJA ARYA	Pooja Aryan	Pooja Aryan	Pooja Aryan	Pooja Aryan	Pooja Aryan
19	AMIT SINGH	Amit	Amit	Amit	Amit	Amit
20	SONIA KHANA Sonia	Sonia Kr.	Sonia Kr.	Sonia Kr.	Sonia Kr.	Sonia Kr.

Attendance - Solar Technician Instructors

(1) AJEET SINGH TOMAR

(2) SUPRIYA BADONI

ELECTRONICS MECHANIC

29th June 2024 - 09.00 AM to 05.30 PM

Activities

First day of Electronic Mechanic trade students' pilot study. Briefed the students about the program.
Collected signed Consent Forms. The students were then divided into Experimental and Control Groups.
Experimental Groups completed Ample and Simulation familiarisations They also got familiarised with the AR module.

01st July 2024 - 09.00 AM to 05.30 PM

Activities

Experimental Group completed Simulations 1,2 and 3. All pretests were recorded. Usability surveys were also done. 7 students were given familiarisation in the VR module.
Control Group completed their round 1 practicals on familiarisation of TV. Teachers' evaluation was also done.
The Regional Director and the Principal tried out VR and simulations.

02nd July 2024 - 09.00 AM to 05.30 PM

Activities

Experimental Group successfully completed practicals and an AR Session. Pending students completed their VR sessions as well.
Control Group completed all 3 simulations of the Skill e-labs package.
Pending students completed their VR sessions as well.
Electronic Mechanic Instructors did a revision on VR and simulations.

03rd July 2024 - 09.00 AM to 05.30 PM

Activities

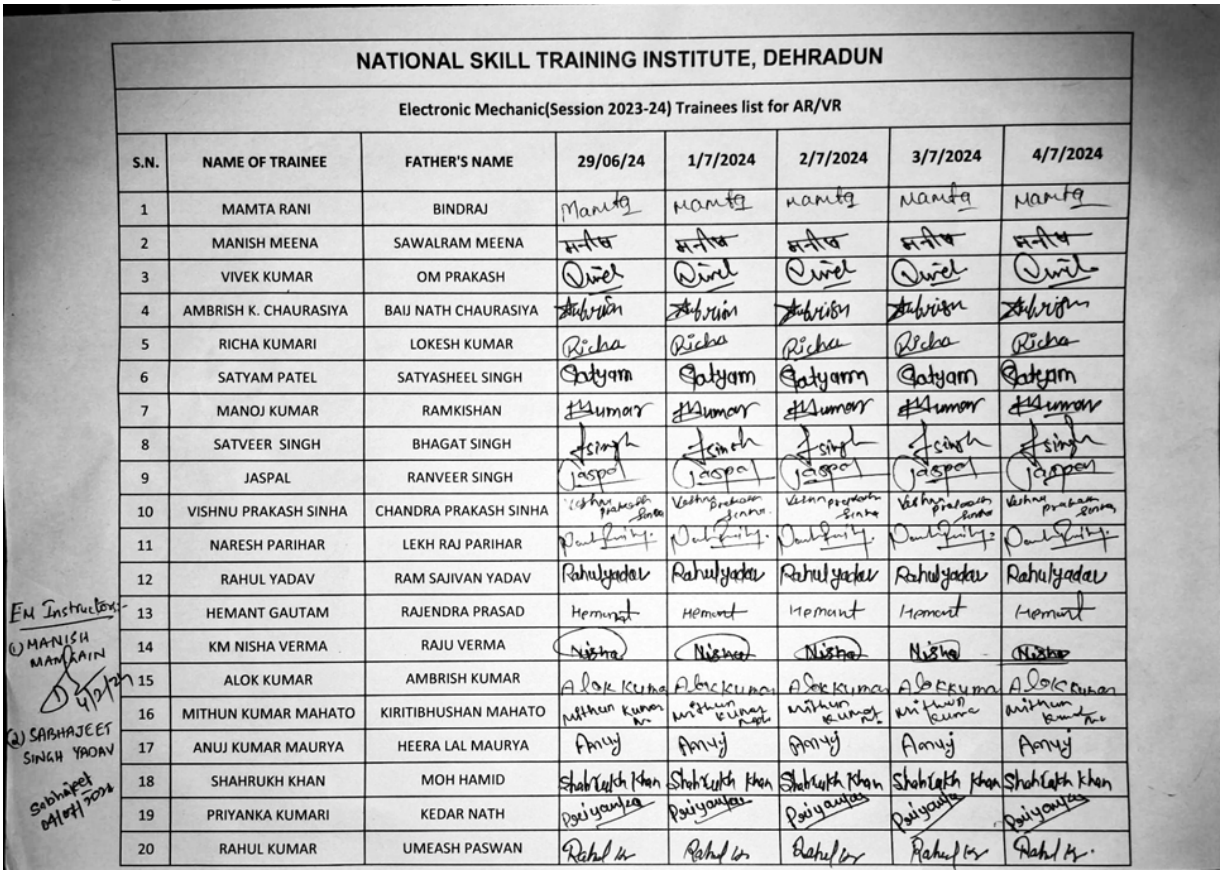
Experimental Group completed all data collection activities and post test recordings.
Control Group completed practical round 2 and post test recordings.
Meeting of NSTI team and Amrita team with NIMI, DGT, Sankalp and SMEs.

Google forms filled by students, instructors and the institute.

04th July 2024 - 09.00 AM to 05.30 PM

Activities

Closing ceremony of the 10 day program was held with Brahmachari Adv. Promod Ji as the Chief Guest. Regional Director, NSTI, Principal, NSTI, Instructors and Students gave their feedback during the function.
Certificates were distributed to students and the instructors.
Instructor evaluations conducted. Instructors taught the students VR, AR and Simulations from end to end.
A Group Photo was also taken



NATIONAL SKILL TRAINING INSTITUTE, DEHRADUN

Electronic Mechanic(Session 2023-24) Trainees list for AR/VR

S.N.	NAME OF TRAINEE	FATHER'S NAME	29/06/24	1/7/2024	2/7/2024	3/7/2024	4/7/2024
1	MAMTA RANI	BINDRAJ					
2	MANISH MEENA	SAWALRAM MEENA					
3	VIVEK KUMAR	OM PRAKASH					
4	AMBRISH K. CHAURASIYA	BAIJ NATH CHAURASIYA					
5	RICHA KUMARI	LOKESH KUMAR					
6	SATYAM PATEL	SATYASHEEL SINGH					
7	MANOJ KUMAR	RAMKISHAN					
8	SATVEER SINGH	BHAGAT SINGH					
9	JASPAL	RANVEER SINGH					
10	VISHNU PRAKASH SINHA	CHANDRA PRAKASH SINHA					
11	NARESH PARIHAR	LEKH RAJ PARIHAR					
12	RAHUL YADAV	RAM SAJIVAN YADAV					
13	HEMANT GAUTAM	RAJENDRA PRASAD					
14	KM NISHA VERMA	RAJU VERMA					
15	ALOK KUMAR	AMBRISH KUMAR					
16	MITHUN KUMAR MAHATO	KIRITIBHUSHAN MAHATO					
17	ANUJ KUMAR MAURYA	HEERA LAL MAURYA					
18	SHAHRUKH KHAN	MOH HAMID					
19	PRIYANKA KUMARI	KEDAR NATH					
20	RAHUL KUMAR	UMEASH PASWAN					

EM Instructors:-
(1) MANISH MAWRAIN
(2) SABHAJEET SINGH YADAV

Daily Attendance and Activity Sheet

Pilot Study Skill eLabs at Govt. ITI, Jhajjar at Gudha

Practical conducted for Solar students: Rooftop installation exercise.

Practical conducted for Electronics Mechanic students: Familiarization of LED/LCD TV.

Flow of activities: (Key = Looping activities)

Simulation:

General pretest -> Simulation Specific Pretest -> Video - > Simulation -> Assessment -> Simulation specific Post test-> General Post-test.

AR:

AR familiarization -> AR application hands-on -> AR Post-test.

VR:

VR familiarization -> VR application hands-on -> VR Post-test

SOLAR TECHNICIAN

10th June 2024 - 09.15 AM to 05.30 PM

Activities

- Meeting with Principal: On the first day a meeting with the Principal was organized. Discussed about the Project and its objectives and what the team is going to do in 10 days in the ITI.
- Formal inaugural ceremony: A formal inaugural ceremony was conducted with a lamp lighting ceremony. The Principal, instructors and all the Electronics Mechanic and Solar Technician students attended.
- Subsequently the trainers were briefed on the planned activities.
- Solar trade students were divided into Experimental and Control Groups.
- Accounts creation for all Solar students.
- Familiarization sessions held for the Experimental Group students.
- Trainers were given general familiarization and in VR specifically.

11th June 2024 - 09.30 AM to 05.30 PM

Activities

- Integration for 6 new participants into Solar Pilot study.
- 3 of them underwent familiarization with the Ample and simulations.
- Experimental Group completed the common pretest and simulations 2 and 3.
- Control Group completed practical exercise 3 for 10 students incorporating both pretests and teacher evaluations.

12th June 2024 - 09.30 AM to 05.30 PM

Activities

- Experimental Group successfully completed the practical excerise.
- Control Group finished 3 simulations of the Solar Trade.
- Experimental Group demonstrated greater efficiency completing their practical excercises more quickly, than the Control Group.

13th June 2024 - 09.30 AM to 05.30 PM

Activities

- Experimental Group completed Exercise 1 in Simulation, collected post-tests, usability tests and concluded AR module study.
- Control Group completed Rooftop Practical round 2, collected post-tests, usability tests, and finished AR module study.
- Both groups also familiarized themselves with the VR module.
- Practical sessions were completed efficiently within1,5 hours.
- Usability feedback was collected from all the 20 students.

14th Jun 2024 - 9.30 AM to 05.30 PM

Activities

- Both the Experimental and Control Groups completed their VR modules.
- Provided feedback on their experiences.
- Teachers' analysis and feedbacks were recorded.
- ITI Jhajjar instructors had a meeting with NSTI mentor team including the Amrita team.
- All students were able to do VR module.

Solar Technician - Attendance						
Sl .No	Name	Day 1	Day 2	Day 3	Day 4	Day 5
1	Aman	P	P	P	P	P
2	Nikhil	P	P	P	P	P
3	Ankush	P	P	P	P	P
4	Gulshan	P	P	P	P	P
5	Dhruv	P	P	P	P	P
6	Mandeep	P	P	P	P	P
7	Mohit	P	P	P	P	P
8	Akshay	P	P	P	P	P
9	Kunal	P	P	P	P	P
10	Himanshu	P	P	P	P	P
11	Harsh	P	P	P	P	P
12	Sachin Nathu	P	P	P	P	P
13	Naresh	P	P	P	P	P
14	Nivesh Kumar	P	P	P	P	P
15	Ravi Kumar	P	P	P	P	P
16	Sahil	P	P	P	P	P

17	Deepak	P	P	P	P	P
18	Anuj	P	P	P	P	P
19	Bhupender	P	P	P	P	P
20	Sachin Suber Singh	P	P	P	P	P

Attendance – Solar Technician Instructors

Sl. No	Name	Signature
1	Shri. Pardeep Gaurav	
2	Shri. Deepak Joon	

ELECTRONICS MECHANIC

15th June 2024 - 09.15 AM to 05.30 PM

Activities

- Briefed the Electronics Mechanic students about the program.
- Collected Signed Consent Forms.
- Experimental Groups completed VR familiarization using the Solar exercise.
- Control Group and undertook the pretest before practicals.
- Plan discussion with instructors and instructor training was also conducted.
- Totla of 24 students attended who were divided equally into Experimental and Control Groups.

18th June 2024 - 09.30 AM to 05.30 PM

Activities

- Experimental Group completed Simulations 1,2 and 3 pretests.
- Control Group completed practicals.
- Control Group participated in an AR session.
- Control Group also familiarized with the Skill labs package.

19th June 2024 - 09.30 AM to 05.30 PM

Activities

- Experimental Group successfully completed the practical excerises and an AR session.
- Control Group completed all 3 simulations of the Skill e-labs package.
- Control Group completed AR post-test through Google Forms and also completed the usability test.

20th June 2024 - 09.30 AM to 05.30 PM

Activities

- Experimental Group completed excerise 3.
- Experimental Group filled the usability forms
- Experimental Groups provided feedbacks.
- Control Group completed practical round 2.
- Control Group recorded post-test excercises 2 and 3.
- Control Groups gave feedbacks and shared their experiences

21st June 2024 - 09.30 AM to 06.15 PM

Activities

- Closing ceremony was held.
- Certificates distributed to students as well as the instructors.
- Teacher training in Simulations and AR conducted.
- All pending data collection activities were completed.
- An extensive instructor training was also provided in all Solar and Electronic Mechanic simulations along with their AR.
- Handed over the VR Head Straps, UPS and VR devices to the ITI.

Electronics Mechanic - Attendance						
Sl .No	Name	Day 1	Day 2	Day 3	Day 4	Day 5
1	Aman	P	P	P	P	P
2	Satyaparkash	P	P	P	P	P
3	Mohit	P	P	P	P	P
4	Ritesh	P	P	P	P	P
5	Kuldeep	P	P	P	P	P
6	Paras	P	P	P	P	P
7	Ajay	P	P	P	P	P
8	Himanshu	P	P	P	P	P
9	Shiva	P	P	P	P	P
10	Sandeep	P	P	P	P	P
11	Kamal	P	P	P	P	P
12	Sagar	P	P	P	P	P
13	Pawan	P	P	P	P	P
14	Ritik	P	P	P	P	P
15	Karamjeet	P	P	P	P	P
16	Sagar Ramniwas	P	P	P	P	P
17	Ankush	P	P	P	P	P
18	Kuldeep	P	P	P	P	P
19	Ashish	P	P	P	P	P
20	Vipin	P	P	P	P	P

Attendance – Electronics Mechanic Instructors

Sl. No	Name	Signature
1	Smt. Omwati	Omwati
2	Shri. Jogender Singh Deswal	

AJAI KUMAR. A. G.

Name and Signature of Amrita Team Lead

Daily Attendance and Activity Sheet Bicholim Govt. ITI Goa

Simulated Skill Training Packages for VET

24-June-2024, 8.30 AM to 3.30PM

Activities

- Meeting with Principal and all the three group Instructors done, explained all the about the skill lab project, advantage of the technology based training and discussed about the AMMACHI Labs, Amrita University.
- Formal meeting with all the group instructors and vocational instructors from solar technician (Shri. Bibin Abraham) and wireman trade (Shri. Rajat R Halarnkar). 40 students from solar technician and electronic mechanic students also attended. Discussed the details of the project and opportunities that they are getting.
- Started the formal trainers training with Solar Technician Skill Lab Packages. They played all three simulations and experienced AR and VR also.
- Principal sir came to meet us to experience all the simulations and he understood all the three modalities of technologies, AR, 3d Simulation and VR simulations. He also experienced VR simulations.
- Solar students started the familiarization of solar trade.

Attendance – Teachers

Sl No	Name	Signature
1	Shri. Bibin Abraham	
2	Shri. Rajat R Halarnkar	

25-June-2024, 8.30 AM to 3.30PM

Activities

- Started the Control group trainees training with Solar Technician trade. Completed the pretest, practical test on hoe lighting assembling and practical evaluation
- Completed the home lighting system and water pump assembly simulations by experimental group trainees.
- Completed the VR familiarization by the three solar technician trainers. They setup the VR and played the first step familiarization (First Step) and they trained to the students also.

- Started the VR familiarization by control group students. They also familiarized with AR and 3d simulation.

Attendance – Trainers

Sl No	Name	Signature
1	Shri. Bibin Abraham	
2	Shri. Rajat R Halarnkar	
3	Shri. Kiran Naik Muli	

26-June-2024, 8.30 AM to 3.30PM

Activities

- Started the Control group trainees training on 3d simulations. 7 students (solar trade) completed the three 3d simulations. 3 students from wireman trade joined with them after completing control group pretest, practical test and evaluation of home lighting system. They completed two 3d simulations.
- 5 experimental group students completed the practical test and evaluation. New 5 wireman students also participated this group after skill lab simulation 1 training
- Experimental group students familiarized with VR and AR modules. Bibin sir give the training to all the experimental group students.
- Completed the computer setup and installed all the simulation package and VR software. Now computer is ready to use.

Sl No	Name	Signature
1	Shri. Bibin Abraham	
2	Shri. Rajat R Halarnkar	
3	Shri. Kiran Naik Muli	

27-June-2024, 8.30 AM to 3.30PM

Activities

- New wireman trade students completed traditional practical test and skill lab test. After completing their work they joined with solar trade student trainees.
- All the students completed the AR test and take post test some of them. Need to compete on final day.
- New 5 wireman students also participated this group after skill lab simulation 1 training
- Completed the 15 student trainees VR testing and each student trainee spend minimum of 15 minutes to do the exercise. Later they experienced all the exercises.
- Solar trainer, Bibin sir played the VR solar simulation well and he taught that to his 15 students.
- Started to engage with electronic mechanic trade trainers, Rama Kanta Vaigankar sir and Vindhiya Vinayak Faldessai Madam.

Attendance – Trainers

Sl No	Name	Signature
1	Shri. Bibin Abraham	
2	Shri. Rajat R Halarnkar	

28-June-2024, 8.30 AM to 3.30PM

Activities

- Completed VR testing with remaining 5 students, and third 3d simulations for 3 students
- Completed all the VR and AR post test questionnaires to all the students. We have completed the student analysis and trainers evaluation also.
- We have received the feedback from solar technician trainer Bibin sir and he is capable to proceed with the skill lab package for the next year students

Attendance – Trainers

Sl No	Name	Signature
1	Shri. Bibin Abraham	
2	Shri. Rajat R Halarnkar	

Attendance of Solar Technician Student Trainees

Roll no	First Name	Last Name	Day 1	Day 2	Day 3	Day 4	Day 5
1	Manjit	Varak	P	A	P	P	P
2	Payesh	Pednekar	P	P	P	P	P
3	Rohit	Wadkar	P	P	P	P	P
4	Arakai	Kachap	P	P	P	P	P
5	Omkar	Naik	P	P	P	P	P
6	Akash	Bhandari	A	A	P	A	P
7	Pratham	Gaonkar	P	P	P	P	P
8	Sakharam	Gaonkar	P	P	P	P	P
9	Dishan	Gaonkar	P	P	P	P	P
10	Meghraj	Singh	P	P	P	P	P
11	Dheeraj	Volvaikar	P	P	P	P	P
12	Sahil	Kubal	P	A	P	P	P
13	Yuvraj Chandrakant	Kale	A	P	P	P	P
14	Krrish Prabhakar	Sawant	P	A	P	P	P
15	Chetan Rohidas	Gadekar	P	A	P	P	P
16	Yuvraj uday	Salgaonkar	A	P	P	P	P
17	Anant Tulshidas	Pednekar	A	P	P	P	P
18	Saurabh Santosh	Palav	P	P	P	P	P
19	Raghuvir Dinesh	Gawas	A	P	P	P	P
20	Sarvesh Gurudas	Gaonkar	P	A	P	P	P

Solar Technician Trade Instructor: Bibin Abraham

28 June 2024

29-June-2024, 8.30 AM to 3.30PM

Activities

- Started the training with Electronic Mechanic students and trainer Ram sir
- Ram sir experienced all the 3d simulations and video from electronic mechanic trade
- Divided all the students into two groups and experimental group students experienced with 3d simulation and AR simulations. Then they started the simulation 1 from electronic mechanic exercise.
- Started the VR familiarization with control group and started the traditional TV practical also that is available in the lab.

Attendance – Trainers

Sl No	Name	Signature
1	Shri. Rama Kanta Vaigankar	

01-July-2024, 8.30 AM to 3.30PM

Activities

- Experimental students completed the EM exercise 2 and 3 along with all the post tests. AR familiarization done with experimental group.
- Control group students completed the practical test and teachers evaluation also. AR familiarization started with control group students.
- Rama sir continued the training on 3d simulation exercises.
- Started the asset transferring processes.
- Selected the 10 good student trainees from solar and electronic mechanic trades

Attendance – Trainers

Sl No	Name	Signature
1	Shri. Rama Kanta Vaigankar	

02-July-2024, 8.30 AM to 3.30PM

Activities

- Control group students completed the EM exercise 1, 2 and 3 along with all the post tests.
- Experimental group students completed the VR familiarization and they have completed the AR test also.
- Rama sir and Vindhiya Vinayak Madam got familiarized with VR.
- Today we attended the meeting with MSDE, DGT and NIMI along with Bicholim Govt. ITI, Goa Principal, training officers, and trainees.
- Started the video shooting of the pilot study

Attendance – Trainers

Sl No	Name	Signature
1	Smt. Vindhiya Vinayak Faldessai	presented
2	Shri. Rama Kanta Vaigankar	

03-July-2024, 8.30 AM to 3.30PM

Activities

- Control group students completed the AR exercise and collected the post test data
- Experimental group students completed the AR post tests.
- Received the feedback from Rama sir and completed his evaluation
- Started the video shooting of the pilot study with solar technician students.

Attendance – Trainers

Sl No	Name	Signature
1	Shri. Rama Kanta Vaigankar	
2	Smt. Vindhiya Vinayak Faldessai	presented

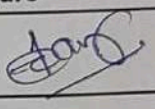
04-July-2024, 8.30 AM to 3.30PM

Activities

- Control group students completed the second practical test
- Collected student feedback from all the students

- Collected trainers feedback
- Asset transferred completed
- Certificate distribution completed

Attendance – Trainers

Sl No	Name	Signature
1	Shri. Rama Kanta Vaigankar	

Roll no	First Name	Last Name	Day 1	Day 2	Day 3	Day 4	Day 5
1	Jahid	Shaikh	P	P	P	P	A
2	Gopal	Maulingkar	P	P	P	P	P
3	Deepak	Gawas	P	P	A	A	P
4	Govind	Ghadi	A	P	P	P	A
5	Satyagansai	Gundupkar	P	A	P	P	P
6	Namdev	Gaonkar	P	P	P	A	P
7	Girish	Shetye	P	P	P	P	A
8	Nagesh	Naik	P	P	A	P	P
9	Uday	Degvekar	A	P	P	P	P
10	Gauresh	Gaonkar	P	P	P	P	A
11	Manthan	Arondekar	P	A	P	P	A
12	Prajyot	Gosavi	P	P	P	P	P
13	Hrushikesh	Gaonkar	A	P	P	P	P
14	Yash	Chhetri	P	P	P	P	P
15	Sahil	Gad	A	P	P	P	P
16	Farman	Bepari	P	P	P	A	A
17	Ashish	Renati	P	P	P	P	A
18	Arjun	Rathod	P	P	P	P	P
19	Ranjeet	Nishad	P	A	P	P	P
20	Deepraj	Gaude	A	P	P	P	A

Shri. Rama Kanta Vaigankar

18.Appendix E: Certificate List

NSTI Mumbai – Certificate List

Students

Name	Email	Phone Number
Electronics Mechanic		
Chaitanya Dadheech	dadhichchetnya@gmail.com	7073801393
Pujit	pujitbangar45@gmail.com	8708316844
Ravi Kishore Jaysurya	Ravijaisurya89@gmail.com	8789080684
Uday Kumar	udayingaya.uk@gmail.com	9006150629
Rohit Kumar	Raj388018@gmail.com	7232932475
Sweta Kashyap	swetakashyap0236@gmail.com	8928392969
Punam Kumari	Punam24041995@gmail.com	8169707280
Chaitali Rajendra Sawant	chaita.k125@gmail.com	8082323203
Nitin	nitinjangra691@gmail.com	7495029259
Rishabh Kumar	rishuroy3371@gmail.com	9451903371
Anuruddha Pratap Singh	anuruddhpratap99@gmail.com	9690368722
Chandrashekhar.L. Kosame	chandukosme@gmail.com	7888262553
Sahil Kumar	Sahilsaini1816@gmail.com	8930880590
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Abhishek Chaurasiya	abhishekchaurasiyamrj@gmail.com	7307960686
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Arvind Kumar	Arvindyaduvanshi7513@gmail.com	6307128973
Rahul Uikey	rruikey21@gmail.com	8551048403
Sumit Singh	jhinjhaksumit@gmail.com	9519181748
Komal Wagh	waghkomal1295@gmail.com	7498239771
Solar Technician		
Chavan Yuvraj Narhari	chavanyuvraj771@gmail.com	9856571001
Ujgare Prashik Bhagwat	ujgareprashik2@gmail.com	9022948496
Rathod Avinash Attam	avinashrathod90224@gmail.com	9699664393
Shedage Akash Haridas	akashshedage3183@gmail.com	9763369109
Gaikward Bharat Baliram	bharatgaikwad509@gmail.com	8766007835
Vaidya Devdatt Devendra	devdattavaidya14@gmail.com	9619076614
Yadav Anujkumar Harinath	yanujkumar939@gmail.com	8765191759
Vedant Rajesh Mahapankar	vedantmhpankar05@gmail.com	9324116149
Khilare Prashant Balu	prashantkhilare582@gmail.com	8779498114
Gavare Rohan Sachin	rohangavare4@gmail.com	8369755521
Jagtap Soham Anil	jagtapsoham21@gmail.com	7506517883

Bhure Krish Vinay	krshbhure@gmail.com	9136431345
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Ghase Siddhes Ravindra	siddheshghase1507@gmail.com	7304668205
Kamble Hritik Bhujang	hritikkamle911@gmail.com	8928010191
Pawar Jeet Vidyadhar	jeetpawar66@gmail.com	8591011642
Monika	monikasinhasinha7@gmail.com	8718059603
Sushil Singh Kushwaha	ss730910@gmail.com	9170527022
Mukesh Singh Kushavaha	mukeshsinghk28@gmail.com	8448537841
Aabha Kumari	aabhakumari382005@gmail.com	8252548912
Suneel Kumar	suneelkumarftp9@gmail.com	7052569762

	Instructors		
Sl No	**Name**	**Phone Number**	**Designation**
1	Shri Nitesh A.Patil.	80541 56432	Training Officer, Electrical
2	Shri Sujay Barik	96994 61136	Skilled Worker, Electrical
3	Smt Ruchi Rai	91677 90820	Professional Instructor, Electronic Mechanic
4	Smt Purnima Sarkar	70219 51169	Professional Instructor, Electronic Mechanic
5	Shri Gopal Singh		Junior Vocational Consultant

Govt.ITI, Jhajjar, Haryana – Certificate List

Electronics Mechanics		
Sr. No	**Name of Student**	**email id**
1	Kamal	kamalsaini2627@gmail.com
2	Sagar	sagarkaliraman21@gmail.com
3	Deepak	mohitdhanwan91@gmail.com
4	Pawan	dev811418@gmail.com
5	Ritik	ritikbhoat88@gmail.com
6	Karamjeet	karmjeetvaliya@gmail.com
7	Sagar	ramniwasahlawat630@gmail.com
8	Paras	parasgulia74@gmail.com
9	Ajay	nandalajay22@gmail.com
10	Paramjeet	rajputgeeta945@gmail.com
11	Himanshu	panchalhimanshu446@gmail.com
12	Shiva	sr.2118174@gmail.com
13	Sandeep	sandeeppanchal0123@gmail.com
14	Harsh	harshdhaniya44@gmail.com
15	Lakshay	omwati.170@gmail.com
16	Ankush	ankushjaat746@gmail.com

17	Kuldeep	dagarkuldeep930@gmail.com
18	Ashish	shokeenashish12345@gmail.com
19	Sumit	sumitsumit11466@gmail.com
20	Nishant	samnishant67@gmail.com
21	Vipin	vipinmehra8950@gmail.com
22	Aman	aman89076@gmail.com
23	Gorav	goravgujjar9992@gmail.com
24	Satya Parkash	satayparkash711@gmail.com
25	Mohit	dhaniyaa750@gmail.com
26	Ritesh	riteshsixit706@gmail.com
27	Neeraj	neerajjyotriwa@gmail.com
28	Kuldeep	kuldeepsharma7720@gmail.com
Solar Technician		
Sr. No	**Name of Student**	**email id**
1	Harsh	chavhanharsh430@gmail.com
2	Aman	solankiaman158@gmail.com
3	Sachin	kuldeepbakra@gmail.com
4	Nikhil	idharliya@gmail.com
5	Naresh	nr392613@gmail.com
6	Ankush	ay2786625@gmail.com
7	Nivesh Kumar	saininiresh39@gmail.com
8	Gulshan	gulshanrajput10122002@gmail.com
9	Ravi Kumar	ravidhankhar318@gmail.com
10	Dhruv	dhruvahlawat581@gmail.com
11	Akshay	akshayjangra491@gmail.com
12	Anuj	anujjangra495@gmail.com
13	Sahil	sahil236300@gmail.com
14	Mandeep	mandeepgulia686@gmail.com
15	Deepak	deepakgujjar8689@gmail.com
16	Mohit	mohit256jjr@gmail.com
17	Kunal	dagark974@gmail.com
18	Bhupender	hudabhawria@gmail.com
19	Himanshu	himanshupandi001@gmail.com
20	Sachin	sachinboken728@gmail.com

Instructors

Sr. No	Name of Officer/Official	Designation	email id
1	Er. Jeetpal	Principal	smartjat03@gmail.com
2	Dr. Pawan Kumar	Group Instructor	pawankr8732@gmail.com
3	Smt. Omwati	Electronics Mechanic Instructor	omwati.170@gmail.com
4	Shri Pardeep Gaurav	Wireman Instructor	pardeepgourav89@gmail.com
5	Shri Jogender Singh Deswal	Electronics Mechanic Instructor	jogenderbsdeswal@gmail.com

6	Shri Neeraj	Workshop Calculation & Science Instructor	neerajdujana@gmail.com
7	Shri Deepak Joon	Electrician Instructor	djoon1990@gmail.com

Govt.ITI, Bilochim, Goa – Certificate List

Students

Sno	First Name	Last Name	Email id	Phone no
Solar Technician				
1	Manjit	Varak	manjitvrk78@gmail.com	7498693618
2	Payesh	Pednekar	payeshpednekar@gmail.com	8010041377
3	Rohit	Wadkar	rohitwadkar2512@gmail.com	9049770508
4	Arakai	Kachap	reven9235@gmail.com	8799830242
5	Omkar	Naik	omkarnaik413@gmail.com	8261059469
6	Akash	Bhandari	akashbhandari032@gmail.com	8788778923
7	Pratham	Gaonkar	gaonkarpratham03@gmail.com	8010364651
8	Sakharam	Gaonkar	sakharamgaonkar365@gmail.com	9322559736
9	Dishan	Gaonkar	gaonkardishan@gmail.com	8208235495
10	Meghraj	Singh	meghrajsingh254@gmail.com	
11	Dheeraj	Volvaikar	dheerajvolvaikar488@gmail.com	
12	Sahil	Kubal	sahilkubal29@gmail.com	9075358129
13	Yuvraj Chandrakant	Kale	yuvraj18k@gmail.com	7666429646
14	Krrish Prabhakar	Sawant	sawantkrrish607@gmail.com	7262914110
15	Chetan Rohidas	Gadekar	chetan.gadekar024@gmail.com	9356876509
16	Yuvraj uday	Salgaonkar	ysalgaonkar255@gmail.com	8080476606
17	Anant Tulshidas	Pednekar	anantpednekar42@gmail.com	8999167742
18	Saurabh Santosh	Palav	saurabhpalav30@gmail.com	9322684081
19	Raghuvir Dinesh	Gawas	raghuvirgawas57@gmail.com	9284720807
20	Sarvesh Gurudas	Gaonkar	sarveshgaonkar34@gmail.com	9637780697
Electronics Mechanic				
1	Jahid	Shaikh	jahidshaikh7734@gmail.com	7620269271
2	Gopal	Maulingkar	gopalmaulinkar06@gmail.com	9158645061
3	Deepak	Gawas	gawasdeepak99@gmail.com	9370577152
4	Govind	Ghadi	ghadim837@gmail.com	8329797687
5	Satyagansai	Gundupkar	saigundupkar17@gmail.com	9322350871
6	Namdev	Gaonkar	gaonkarnamdev850@gmail.com	7030317751
7	Girish	Shetye	girish.shetye@icloud.com	9356629108
8	Nagesh	Naik	nnaik9784@gmail.com	9356122916
9	Uday	Degvekar	degvekaruday@gmail.com	7420054972
10	Gauresh	Gaonkar	gaonkargouresh@gmail.com	9284979545
11	Manthan	Arondekar	arondekarmanthan7@gmail.com	9021673011
12	Prajyot	Gosavi	prajyorgosavi8@gmail.com	9284823398

13	Hrushikesh	Gaonkar	hrushikeshgaonkar17@gmail.com	9405800916
14	Yash	Chhetri	yashchhetri81@gmail.com	7378616630
15	Sahil	Gad	sahigad85@gmail.com	7820843227
16	Farman	Bepari	farman.bepari469@gmail.com	9356682836
17	Ashish	Renati	ashishrenati35@gmail.com	8329350654
18	Arjun	Rathod	arjun456rathod@gmail.com	8007410539
19	Ranjeet	Nishad	nishadranjeet419@gmail.com	9359679626
20	Deepraj	Gaude	savaikardeepraj12@gmail.com	8767849571

Instructors

Sl No	Name	Designation	Trade
1	Bibin Abraham	Vocational instructor	Solar Technician
2	Rajat R Halarnkar	Vocational instructor	Solar Technician
3	Kiran Naik Muli	Vocational instructor	Multimedia Animation & Special effects
4	Rama Kanta Vaigankar	Vocational instructor	Electronic Mechanic
5	Vindhiya Vinayak Faldessai	Vocational instructor	Electronic Mechanic

NSTI Dehradun

Students

S.No	Name	CONTACT NUMBER	EMAIL ID.
		Electronics Mechanic	
1	MAMTA RANI	9520788112	mamtamaliyan8@gmail.com
2	MANISH MEENA	9667997525	manish0143meena@gmail.com
3	VIVEK KUMAR	8595080189	vk8595080189@gmail.com
4	AMBRISH KUMAR CHAURASIYA	9554268101	akc9554up@gmail.com
5	RICHA KUMARI	9693651322	richayadav1433@gmail.com
6	SATYAM PATEL	6388793765	spatel3765@gmail.com
7	MANOJ KUMAR	6397548580	mauryamanoj249@gmail.com
8	SATVEER SINGH	9837316240	satveer8475@gmail.com
9	JASPAL	7302248487	jasparsingh73022@gmail.com
10	VISHNU PRAKASH SINHA	9128707510	2vishnupsinha@gmail.com
11	NARESH PARIHAR	6398290153	NARESHPARIHAR1892001@GMAIL.COM
12	RAHUL YADAV	9554844181	RAHULYADAV07092000@GMAIL.COM
13	HEMANT GAUTAM	9058348297	PAVANGAUTAM25994@GMAIL.CO

			M
14	KM NISHA VERMA	7238910248	NISHAASHA555@GMAIL.COM
15	ALOK KUMAR	8935026818	ALOKKUMAR92014@GMAIL.COM
16	MITHUN KUMAR MAHATO	6203696735	mithunkumar707079@gmail.com
17	ANUJ KUMAR MAURYA	8081842886	ANUJMAURYA11072002@GMAIL.C O M
18	SHAHRUKH KHAN	7534888792	sk6756968@gmail.com
19	PRIYANKA KUMARI	9410066480	priyanka5dbly2021@gmail.com
20	RAHUL KUMAR		rahulkumarking03@gmail.com

Solar Technician

S. NO.	Trainee Name	EMAIL ID
1	VINAYAK KASHYAP	ritaranidevendrakumar@gmail.com
2	PIYUSH KASHYAP	piyushkashyap150@gmail.com
3	RAHUL KUMAR	rahulkumarking03@gmail.com
4	ANAMIKA	anamika960244@gmail.com
5	KARAN JEET	karanthather352@gmail.com
6	RAHUL KUMAR	kumarrahul38208@gmail.com
7	YUVRAJ SINGH DHARAMSHAKTU	shauka.boy99@gmail.com
8	RAJ RATAN	ankit010804@gmail.com
9	AKASH KUMAR	www.akkukumar2001@gmail.com
10	SUSHANT CHAUDHARY	suschaudhary110@gmail.com
11	ANIL JATAV	aniljatav1256@gmail.com
12	YOGENDRA JATAV	yogendrajajotia@gmail.com
13	RAHUL TIWARI	rt2859807@gmail.com
14	VINOD MAURYA	vinodmaurya7068@gmail.com
15	AJAY KOHLI	kohliajay078888@gmail.com
16	PUSKAR SINGH	ps7896123@gmail.com
17	KRISHNA MADHAV YADAV	kv429850@gmail.com
18	SONIA	
19	AMIT SINGH	
20	POOJA ARYA	

Instructors

S.No	Name	Designation	Trade
1	MANISH MAMGAIN	Training Officer	Electronic Mechanic
2	SABHAJEET SINGH YADAV	Junior Consultant	Electronic Mechanic
3	SUPRIYA BADONI	Guest Faculty	Solar Technician
4	AJEET SINGH TOMAR	Junior Vocational Instructor	Solar Technician

19.Appendix F: Signed Asset Transfer Forms

Asset Transfer Acknowledgement

Date: 21/06/24

From:

The Joint Director (HOO)
NSTI Mumbai
V N Puravmarg,
Sion Chunabhatti, Mumbai
Email: nsti-mumbai@dgt.gov.in

Phone: 022 24053560

To,

The Executive Director,
National Instructional Media Institute,
CTI Campus, Guindy,
Tamil Nadu

Subject: Acknowledgement of Receipt of Hardware - as per Agreement between National Instructional Media Institute (NIMI) and Amrita Vidyapeetham dated 19th December 2023

Dear Sir / Madam,

On behalf of NSTI Mumbai, V N Puravmarg, Sion Chunabhatti, Mumbai, hereby officially acknowledge and confirm the receipt of the attached list of items handed over by Amrita Vishwa Vidyapeetham, Amritapuri, Clappana P.O., Kollam, Kerala, 690546.

I acknowledge receipt of all the items on the attached list in fully working condition on this day 21th June, 2024 from Amrita Vishwa Vidyapeetham.

Thank you,

For the NSTI	**Countersigned by Amrita Vishwa Vidyapeetham**
Location:	Location: Mumbai
Full Name: KETAN P PATEL	Full Name: Deepu D S
Designation: JD	Designation: VR and Haptics Team Lead
Email:	Email: deepu.ds@ammachilabs.org
Phone:	Phone: 9961951319

Date: Signature: H Patil 21/6/24	Date: 21/06/2024 Signature: 21/06/24
Witness 1 Location: NSTI MUMBAI Full Name: SUJAY V.N. BARIK Designation: S.W Email: sujaybarik95@gmail.com Phone: 9699461136 Date: 21/06/24 Signature: Sujay Barik	Witness 2 Location: Mumbai Full Name: ANUSIVAN Designation: Researcher Email: Phone: 9961746479 Date: Signature:

सहायक निदेशक / Joint Director
राष्ट्रीय कौशल प्रशिक्षण संस्थान
National Skill Training Institute
भारत सरकार / Govt. Of India
वि. एन. रोड, सायन, मुंबई 400 022
V.N. Road, Sion, Mumbai - 22.

List of Equipment handed over to NSTI Mumbai :

S No	System Configuration	Qty	Serial No.
1	APC Back-Ups BX1100C-IN 1100VA / 660W, 230V, UPS System	1	B22151010628
2	**High End VR Desktop,** Processor: Intel Core i5 13th GEN, Graphics Card: NVIDIA GeForce RTX 3060 (12 GB GDDR6 dedicated) RAM: 16GB, Storage (SSD):512GB	1	1N142009GK
3	HP P24v G5 FHD Monitor	1	CNK4111HZ2
4	Oculus Quest 2	2	1WMHHA6HGN2284 1WMHHA6AL72265
5	Quest 2 Touch Controller - Left	2	1WMHCLA3VP2257 1WMHCLB4JV2277
6	Quest 2 Touch Controller - Right	2	1WMHCRK08E2254 1WMHCR22J82281
7	Case for VR Headset	2	NA
8	C to C Cable	2	1WEABY50CM2282 1WEABY507P2292
9	Charger for Oculus Quest 2	2	NA
10	Head Strap for Oculus Question 2	2	NA
11	3pin AC socket	2	NA
12	Wireless Keyboard, Mouse and port cable	1 each	Expected delivery on or before 22nd June

Asset Transfer Acknowledgement

Date: 27/06/24

From,

The Regional Director
NSTI Dehradun
Green Park, Niranjanpur
Dehradun
Email: nsti-dehradun@dgt.gov.in
Phone: 0135-2629310

To,

The Executive Director,
National Instructional Media Institute,
CTI Campus, Guindy,
Tamil Nadu

Subject: Acknowledgement of Receipt of Hardware - as per Agreement between National Instructional Media Institute (NIMI) and Amrita Vidyapeetham dated 19th December 2023

Dear Sir / Madam,

On behalf of NSTI Dehradun, Green Park, Niranjanpur, Dehradun, I hereby officially acknowledge and confirm the receipt of the attached list of items handed over by Amrita Vishwa Vidyapeetham, Amritapuri, Clappana P.O., Kollam, Kerala, 690546.

I acknowledge receipt of all the items on the attached list in fully working condition on this day 27th June, 2024 from Amrita Vishwa Vidyapeetham.

Thank you,

For the NSTI	Countersigned by Amrita Vishwa Vidyapeetham
Location: DEHRADUN Full Name: MANISH MAMGAIN Designation: TRAINING OFFICER Email: m.mamgain@gov.in Phone: 9456124696 Date: 27/6/24 Signature:	Location: Dehradun Full Name: AJAI KUMAR A.K. Designation: IT STORE MANAGER Email: ajai.kumar@ammachilabs.org Phone: 9074894813 Date: 27/06/24 Signature:
Witness 1 Location: Dehradun Full Name: Geeta Ram Designation: Asst Store keeper Email: Phone: 7252881953 Date: 27/6/24 Signature:	Witness 2 Location: Dehradun Full Name: Vinod Singh Rawat Designation: R-Manager Northzone. Email: vinod.rawat@Ammachilabs.org. Phone: 8171807492 Date: 27/06/24 Signature:

List of Equipments handed over to NSTI Dehradun

Sl. No	System Configuration	Qty	Serial No.
1	APC Back-Ups BX1100C-IN 1100VA / 660W, 230V, UPS System	1	B22143016306
2	**High End VR Desktop,** Processor: Intel Core i5 13th GEN, Graphics Card: NVIDIA GeForce RTX 3060 (12 GB GDDR6 dedicated) RAM: 16GB, Storage (SSD):512GB	1	1N14200C4W

3	LG 60 cm/24 inches Full HD IPS 1920 x 1080 Pixels LCD Monitor	1	CNK4141J3Z
4	Oculus Quest 2	2	1WMHHA77R83096 1WMHHA62KF2285
5	Quest 2 Touch Controller - Left	2	1WMHCL12KV3096 1WMHCLB0UL2277
6	Quest 2 Touch Controller - Right	2	1WMHCR13683081 1WMHCR22H22263
7	Case for VR Headset	2	NA
8	C to C Cable	2	1WEABY50PG2295 1WEABY50WL2322
9	Charger for Oculus Quest 2	2	NA
10	Head Strap for Oculus Question 2	2	NA
11	3 pin AC socket	2	NA
12	Wired Keyboard, Mouse and port cable	1	CND41808013

27/6/24

भण्डारपाल
कौशल विकास एवं उद्यमिता मंत्रालय (डीजीटी)
राष्ट्रीय कौशल प्रशिक्षण संस्थान
जीन पार्क, बिरंचीपुर, देहरादून

Asset Transfer Acknowledgement

Date: 04/07/24

From:

Principal (Shri. Kapil Aigal)

Bicholim Govt. ITI,

Valshi, Goa- 403504

To,

The Executive Director,
National Instructional Media Institute,
CTI Campus, Guindy,
Tamil Nadu

Subject: Acknowledgement of Receipt of Hardware - as per Agreement between National Instructional Media Institute (NIMI) and Amrita Vidyapeetham dated 19th December 2023

Dear Sir / Madam,

On behalf of Bicholim Govt. ITI Goa, hereby officially acknowledge and confirm the receipt of the attached list of items handed over by Amrita Vishwa Vidyapeetham, Amritapuri, Clappana P.O., Kollam, Kerala, 690546.

I acknowledge receipt of all the items on the attached list in fully working condition on this day 4th July, 2024 from Amrita Vishwa Vidyapeetham.

Thank you,

For the Bicholim Govt. ITI, Goa	**Countersigned by Amrita Vishwa Vidyapeetham**
Location:	Location: Goa
Full Name: KAPIL P. AIGAL	Full Name: Deepu D S
Designation: PRINCPAL(Sr.Scale)	Designation: VR and Haptics Team Lead
Email: bicholim-iti.goa@nic.in	Email: deepu.ds@ammachilabs.org
Phone:	Phone: 9961951319
Date: 4/7/24	Date: 04/07/2024

Bicholim Govt. Industrial Training Institute
Govt. Of Goa
BICHOLIM - GOA

Signature:	Signature: 04.07.2024
Witness 1 Location: BICHOLIM, GOA Full Name: Bibin Abraham Designation: Vocational Instruct Email: bbn904907608y@gmail.co Phone: 9049076089 Date: 4 July 2024 Signature: 4 July 2024	Witness 2 Location: Goa Full Name: Anu Sivan Designation: Researcher Email: Phone: Date: 04/07/2024 Signature: 04/07/24

List of Equipment handed over to NSTI Mumbai :			
S No	**System Configuration**	**Qty**	**Serial No.**
1	APC Back-Ups BX1100C-IN 1100VA / 660W, 230V, UPS System	1	B22143016330
2	**High End VR Desktop,** Processor: Intel Core i5 13th GEN, Graphics Card: NVIDIA GeForce RTX 3060 (12 GB GDDR6 dedicated) RAM: 16GB, Storage (SSD):512GB	1	1N142305N7
3	HP P24v G5 FHD Monitor	1	CNK4111HS2
4	Oculus Quest 2	2	1WMHHA66HC2296 1WMHHB60AR2291
5	Quest 2 Touch Controller - Left	2	1WMHCLA0742266 1WMHCLG0PX2277
6	Quest 2 Touch Controller - Right	2	1WMHCR91E42264 1WMHCR20YA2292
7	Wireless Keyboard and Mouse	1	CND41808014
	Accessories/Consumables		
8	Case for VR Headset	2	
9	C to C Cable	2	1WEABY51D32313 1WEABY50W62283
10	Charger for Oculus Quest 2	2	NA
11	Head Strap for Oculus Question 2	2	NA
12	3pin AC socket	2	NA
13	Port cable	1	NA

Bicholim Govt. Industrial Training Institute
Govt. Of Goa
BICHOLIM - GOA.

For the Bicholim Govt. ITI, Goa

Name and Signature

Industrial Training Institute

GOVT. INDUSTRIAL TRAINING INSTITUTE
JHAJJAR AT GUDHA
VPO Gudha, Distt. Jhajjar, Haryana Pin-124103
Email:-jhajjaratgudha.giti@gmail.com (office)

To

Ajai Kumar A G,
IT Department
Ammachi Labs , Amrita Vishwa Vidyapeetham ,
Clappana P O , Kollam,
Kerala- 690525

Subject :- Acknowledgement of items/equipments received.

Dear Sir,

The below mentioned items have been received in our institute:

S.No	Item Description	Asset Tag	S/N	Qty.
1	CPU	NA	1N142305N6	1
2	Monitor	NA	CNK4111HQ6	1
3	Wireless Keyboard/Mouse	NA	CND41808016	1
4	Port Cable	NA	NA	1
5	1100 VA/660 W,230 V UPS	24UPS0176	B22204011470	1
6	Meta Oculus Quest 2- 128 GB	24VRD0003	1WMHHA739B3094	1
		24VRD0004	1WMHHA6FKA2294	1
7	Quest 2 Touch Controller- Left	24VRD0003	1WMHCL329F3096	1
		24VRD0004	1WMHCL90L62273	1
8	Quest 2 Touch Controller- Right	24VRD0003	1WMHCR11W13084	1
		24VRD0004	1WMHCR11QY2282	1
9	Carrying Case	24VRD0003	NA	1
		24VRD0004	NA	1
10	Charging Cables- C to C Type	24VRD0003	NA	1
		24VRD0004	NA	1
11	15 W Power Adapter	24VRD0003	NA	1
		24VRD0004	NA	1
12	Oculus Link Cable	24VRD0003	1WEABY50QD2293	1
		24VRD0004	1WEABY50AW2322	1
13	Meta Quest 2 Adjustable Strap	NA	NA	1
		NA	NA	1
14	3 Pin Socket	24MPS007	NA	1
		24MPS008	NA	1

Principal,
Govt. Industrial Training Institute
Jhajjar at Gudha

20.Appendix G : Content Feedback from Pilot

Content Feedback from Students, Instructors

Content Feedback from Students, Instructors

S.No	Trade	Module Name	Feedback Description	Priority	Status
1	Solar Technician	Exercise 1 - DC Home Lighting	Bulb Holder still hanging in the air even after the table is removed, while selecting the load	High	Fixed & Verified
2	Solar Technician	Exercise 1 - DC Home Lighting	NSTI Experts asked to modify the Mission Statement to make the simulation context more accurate: Page 2 to be replaced with the below statement. Solar Module Wattage = Total power required from Solar PV/ (Effective Sunshine of the particular area X System Efficiency) 300Wh is the total power, assumes 6 is the effective sun shine of the particular area and 0.73 is the system efficiency Solar Module Wattage = 300/6x0.73 =68.49W, and selecting the 75W solar panel for this exercise. Solar charge controller (SCC) selected as 10A/12v since current of SCC calculated from total power/ Total voltage which is 75W/12V= 6.25A and approximated to 10A In page 3 add the below statement. Battery selected as 40Ah, since Battery (Ah) = Total backup energy required per day/ (Battery voltage X D.O.D of battery X Battery efficiency) Assumes D.O.D = 85%, Battery Efficiency = 85% and Battery (Ah) = 300/12x0.85x0.85 = 300/8.67=34.60Ah approximated to 40Ah	High	Fixed & Verified

3	Solar Technician	Exercise 1 - DC Home Lighting	The congratulations panel (Hindi) is not correctly aligned. The congratulations text is missing, and the time taken to complete the simulation is also not displayed.	Medium	Fixed & Verified
4	Solar Technician	Exercise 2 - Solar Water Pump	Faced Issues for scaling the simulation in ample	High	Fixed & Verified
5	Solar Technician	Exercise 2 - Solar Water Pump	Side panel is missing when played using webgl	High	Fixed & Verified
6	Solar Technician	Exercise 2 - Solar Water Pump	At times the time shown at the end is wrong like 103:42	Medium	Fixed & Verified
7	Solar Technician	Exercise 3 - Solar Rooftop	Red and black wire is wrong is the bottom part of the DC Distribution box model - Red should be connected to red and black should be connected to black	High	Fixed & Verified
8	Solar Technician	Exercise 3 - Solar Rooftop	The congratulations panel (Hindi) is not aligned properly	High	Fixed & Verified
9	Solar Technician	Exercise 3 - Solar Rooftop	Some switches have overlapping colliders.	Medium	Fixed & Verified
10	Solar Technician	Exercise 3 - Solar Rooftop	Add Earth wire to PCU model	Medium	Fixed & Verified
11	Solar Technician	Exercise 3 - Solar Rooftop	Lighting arrester and Solar panel DC earthing need to be added in the rooftop	High	Fixed & Verified
12	Solar Technician	Exercise 3 - Solar Rooftop - Calculation	The load calculation is wrong for LED bulbs etc, if more that 5 number of loads is placed.	High	Fixed & Verified

13	Solar Technician	Solar - VR	Green wire placed on the PCU - if taken by aiming the controller- stretches instead of coming towards the user	High	Fixed & Verified
14	Solar Technician	Solar - VR	One random box appears out of nowhere - inside the house	Low	Fixed & Verified
15	Solar Technician	Solar - VR	Able to access safety PPE even before the door of the van is opened	Medium	Fixed & Verified
16	Solar Technician	Solar - VR	Add replay audio option	Medium	Fixed & Verified
17	Solar Technician	Solar - VR	The colour of the small wire that connects the two batteries (green) is in series should be changed to black	Medium	Fixed & Verified
18	Solar Technician	Solar - VR	The two cables in the PCU that need to be connected from the solar panel are in black colours. One should be in red colour	High	Fixed & Verified
19	Solar Technician	Solar - VR	Lighting arrester and Solar panel DC earthing need to be added in the rooftop	Medium	Fixed & Verified
20	Solar Technician	Solar - VR	Earthing should be required for PCU	High	Fixed & Verified
21	Solar Technician	Solar - VR	If step 6 of using the clamp meter is skipped and the wires are directly connected to the MC4, it becomes impossible to revert to testing using the clamp meter. Additionally, the wires cannot be removed from the MC4, resulting in the user being unable to proceed further.	High	Fixed & Verified
22	Solar Technician	Solar - VR	TV video shown in the TV model can be changed	Medium	Fixed & Verified
23	Solar Technician	Solar - VR	Tools disappears when the user is too close	Low	Fixed & Verified

24	Solar Technician	Solar - VR	When seated to check the battery and PCU, selecting any tools results in them appearing below the house icon, making it difficult to access and use them.	Low	Fixed & Verified

21.Appendix H : Meeting Minutes - Approval from NIMI Experts of the Fixes

1. Meeting Minutes

Review of Fixes suggested Students & Trainers during Pilot

Skill-eLabs for VET under SANKALP

Date: 19th – August -2024 (10:30 - 11.30am)

Location: Online - Zoom

Meeting Agenda

- **Review and Verification of Fixes suggested by Students and Trainers during deployment of the Pilot project at ITI / NSTI**

Attendees

- **NIMI Subject Matter Experts**
  - **Shri Bannibagi, Deputy Director, NSTI-R Hyderabad.**
  - **Shri Jayant Paul, Training Officer, NSTI Hyderabad.**
- **National Instructional Media Institute**
  - **Shri Senthil Kumar, Consultant - NIMI Chennai**
- **AMMACHI Labs, Amrita Vishwa Vidyapeetham**
  - **Shri Hari Kumar, Program Officer**
  - **Shri Aavish Mody, Project Co-ordinator**
  - **Ms.Devi Priya, Development Team**

Meeting Minutes:

1. **Opening Remarks: Shri Harikumar had welcomed all the participants and thanked both Sri Bannibagi Sir & Sri Jayant Paul Sir for their support and cooperation for their expertise from time to time to make this project successful, During the deployment at the two NSTIs and two Govt. ITI s, some fixes were informed by the students and trainers. The feedback was incorporated in the simulations by Amrita. The agenda for the meeting is to review the fixes made, so that the content may be finalized.**

2. **Review of corrections. The AMMACHI Labs development team explained and showcased the feedback and corrections A total of 24 feedbacks were identified in the simulations and all of them were corrected and each fixes corrected was briefed in detail with accompanying visuals. The list of feedbacks is shared along with this.**

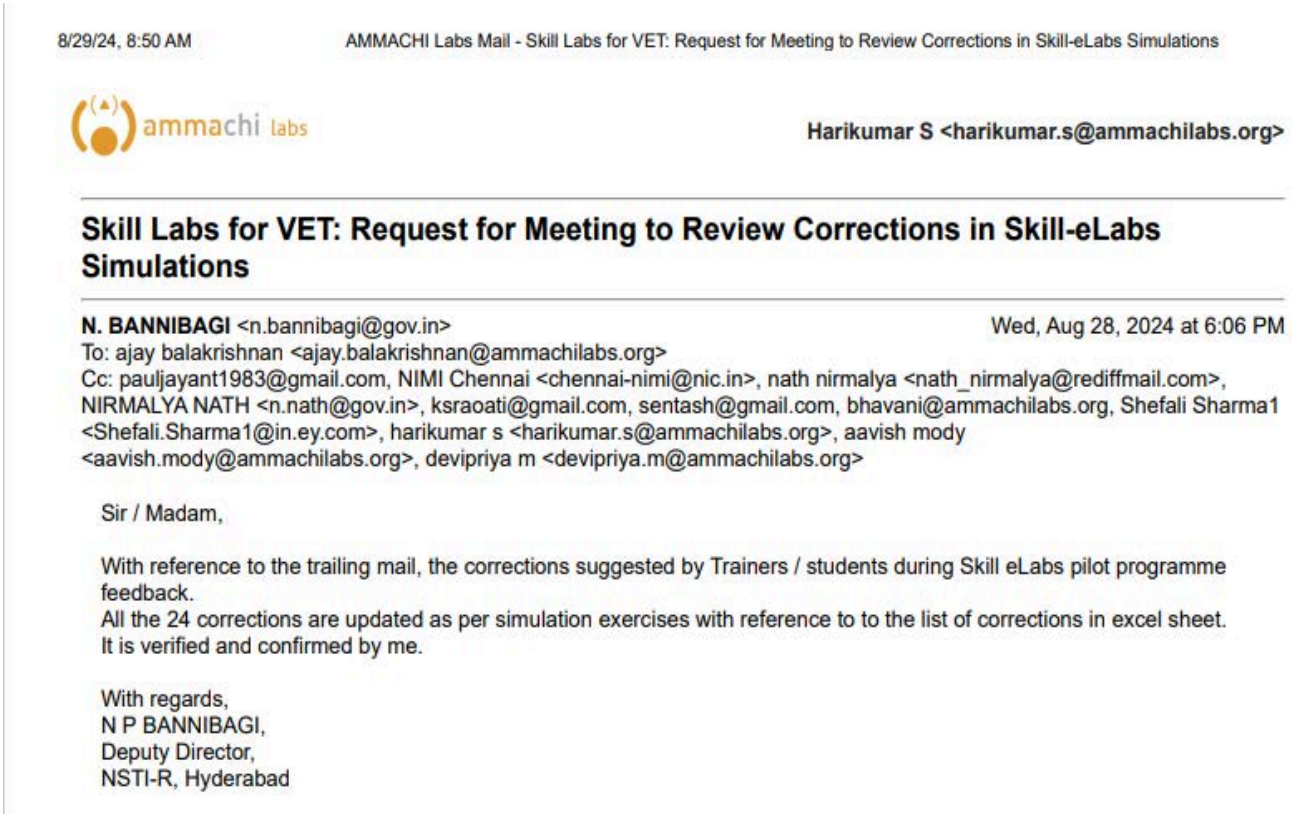
3. **NIMI SME Feedback: Both Bannibagi Sir and Jayant Paul sir expressed their satisfaction to the fixes. They requested to share Excel sheet of the list of the 24 Fixes reported by the students and Trainers.**

4. **Action Items**

   a. **Amrita Team to share the list of fixes to NIMI SMEs –Bannibagi sir and Jayant Paul sir**

   b. **NIMI SMEs to send the final confirmation by email by 23-August-2024**

2. Approval Mails from NIMI SMEs confirming the verification of the fixes.



8/29/24, 8:50 AM AMMACHI Labs Mail - Skill Labs for VET: Request for Meeting to Review Corrections in Skill-eLabs Simulations

ammachi labs

Harikumar S <harikumar.s@ammachilabs.org>

Skill Labs for VET: Request for Meeting to Review Corrections in Skill-eLabs Simulations

N. BANNIBAGI <n.bannibagi@gov.in> Wed, Aug 28, 2024 at 6:06 PM
To: ajay balakrishnan <ajay.balakrishnan@ammachilabs.org>
Cc: pauljayant1983@gmail.com, NIMI Chennai <chennai-nimi@nic.in>, nath nirmalya <nath_nirmalya@rediffmail.com>, NIRMALYA NATH <n.nath@gov.in>, ksraoati@gmail.com, sentash@gmail.com, bhavani@ammachilabs.org, Shefali Sharma1 <Shefali.Sharma1@in.ey.com>, harikumar s <harikumar.s@ammachilabs.org>, aavish mody <aavish.mody@ammachilabs.org>, devipriya m <devipriya.m@ammachilabs.org>

Sir / Madam,

With reference to the trailing mail, the corrections suggested by Trainers / students during Skill eLabs pilot programme feedback.
All the 24 corrections are updated as per simulation exercises with reference to to the list of corrections in excel sheet.
It is verified and confirmed by me.

With regards,
N P BANNIBAGI,
Deputy Director,
NSTI-R, Hyderabad

8/29/24, 8:54 AM AMMACHI Labs Mail - Skill Labs for VET Solar Technician: Request Review Corrections in Skill-eLabs Simulations

ammachi labs

Harikumar S <harikumar.s@ammachilabs.org>

Skill Labs for VET Solar Technician: Request Review Corrections in Skill-eLabs Simulations

Jayant Paul <pauljayant1983@gmail.com> Tue, Aug 27, 2024 at 9:55 AM
To: Harikumar S <harikumar.s@ammachilabs.org>

Skill Labs for VET done Corrections in Skill elabs Simulation successfully.kindly proceed for next steps.

With Regards,
Jayant Paul,
Training Officer,
National Skill Training Institute,
Vidyanagar, Hyderabad

SUBMITTED BY:

AMMACHILABS
AMRITA VISHWA VIDYAPEETHAM
24-OCTOBER-2024