Erasmus+ - Key Action 2

Capacity Building within the Field of Higher Education

eACCESS Project

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EU-Asia Collaboration for Accessible Education in Smart Power Systems

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TASK	T6.8 Exploitation of the laboratory facilities and implementation of horizontal student mobility
LEAD PARTNER	PU
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Executive Summary

EU-Asia Collaboration for Accessible Education in Smart Power Systems, shortly known as eACCESS, is an Erasmus+ project co-financed by the European Union. The project aimed to address knowledge and skills gaps in modern power systems within the identified Asian countries through knowledge dissemination, skill development and capacity building.

One of the main objectives of the eACCESS Project is to establish eACCESS Power Laboratories at four Asian partner universities. The project has provided technical and financial support to develop the Switchgear and Protection Laboratory at the Royal University of Bhutan (RUB), Bhutan, the Photovoltaic Laboratory at Atma Jaya Catholic University (ATM), Indonesia, the Microgrid Laboratory at Seogijapranata Catholic University (SCU), Indonesia, and Automation and Power Electronics Laboratory at Kantipur Engineering College (KEC), Nepal. These laboratories offer state-of-the-art resources and practical learning tools to complement the modernised Power and Electrical Engineering curriculum.

The project also supported the capacity building of students and staff members at the eACCESS laboratories of partner universities. To fulfil this objective, staff and students of one Asian institution visited the laboratories of another partner institution, where they had the opportunity to learn new skills. In this connection, four Pokhara University, Nepal students received training at the laboratories of the Royal University of Bhutan (RUB), Bhutan. Similarly, the other two students of Pokhara University, Nepal, got training at the laboratories of Soegijapranata Catholic University (SCU), Indonesia. Four staff members of Kantipur Engineering College (KEC), Nepal, were trained at the laboratories of Soegijapranata Catholic University (SCU), Indonesia. Atma Jaya Catholic University (ATM) students, Indonesia, travelled to Soegijapranata Catholic University (SCU), Indonesia, for training. In contrast, students from Soegijapranata Catholic University (SCU), Indonesia, visited Kantipur Engineering College (KEC), Nepal, for similar training.

1. eACCESS Laboratory Infrastructure

With the help of the eACCESS project, four laboratories were developed at the following Asian institutions: KEC, RUB, ATM, and SCU. These physical laboratory facilities create an excellent opportunity for hands-on experience for students, researchers doing their PhD studies, and professional staff from power companies who are attending complementary training within academia.

A summary of the laboratory developed by the different partner institutions is presented in Table 1.

Table 1: Laboratory developed by Asian partner universities.

S.N.	Partner Institution	Type of Laboratory
1	Royal University of Bhutan (RUB)	Switchgear and Protection Laboratory (eACCESS-SGPL)
2	Atma Jaya Catholic University (ATM)	Photovoltaic Laboratory (eACCESS-PVL)
3	Seogijapranata Catholic University (SCU)	Microgrid Laboratory (eACCESS-MGL)
4	Kantipur Engineering College (KEC)	Automation and Power Electronics Laboratory (eACCESS-APEL)

1.1 Switchgear and Protection Laboratory at the Royal University of Bhutan

Switchgear and Protection laboratory was established under the financial support of the project EU-Asia Collaboration for accessible Education in Smart Power Systems (eACCESS) of the European Union. This laboratory consists of Generator protection relays, Line protection relays, transformer protection relays, busbar protection relays, and the Relay test kit. This laboratory has the following principal equipment.

a) Bus Bar Protection Test Bench
b) Cmc356 Omicron Secondary Injection Kit
c) Distance/Line Protection Test Bench
d) Generator Protection Test Bench Manual
e) Transformer Protection Test Bench

More information about laboratory facilities developed by the eACCESS project at RUB can be found in deliverable D4.3 Building and commissioning of the eACCESS-SGPL laboratory.

1.2 Photovoltaic Laboratory at Atma Jaya Catholic University

Photovoltaic Laboratory was established under the financial support of the project EU-Asia Collaboration for Accessible Education in Smart Power Systems (eACCESS) of the European Union at Atma Jaya Catholic University of Indonesia (ATM). This PV laboratory shall help enrich the knowledge and understanding of undergraduates, technicians, and industrial power system professionals in designing, operating, and installing PV power systems. This laboratory has the following principal equipment.

a) PV Modules
b) Battery Bank
c) Solar Inverter
d) Bidirectional Inverter
e) Solar Charger Regulator
f) Monitoring System

More information about laboratory facilities developed by the eACCESS project at ATM can be found in deliverable **D4.5 Building and commissioning of the eACCESS-CSL laboratory**.

1.3 Microgrid Laboratory at Soegijapranata Catholic University

Microgrid was established under the financial support of the project EU-Asia Collaboration for accessible Education in Smart Power Systems (eACCESS) of the European Union at Soegijapranata Catholic University, Indonesia. This laboratory was built for higher education and industrial workshops. This is a microgrid with 5,4 kWp PV arrays and 14,4 kWh batteries connected to the utility (grid). This laboratory has the following principal equipment.

a) PV Modules
b) Batteries
c) PV Inverter
d) Battery Inverter
e) Home Manager
f) SCADA System

More information about laboratory facilities developed by the eACCESS project at SCU can be found in deliverable D4.4 Building and commissioning of the eACCESS-PEL laboratory.

1.4 Automation and Power Electronics Laboratory at Kantipur Engineering College

Automation Laboratory and Power Electronics Laboratory were established under the financial support of the project EU-Asia Collaboration for accessible Education in Smart Power Systems (eACCESS) of the European Union at Kantipur Engineering College, Nepal. The Automation Laboratory will help enrich the knowledge and understanding of undergraduates, technicians, and automation professionals in the field of automation. Power Electronics laboratory will help with laboratory exercises on different subjects like Power Electronics, Advance Electronics, Basic Electronics Engineering and Electronics Devices and Circuits.

1.4.1 Descriptions of Equipment: Automation Laboratory

The Automation Laboratory consist of PLC, HMI, SCADA, switches, sensors, VFDs and a robotic arm. Four sets of Siemens 1214C PLC training kits and four sets of two EX2 Delta PLC sets have been installed at KEC.

1.4.2 Descriptions of Equipment: Power Electronics Laboratory

The Power Electronics Laboratory consists of four sets of power electronic trainer kits for studying the characteristics of Power Electronics circuit elements like power diodes, thyristors, IGBT, TRIAC, rectifiers, and choppers.

More information about laboratory facilities developed by the eACCESS project at KEC can be found in deliverable **D4.2 Building and commissioning of the eACCESS-APEL laboratory.**

2. Virtualization of laboratory

Laboratories developed during the eACCESS project were made available digitally to students and staff via 360 Tours, 3D scanning, and a simple simulation of a PV system.

Taking inspiration from Wong et al. (2019), the pedagogy behind making the labs available digitally as 360 tours takes its roots from flipped learning and the potential advantages of this approach in addressing challenges in complex pedagogical applications within the engineering field (Mamun et al., 2022) as well as student engagement and satisfaction (Del Río-Gamero et al., 2022). Using 360 tours and videos for teaching is not new, and evidence suggests such tools benefit performance, motivation, and knowledge retention (Pirker and Dengel, 2021). Using 360 tours, 360 vidhours3D Scans and a simple PV simulation, students can undertake pre-session activities such as familiarizing themselves with what they will encounter within the lab and be prepared to undertake the practical exercises during the session. In the post-session, students can use the 360 videos to go through the lab sheet and the results obtained in the session, and they can reinforce where the equipment and controls are positioned within the laboratory.

2.1 360 Tours

Each 360 tour provides students with the visual layout of the laboratory equipment and information points about technical specifications and usage instructions for each equipment component (see Figure 1). These tours allow students to familiarise themselves with the laboratory environment before class, learn about the equipment and have an initial understanding of how it works. This understanding will then be reinforced during the practical lessons.

Figure 1. Examples of two of the 360 lab tours developed for the eACCESS project RUB laboratory.

Figure 2. Examples of two 360 lab tours developed for the eACCESS project KEC APEL-Industrial Automation laboratory.

2.2 3D Scans

The 3D scans (Figure 3) complement the 360 tours and videos by providing an overview of the laboratory layout.

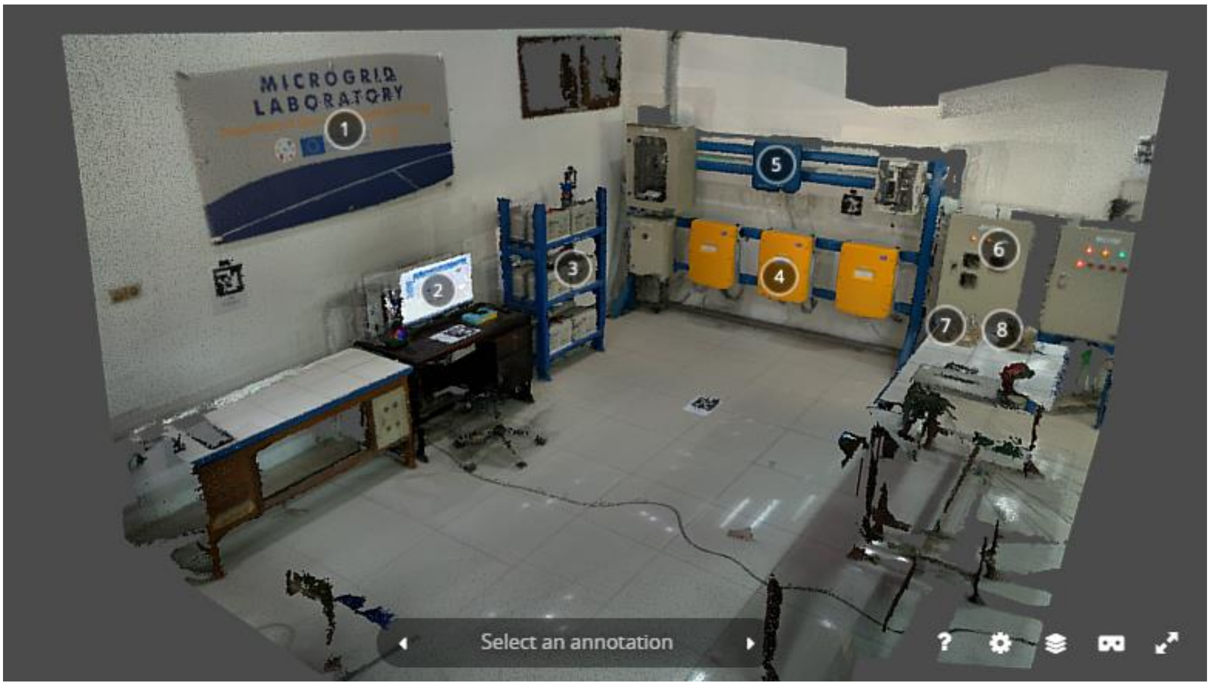


Figure 3 3D scan with tags of the SCU PV laboratory built via the eACCESS project.

2.3 Simple Interactive PV Simulation

In the web simulation, a simple interactive PV system allows students to direct the energy produced by the PV system to different loads, Figure 4.

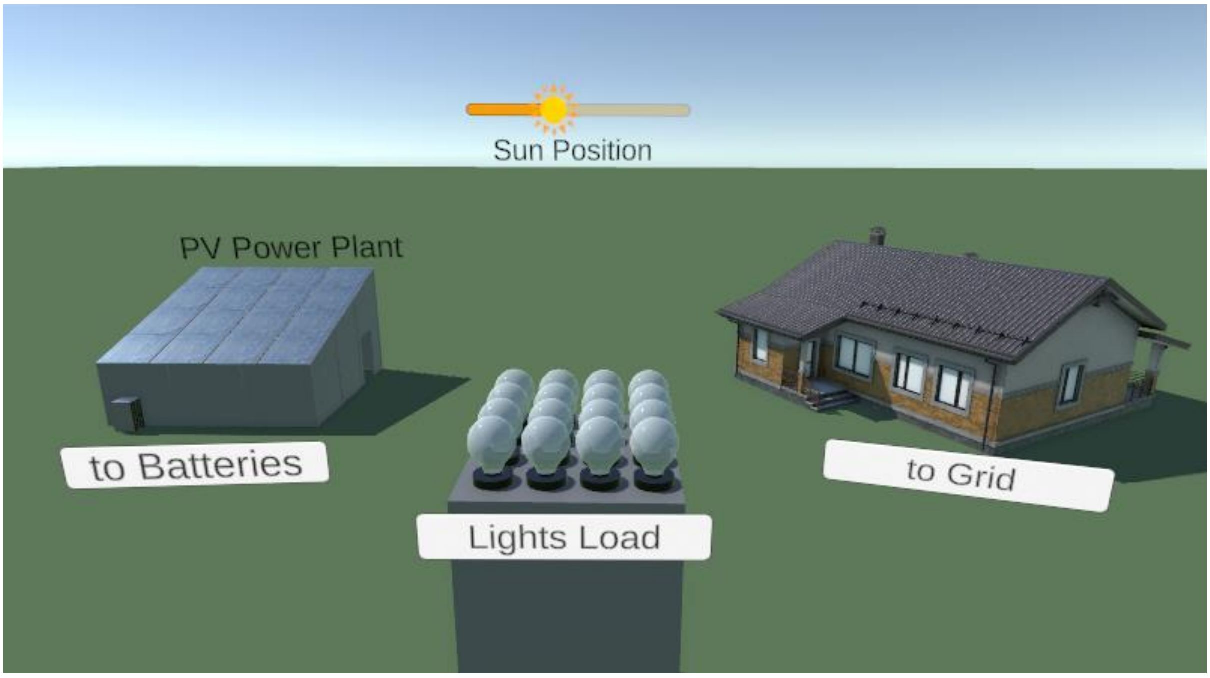


Figure 4: Simple simulation of PV Power system.

The following things were developed for each partner institution:

- Atma Jaya: 360 online tour, 360 introduction video, and interactive web application
- Soegijapranta Catholic University: 180 online tours, with online 3D scanning of the lab.
- Kantipur Engineering College: 360 online tours, with training video for the kits
- Royal University of Bhutan: 360 online tours, with online 3D scanning of the lab

2.4 Virtualization of Laboratory at KEC

The Virtualization of the Laboratory at Kantipur Engineering College (KEC) represents a significant advancement in practical education, particularly within automation and power electronics. Inspired by the Erasmus + eACCESS project, the University of West of Scotland (UWS), as a leading partner, collaborated with other partners to develop an innovative online platform to democratise access to laboratory experiences. This platform transcends geographical barriers and temporal constraints, offering users immersive 360-degree virtual tours and detailed video demonstrations of various equipment and experimental setups.

At the heart of the Virtual Laboratory's functionality are its interactive virtual tours, allowing users to explore the laboratory space from any angle. This feature fosters engagement and interactivity, enabling users to closely inspect equipment and experiment setups in a way that traditional learning modalities cannot provide. Through these virtual tours, users gain a deeper understanding of automation and power electronics concepts, paving the way for enhanced learning outcomes.

In addition to virtual tours, the Virtual Laboratory offers detailed video demonstrations for each featured kit, including the PLC trainer kit, Robotic Arm, Bench Power Supply, DIY PLC kit, and VFD training kit. These instructional videos serve as invaluable resources, guiding users through the practical application of theoretical concepts. By providing step-by-step guidance, the Virtual Laboratory empowers users to engage with the material at their own pace and convenience, facilitating a more personalized learning experience.

A key objective of the Virtual Laboratory is to enhance accessibility and inclusivity in education. By leveraging digital technologies, KEC ensures that physical constraints do not limit practical learning experiences. Students and enthusiasts from diverse backgrounds and geographical locations can easily

access the Virtual Laboratory, democratizing access to laboratory education. This inclusivity is particularly significant for regions with limited access to state-of-the-art laboratory facilities.
Moreover, the Virtual Laboratory catalyses capacity development in higher education. By embracing digitalization, KEC can augment traditional pedagogical approaches with innovative tools and methodologies. The Virtual Laboratory empowers educators to transcend the limitations of physical infrastructure, offering students enriched learning experiences that foster critical thinking, problem-solving, and experimentation. It equips the next generation of professionals with the skills and competencies needed to thrive in a rapidly evolving technological landscape.

The practical implications of laboratory's virtualisation extend beyond its digital confines. Usage statistics provide valuable insights into its efficacy and impact on learning outcomes. By analysing metrics such as user engagement, geographic reach, feedback, and learning outcomes, KEC can glean actionable insights that inform iterative improvements to the platform. This data-driven approach ensures that the Virtual Laboratory remains responsive to the evolving needs of its user community, maximizing its effectiveness as an educational tool.

In conclusion, the Virtualization of the Laboratory at Kantipur Engineering College (KEC) represents a transformative approach to practical education. By harnessing the power of digital technologies, KEC can transcend physical barriers and democratize access to laboratory experience. The Virtual Laboratory empowers learners to engage with course material through immersive virtual tours and video demonstrations in meaningful and impactful ways. As KEC continues to refine and optimize the platform, it remains committed to advancing the frontiers of education and equipping students with the skills and knowledge they need to succeed in the 21st century.

Detailed information on the virtual laboratory at KEC can be found at this link: https://eaccess-edu.eu/automation-and-power-electronics/.

2.5 Virtualization of Laboratory at RUB

Virtual modelling of the laboratory system has been an essential component of the eACCESS project. Virtualization has been part of the project initiative, thereby developing a new teaching and learning method, one of the first of its kind in Bhutan and the partner universities under the eACCESS project. The University of the West of Scotland (UWS) expertise supports virtualization, which leverages the latest advancements in computing technology.
The virtualization of the eACCESS-developed Switchgear and Protection laboratory at the Royal University of Bhutan has presented new methods of teaching where students readily have the laboratory information before coming to the class for discussion. It has enhanced the new pedagogical approach through the flipped classroom method, which was introduced in this project by the Technological University of Lodz (TUL), Poland. The basic principles of a flipped classroom teaching method are to deliver content outside of the class and to move active learning into the classroom. At the Switchgear and Protection laboratory, students are introduced to the learning materials using the virtualization tools before the class, and students are expected to come prepared for the physical laboratory for their experimental works.

This virtualization of the laboratory has been a part of the Electrical Engineering Department’s digital transformation activity, which aligns with the requirements of future power system technology in the country. The department is seeking the capacity to build a Real-Time Digital Simulator (RTDS) wherein a software simulation interacts in real time with physical equipment in the Switchgear and Protection laboratory. Thereby, the system is expected to interact with it in a realistic way.
The current list of equipment at the Switchgear and Protection laboratory consists of the CMC356 Omicron Secondary Injection Kit, Bus bar protection test bench, line protection test bench, Generator protection test bench and transformer protection test bench. All the equipment panels have digital relays, and they support the study of digital transformation in the energy industry. The students are expected to identify challenges and solutions by evaluating their impact on both power systems and environmental considerations. Students and working professionals in the industries could also test the

different models in the numerical simulation of power systems and test the simulation performance for load forecasting and control in energy systems.

The virtualization and digitization strategies of the current laboratory are expected to bring greater good in the field of power system operation and control and are expected to enhance the digitization of the electricity market in the region.

The detailed information on the virtual laboratory at RUB can be checked through this link: https://eaccess-edu.eu/eaccess-sgpl/

2.6 Virtualization of Laboratory at SCU

The virtualization of the laboratory established at SCU, supported by the eACCESS project, introduces the students to the major components present at the microgrid laboratory. Students get familiar with the components installed at the laboratory by virtualising the laboratory, where they can take a 360-degree tour with different components' names displayed on the screed. A sample demonstration is highlighted in the figures below to show how students get familiar with the lab equipment before they come to the lab.

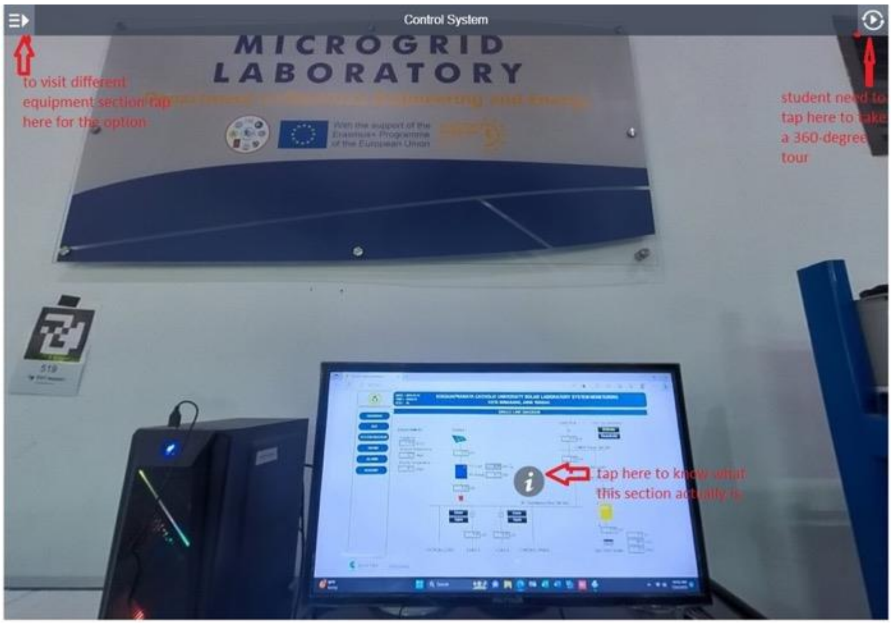


Figure 5: Instruction for the users on how to operate the virtualization at SCU.

Not only the information about the components presents at the laboratory but also a detailed description of the components present, what type of laboratory exercise they will perform, and a single-line diagram of the different test conditions they will perform at the laboratory.
The detailed information on the virtual laboratory of microgrid at SCU can be checked through this link: https://eaccess-edu.eu/eaccess-mgl/ .

2.7 Virtualisation of Laboratory at ATM

The virtualisation of the photovoltaic laboratory is an innovative step in developing electrical engineering education that allows students to learn and conduct experiments with solar energy systems virtually. In the context of the Electrical Engineering Program, Faculty of Engineering, Atma Jaya Catholic University of Indonesia (ATM), virtualisation of the photovoltaic laboratory aims to provide a dynamic and interactive learning environment for studying renewable energy technology.

With the virtualisation of the photovoltaic laboratory, students are not limited by the physical constraints of conventional laboratories. They can explore various configurations of photovoltaic systems, observe system responses to changes in environmental conditions, and test performance optimisation strategies without requiring expensive physical equipment.
This virtual laboratory will offer realistic simulations of converting solar energy into electrical energy, including the characteristics of solar panels, inverters, and power regulators. Students can access and manipulate data in real time, conduct virtual experiments, and analyse experiment results in depth.

Thus, virtualising the photovoltaic laboratory will be a valuable tool in learning renewable energy technology. It will allow students to develop a deep understanding of the basic principles, design, and operation of solar energy systems without being constrained by limitations of place and time.

2.7.1 Functions of the virtual laboratory

The photovoltaic virtual laboratory offers a range of functions designed to enhance students' learning and research experiences in the field of solar energy:

1. **Photovoltaic System Simulation**: Students can access realistic simulations of photovoltaic systems, allowing them to understand the basic principles of converting solar energy into electrical energy. They can explore various system configurations, learn about parameters, and observe system responses to changes in environmental conditions.
2. **Virtual Experiments**: The virtual laboratory facilitates practical experiments with photovoltaic systems without the need for physical equipment. Students can conduct various experiments, such as changing system configurations from on-grid, off-grid, or hybrid, and varying the types of loads on the PV system to understand their impact on system performance.
3. **Real-time Performance Monitoring**: The virtual system will provide real-time performance monitoring of the running photovoltaic system. Students can observe performance parameters such as voltage, current, and power generated by the system in real-time, allowing them to perform in-depth analysis of system performance.
4. **Interaction with Data**: Students will have access to data generated during experiments, both in graphical and tabular form. They can use this data to perform statistical analysis, compare experiment results, and identify relevant patterns or trends.
5. **Collaboration and Discussion**: The virtual laboratory will provide a platform for collaboration among students, both directly and through online discussion forums using Microsoft Teams. This will enable students to share experiences, exchange ideas, and solve problems together in a collaborative learning environment.

2.7.2 Features of virtualisation

Various features will be included in the virtualization of the photovoltaic laboratory at the Electrical Engineering Program, Faculty of Engineering, Atma Jaya Catholic University of Indonesia (ATM). These features have been designed to provide interactive, realistic, and in-depth learning experiences for students, allowing them to explore important concepts in solar energy technology without being limited by the constraints of conventional physical laboratories. With the available features, this virtual laboratory is expected to be a valuable tool in learning and research in renewable energy.

2.7.2.1 360 Online tours.

The 360 Online tour feature allows students to explore the photovoltaic laboratory virtually through a 360-degree online tour. With this feature, students can access the laboratory from anywhere with an internet connection, providing flexibility in learning as shown in Figure 6 and Figure 7. They will be able to view the laboratory from various perspectives and explore every detail of the equipment and facilities available.

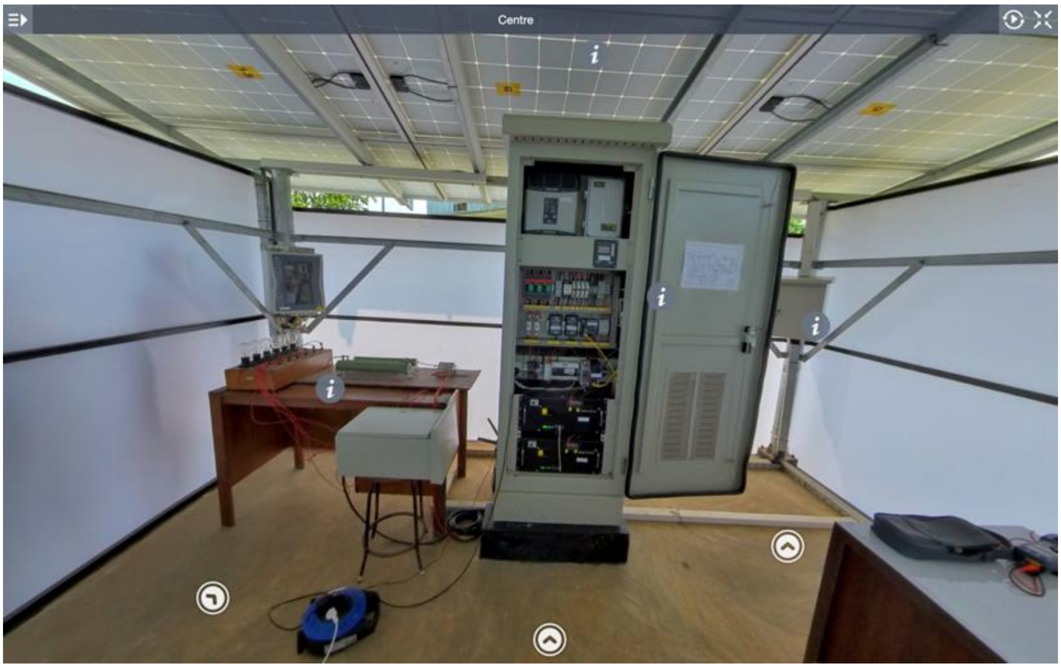


Figure 6 Example of Photovoltaic Laboratory in 360-degree view.

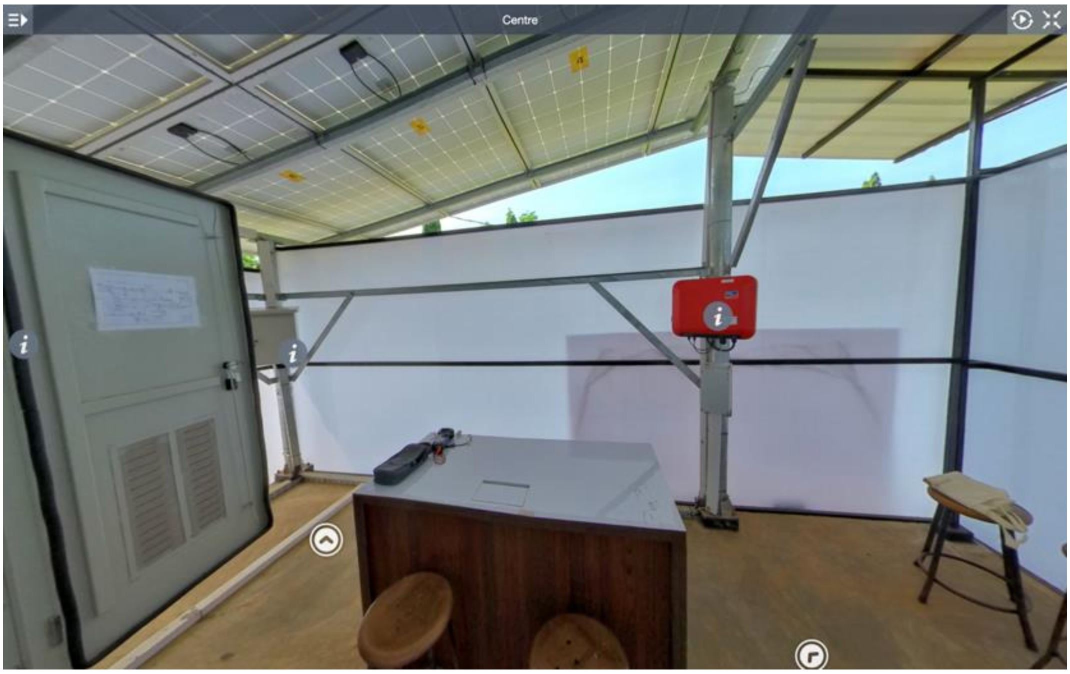


Figure 7 Another angle view of Photovoltaic Laboratory in 360-degree tour.

Furthermore, students can easily understand the functions of each component in the photovoltaic system as displayed in Figure 8 - Figure 11. Thus, this feature not only provides a deep learning experience but also offers accessibility for students who want to learn more about solar energy technology.

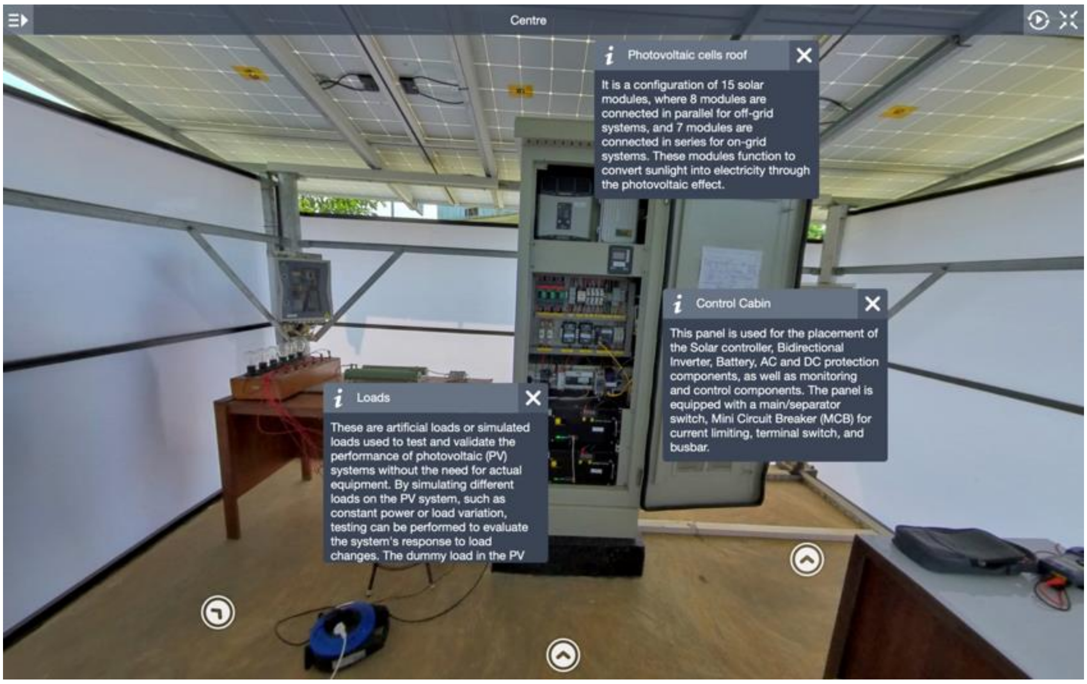


Figure 8 Pop-up on screen description of component and function in the ATM eACCESS laboratory. Main panel board.

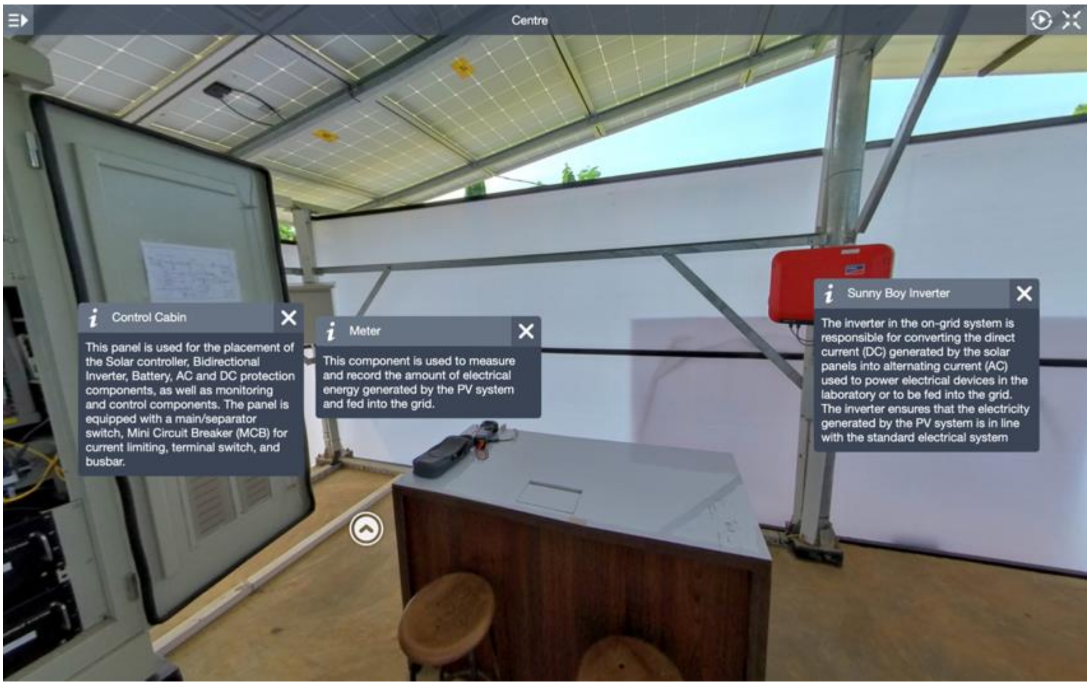


Figure 9. Control functions, motor load, 3f solar inverter and teacher's desk.

Figure 10 Description of the individual components of the AC and DC circuits, control panels and energy storage facilities.

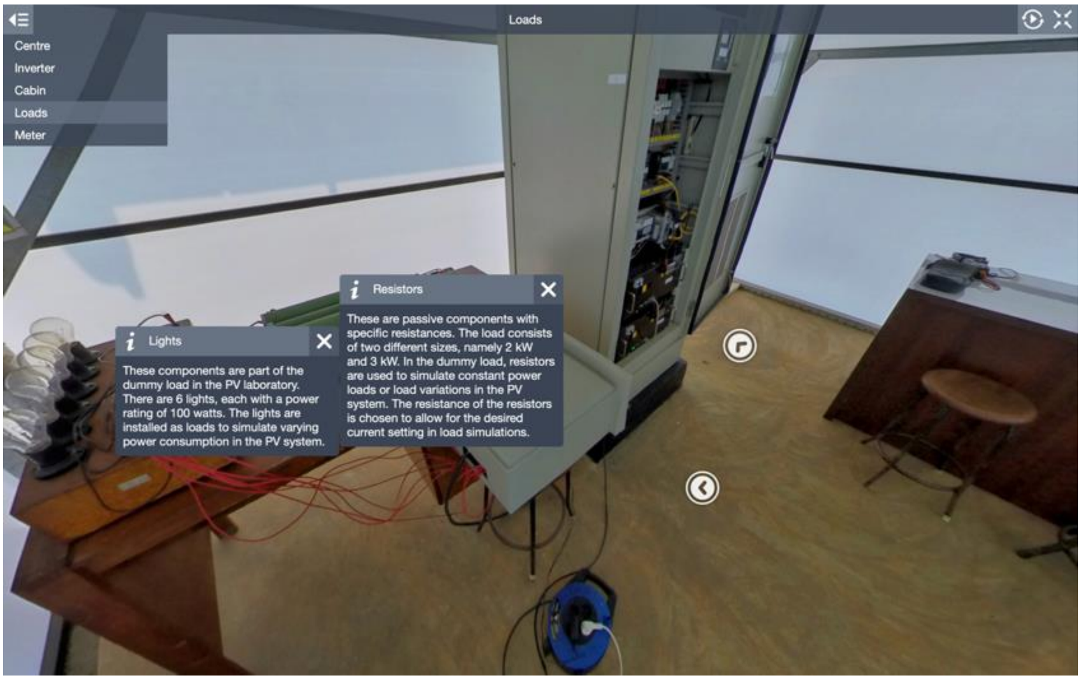


Figure 11 Presentation of the various type of electrical loads used in the laboratory exercise.

2.7.2.2 Introductory video

The 360 initial presentation video shooting includes an introduction to the photovoltaic laboratory through an interactive 360-degree video. In this video, students will be introduced to the photovoltaic laboratory, including various equipment and facilities inside it as shown in Figure 12. They will be able to interactively move their view, allowing them to explore the laboratory environment deeply. This video will also provide a general overview of the basic concepts in solar energy technology, preparing students for a deeper learning experience through the virtualization of the laboratory. Thus, this feature will provide an informative and engaging introduction to students before they embark on a deeper learning experience through the virtualization of the photovoltaic laboratory.

Figure 12 Introductory video as the part of the virtual visit to the eACCESS laboratory.

2.7.2.3 Interactive Web Application Tour

In the interactive web application tour, a simple PV system allows students to learn about how energy is generated by the PV system as shown in Figure 13.

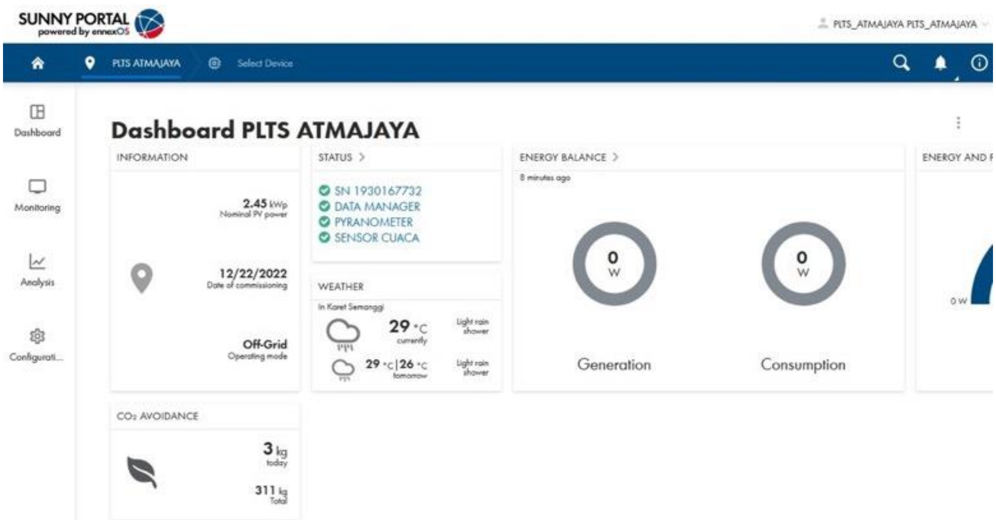


Figure 13 . Interactive website interface of the PV installation displaying real time information from the photovoltaic and storage system.

With this feature, students can interact directly with the photovoltaic system, understand how solar energy is converted into electrical energy, and flow the generated energy to various loads. Then, students can monitor parameters that play a role in the photovoltaic system such as current, voltage, power in DC or AC form, temperature, wind speed, and solar irradiance with daily, weekly, monthly, and even yearly time ranges as shown in Figure 14. This feature provides a valuable practical experience for students, allowing them to test and understand basic concepts in solar energy technology directly through interactive online simulations.

Figure 14 Presentation of solar electrical energy production data in the user interface.

2.7.2.4 Expanded statistical data analysis.

In the expanded use of statistics for the practical application of photovoltaic laboratory virtualization, we can explore several aspects that contribute significantly to the understanding and implementation of solar energy technology.

1. **System Performance Analysis**: Using expanded statistics, students can conduct in-depth analysis of virtual photovoltaic system performance. They can employ statistical methods to identify performance patterns, evaluate energy conversion efficiency, and compare experimental results with existing theoretical models.
2. **System Design Optimization**: By leveraging statistical techniques, students can optimize the design of photovoltaic systems to maximize performance and efficiency. They can use statistical analysis tools to identify system parameters that most influence overall performance and design experiments to test various system configurations.
3. **Performance Prediction**: The use of sophisticated statistical models allows students to make predictions about the performance of photovoltaic systems under various operational conditions. They can conduct regression analysis to predict energy output based on environmental variables such as sunlight intensity, temperature, and humidity.

In the development of the Virtualization of Photovoltaic Laboratory at the Electrical Engineering Program, Faculty of Engineering, Atma Jaya Catholic University of Indonesia (ATM), it is evident that this innovation not only provides broader accessibility for students to learn and experiment with solar energy technology but also enhances their learning experience using advanced digital technology. With this virtual laboratory, students are not confined by the physical limitations of conventional laboratories but can explore and understand complex concepts in solar energy technology from anywhere.
Through features such as 360-degree virtual tours, interactive videos, and online simulations, students can develop a deep understanding of the basic principles of converting solar energy into electricity. They can test various configurations of photovoltaic systems, understand the system's response to changes in environmental conditions, and conduct practical experiments without the need for expensive physical equipment. Moreover, this virtual laboratory also

provides flexibility for students to learn in a more interactive manner, allowing them to personalize their learning experiences according to their needs and interests.
Thus, the Virtualization of Photovoltaic Laboratory at ATM is not only a valuable tool in enhancing the quality of education in the field of electrical engineering but also a step forward in addressing future challenges in the field of renewable energy. By continually optimizing and developing this virtual laboratory, ATM can ensure that students are equipped with the skills and knowledge relevant to the needs of the industry and current technological advancements, enabling them to become future leaders in the field of solar energy and renewable energy.

3. Horizontal Mobility Program

The staff/student mobility programs were carried out under the eACCESS project to visit state-of-the-art laboratory facilities to get an excellent opportunity for hands-on training. The following table 2 summarizes the mobilities organized under the eACCESS project.

Table 2: Horizontal staff/students Mobilities under eACCESS

SN	Name of the Sender Institution	Name of the Host Institution	Staff / Student	Date and Duration of Mobility	Number of Participants
1	Pokhara University (PU), Nepal	Royal University of Bhutan (RUB), Bhutan	Students	Aug 22 to Sept 05, 2023; 14 days	4
2	Seogijapranata Catholic University (SCU), Indonesia	Kantipur Engineering College (KEC), Nepal	Students	Sep 24 to Oct 07, 2023; 14 days	5
3	Kantipur Engineering College (KEC), Nepal	Seogijapranata Catholic University (SCU), Indonesia	Staff	Oct 08 - 14, 2023; 7 days	4
4	Atma Jaya Catholic University (ATM), Indonesia	Seogijapranata Catholic University (SCU), Indonesia	Students	Oct 30 to Nov 12, 2023; 14 days	6
5	Pokhara University (PU), Nepal	Seogijapranata Catholic University (SCU), Indonesia	Students	Nov 02 - 12; 11 days	2

3.1 Pokhara University (PU) to Royal University of Bhutan (RUB)

The students of Pokhara University visited the Royal University of Bhutan from August 22, 2023, to Sept 05, 2023.

3.1.1 List of Activities Conduced During Mobility

Table 3: Practical exercises conducted in the eACCESS laboratory.

SN	Name of the Practical	Objectives of doing that Practical	Learning Outcomes of that Practical
1	Switchgear and protection	- Introduction and working of the numerical relay.	- Students learned the operation of the numerical relay.
2	Transformer Protection relay	- Explore transformer protection principles, including differential protection.	- Students learned how to implement Easergy Studio to obtain relevant output test signals.
3	Feeder Protection Relay	- Simulate electrical faults in the lab to understand how protection systems respond to different types of faults.	- Students can use the OMICRON CMC356 test kit to set up and test digital protection devices.

Table 4:Practical exercises conducted in the other laboratories.

SN	Name of the Practical	Objectives of doing that Practical	Learning Outcomes of that Practical

1	Load flow analysis	- To understand DigSilent PSA software performance regarding load flow calculations.	- Students became familiar with how to work with DigSilent. - Students knew the advantages of DigSilent over other PSA software.
2	Working of Program Logic Controller (PLC)	- To understand the working of components necessary for the power/signal to enter the substation.	- Students understand how PLC works.

Table 5: Lectures/Classes Attended by PU students at RUB.

SN	Name of the Topic	Objectives of the Lecture/Class	Learning Outcomes of that Lecture/Class
1	Power generation	- To encourage students to deliver the presentation according to the topic.	- Students participation plays a vital role in increasing their self-confidence.
2	Insulation coordination in high voltage.	- To understand the coordination of different HV equipment for minimal damage in case of minimum failure.	- Equipment must be coordinated based on the volt-time curve, i.e. the fault should damage the least expensive equipment.
3	Switchgear and protection	- To understand the different relay properties.	- Understood different relay working principles.

Table 6: Technical visits planned by RUB for the PU students.

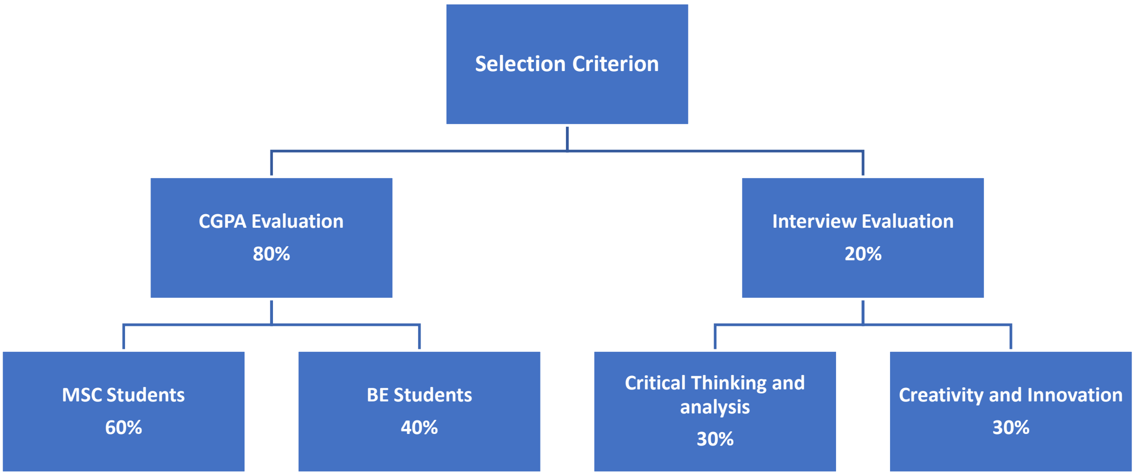
SN	Name of the Location/Plant Visited	Objectives of the Visit	Learning Outcomes of that Visit
1	Chukha hydro plant	- To demonstrate how an old power plant works.	- To access how the old power plant works, where most control functions were done manually.
2	Basochu lower stage and Basochu upper stage	- To understand the working of cascaded power plant	- They operate the lower Basochu power plant from the upper stage power plant tail race, which is a very efficient way to manage it.
3	Solar power plant (Ruebisa, Wangdue)	- To understand the operation of solar power plants.	- To understand the DC conversion to AC.
4	Wind power plant. (Ruebisa, Wangdue)	- To understand the operation of wind power plants.	- To understand the conversion OF variable frequency AC to fixed frequency AC
5	Semtokha Substation	- To understand the working and operation of the substation	- To understand how components work regarding the conversion of HV to distribution voltage.

Social activities are held during student/staff mobility.

- We were invited to the Thanksgiving program conducted by 3rd-year students, where they performed their cultural program.
- After completing our course objectives, we trekked to Tiger Nest with Manoj Sharma.

3.1.2 Students' Selection Procedure and Profile

The university published a formal notice outlining the following selection criteria for selecting the students for the eACCESS mobility program.



The university has selected the following four students using the following criteria.

Table 7: Students from PU selected for the training conducted at RUB.

SN	Name	Program/Semester	PU Registration Number	Contact E-mail
1	Sumira Rijal	Master of Science in Electrical Engineering in Power System/ Second Semester	2022-1-91-0014	rijalsumira554@gmail.com;
2	Saurav Thapa	Master of Science in Electrical Engineering in Power System/ Second Semester	2022-1-91-0012	sauravthapa4444@gmail.com;
3	Aashish Thapa Chhetri	Bachelor of Electrical and Electronics Engineering/ Eighth Semester	2018-1-48-0046	chhetri22thapa@gmail.com;
4	Amit Kumar Chaudhary	Bachelor of Electrical and Electronics Engineering/ Eighth Semester	2018-1-48-0049	amitkumarc920@gmail.com;

3.1.3 Profile of the Trainers

Table 8: Profile of the trainers from RUB

SN	Name of the Trainer	Photo	Designation	Academic Qualification	Contact E-mail
1	Manoj Sharma		Head of Department, Electrical and Renewable Energy at College of Science and Technology, RUB	Master's degree: Computerized Control of Electrical Technologies, Control and Automation	manojsharma.cst@rub.edu.bt;
2	Cheku Dorji		Assistant Professor at College of Science and Technology, RUB	Master in Technology, Power and Energy Systems	chekudorji.cst@rub.edu.bt;
3	Bikram Chhetri		Lecturer at College of Science and Technology, RUB	Master's degree: Computerized Control of Electrical Technologies, Control and Automation	bikramchhetri.cst@rub.edu.bt;

3.1.4 Agenda of Mobility

The following program schedule was implemented by the Royal University of Bhutan so that the students could exploit the laboratory facilities established at RUB under the support of the eACCESS project.

Sl. No	From	To	Date	eACCESS Task	Remarks
1	Paro	P/ling	22/8/23 Tuesday	Arrival in Paro Airport Travel to CST (Travel Time: 5 Hrs Max)	
2	P/ling	P/ling	23/8/2023, Wednesday	Course at CST, Switchgear and protection	Bikram Chhetri, Lecturer, CST will deliver the course
3	P/ling	P/ling	24/8/2023 Thursday	Course at CST Switchgear and Protection	
4	P/ling	P/ling	25/8/2023 Friday	Course at CST, Practical on Switchgear and protection	
5	P/ling	P/ling	26/8/2023 Saturday	Day off	
6	P/ling	P/ling	27/8/2023 Sunday	Course at CST, Power generation	Manoj Sharma, Lecturer, CST will deliver the course.
7	P/ling	P/ling	28/8/2023, Monday	Course at CST, Power generation	
8	P/ling	P/ling	29/8/2023, Tuesday	Course at CST, High voltage Engineering	Namgay Tenzin, Lecturer, CST will deliver the course.
9	P/ling	P/ling	30/8/2023, Wednesday	Course at CST, High voltage Engineering	
10	P/ling	P/ling	31/8/2023, Thursday	Course at CST, Power system Analysis	Cheku Dorji, Asst. Professor, CST will deliver the course.
11	P/ling	P/ling	1/9/2023 Friday	Course at CST, Power system Analysis	
12	P/ling	Thimphu	2/9/2023 Saturday	Industrial tour along with third year CST electrical students. Visit CHP and Semtokha Substation.	Manoj Sharma, Lecturer will guide exchange students.
13	Thimphu	Wangdue Phodrang	3/9/2023 Sunday	PHPA-1 and PHPA II	
14	Wangdue Phodrang	Wangdue Phodrang	4/9/2023, Monday	Basochu HP, Rubesa Wind farm and solar power plant	
15	Wangdue	Thimphu, Paro	5/9/2023	Genekha, CST's smart greenhouse project site visit	
16	Paro	Kathmandu	6/9/2023	Exit Paro & Return to Kathmandu	See off.

Figure 15: The detailed program schedule for the mobility program planned by RUB.

3.1.5 Added Value Due to eACCESS Mobility Program

Since Nepal and Bhutan rely heavily on hydropower, the mobility program had a significant positive impact on us because the equipment set up in the lab demonstrates our power industry.

A Switchgear and Protection Lab, equipped with devices like generators, distance relays, and transformer protection relays, provides hands-on training and experimentation opportunities for students or professionals in electrical engineering. Here are some outcomes that we gained from such a lab:

i) Understanding of Switchgear Components
- Gain knowledge about various switchgear components, such as circuit breakers, isolators, and busbars.
- Learn how to assemble and connect different switchgear components in a practical setting.

ii) Practical Relay Testing

- Learn the principles of relay operation and the different types of relays used in protection systems.
- Gain hands-on experience testing and configuring protection relays for generators, transformers, and other power system components.

iii) Fault Simulation and Analysis
- Simulate electrical faults in the lab to understand how protection systems respond to different types of faults.
- Analyse fault data and study the behaviour of protective relays during fault conditions.

iv) Generator Protection
- Study and implement generator protection schemes, including overcurrent, overvoltage, and differential protection.
- Understand the importance of generator protection in maintaining system stability.

v) Transformer Protection
- Explore transformer protection principles, including differential protection and Buchholz relay application.
- Set up and test transformer protection schemes using appropriate relays and equipment.

vi) Distance Protection
- Experiment with distance protection relays to understand their role in protecting transmission lines.
- Configure and test distance relay settings for proper coordination and selectivity.

vii) System Coordination Studies
- Coordinate studies are performed to ensure that protective devices operate in a coordinated manner to isolate faults while minimizing disruption to the power system.
- Analyse relay coordination curves and settings to optimize the protection scheme.

viii) Troubleshooting Skills
- Develop skills in troubleshooting and diagnosing issues related to switchgear and protection systems.
- Learn how to identify and rectify faults or malfunctions in the protection scheme.

ix) Interdisciplinary Learning
- Gain interdisciplinary knowledge by integrating concepts from power systems, control systems, and electronics in the context of switchgear and protection.

x) Safety Practices
- Emphasize and practice safety procedures for working with high-voltage equipment and protective devices.
- Develop an understanding of the importance of safety in the operation and maintenance of power systems.

Overall, a Switchgear and Protection Lab provides a practical and immersive environment for individuals to bridge the gap between theoretical knowledge and real-world applications in power systems and electrical engineering.

3.1.6 eACCESS laboratory infrastructure at the host institution and the use of this laboratory for professional courses

There is a Switchgear and Protection lab at CST, RUB, which has been used for:

- Digital protection devices are installed in laboratory are used for practical use by the students. This laboratory is developed following the pattern of the typical HV substations in Bhutan.
- Eseargy Studio software is used to set the relay through the programming.

Switchgear and Protection laboratory as the newly developed laboratory consists of:

- generator protection relays,
- distance protection devices,
- transformer protection relays,
- feeder protection relays,
- relay test kit.

3.1.7 Certificates and Attendance of Students

Certificates were granted to students who participated in the training after completing the training. The sample format of the certificate provided by RUB to students from PU is presented in Appendix 5.1.1. During the training period at RUB, students' attendance from PU was recorded, as provided in Appendix section 5.2.1.

3.1.8 Host Institution's Feedback about Students.

RUB's response to the students from the PU who participated in the exchange program was collected through a questionnaire survey. Six questions were asked in net promoter score format, in which 1 represents the worst and 10 represents the best. Analysing the responses from the host institution, the students attending the exchange program considered that the mobility programme was up to their expectations, as they provided a score of 10. Also, the instructors from the host institution found that students from PU actively participated in the training and social activities developed for the exchange program period, adapting to a new cultural environment and engaging in nature in practical classes. Detailed information regarding the feedback from the host institution is presented in Appendix 5.3.1.

3.1.9 Students' Feedback About Host Institution

Feedback about the host institution from the students attending the exchange program is also taken. The detailed response of the students is provided in Appendix section 5.3.2. As per the response obtained, the students found that the mobility program met their expectations and was clearly presented and logically structured. In addition, the instructors developed and delivered the course effectively, which helped to engage the participants during the exchange program. Furthermore, the delivered course encouraged the participants to help and take responsibility in the field of training given to the students.

3.1.10 Photographs Related to the Program

Figure 16: Visiting students participate in switchgear and protection class.

Figure 17: Practical classes at the switchgear and protection laboratory at RUB.

Figure 18: Attending proposal defence of 7th-semester electrical engineering students.

Figure 19: A photo session with Electrical faculty members.

Figure 20: Photo session after lab visit with Gom Dorji (Faculty Member)

Figure 21: Field Visit at Basochu lower stage power plant.

Figure 22: Group photo with third-year student at Basochu upper stage power plant.

Figure 23: Ruebisa, Wangdue, where solar and wind power plants were installed.

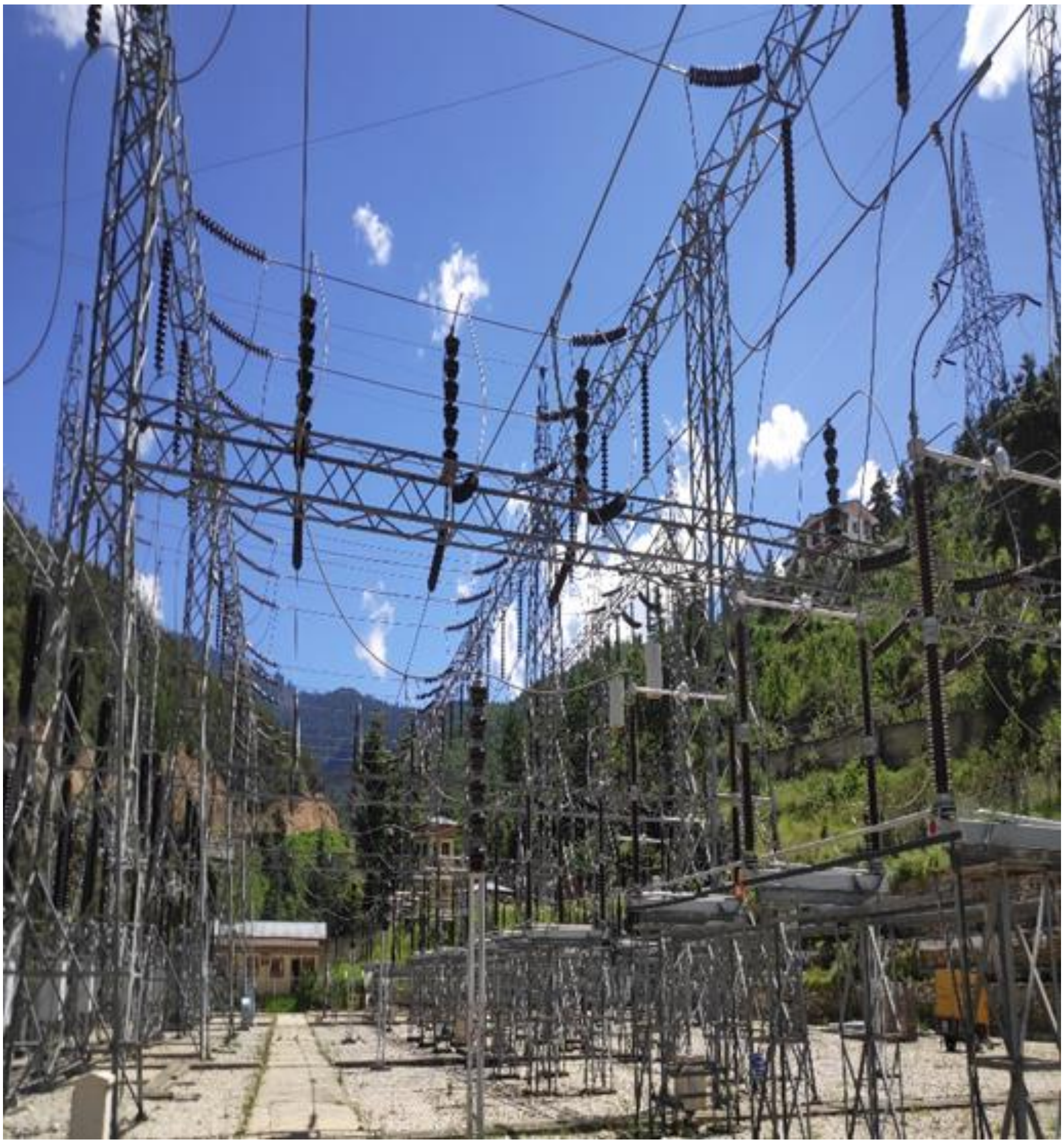


Figure 24: Field visit at the Semtokha substation.

Figure 25: Panel Board at the Semtokha substation.

Figure 26: Group picture with Manoj Sharma (Faculty Member) at Semtokha substation.

Figure 27: Outing at Tiger Nest with Manoj Sharma (Faculty Member)

3.2 Seogijapranata Catholic University, Indonesia to Kantipur Engineering College, Nepal

Soegijapranata Catholic University (SCU) students visited Kantipur Engineering College (KEC) from Sep 24, 2023, to Oct 07, 2023. The primary focus of mobility was laboratory training in the KEC laboratory.

3.2.1 List of Activities Conduced During Mobility

Table 9: Practical exercises conducted in the eACCESS laboratories.

SN	Name of the Practical	Objectives of doing that Practical	Learning Outcomes of that Practical
1	Six-day Automation Training	- To understand switchgear and relay logic. - Familiarize yourself with electrical control panel components and layout interpretation. - To gain an in-depth comprehension of variable frequency drives (VFDs) and motor control principles.	- Comprehensive understanding of switchgear and relay logic for efficient electrical equipment control and protection. - Proficiency in interpreting and troubleshooting electrical control panels, enhancing operational efficiency. - Competence in utilizing Variable Frequency Drives (VFDs) for improved motor performance and energy efficiency. - Enhanced skills in VFD programming and configuration, enabling tailored motor control system design for diverse operational requirements.
2	Study of Power Electronics components	- To study MOSFET, IGBT and rectifier	- Understanding of the characteristics of MOSFET - Understanding of the characteristics of IGBT - Understanding of the working of rectifier

Table 10: Practical exercises conducted in the other laboratories.

SN	Name of the Practical	Objectives of doing that Practical	Learning Outcomes of that Practical
1	Transformer Testing	To understand the turn ratio test, OC test and SC test	- Explain the purpose and procedure of the turn ratio test. - Describe the purpose and procedure of the OC (Open Circuit) test. - Outline the purpose and procedure of the SC (Short Circuit) test.

2	Transient Response	- To get familiarization with the transient response of first order and second-order circuit	- Understand the transient response of first-order circuits, including RC and RL circuits. - Analyze the behaviour of first-order circuits during a transient response, considering time constants and initial conditions. - Explore the transient response of second-order circuits, including RLC circuits. - Analyze the behaviour of second-order circuits during a transient response, considering damping ratio, natural frequency, and initial conditions
3	Simulation on Microprocessor	- To simulate the 8085 microprocessors	- Set up a simulation environment for the 8085 microprocessors, including selecting appropriate software tools or emulators. - Execute instructions on the simulated 8085 microprocessor, demonstrating an understanding of its architecture and instruction set. - Analyse simulation results to verify the correctness and functionality of the executed instructions. - Troubleshoot and debug simulation issues effectively to ensure accurate emulation of the 8085 microprocessor's behaviour.
4.	Control System and its application	- To study open loop and closed loop control system	- Differentiate between open-loop and closed-loop control systems. - Analyse the advantages and disadvantages of open-loop and closed-loop control systems.
5.	Study of Sensor	- To understand the working of sensors	- Identify common types of sensors and their functionalities. - Demonstrate an understanding of how sensors work in various applications through practical examples.

Table 11: Lectures/Classes Attended

SN	Name of the Topic	Objectives of the Lecture/Class	Learning Outcomes of that Lecture/Class
1	Industrial Automation	- To understand switchgear and relay logic, electrical	- Familiarization with switchgear and relay logic.

		control panel, VFD programming	- Demonstrate understanding of electrical control panel, VFD programming

Table 12: Technical Visits planned by KEC for SCU students.

SN	Name of the Location/Plant Visited	Objectives of the Visit	Learning Outcomes of that Visit
1	Matatirtha Substation Visit	- To understand the components of electrical substations - To get familiarization with the necessities of electrical substation	- Describe the purpose and function of the Mathatirtha electrical substation. - Identify the components and infrastructure present within the substation. - Explain the significance and necessity of the substation in the electrical distribution system.

Table 13: Other Activities Conducted During Mobility by KEC for the SCU students.

SN	Name of the Topic	Objectives of the Lecture/Class	Learning Outcomes of that Lecture/Class
1	Student Club visit	To get familiarization with electronics and computer club about their operation.	- Identify activities and events organized by the electronics and computer club. - Understand available resources within the club. - Recognize the benefits of participation, including skill development and networking opportunities.

3.2.2 Students' Selection Procedure and Profile

The following steps were followed for students' selection.

1. KEC and SCU agree to write a memorandum of understanding (MoU)
2. After finalising bilateral MoU, both KEC and SCU find the proper date for mobility.
3. SCU select nomination/candidate of staff to send to KEC based on capability and SCU's need for development.
4. SCU send nominations to KEC.
5. KEC asses all the requirements, including administration documents such as Passport validity. Then KEC send an invitation letter to SCU
6. SCU send students to KEC.
7. After student mobility is finished, both KEC and SCU write a report and feedback.

Table 14: Name lists of the students selected from SCU for the mobility program.

S.N.	Name of the Student	Level / Program
1	Akhiles Krisna S	Student of Electrical Engineering in Semester VI
2	Airel Dara S	Student of Electrical Engineering in Semester IV
3	Ricky Jose	Student of Electrical Engineering in Semester IV

4	Dimas Ragil	Student of Electrical Engineering in Semester VI
5	Gracia Amelia	Student of Electrical Engineering in Semester IV

3.2.3 Profile of the Trainers

Table 15: Profile of the trainers from KEC

SN	Name of the Trainer	Photo	Designation	Academic Qualification	Contact E-mail
1	Anup KC		Sr. Lecturer /Deputy HoD	Bachelor in Electronics and Communication	anupkc@kec.edu.np
2	Sagar Khadka		Lecturer	Masters in Energy Management	sagar@kec.edu.np
3	Bishal Rimal		Sr. Lecturer	MSc. in Renewable Energy Engineering	bishalrimal@kec.edu.np
4	Sabin Kasula		Lecturer	Bachelor in Electrical Engineering	sabinkasula@kec.edu.np
5	Pralhad Chapagain		Sr. Lecturer	M. Sc. In Computer Science	pralhadchapagain@kec.edu.np
6	Krishna Keshav Chaudhary		Industrial Expert		krishna@thoplomachine.com

3.2.4 Agenda of Mobility

With the support of the Erasmus+ Programme of the European Union

Agenda

Student Training SCU to KEC

Date: 24th Sep 2023 to 7th Oct 2023

Venue: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

Day	Date	Events	Remarks
Day 1	24th Sep	Arival at Kathmandu	
Day 2	25th Sep	Orientation Day:Orientation about college, laboratories, student clubs and departments	
Day 3	26th Sep	Laboratory Exercises in Electrical Engineering (Circuit Theory and Electric Machine)	
Day 4	27th Sep	Laboratory Exercises in Electrical Engineering(Simulation excersices: Microprocessor, Control System and Instrumentation)	
Day 5	28th Sep	Visit to Load Dispatch Center, Syuchatar Kathmandu	
Day 6	29th Sep	Self Exploration of new culture experiencing local traditions	
Day 7	30th Sep	Self Exploration of new culture experiencing local traditions	
Day 8	1st Oct	Orientation to APEL Lab	
Day 9	2nd Oct	Exercises on Automation Lab	
Day 10	3rd Oct	Exercises on Automation Lab	
Day 11	4th Oct	Exercises on Automation Lab	
Day 12	5th Oct	Exercises on Power Electronics Lab	
Day 13	6th Oct	Farewell from KEC	
Day 14	7th Oct	Depatrure from Kathmandu	

Figure 28: A detailed plan of the mobility programme organized by the KEC.

3.2.5 Value Addition due to eACCESS Mobility Program

The eACCESS Mobility Program has proven to be an invaluable experience, providing diverse benefits and significant added value from the perspective of the sending institution and the participating students.

From the Sending Institution's Perspective:

1. Students learn how to communicate with foreign students.
2. Improvement of student capacity on power system
3. Strengthen collaboration.

From the Students' Perspective:

1. They can improve their capability and experiment in the new KEC lab.
2. Fluent in their English by communicating in English every day.
3. Having international experience

3.2.6 Certificates and Attendance of Students

The sample format of the certificate of completion provided by KEC to the students from SCU is provided in Appendix 5.1.2. All four students have received the certificate of completion. The student attendance records are included in Appendix 5.2.3 throughout the training period.

3.2.7 Teaching/Training Materials

Teaching/Training Materials encompass a variety of resources utilized during the eACCESS Mobility Program:

A. Training Resources 1: Relay, Contactor, Timer, Proximity sensor and Preprogramed Controller
B. Training Resources 2: Projects: Automation of object counting and packaging system and Greenhouse temperature monitoring and controlling system.
C. Training resources 3: Motor Starter
D. Training resources 4: VFD configuration guide

3.2.8 eACCESS laboratory infrastructure at the host institution and the use of this laboratory for professional courses

Under Pillar III in Erasmus+ Capacity Building for Higher Education, eACCESS project, Kantipur Engineering College has installed an Automation Laboratory and Power Electronics Laboratory. The automation laboratory will help enrich the knowledge and understanding of undergraduates, technicians, and automation professionals in the field of automation.

Automation is continuously emerging with innovative methodologies, technologies, and practices, so KEC has recently installed an Automation Laboratory fully equipped with PLC and integral switchgear components. The primary goal of this laboratory goes beyond the mere execution of experiments for engineering students. It is intended to operate as a valuable resource for our country, facilitating the enhancement of practical knowledge in the field of automation for interested technical human resources. So KEC is conducting a Training Course to enrich the understanding practically.

Switchgear and automation training sessions serve several purposes. Firstly, it prioritizes safety by educating participants on safe practices when working with electrical systems. It imparts technical knowledge about switchgear and automation, including components, operation principles, and maintenance requirements. Furthermore, it equips trainees with the skills to troubleshoot and maintain these systems efficiently while optimizing energy use and ensuring compliance with industry standards.

Objectives:

- Comprehensive understanding of switchgear and relay logic.
- Familiarity with electrical control panel components and layout interpretation.
- In-depth comprehension of Variable Frequency Drives (VFDs) and motor control principles.
- Knowledge of VFD programming and configuration for specific applications

Learning Outcomes:

- Comprehensive understanding of switchgear and relay logic for efficient electrical equipment control and protection.
- Proficiency in interpreting and troubleshooting electrical control panels, enhancing operational efficiency.
- Competence in utilizing Variable Frequency Drives (VFDs) for improved motor performance and energy efficiency.
- Enhanced VFD programming and configuration skills, enabling tailored motor control system design for diverse operational requirements.

Skill outcomes:

- **Troubleshooting Expertise:** Ability to swiftly identify and resolve various electrical components and systems-related issues.
- **System Integration Proficiency:** Capability to seamlessly integrate multiple electrical systems for efficient automation in the laboratory.

- **Effective Programming Skills:** Proficiency in programming VFDs and understanding relay logic for creating efficient automation programs.
- **Adaptive System Design:** Aptitude to design customized automation systems tailored to specific laboratory experiments and projects.

3.2.9 Host Institution's Feedback about Student

The testimony about the host institutions (KEC) from students who participated in the exchange program is available below.

Mr. Akhiles Krisna Damarjati Santoso:
Throughout the 6-day training in the Automation laboratory and the other session at the Electric Machine, microprocessor, Power Electronics, and Instrumentation Laboratory, Mr. Santoso's active involvement and unwavering enthusiasm were truly commendable. His consistent eagerness to delve deeper into the practical applications of the theoretical concepts showcased a strong commitment to understanding the intricacies of automation technology and electric machines. His proactive engagement with the equipment, coupled with his problem-solving skills during the sessions, reflected not only a solid grasp of the subject matter but also a genuine passion for hands-on learning and experimentation in the field of electric machines.

Mrs. Airel Dara Swastika:
During the program, Mrs. Swastika's consistent enthusiasm and active participation in both the Automation laboratory training, the one-day session at the Power Electronics Laboratory, and the Electric Machine Laboratory were highly impressive. Her eagerness to explore the technical nuances in various areas and her insightful contributions to discussions indicated a strong interest in the intersection of theoretical knowledge and practical applications in the realm of electric machines. Notably, her willingness to collaborate with peers and her demonstrated ability to apply complex theoretical concepts to real-world scenarios underscored her potential as a promising future innovator in the field, equipped with comprehensive knowledge across multiple areas of study.

Mr. Dimas Ragil Yanuardi:
Throughout the field visit and the one-day training at the Electric Machine Laboratory, Mr. Yanuardi's inquisitive approach and valuable insights significantly enriched the overall learning experience. His active engagement with industry professionals and his ability to connect classroom learning with on-site observations exemplified a genuine commitment to understanding the practical implications of theoretical concepts, both in automation and electric machines. Notably, his thoughtful inquiries and astute observations during the visit and the laboratory session not only reflected a deep understanding of the subject matter but also highlighted his potential as a future leader capable of navigating the intricacies of the industry landscape in multiple technical domains.

Mrs. Gracia Amelia Atady:
Mrs Atady's exceptional grasp of technical concepts and her dedicated participation in the micropower laboratory session and the Electric Machine Laboratory were truly commendable. Her remarkable ability to quickly comprehend complex technical processes in different areas and her adeptness in handling intricate laboratory equipment showcased a genuine passion for exploring the depths of advanced technology, including electric machines. Notably, her proactive engagement with the experiments and her evident curiosity in exploring innovations across various technical domains underscored her potential as a driven and innovative contributor to the field of technology and automation, equipped with a comprehensive understanding of electric machines and related areas.

Mr. Ricky Jose Andreas:
Mr. Andreas's sincere immersion in the local traditions and culture exploration during the two-day program, combined with his active participation in the Electric Machine Laboratory, provided a valuable cultural perspective and technical experience to the entire mobility program. His genuine

interest in embracing diversity and his respectful engagement with local communities underscored a deep appreciation for the richness of different cultural heritages. In contrast, his engagement in the laboratory demonstrated a holistic understanding of diverse technical fields, including electric machines. Notably, his willingness to learn from diverse cultural practices and his technical curiosity highlighted his potential as a future global citizen and technical expert with a broad understanding of cultural exchange and technical complexities.

3.2.10 Students' Feedback About Host Institution

The feedback taken from the students about the host institution is provided in the appendix. Several questions were asked on different aspects, such as Teaching approaches, Assignments and projects, etc, on which students presented their opinions based on Strongly agree, agree, neutral and disagree. Analysing the responses obtained from the students from SCU, we see that they benefited from the exchange program organized by KEC, which eACCESS supports. Students provide positive feedback to the training offered by the KEC on adapting new teaching methods to deliver technical courses with ample practical exercises and supportive documents related to laboratory activities. Some of the SCU students' responses are presented in graphical form in Figures 20, 21 and 22.

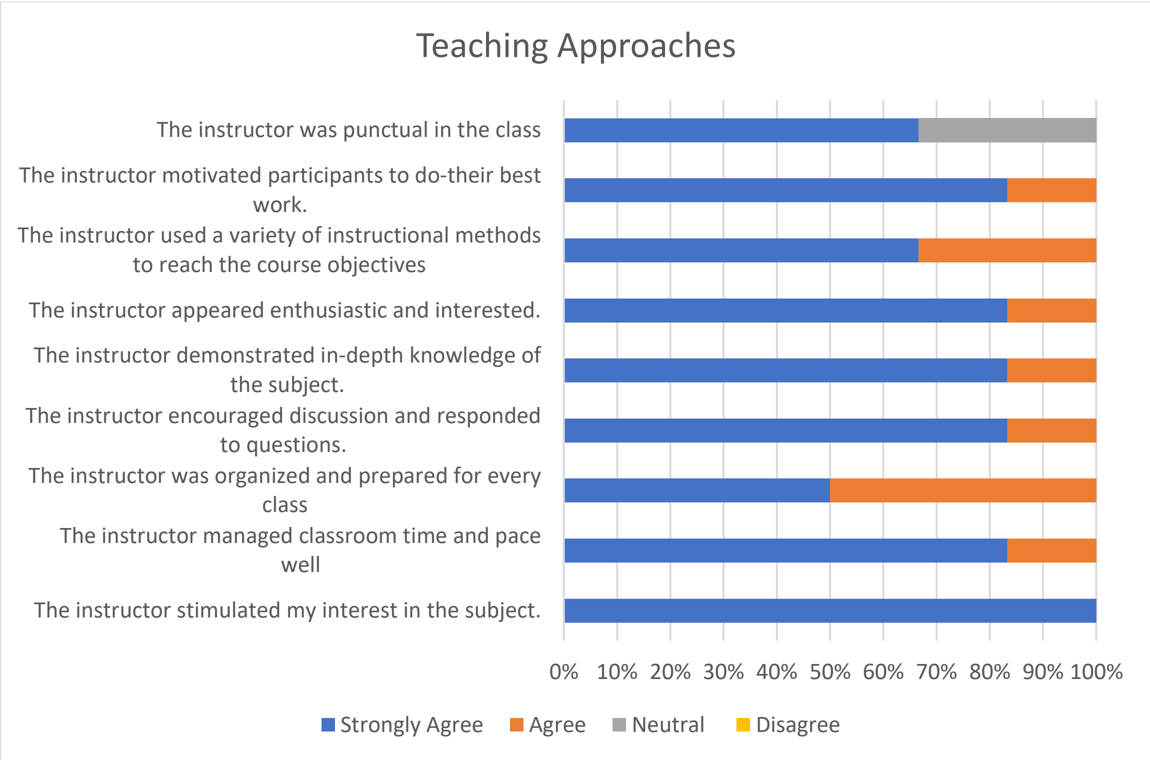


Figure 29: SCU students' feedback for questions related to teaching approaches used by KEC staff.

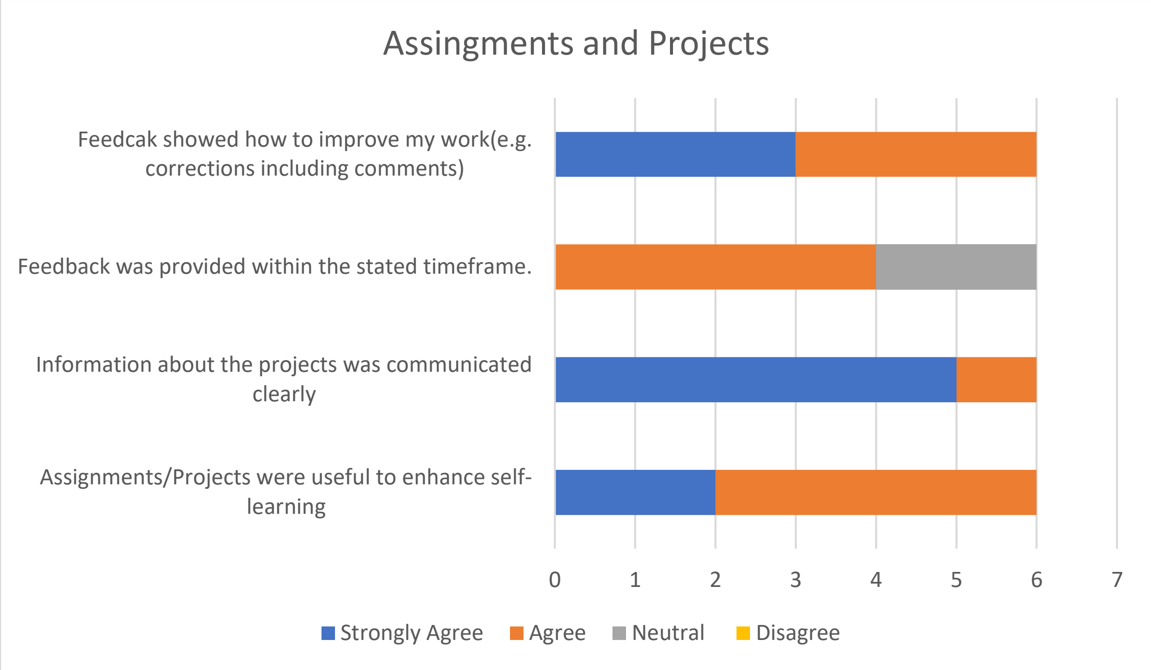


Figure 30: SCU students' feedback for questions related to assignments and projects given by KEC.

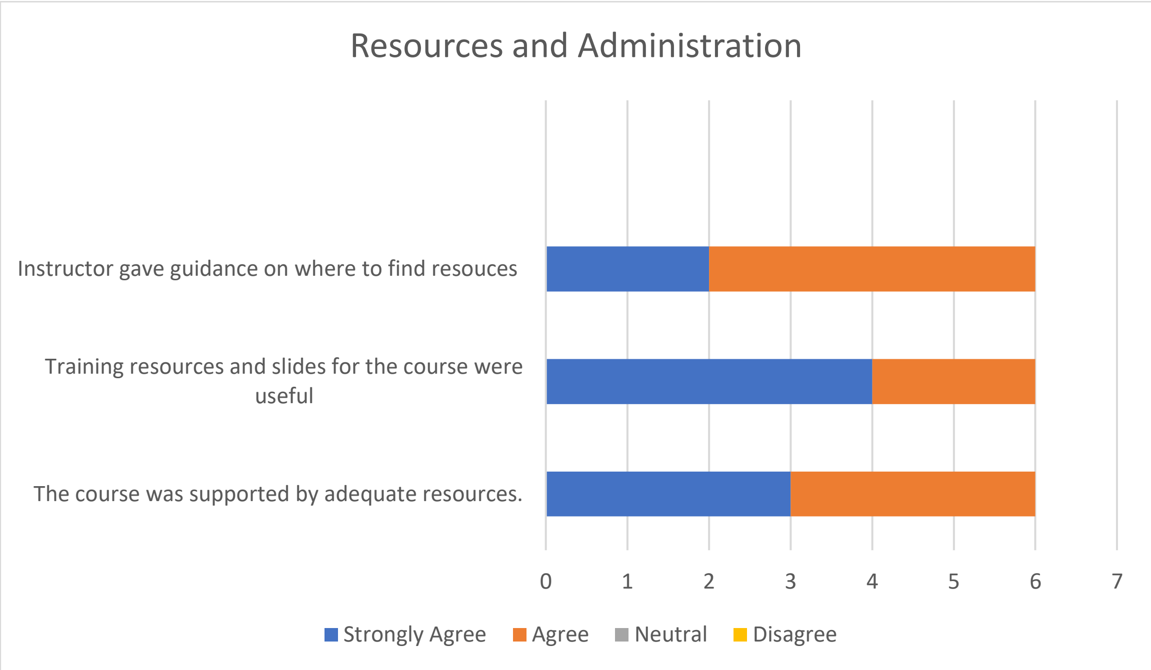


Figure 31: SCU students' feedback for questions related to resources and administration of KEC.

3.2.11 Photographs related to the mobility programme.

Figure 32: Welcoming Students with some tokens of love.

Figure 33: Welcome Dinner organized for visiting students.

Figure 34: Orientation before the Industrial Automation laboratory training at KEC.

Figure 35: Industrial Automation laboratory training at KEC.

Figure 36: Awarding certificates to students.

Figure 37: Student briefing at the KEC laboratory by the academic staff.

Figure 38: Visiting students participating in the practical class of the Power Electronics Laboratory developed by the eACCESS project.

Figure 39: Visiting students from SCU in the electrotechnical laboratory working on transformer testing.

Figure 40: Students during the field visit at the HV substation.

Figure 41: Expert briefing students about the HV substation construction.


Figure 42: Farewell meeting with the KEC Academic Coordinator

3.3 Kantipur Engineering College to Soegijapranata Catholic University

The Kantipur Engineering College (KEC), Nepal, visited Soegijapranata Catholic University, Indonesia, from Oct 08, 2023, to Oct 14, 2023.

3.3.1 List of Activities Conduced During Mobility

Table 16: Practical exercises conducted in the eACCESS laboratory.

SN	Name of the Practical	Objectives of doing that Practical	Learning Outcomes of that Practical
1	Training on microgrid lab	- To know the microgrid Laboratory and its Functionality - To perform some laboratory exercise	- Know about the microgrid lab and its importance and application. - Designed a PV inverter that can convert the DC voltage as the output of PV modules into AC voltage
2	Power Electronics Simulator	- To learn how to use PSIM to develop an electrical circuit and simulate it	- Staff learned to use PSIM for circuit development and simulation

Table 17: Practical exercises conducted in the other laboratories.

SN	Name of the Practical	Objectives of doing that Practical	Learning Outcomes of that Practical
1	Moodle Training	To learn the Moodle platform	- The staff know about material updates and management in Moodle. - Staff learned to create courses and enrol students. - Staff learned to provide assignments, take attendance and many more from Moodle.

Table 18: Lectures/Classes attended by KEC staff at SCU.

SN	Name of the Topic	Objectives of the Lecture/Class	Learning Outcomes of that Lecture/Class
1.	Research Paper, Its Organization and Writing Techniques by Prof. Dr. Slamet Riyadi	To learn paper writing for international journals	- Staff learned about how to choose the topic. - Staff learned about selecting research methodology. - Staff learned about data collection, processing techniques, and presentation in the form of internal journal papers.
2.	Filter and its importance in Electric System by Dr Florentinus Budi Setiwan	To learn about filters and their application towards electrical system	- Staff learned about different types of filters based on the magnitude and attenuation curve. - Staff learned about the application domain of different kinds of filters

Table 19: Technical visits organized for KEC staff by SCU.

SN	Name of the Location/Plant Visited	Objectives of the Visit	Learning Outcomes of that Visit
1	Soegijapranata Catholic University Second Campus, BSB City Semarang	- To observe and understand the automatic fire control system, rainwater harvesting system, power generation system and control server.	- Staff learned about the operation principles of the fire control system. - Staff observed and learned about the rainwater harvesting and filtering process. - Staff visited the power generation system installed on campus and its power control system and server.

Table 20: Other activities conducted during staff mobility.

SN	Name of the Location/Plant Visited	Objectives of the Visit	Learning Outcomes of that Visit
1	Opening Session and Visit to the Department	- To meet faculty members and students of the Electrical Department at SCU	- Experience sharing with faculties. - Interaction with students about engineering and innovations
2	Research lab Visit	- To know the ongoing research at SCU	- Learned about the research culture and environment that SCU maintains
3	Library visit	- To see the technology used at the library at SCU	- Know about the different technologies that we can implement at the library of KEC as well

3.3.2 Brief description of activities held during the KEC staff mobility.

The training session was meticulously organized to impart various concepts through laboratory training, factory visits, and paper writing sessions. The program was divided into four distinct parts:

Following the opening session, the KEC team visited the Electrical Engineering Department Facilities and Laboratory in the first segment. The laboratory training session specifically focused on acquainting participants with the power simulator. The team wholeheartedly engaged with the power simulator and designed basic electrical circuits, including the single-phase inverter. Subsequently, they explored the microgrid lab.

The second part of the training involved paper writing for international journals. During this session, the team had the opportunity to learn how to refine paper ideas, conduct literature reviews, develop methodologies, perform laboratory experiments for data generation and validation, and understand the process of approaching international journals for publication. The team also visited laboratories to observe some of the projects and research activities conducted at SOE.
In the third training segment, the team became familiar with the learning platform using Moodle. Throughout the session, they learned how to create courses, assign assignments, take attendance, and utilize various other features of Moodle.

In the final part of the training, the team visited the second campus of Soegijapranata Catholic University, where they observed the power backup system, a 1 MW generator, and the power management system. Additionally, they had the opportunity to explore the air purification system and rainwater harvesting system.

3.3.3 Selection Procedure and Profile of Staff

The primary objective of this mobility program is to enhance participants' knowledge and skills related to smart power systems through laboratory work, observations, and international journal paper writing. After completing the training sessions, KEC staff members are expected to disseminate the knowledge they have gained and concepts to both students and colleagues at Kantipur Engineering College. To meet this requirement, the selection process was based on an individual's ability to effectively learn and manage course materials and laboratory activities. Those who excel in delivering lectures, managing laboratory activities, and making significant contributions to the teaching and learning processes at

Kantipur Engineering College are chosen to participate in the mobility program. The team also includes members from the Automation and Power Electronics laboratory trainee.

Table 21: Detailed information about the staff selected from KEC for the mobility programme.

SN	Name of the Staff	Designation
1	Binod Subedi	Deputy Director
2	Imanath Duwadi	Deputy Head of Department
3	Pralhad Chapagain	Sr. Lecturer
4	Ishwor Lal Maharjan	Instructor

3.3.4 Profile of the Trainers

Table 22: profile of the trainers from SCU

SN	Name of Trainer	Photo	Designation	Academic Qualification	Mail id
1	Felix Yustain Setiono		Lecturer and Researcher	M. Eng., PhD Running	
2	Dr. Leonardus Heru Paratomo		Lecturer, Researcher and Head of the Department of Electrical Engineering	PhD in Electrical Engineering	leonardus@unika.ac.id
3	Arifin Wibisono		Lecturer and Researcher	M. Eng. in Electrical Power Engineering	arifin.wibie@gmail.com
4	Dr. Florentinus Budi Setiwan		Assoc. Prof. And Rector SCU	PhD. in Electrical Engineering	f.budi.s@unika.ac.id
5	Dr. Slamet Riyadi		Professor and Dean SCU	PhD. in Electrical Engineering	riyadi@unika.ac.id

3.3.5 Agenda of Mobility

The SCU implemented the following program schedule so that the KEC staff could exploit the laboratory facilities established at SCU to support the eACCESS project.

With the support of the
Erasmus+ Programme
of the European Union

Preliminary Agenda eACCESS

Staaf Mobility & Training

Ver 1 (Wednesday, 13th September 2023)

Venue : Soegijapranata Catholic University, Semarang, Indonesia
Time of the event: From 8st October, 2023 to 14th October, 2023

	8th October, 2023	Venue
6:00PM	The official kick-of	TBD

	9st October, 2023	
9:00AM-12:00AM	Opening session, visit to the Electrical Engineering Departement facilities	SCU
12:00-01:00PM	Lunch	TBD
1:00PM-4:00PM	Laboratory Overview	Laboratory SCU

	10st October, 2023	
9:00AM-12:00AM	Introduction to International Journal Paper Writing	SCU
12:00-01:00PM	Lunch	TBD
1:00PM-4:00PM	Laboratory Training on Power Electronics	Laboratory SCU

	11th October, 2023	
9:00AM-12:00AM	Laboratory Training on Microgrid	Laboratory SCU
12:00AM-1:00PM	Lunch	TBD
1:00PM-4:00PM	Writing International Journal paper 1	SCU

	12th October, 2023	Venue
9:00AM-12:00AM	Learning Platform using Moodle	SCU
2:00PM-1:00PM	Lunch	TBD
1:00PM-4:00PM	Writing International Journal Paper 2	Magelang

	13th October, 2023	Venue
9:00AM-12:00AM	Finalization of International Journal Paper	SCU
2:00PM-1:00PM	Lunch	TBD
1:00PM-4:00PM	Factory Visit	TBFD

	14th October, 2023	Venue
9:00AM-12:00AM	Summary and discussion for Future Collaboration	SCU
2:00PM-1:00PM	Lunch	TBD
1:00PM-4:00PM	Closing session	SCU

Figure 43: Details planned for the mobility program organized by the SCU for KEC staff.

3.3.6 Value Addition due to eACCESS Mobility Program

The training session proved highly beneficial in both theoretical and practical aspects. The trainers at Soegijapranata Catholic University demonstrated profound expertise, and their teaching methods were remarkable. Our team from Kantipur Engineering College gained valuable insights by attending lectures delivered by these professors, which provided a deeper understanding of classroom management and introduced us to new teaching techniques. The knowledge and insights shared during the session on writing papers for international journals were invaluable. They will have a lasting impact on our future paper writing endeavours, ultimately benefiting the students of Kantipur Engineering College. The laboratory visits and practical work to demonstrate theoretical concepts were particularly engaging. Furthermore, the management and organization of laboratory equipment, students' projects related to power systems, and the laboratory work conducted by the KEC team enriched our experience in power systems. Beyond the training, the overall university learning environment, access to the digital library, interactions with university professors, lecturers, and students and the warm hospitality of university staff created terrific and lasting memories.

3.3.7 Certificates and Staff Attendance

After completing training, each staff member received the certificate of completion, the sample of which is provided in Appendix 5.1.4. Also, KEC staff attendance taken by the SCU for the training period is mentioned in Appendix 5.2.4.

3.3.8 Teaching/Training Materials

The laboratory training is facilitated by university professors, lecturers, and staff members. In the paper writing session for international journals, lecture slides serve as the primary teaching materials and are provided in PowerPoint format, supplemented by sample papers for reference. A power simulator, employed as a simulation tool during the training, came with software for designing electrical circuits and conducting simulations.

3.3.9 eACCESS laboratory infrastructure at the host institution

The microgrid lab at Soegijapranata Catholic University was exceptionally well-equipped. It featured a microgrid with 5.4 kWp PV arrays and 14.4 kWh batteries, all seamlessly connected to the utility grid. The laboratories were furnished with PV modules, batteries, PV inverters, battery inverters, SCADA systems, and various other essential equipment. SCADA, serving to control, monitor, mark, record, and retrieve data with a high level of complexity, comprises multiple subsystems, including the Master Terminal Unit (MTU), Human Interface Unit (HMI), Front-End Processor (FEP), Data Communication Media, Remote Terminal Unit (RTU), and plants.

The installed microgrid lab could operate in different modes, which included:

- Grid Connected without battery mode $P_{PV} < P_{Load}$
- Grid Connected without battery mode $P_{PV} > P_{Load}$
- Grid Connected with battery mode $P_{PV} < P_{Load}$
- Grid Connected with battery mode $P_{PV} > P_{Load}$
- Islanding Mode for $P_{PV} < P_{Load}$
- Islanding mode for $P_{PV} > P_{Load}$

The well-organized and efficiently managed microgrid lab can impart practical knowledge to students and professionals in the field of renewable energy and power systems. This facility is facilitative to conducting training sessions and laboratory work for a comprehensive educational experience.

3.3.10 Host Institution's Feedback about KEC Staff

The feedback survey form from the SCU about the KEC staff is provided in Appendix 5.3.5, in which six questions in the form of a net promoter score format are used to evaluate the staff performance. Observing the feedback, staff from KEC almost met the expectations of SCU as they got the score of 7 out of 10 on the question asked about the quality of staff. However, SCU found the staff from KEC highly engaging in lab work, actively participative in social work or club organization, and adaptive in new cultural environments. Still, SCU feels that many barriers hinder staff in class discussions and laboratory work.

3.3.11 Staff's Feedback about the Host Institution

The feedback provided by the staff from KEC about the host institutions is available in Appendix 5.3.6. In addition, the testimony given by the participants from KEC is available in this section.

I would want to convey my profound appreciation for the chance to attend Soegijapranata Catholic University, Semarang, for the most recent training session. I was positively impacted by the training, which was enlightening and enriching.
I have to start by praising the university for its excellent organization. Pick-up from the airport to the hotel and from the hotel to the university was finely organized. The training curriculum was thoroughly explained at the welcoming orientation event, and the university and laboratories were visited smoothly. The training facilitated, and resources at Soegijapranata Catholic University were truly remarkable. The state-of-the-art classrooms, well-equipped labs, extensive library resources with the digital library, infrastructure, and university learning environment exceeded my expectations.
I would conclude by saying that my training program visit to SOE was a fulfilling and enriching experience. I came away from this trip with an abundance of information and new contacts that I think will be very helpful to my profession. I wish to return to the institution in the future for more training opportunities and am looking forward to putting what I have learnt into practice.
Once again, I want to thank you for your hospitality and the wonderful training program. It was an experience that was genuinely priceless.

Sincerely,
Er. Pralhad Chapagain
Kantipur Engineering College, Nepal

I want to sincerely thank Soegijapranata Catholic University for its recent training session. The training was of the highest calibre, and the curriculum was incredibly well-structured. The cutting-edge resources and facilities at the institution substantially improved the educational experience. The chance to network with such a broad set of speakers was priceless, and the administrative assistance given was excellent. I really appreciate the information and abilities I've acquired, which I think will significantly advance my profession. I am really grateful for the amazing training experience that was far above my expectations.

Sincerely,
Er. Ima Nath Duwadi
Kantipur Engineering College, Nepal

I would like to extend a warm thank you to Soegijapranata Catholic University for organizing an amazing training session. The materials were very interesting, and the discussions were truly inspiring. I really enjoyed the visual illustration, which made the content easily understandable. Interacting with professors, students, and administrative staff was truly amazing.
I would like to thank the university team for their enthusiasm and dedication in making this training a success and for the wonderful stay over Semarang. I am privileged to be a partaker of this amazing and extremely valuable training and look forward to applying the skills I gained in the near future.

Sincerely,
Ishwor Lal Maharjan
Kantipur Engineering College, Nepal

I had a wonderful experience getting training at Soegijapranata Catholic University. I was really impacted by the university's well-run curriculum, cutting-edge facilities, infrastructure, and experienced faculties. Interacting with the professor, students and administrative staff was truly amazing.
I would like to thank the university team for their support of my overall training and stay over Semarang. I am grateful for the opportunity and look forward to applying the skills and insights I've gained from this visit in my future endeavours.

Sincerely,
Binod Subedi
Kantipur Engineering College, Nepal

3.3.12 Photographs related to the mobility programme.

Figure 44: Visiting the outdoor installation of the Microgrid laboratory at SCU.

Figure 45: Summarization and discussion on future collaboration.

Figure 46: Observation of the Research Project going on at SCU.

Figure 47: Laboratory visit.

Figure 48: Library visit.

Figure 49: Attending lectures at SCU.

Figure 50: Technical visit at the industrial plant.

Figure 51: Discussion on Moodle implementation.


Figure 52: Factory visit for control system and server.

Figure 53: Laboratory Training on Power Electronics.

Figure 54: Microgrid Laboratory Training/ Visit

3.4 Atma Jaya Catholic University to Seogijapranata Catholic University Indonesia

Atma Jaya Catholic University (ATM) students visited Seogijapranata Catholic University (SCU) from October 30, 2023, to Nov 12, 2023. The main objective of this mobility program is to facilitate an interdisciplinary understanding of contemporary advancements in energy technology, covering aspects such as alternative energy sources, smart grid concepts, microgrid systems, and practical applications of renewable energy, particularly solar power. The visit was strategically designed to encompass a comprehensive mix of theoretical lectures, practical laboratory sessions, industry discussions, and project site visits.

3.4.1 List of Activities Conduced During Mobility

Table 23: Practical exercises conducted in the eACCESS laboratory.

SN	Name of the Practical	Objectives of doing that Practical	Learning Outcomes of that Practical
1	Explanation of Microgrid System in Microgrid Laboratory	- To introduce the basic concept of microgrid systems. - Discuss the main components of a microgrid system, including grid inverters, hybrid inverters, conventional inverters, and Maximum Power Point Tracking (MPPT). - To provide a comprehensive understanding of the principles and functions of each component in a microgrid system.	- Students will understand the basic concept of microgrid systems and the benefits of their use in providing more efficient and sustainable energy. - Students will be able to identify and explain the functions of grid inverters, hybrid inverters, conventional inverters, and Maximum Power Point Tracking (MPPT) in the context of microgrid systems. - Students will have a deep understanding of the principles and interactions among the main components in a microgrid system, enabling them to apply this knowledge in the design and development of future microgrid systems.
2	Practical Installation of Solar Power Generator Components	- To allow students to configure and install components used in solar power generators practically. - To enhance students' understanding of the practical steps in integrating various components into a well-functioning system. - To link theoretical learning with practical experience in	- Students will be able to effectively configure and install components of solar power generators in a practical environment. - Students will be able to identify and explain practical steps required to integrate various components into a well-functioning system. - This visit will assist students in connecting the theory they have learned with the practical

		installing solar power generator components.	installation of solar power generator components, thereby enhancing their understanding of the implementation process of renewable energy technology in real-life situations.

Table 24: Practical exercises conducted, in other laboratories.

SN	Name of the Practical	Objectives of doing that Practical	Learning Outcomes of that Practical
1	Concept Session on Unipolar and Bipolar Inverters in Electrical Systems	- To gain a deep understanding of the concepts of unipolar and bipolar inverters. - To master the application of inverters in single-phase and three-phase electrical systems. - To design inverters and conduct simulations using PSIM software. - To implement the design results of inverters on hardware in the laboratory.	- Students will be able to clearly explain the differences between unipolar and bipolar inverters, as well as understand their respective advantages and disadvantages. - Students will master the application of inverters in single-phase and three-phase electrical systems, including understanding appropriate control and operation. - Students will acquire skills in designing and simulating inverters using PSIM software, enabling them to gain a practical understanding of how inverters function under various operating conditions. - Participation in this session will provide students with practical experience in implementing inverter designs on hardware in the laboratory, thereby deepening their understanding of applying theory in real-world scenarios.
2	Concept Training on Maximum Power Point Tracking (MPPT)	- To develop a conceptual understanding of Maximum Power Point Tracking (MPPT) and the various methods used. - To master the knowledge about PWM-based MPPT, algorithm-based MPPT, MPPT-Inverter, and Hybrid Inverter.	- Students will be able to explain in detail the concepts and basic principles of Maximum Power Point Tracking (MPPT) and each method used. - Students will master various MPPT techniques, including PWM, algorithms, and hybrid inverters, and understand their advantages and limitations.

		- To design and simulate MPPT using the PSIM application. - To understand best practices in optimizing the performance of power generators, especially in determining the maximum power point of solar panels.	- Students will acquire skills in designing and simulating MPPT using the PSIM application, thus gaining a practical understanding of how MPPT works in optimizing the performance of power generators. - This training will give students a broader perspective on the strategies and technologies used to optimise the performance of solar panels and power generators in general, enhancing their ability to design and implement renewable energy solutions.

Table 25: Lectures/Classes Attended by ATM students at SCU.

SN	Name of the Topic	Objectives of the Lecture/Class	Learning Outcomes of that Lecture/Class
1	Configuration and Operational Concept of Distributed Power Generation in Alternative Energy	- To understand the typical configuration of distributed generation units with low-voltage AC units. - To analyse how distributed power generation, including wind, solar, and fuel cell power, can operate separately from the utility electrical grid. - To delve into the concept of power balance in distributed power generation. - To apply understanding of these concepts in practical application scenarios.	- Students will be able to explain in detail the typical configuration of distributed generation units with low-voltage AC units. - Students will understand the operational mechanisms and challenges associated with distributed power generation and its ability to operate separately from the utility electrical grid. - Students will be able to apply the concept of power balance in practical situations related to distributed power generation. - After attending this lecture, students can identify and design practical solutions for integrating distributed power generation into broader electrical systems.
2	Digital Signal Processing using the Scilab application	- To introduce the basic concepts of digital signal processing. - To discuss using the Scilab application in signal processing, optimization, and numerical modelling.	- Students will understand the basic concepts of digital signal processing and its applications in various fields. - Students can use the Scilab application to process signals, optimize, and model numerically.

		- To deepen understanding of mathematical operations and functions, use matrices and vectors in Scilab applications.	- Students will master the mathematical operations used in digital signal processing, including the use of matrices and vectors in the context of Scilab applications.

Table 26: Technical Visits offered by SCU for the ATM students.

SN	Name of the Location/Plant Visited	Objectives of the Visit	Learning Outcomes of that Visit
1	Visit to the Solar Power Plant at Tambak Udang, Jepara	- To provide students with the opportunity to observe the implementation of hybrid solar power plants in the context of the fisheries industry. - To enhance students' understanding of the role and benefits of renewable energy technology in supporting sustainability and production efficiency. - To link theoretical learning with practical applications of solar power plants in meeting the electricity needs of industrial sites.	- Students will be able to describe the implementation of hybrid solar power plants in the fisheries industry based on their first-hand experience at Tambak Udang, Jepara. - Students will be able to identify concrete benefits of using renewable energy technology, such as solar power plants, in supporting sustainability and production efficiency in industries. - This visit will assist students in linking the theoretical concepts they have learned with the practical applications of solar power plants in real-life situations, deepening their understanding of the application of renewable energy in industries.

Table 27: Other Activities Conducted by SCU during the Mobility Program.

SN	Name of the Topic	Objectives of the Lecture/Class	Learning Outcomes of that Lecture/Class
1	Training on the Use of PSIM Application in Power System Simulation	- To introduce the PSIM application and the basic concepts of power system simulation. - To demonstrate the use of PSIM in designing simulations for power electronics, motor drives, and power conversion systems. - To provide a comprehensive understanding of the relevant features and functionalities of PSIM for applications in the field of power systems.	- Students will understand the basic concepts of power system simulation and the importance of using applications like PSIM in designing simulations. - Students can use PSIM to design simulations in various applications, including power electronics, motor drives, and power conversion systems. - Students will master the features and functionalities of PSIM that are useful in the context of power systems, enabling them to apply this knowledge in future research and development endeavours.

2	SCU, PU, and ATM Student Gathering	- To build networks and collaboration among students from various universities. - To enhance the exchange of ideas, experiences, and perspectives among students on relevant topics within their respective fields of study. - To strengthen cross-cultural friendships and collaboration among universities. - To enjoy and explore the natural beauty of Bandungan together.	- Students will expand their social networks and can collaborate with students from diverse academic and cultural backgrounds. - Students will enhance their understanding of various related topics by exchanging ideas and experiences with other students. - Students will deepen cross-cultural friendships and collaboration, which may open new career and personal opportunities. - Students will enjoy the experience of exploring Bandungan's natural surroundings together, fostering well-being and camaraderie within the student community.
3	General Lecture ‘‘Virtual Power Plant as an Outcome of the Smart Grid Concept”	- To understand the fundamentals of the smart grid concept. - To compare microgrids with smart grids. - To discuss the communication technology used in smart grids. - To highlight the advantages of smart grid systems.	- Students will gain a deep understanding of the basic concepts of smart grids and their significance in developing virtual power plants. - Students can differentiate between microgrids and smart grids regarding structure, operation, and advantages. - Students will understand the communication technology used in smart grids to efficiently regulate, control, and monitor the flow of electricity. - Students will be able to identify the advantages of smart grid systems in improving the efficiency, reliability, and sustainability of electricity provision.

3.4.2 Students’ Selection Procedure and Profile

The selection process for staff and students participating in the eACCESS mobility program involves a meticulous and structured approach to ensure quality, suitability, and mutual benefit for both the sending and host institutions. This procedure typically encompasses several key steps:

Nomination and Application

- Nomination Phase: The process commences with the sending institution calling for nominations from eligible staff and students interested in participating in the eACCESS mobility program. This involves disseminating information about the program's objectives, duration, and eligibility criteria.
- Application Submission: Interested individuals submit their applications, which include their academic credentials, statements of purpose, research interests (if applicable), and other pertinent documents as specified by the selection committee.

Evaluation and Selection

- Initial Screening: The submitted applications undergo a thorough evaluation by a selection committee appointed by the sending institution. This committee assesses each application against predefined criteria such as academic performance, research interests, motivation, and relevance to the program objectives.
- Candidate Shortlisting: Based on the evaluation, a shortlist of candidates is prepared, considering their alignment with the program's focus areas and the available exchange positions.

a. Interview or Assessment

- Interview Process: Shortlisted candidates may undergo further assessment through interviews or additional evaluation methods, such as written tests or presentations. These sessions evaluate the candidates' competencies, motivations, and suitability for the mobility program.
- Final Selection: The final selection of staff and students is made based on a comprehensive evaluation, considering their qualifications, alignment with the program's objectives, and the available capacity at the host institution.

b. Notification and Acceptance

- Notification of Selection: Successful candidates are formally notified of their selection to participate in the eACCESS mobility program. The notification includes details regarding the duration, objectives, and expectations during the mobility period.
- Acceptance Confirmation: Upon receiving the notification, the selected staff and students confirm their acceptance, acknowledging the terms and conditions of participation, including their commitment to engage in the program actively.

Table 28: Details of the students selected for the mobility program from ATM.

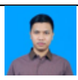
SN	Name of the Student	Program	Student ID	Contact e-mail
1	Cristoni Hasiholan Pardosi	Master of Electrical Engineering	2022-0009-0004	criston.202200090004@student.atmajaya.ac.id
2	Christian Richardo Hartanto	Bachelor of Electrical Engineering	2020-0452-0003	christi.202004520003@student.atmajaya.ac.id
3	Cornelius Alvin Nathaniel	Bachelor of Electrical Engineering	2020-0452-0037	corneli.202004520037@student.atmajaya.ac.id
4	Hans Adrian Indahsi	Bachelor of Electrical Engineering	2020-0452-0007	hans.202004520007@student.atmajaya.ac.id
5	Louis Nicholas	Bachelor of Electrical Engineering	2020-0452-0038	luis.201901010022@student.atmajaya.ac.id

6	Theo Marcel Surya M. S	Bachelor of Electrical Engineering	2020-0452-0035	theo.202004520035@student.atmajaya.ac.id

3.4.3 Profile of the Trainers

In the eACCESS Staff/Student Mobility Program conducted at the Faculty of Engineering, Soegijapranata Catholic University, professional trainers facilitated the guidance and teaching. The profile of the trainers is given in the following table.

Table 29: Profile of the trainers from the SCU.

SN	Name of the Trainer	Photo	Designation	Academic Qualification	Contact E-mail
1	Prof. Dr. Ir. Slamet Riyadi M.T		Dean	PhD in Electrical Engineering	riyadi@unika.ac.id
2	Dr. Leonardus Heru Pratomo, ST., MT.		Lecturer at the Faculty of Electrical Engineering at SCU	PhD in Electrical Engineering	leonardus@unika.ac.id
3	Dr. Ir. Florentinus Budi Setiawan M.T		Lecturer at the Faculty of Electrical Engineering at SCU	PhD in Electrical Engineering	f.budi.s@unika.ac.id
	Arifin Wibisono		Lecture at Faculty of Electrical Engineering in SCU	Master in Electrical Engineering	arifin@unika.ac.id

3.4.4 Agenda of Mobility

Mobility Schedule delineates the comprehensive schedule and activities conducted throughout the eACCESS Mobility Program, providing a detailed breakdown of each day's program and the diverse range of engagements and sessions undertaken during that period.

Day	Date	Activity	Trainer(s)
Day 1	October 30, 2023	Introduction to campus environment and meeting with lecturers, staff, and SCU students.	–
Day 2 - 5	October 31 – November 3, 2023	Alternative Energy Lectures	Dr. Leonardus Heru Pratomo, ST., MT.
		Digital Signal Processing Lectures	Dr. Ir. Florentinus Budi Setiawan MT.,
		Explanation of the microgrid system in the Microgrid Laboratory	Dr. Leonardus Heru Pratomo, ST., MT.
		Training using the PSIM application	Dr. Leonardus Heru Pratomo, ST., MT.
Day 6 – 7	November 4 – 5, 2023	Student Gathering	Prof. Dr. Ir. Slamet Riyadi MT., Dr. Ir. Florentinus Budi Setiawan MT., Dr. Leonardus Heru Pratomo, ST., MT., and Arifin Wibisono ST., MT
		General lecture "Virtual Power Plant as an Outcome of the Smart Grid Concept"	Prof. Dimitros P. Lampridis, PhD, from Aristotle University of Thessaloniki, Greece, assisted by Ms. Alkaterini Chatzimimikou and Ms. Vilma Chall.
Day 8 – 11	November 6 – 9, 2023	Inverter and MPPT concept training	Arifin Wibisono ST., MT
		Training for installation of solar power generator components	Dr. Leonardus Heru Pratomo, ST., MT.
Day 12 – 13	November 10 – 11, 2023	Visit to the Solar Power Plant in Tambak Udang, Jepara	Dr. Leonardus Heru Pratomo, ST., MT., and Arifin Wibisono ST., MT
Day 14	November 12, 2023	Closing event	–

Figure 55: Detailed program schedule planned by SCU for the mobility programme.

3.4.5 Value Addition due to eACCESS Mobility Program

The eACCESS Mobility Program has proven to be an invaluable experience, providing diverse benefits and significant added value from the perspective of the sending institution and the participating students.

From the Sending Institution's Perspective:

a. Enhanced Academic Collaboration
This mobility program facilitated collaborative efforts among institutions, fostering an environment for academic exchange and shared learning. The partnership between Atma Jaya Catholic University of Indonesia and Soegijapranata Catholic University allowed the exchange of best practices and methodologies, enriching the academic landscape for both institutions.

b. Augmented Institutional Reputation
Participation in the eACCESS Mobility Program has elevated the reputation and recognition of the Atma Jaya Catholic University of Indonesia. The collaboration and exceptional performance of staff and students in this international program have positively reflected the institution's academic competence and global engagement.

c. Strengthened Educational Endeavors
Insights gained from this mobility program have facilitated the enhancement of educational methodologies and curriculum enrichment. The exchange of knowledge and exposure to advanced practices in energy technology and power systems have improved the quality of education imparted by the sending institution.

From the Students' Perspective:

a. Enhanced Technical Proficiency
Participating students have experienced a significant improvement in their technical skills and understanding of energy technology. Practical laboratory sessions, lectures, and hands-on workshops have enhanced their expertise in renewable energy concepts, microgrid systems, and simulation software applications.

b. Cultural Exchange and Networking
Beyond academic benefits, the program served as a platform for cultural immersion and networking opportunities. Engaging with peers from Soegijapranata Catholic University and Pokhara University enabled the exchange of diverse perspectives, strengthening cross-cultural understanding and a global outlook among participants.

c. Professional Development and Future Contributions
The knowledge gained, and experiential learning through this program have paved the way for both staff and students to make substantial contributions in the field of renewable energy. The exposure gained is believed to be instrumental in their future endeavours, enabling them to apply innovative solutions to global energy challenges.

3.4.6 Certificate and Attendance of Students

After completing the training, each student is awarded certificates of completion, the sample of which is included in Appendix 5.1.3. In addition, the SCU keeps the students' attendance for the whole training period, which is provided in Appendix 5.2.5.

3.4.7 Teaching/Training Materials

Teaching/Training Materials encompass a variety of resources utilized during the eACCESS Mobility Program.

a. **Lecture Presentations**
Engaging and informative presentations are meticulously crafted by trainers and lecturers, covering various topics ranging from alternative energy sources (wind, solar, fuel cells) to signal processing, microgrids, and power electronics. These presentations are structured to offer in-depth insights into theoretical concepts and practical applications.

b. **Laboratory Manuals**
Detailed laboratory manuals are curated to guide participants through hands-on experiments and practical sessions conducted in the eACCESS-MGL (eACCESS microgrid laboratory). These manuals include step-by-step instructions, experimental procedures, and theoretical background, ensuring a comprehensive learning experience.

c. **Simulation Software Modules**
Training modules and exercises employing simulation software such as PSIM (Power Electronics Simulation) are provided. These modules offer practical exposure in simulating power electronics circuits, renewable energy systems, and control mechanisms. Participants are equipped with software-guided practices to reinforce theoretical learning.

d. **Demonstrations**
Live demonstrations are employed to complement theoretical teachings. These visual aids provide real-world examples, practical applications, and demonstrations of concepts discussed in lectures, offering a more dynamic and engaging learning experience.

3.4.8 eACCESS laboratory infrastructure at the host institution and the use of this laboratory for professional courses

There is a microgrid lab at SCU, which has been used for the following:

- A microgrid with solar and battery is installed in the lab and used for practical use by the students. This lab is designed following the pattern of the typical PV installation in Indonesia's distribution grid.
- The SCADA system is used to monitor and control the microgrid.

Microgrid with PV on grid off grid mode laboratory as the newly developed laboratory consists of:

- PV as sources
- DC MCB MCCB
- Lead Acid Battery as storing element.
- MPPT controller
- Various connection-mode inverters
- SCADA for controlling and monitoring.

3.4.9 Host Institution’s Feedback about Students

The SCU response about the students from the ATM who participated in the exchange program was collected through a questionnaire survey. Six questions were asked in net promoter score format, in which 1 represented the worst, and 10 represented the best. Observing the response from the host institution, they found students. Attending the exchange program was up to their expectation, as they provided a rating of 10. Also, the instructor from the host institution found that students from PU actively participated in the training and social activities developed for the exchange program period, adapting to a new cultural environment and engaging in nature in practical classes. Detailed information regarding the feedback from the host institution is presented in Appendix 5.3.8.

3.4.10 Students' Feedback about the Host Institution

The feedback form provided by the student about the host institution is available in Appendix 5.3.9. Studying the feedback, students found the mobility program met their expectations to explore the new topic in which the host institution effectively developed the program schedule and delivered the contents while keeping students engaged in the coursework development. Students feel they can take responsibility in the future for the activity they participated in, which was developed by the host institution ATM. However, they are in a dilemma of successfully carrying out the training on the topic in which they are trained during this mobility program.

3.4.11 Photographs related to the program.

Figure 56: Introduction to the Campus Environment and Facilities

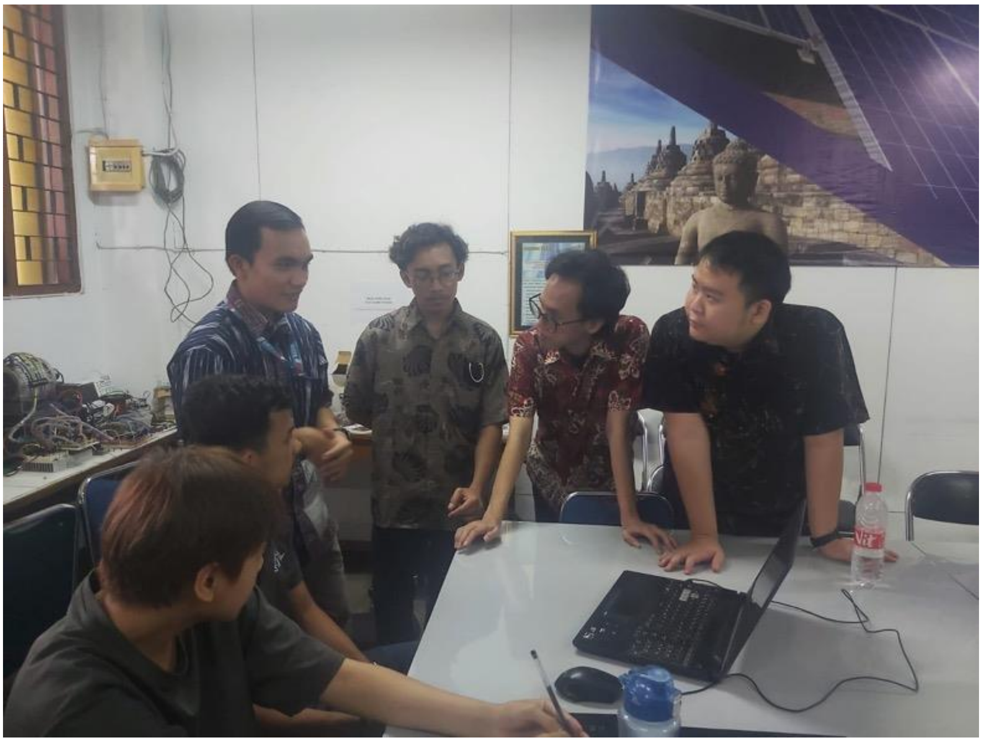


Figure 57: Introduction to SCU Students

Figure 58: Visiting students participating in the Digital Signal Processing lecture.

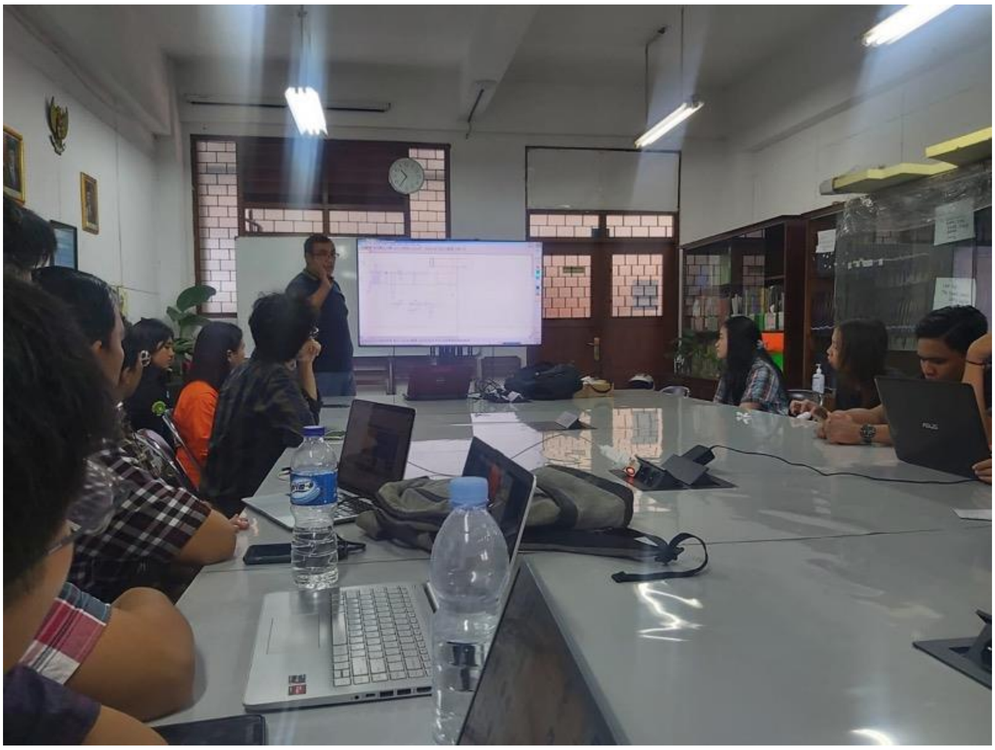


Figure 59: Alternative Energy Lectures

Figure 60: Explanation of the microgrid system in the Microgrid Laboratory

Figure 61: General lecture "Virtual Power Plant as an Outcome of the Smart Grid Concept" by the visiting professor Dimitrios Lampridis from AUTH.

Figure 62: Student Gathering at Bandungan campus orientation days.

Figure 63: Inverter and MPPT concept training.

Figure 64: Training for installation of solar power generator components.

Figure 65: Visit to the Solar Power Plant in Tambak Udang, Jepara

Figure 66: Explanation of Solar Power Plant in Tambak Udang, Jepara

Figure 67: Farewell meeting and awarding of souvenirs to the ATM students.

3.5 Pokhara University to Soegijapranata Catholic University, Indonesia

The students of Pokhara University visited Soegijapranata Catholic University, Semarang, Indonesia, in November 2023.

3.5.1 List of Activities Conduced During Mobility

Table 30: Practical conducted in the eACCESS laboratory.

SN	Name of the Practical	Objectives of doing that Practical	Learning Outcomes of that Practical
1.	TO INTERFACE MICROGRID WITH PV AS A SOURCE ALONG WITH HYBRID /ON /OFF GRID MODE CONNECTION.	- To learn connection provision operation control, monitoring, and detection of faults in the microgrid.	- Students learned hybrid, on-gid, and off-grid plant connection monitoring, microgrid control, and optimum energy harnessing from PV in the microgrid.

Table 31: Practical conducted in the other laboratories.

SN	Name of the Practical	Objectives of doing that Practical	Learning Outcomes of that Practical
1.	TO SIMULATE SINGLE AND THREE-PHASE (UNIPOLAR, BIPOLAR, PWM SPWM) IN PSIM AND HARDWARE INTERFACING WITH INDUCTION MOTOR.	- To learn how closed-loop inverters work with their switching circuit and hardware implementation.	- Students learned about the connection of the inverter and its switching circuit with the induction motor and the working mechanism.
2	TO SIMULATE PV ARRAY WITH MAXIMUM POWER POINT TRACKING (MPPT)IN PSIM.	- To analyse PV characteristics and harness optimum energy using MPPT.	- Students learned PV characteristics and the workings of MPPT.

Table 32: Lectures/Classes attended by the PU students at SCU.

SN	Name of the Topic	Objectives of the Lecture Class	Learning Outcomes of that Lecture/Class
1.	SMART POWER SYSTEM	- To learn the reliability scope and challenges of microgrid (on /off /hybrid AC/DC) and - Analyse the concept of a virtual power system. - To learn how to monitor and control power systems by applying software packages like SCADA.	- Students learned about central connected and distributed power system concepts of various connection mode microgrids and virtual power systems worldwide. - Students learned the role of digital systems in controlling and monitoring power systems and making them smart with their scope and challenges in the future.

Table 33: Technical Visits organized by the SCU for the PU students.

SN	Name of the Location/Plant Visited	Objectives of the Visit	Learning Outcomes of that Visit
1.	SOLAR FARM	- To learn operation control and monitoring of PV microgrid systems and work with MPPT and various connected inverters in real-world scenarios.	- Students learned how the PV microgrid operates with its connected device and their role in operation, monitoring, and controlling. - Scope of microgrid in a farming business (there is a shrimp farm running by PV microgrid).

Table 34: Other Activity Conducted During Mobility periods at SCU by the PU students.

SN	Name of the Topic	Objectives of the Lecture/Class	Learning Outcomes of that Lecture/Class
	SCU, PU, and ATM Student Gathering	- To build networks and collaboration among students from various universities. - To enhance the exchange of ideas, experiences, and perspectives among students on relevant topics within their respective fields of study. - To strengthen cross-cultural friendships and collaboration among universities. - To enjoy and explore the natural beauty of Bandungan together.	- Students enlarge their social networks and can collaborate with students from diverse academic and cultural backgrounds. - Students enhanced their understanding of various related topics by exchanging ideas and experiences with other students. - Students deepened cross-cultural friendships and collaboration, which may open new career and personal opportunities. - Students enjoyed the experience of exploring Bandungan's natural surroundings together, fostering well-being and camaraderie within the student community.

3.5.2 Students' Selection Procedure and Profile

The university published a formal notice outlining the following selection criteria for selecting the students for the eACCESS mobility program.

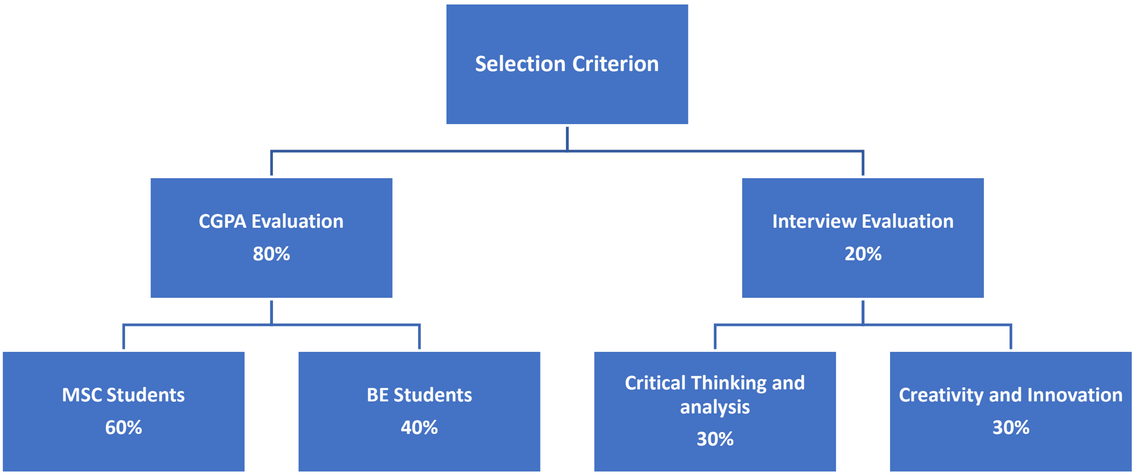


Figure 68: Selection criteria determined by the PU for the student mobility program.

The university has selected four students for this mobility using the following criteria.

Table 35: Details of the selected students from the PU for the mobility program scheduled at SCU.

SN	Name	Program/Semester	PU Registration Number
1	Rabindra Bhandari	Master of Science in Electrical Engineering in Power System/ Fourth Semester	2021-1-91-0009
2	Rakesh Prasad Bhatt	Master of Science in Electrical Engineering in Power System/ Fourth Semester	2021-1-91-0010
3	Yojana Regmi	Master of Science in Electrical Engineering in Power System/ Fourth Semester	2021-1-91-0015
4	Tanka Prasad Parajuli	Bachelor of Electrical and Electronics/ Eighth Semester	2018-1-48-0087

Out of the four selected students, only two participated in the SCU training program. Rakesh Prasad Bhatt was denied the visa because his passport expiry duration was less than six months. Due to a mistake in the visa document provided by the Indonesian embassy, Rabindra Bhandari could not join the training program held at SCU.

Table 36: The detailed information of the students who participated at SCU.

SN	Name of the Student	Photo	Program	Mail and Contact Number
1	Yojana Regmi		Master of Science in Electrical Engineering in Power System	regmiyojana98@gmail.com;
2	Tanka Prasad Parajuli		Bachelor of Electrical and Electronics	tankaprasad122@gmail.com;

3.5.3 Profile of the Trainers

Table 37: profile of the trainers from the SCU

SN	Name of the Trainer	Photo	Designation	Academic Qualification
1	Leonardus Heru Pratamo		Head of the faculty of Electrical Engineering at SCU	PhD in Electrical Engineering
2	Prof. Dimitrios P. Lampridis		Aristotle University of Thessaloniki, Greece	PhD in Electrical Engineering
3	Arifin Wibisono		Lecture at Faculty of Electrical Engineering in SCU	Master in Electrical Engineering

3.5.4 Agenda of Mobility

The following program schedule was implemented by SCU so that the students could exploit the laboratory facilities established at SCU under the support of the eACCESS project.

Table 38: Detailed Program Schedule planned by the SCU for the PU students.

Date	**Activity**
02/11/2023, Thursday	Installation of PSIM Software and interfacing with it
03/11/2023, Friday	Day off
04/11/2023, Saturday	Lecture on the smart grid by Prof. Dimitrios P. Lampridis, Aristotle University of Thessaloniki, Greece
05/11/2023, Sunday	Day off
06/11/2023, Monday	Lecture on single and three-phase SPWM (unipolar and bipolar) inverter in PSIM and hardware implementation of inverter with induction motor
07/11/2023, Tuesday	Introduction to MPPT, its application on PV and simulation of solar panels using MPPT in PSIM.
08/11/2023, Wednesday	Independent Study by Students
09/11/2023, Thursday	Hardware Interfacing with PV using microgrid on grid/ off-grid/ups mode
10/11/2023, Friday	Visit to solar farm
11/11/2023, Saturday	Day off
12/11/2023, Sunday	Closing ceremony Farewell program with SCU student

3.5.5 Value Addition due to eACCESS Mobility Program

Since Nepal is heavily reliant on hydropower, mostly electrified from the centralized system, there are some contributions from solar firms and rural electrification, such as decentralized microgrid systems as grid connection provision. Also, there is a global rise in the trend of renewable energy. The mobility program had a significant positive impact on us because the equipment set up in the lab demonstrates our power industry.

A microgrid with PV and Battery with Grid connected provision and Lab, equipped with devices like solar, MPPT controller, AC DC breaker and protection, various inverters and SCADA, provides hands-on training and experimentation opportunities for students or professionals in the field of electrical engineering. Here are some outcomes that we gained from such a lab:

i) Understanding of energy generation from PV:
   - Gain knowledge about energy harnessing from a solar panel as required voltage level by combining panels.
   - Learn how to simulate and connect MPPT to generate optimum power.

ii) Understanding the DC AC breaker and protection:
   - Learn the principles of breaking and protection operation and the different types of MCB and MCCB used in protection systems.

iii) Understanding the practical of the application of microgrid
   - Analyse different modes: on-grid, off-grid, hybrid, and UPS mode

iv) Understanding the value of the storage system and choosing the system's rating in a connected microgrid to provide an uninterruptible power supply.

v) Understanding the connection between the microgrid and the power grid to avoid blackouts and minimize energy losses.

vi) Understanding the connection and selecting of commercial DC-DC converter and analysing microgrid operation on DC mode

vii) Understanding the connection and selecting the inverter used in the microgrid:
   - Connection provision of on-grid off-grid hybrid, and ups mode operation.

viii) Fault Simulation and Analysis:
   - Simulate electrical faults in the lab to understand how protection systems respond to different types of faults.
   - Detection of fault and study of the response of fault indicator during a fault condition

ix) Interdisciplinary Learning:
   - Gain interdisciplinary knowledge by integrating concepts from power systems, control systems, and electronics in the context of microgrids.

x) Safety Practices:
   - Emphasize and practice safety procedures for working with microgrid equipment and protective devices.
   - Develop an understanding of the importance of safety in the operation and maintenance of microgrid power systems.

Overall, a PV microgrid connection with the power grid lab provides individuals with a practical and immersive environment to bridge the gap between theoretical knowledge and real-world applications in smart power systems and electrical engineering.

3.5.6 Certificates and Attendance of Students

The sample format of the certificate provided to PU students after the completion of training held at SCU is mentioned in Appendix section 5.1.5. Both students have received the certificate of completion. Attendance of the student carried out by the SCU for the overall training period is mentioned in Appendix 5.2.2.

3.5.7 Teaching/Training Materials

Teaching/Training Materials encompass a variety of resources utilized during the eACCESS Mobility Program.

a. Lecture Presentations

Engaging and informative presentations are meticulously crafted by trainers and lecturers, covering various topics ranging from alternative energy sources (wind, solar, fuel cells) to signal processing, microgrids, and power electronics. These presentations are structured to offer in-depth insights into theoretical concepts and practical applications.

b. Laboratory Manuals

Detailed laboratory manuals are curated to guide participants through hands-on experiments and practical sessions conducted in the eACCESS-MGL (eACCESS microgrid laboratory). These manuals include step-by-step instructions, experimental procedures, and theoretical background, ensuring a comprehensive learning experience.

c. Simulation Software Modules

Training modules and exercises employing simulation software such as PSIM (Power Electronics Simulation) are provided. These modules offer practical exposure in simulating power electronics circuits, renewable energy systems, and control mechanisms. Participants are equipped with software-guided practices to reinforce theoretical learning.

d. Demonstrations

Live demonstrations are employed to complement theoretical teachings. These visual aids provide real-world examples, practical applications, and demonstrations of concepts discussed in lectures, offering a more dynamic and engaging learning experience.

3.5.8 eACCESS laboratory infrastructure at the host institution and the use of this laboratory for professional courses

There is a Microgrid lab at SCU, which has been used for the following:

- A microgrid with solar and battery is installed in the lab and used for practical use by the students. This laboratory is designed to assimilate a typical small PV plant in Indonesia's distribution network.
- SCADA system is used to monitor and control the microgrid.

Microgrid with PV on grid off grid mode laboratory as the newly developed laboratory consists of:

- PV as sources
- DC MCB MCCB
- Lead Acid Battery as storing element.
- MPPT controller
- Various types of inverters
- SCADA for controlling and monitoring.

3.5.9 Host Institution's Feedback about Student

The SCU response about the students from the PU who participated in the exchange program was collected through a questionnaire survey. Six questions were asked in net promoter score format, in which 1 represented the worst, and 10 represented the best. Observing the response from the host institution, they found that students attending the exchange program were up to their expectations, and they provided a rating of 10. Also, the instructors from the host institution found that students from PU actively participated in the training and social activities developed for the exchange program period, adapting to a new cultural environment and engaging in nature in practical classes. Detailed information regarding the feedback from the host institution is presented in Appendix 5.3.3.

3.5.10 Students' Feedback About the Host Institution

Feedback about the host institution from the students attending the exchange program is also taken. The detailed response of the students is provided in the appendix section 5.3.4. As per the response obtained, students from PU found that the mobility program met their expectations and was clearly presented and logically structured. In addition, the instructor developed and delivered the course effectively, which helped to engage the participants during the exchange program. Further, the course offered by the host institution encourages the participants. It helps them take responsibility in the field of training given to the students based on their responses. Also, with the practical-based teaching through the exchange program period, students from the PU thought they could deliver the training on the topic with which they were familiar.

3.5.11 Photographs Related to the Program

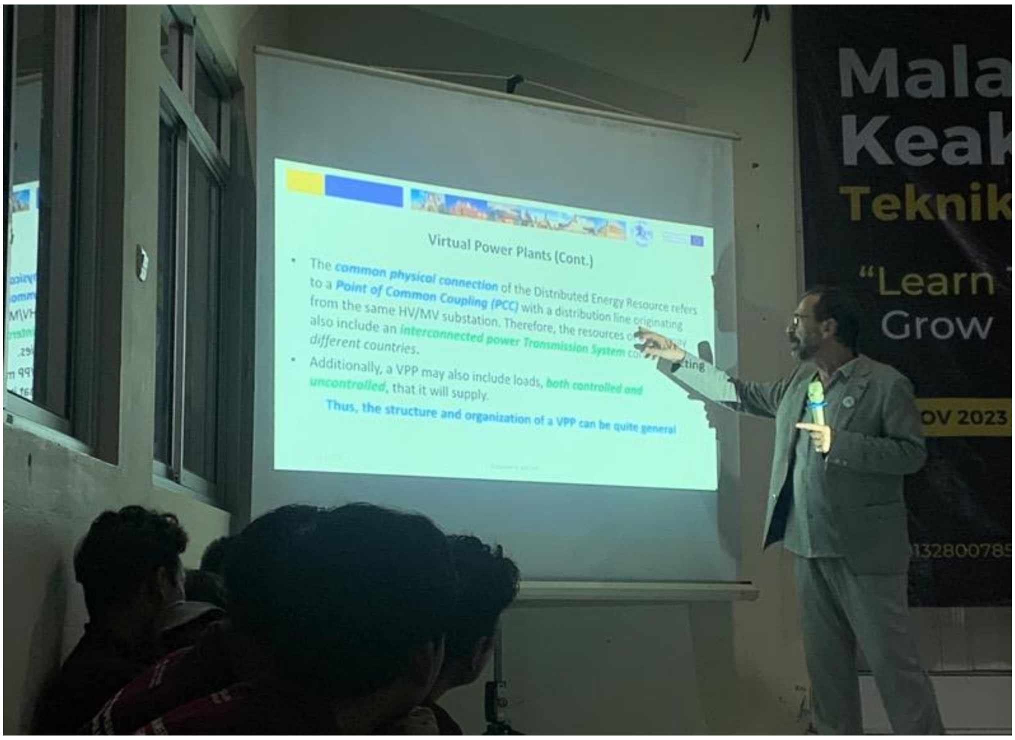


Figure 69: Lecture on intelligent power systems.

Figure 70: After attending the lecture on intelligent power systems.

Figure 71: Inverter connection at power electronic laboratory.

Figure 72: With Arifin sir at the power electronic laboratory.

Figure 73: Simulation of PV with MPPT.

Figure 74: With Professor Leo at the power electronic lab after simulation of PV with MPPT.

Figure 75: Training on microgrid operation.

Figure 76: During the break on the way for the solar firm technical visit.


Figure 77: At solar farm.

Figure 78: In the farewell meeting.


Figure 79: Group photo in Closing Ceremony

4. Final Remarks

4.1 Summary

EU-Asia Collaboration for Accessible Education in Smart Power Systems (eACCESS) project aimed to develop and modernize undergraduate and graduate Power and Electrical Engineering curricula for partner Asian universities. The project aimed to address knowledge and skills gaps in modern power systems within the identified countries through knowledge dissemination, laboratory infrastructure and skill development, and capacity building.

The eACCESS project developed four different laboratories at four different partner universities: Photovoltaic Laboratory at Atma Jaya Catholic University (ATM), Indonesia; the Microgrid Laboratory at Seogijapranata Catholic University (SCU), Indonesia; the Switchgear and Protection Laboratory at the Royal University of Bhutan (RUB), Bhutan, and Automation and Power Electronics Laboratory at Kantipur Engineering College (KEC), Nepal which help to Asian partner universities to provide training to students and professional.

The staff/student mobility programs were conducted for capacity building. Selected staff/students from Asian partner institutions visited the laboratories of other Asian partner institutions, where they had the opportunity to acquire new skills. The staff/student mobility is depicted in Figure 66 below, which provides the number of staff/students from the sending institution and the total number of days spent at the host institution.

In total, 23 mobility applicants were selected for the mobility program from four different partner (PU, SCU, ATM and KEC) universities, of which 19 were students from three different partner (PU, SCU, and ATM) institutions, and 4 were the staff members from the KEC.

Five students were sent from SCU to KEC. Six students from ATM travelled to SCU. From the eight students selected by PU, four students went on mobility to RUB, two were sent for training at SCU. Unfortunately, two other PU students could not attend the training due to administrative passport and visa problems.

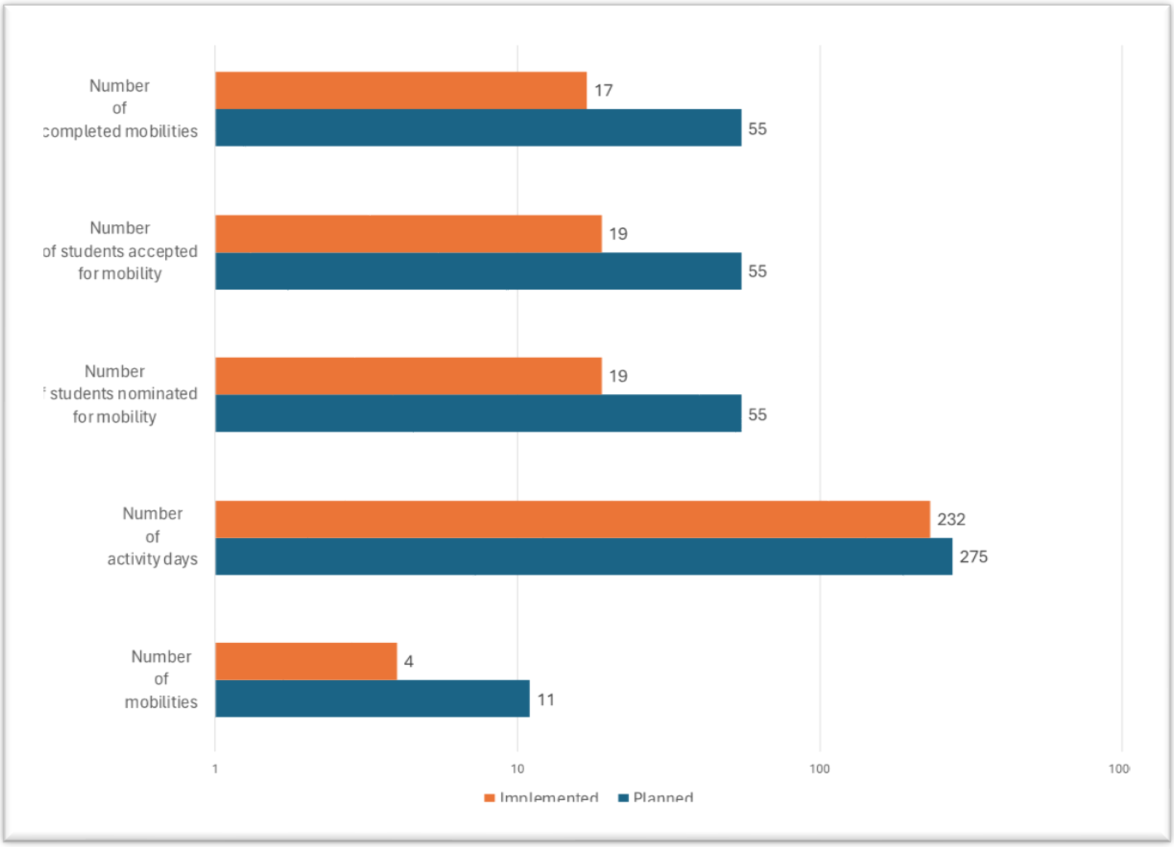


Figure 80 Achieved results for student mobilities against initially planned targets.

4.2 Conclusion

The developed eACCESS laboratory infrastructures created excellent opportunity for the horizontal, regional cooperation between Asian partner universities. Against serious delays in the development of the four laboratories, mainly related to the COVID-19 impact at the initial stage of the project implementation, delays in the communication of potential suppliers, broken supply chains (more details concerning these problems can be found in deliverables of the work package WP4 D4.2-D4.5), the eACCESS consortium not only managed to validate the value of the developed teaching infrastructures not only with the regular teaching of regular courses (more details are available in deliverables **D2.6 Validation of the core teaching module**s and **D2.7 Validation of the additional teaching modules)** as well as with the implemented professional courses (for details see deliverable **D2.5 Validation of the developed professional trainings**), but the Asian partners managed in the very last moment launch the horizontal student and staff mobilities based on signed MoU(s).

Altogether, 53 active student mobility days have been implemented (from 55 activity days declared in the proposal[1]). The initially declared 7-day mobilities had[2] to be converted due to CBHE rules into required 14-day mobilities, which have been fully achieved, except to one case of two students participating the mobility PU to SCU, where their mobility had to be reduced to 11 days due to visa problems and the requirement to finalize the mobility and return to home university before the deadline of the project (13/11/2023).

From planned 275 mobility activity days at the site, 232 days have been achieved. It allowed cross-validate the developed laboratory infrastructures, and participation of students in regular classes (lectures, tutorials, practical exercises at laboratories already available at partner universities) and special events (invited lecturers, technical visits, and meetings with local industrial partners).

Another consequence of the extension of the duration of student mobilities from 7 to 14 days, increased travel expenses after COVID-19 pandemic period, and administrative problems with passport and visa applications was the significantly reduced number of students taking part in the eACCESS mobility programme. From 55 students originally planned, 17 students completed their mobilities at partner universities.

The remaining travel budget originally intended for students had to be reallocated to staff mobility and KEC used this opportunity to organize ad hoc and implement 7-day staff mobility at SCU for 4 members of the academic staff.

In summary, against all the negative factors impacting the project implementation from 275 mobility activity days at the partner universities, 260 days have been implemented.

The feedback provided by the students who implemented their mobilities at partner universities and the feedback collected from the academic staff at hosting universities, shows that the objective of the horizontal mobility of the staff and students has been achieved and students are fully satisfied with the prepared mobility programmes concerning their study courses, unique opportunities of technical visits, improvement of foreign language and communication skills, attended social and cultural activities. The provided answers and achieved results encourage partners to continue the horizontal student mobility in the future with bilateral and multilateral agreements.

[1] In the original eACCESS proposal 77 student mobility days have been envisaged, which considering at least 2 days necessary for regional travel, results in 55 activity days at the partner university.
[2] This problem was discovered at the kick-off of the project at the meeting in Brussels in December 2019, and following PO suggestion, the number of mobilities initially declared (11) has been reduced, and the duration of student mobilities has been extended to 14 days. The available budget had to cover also travel days (with 2 days for return travel in the region), which further limited number of available mobility activity days With the maintained original budget, this resulted in halved number of student regional mobilities (5 implemented mobilities).

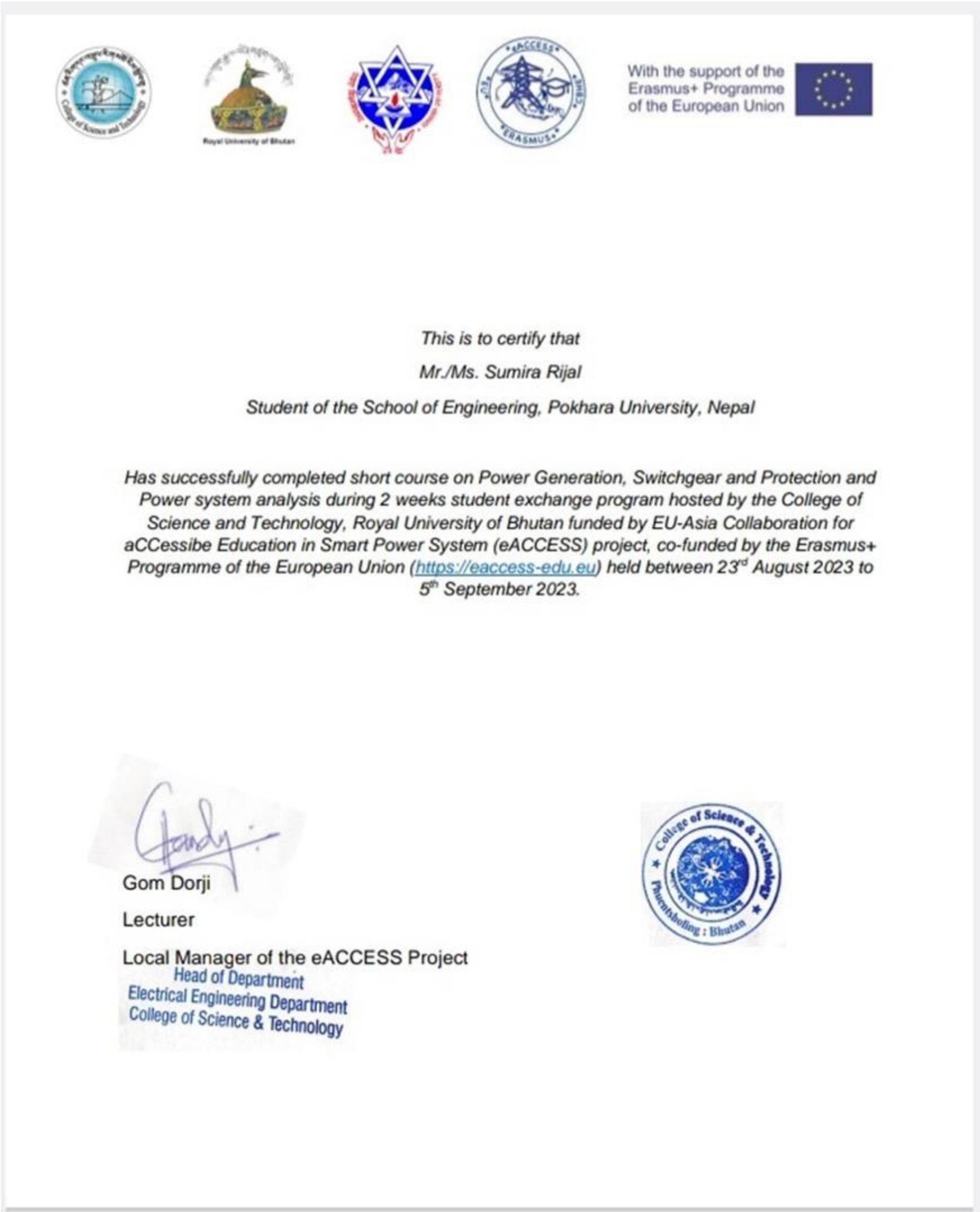
Three of four partners (KEC, RUB and SCU) supported by UWS, managed to implement at least the initial form of laboratory virtualisation. The results achieved are limited from a technological point of view due to the availability of equipment, available time, limited resources, and a lack of experience with virtual laboratory concepts. Currently, the virtual laboratories mainly serve dissemination activities and help academic staff at partner universities prepare students for the activities that will be conducted in physical laboratories supported and developed by the eACCESS project.

The experience gained in this project shows that the laboratory virtualization is a daunting challenge which requires significantly more time and resources skilled with 3D modelling of the facilities, development of digital twins and efficient real-time simulation of the physical assets installed in the laboratories. Problems with stable access to the fast Internet, limited simulation (computing) equipment create now hard obstacles for advanced virtualisation of physical assets at partner universities.

5. Appendix

5.1 Certificate for participation in the mobility program.

5.1.1 Certificate Provided by RUB to PU student.



Royal University of Bhutan

With the support of the Erasmus+ Programme of the European Union

This is to certify that

Mr./Ms. Sumira Rijal

Student of the School of Engineering, Pokhara University, Nepal

Has successfully completed short course on Power Generation, Switchgear and Protection and Power system analysis during 2 weeks student exchange program hosted by the College of Science and Technology, Royal University of Bhutan funded by EU-Asia Collaboration for aCCessibe Education in Smart Power System (eACCESS) project, co-funded by the Erasmus+ Programme of the European Union (https://eaccess-edu.eu) held between 23rd August 2023 to 5th September 2023.

Gom Dorji

Lecturer

Local Manager of the eACCESS Project

Head of Department
Electrical Engineering Department
College of Science & Technology

College of Science & Technology
Phuentsholing : Bhutan

5.1.2 An example of the certificate awarded to SCU students by KEC academic staff.

5.1.3 Certificates are given to ATM students by SCU academic staff.


SOEGIJAPRANATA
CATHOLIC UNIVERSITY

With the support of the
Erasmus+ Programme
of the European Union

EU-Asia Collaboration for aCcessible Education in Smart Power Systems : eACCESS

Unika SOEGIJAPRANATA

Capacity Building in the field of higher education

Certificate of Participation

This certificate is awarded to

Ima Nath Duwadi

for participation in a five-day training entitled
Renewable Energy and Microgrid
9th – 13th October 2023
by Soegijapranata Catholic University under the Erasmus+ eACCESS Project

Semarang, 13th October 2023

Dr. Leonardus Heru Pratomo, ST.MT
Head of Electrical Engineering Department

Prof.Dr.Ir. Slamet Riyadi, MT
Dean of Engineering Faculty


SOEGIJAPRANATA
CATHOLIC UNIVERSITY

With the support of the
Erasmus+ Programme
of the European Union

EU-Asia Collaboration for aCcessible Education in Smart Power Systems : eACCESS

Unika SOEGIJAPRANATA

Capacity Building in the field of higher education

Certificate of Participation

This certificate is awarded to

Yojana Regmi

for participation in Student Mobility
2nd – 10th November 2023
by Soegijapranata Catholic University under the Erasmus+ eACCESS Project

Semarang, 13th November 2023

Dr. Leonardus Heru Pratomo, ST.MT
Head of Electrical Engineering Department

Prof.Dr.Ir. Slamet Riyadi, MT
Dean of Engineering Faculty

5.2 Attendance of Students

5.2.1 Attendance of students from PU participating in RUB training.

With the support of the
Erasmus+ Programme
of the European Union

Students Exchange Programme under the EU-Asia Collaboration for aCCessibe Education in Smart Power System (eACCESS) project, co-funded by the Erasmus+ Programme of the European Union.

Project Ref. No: 610041-EPP-1-PL-EPPKA2-CBHE-JP

Date	eACCESS Task	Attendance			
		Sumira Rijal	Saurav Thapa	Aashish Thapa Chhetri	Amit Kumar Chaudhary
23/8/2023, Wednesday	Switchgear and protection				
24/8/2023 Thursday	Switchgear and Protection				
25/8/2023 Friday	Practical on Switchgear and protection				
26/8/2023 Saturday	Day off	—	—	—	—
27/8/2023 Sunday	Day off	—	—	—	—
28/8/2023, Monday	Power generation				
29/8/2023, Tuesday	High voltage Engineering & VLE training				
30/8/2023, Wednesday	High voltage Engineering				
31/8/2023, Thursday	Power system Analysis				
1/9/2023 Friday	Power system Analysis				
2/9/2023 Saturday	Visit Chukha Hydropower Plant.				
3/9/2023 Sunday	Visit Basochu Hydropower Plant				
4/9/2023, Monday	Visit Rubesa Wind farm and solar power plant				
5/9/2023	Visit Semtokha 220 kV substation				

Verified by: Gom Dorji

Head of Electrical Engineering Department

5.2.2 Attendance records for students from PU participating in SCU training.

FAKULTAS TEKNIK
Program Studi Teknik Elektro
Jl. Pawiyatan Luhur IV/1 Bendan Duwur Semarang 50234
Telp : (024) 8441555 (hunting) Fax : (024) 8415429 – 8445265
Email : tu.kelektro@unika.ac.id

Unika SOEGIJAPRANATA

DAFTAR HADIR
KUNJUNGAN TAMU POKHARA UNIVERSITY KE
PROGRAM STUDI TEKNIK ELEKTRO FAK. TEKNIK
KAMIS, 2 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Tanka Prasad Parajuli	1	
2	Yojana Regmi		2

DAFTAR HADIR
KUNJUNGAN TAMU POKHARA UNIVERSITY KE
PROGRAM STUDI TEKNIK ELEKTRO FAK. TEKNIK
JUMAT, 3 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Yojana Regmi	1	
2	Tanka Prasad Parajuli		2

DAFTAR HADIR
KUNJUNGAN TAMU POKHARA UNIVERSITY KE
PROGRAM STUDI TEKNIK ELEKTRO FAK. TEKNIK
SABTU, 4 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Yojana Regmi	1	
2	Tanka Prasad Parajuli		2

DAFTAR HADIR
KUNJUNGAN TAMU POKHARA UNIVERSITY KE
PROGRAM STUDI TEKNIK ELEKTRO FAK. TEKNIK
MINGGU,5 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Yojana Regmi	1	
2	Tanka Prasad Parajuli		2

DAFTAR HADIR
KUNJUNGAN TAMU POKHARA UNIVERSITY KE
PROGRAM STUDI TEKNIK ELEKTRO FAK. TEKNIK
SENIN, 6 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Yojana Regmi	1	
2	Tanka Prasad Parajuli		2
3		3	

DAFTAR HADIR
KUNJUNGAN TAMU POKHARA UNIVERSITY KE
PROGRAM STUDI TEKNIK ELEKTRO FAK. TEKNIK
SELASA, 7 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Yojana Regmi	1	
2	Tanka Prasad Parajuli		2

DAFTAR HADIR
KUNJUNGAN TAMU POKHARA UNIVERSITY KE
PROGRAM STUDI TEKNIK ELEKTRO FAK. TEKNIK
RABU, 8 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Yojana Regmi	1	
2	Tanka Prasad Parajuli		2

DAFTAR HADIR
KUNJUNGAN TAMU POKHARA UNIVERSITY KE PROGRAM STUDI TEKNIK ELEKTRO FAK. TEKNIK

KAMIS, 9 NOVEMBER 2023

No.	Nama	TANDA TANGAN	
1	Yojana Regmi	1	
2	Tanka Prasad Parajuli		2

DAFTAR HADIR
KUNJUNGAN TAMU POKHARA UNIVERSITY KE PROGRAM STUDI TEKNIK ELEKTRO FAK. TEKNIK

JUMAT, 10 NOVEMBER 2023

No.	Nama	TANDA TANGAN	
1	Yojana Regmi	1	
2	Tanka Prasad Parajuli		2

5.2.3 Attendance of students from SCU participating at KEC

Kantipur Engineering College, Kathmandu 1998

With the support of the Erasmus+ Programme of the European Union

STUDENT TRAINING SCU TO KEC
Day 1 (24th Sept 2023)

ATTENDENCE

Event: Welcome dinner
Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature	
		Morning	Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

With the support of the
Erasmus+ Programme
of the European Union

STUDENT TRAINING SCU TO KEC

Day 2 (25th Sept 2023)

ATTENDENCE

Event: Orientation about college, laboratories, student clubs and departments

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature	
		Morning	Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

With the support of the
Erasmus+ Programme
of the European Union

STUDENT TRAINING SCU TO KEC

Day 3 (26th Sept 2023)

ATTENDENCE

Event: Exercises on Automation Lab

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature	
		Morning	Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

With the support of the Erasmus+ Programme of the European Union

STUDENT TRAINING SCU TO KEC

Day 4 (27th Sept 2023)

ATTENDENCE

Event: Exercises on Automation Lab

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature	
		Morning	Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AZREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

With the support of the Erasmus+ Programme of the European Union

STUDENT TRAINING SCU TO KEC

Day 5 (28th Sept 2023)

ATTENDENCE

Event: Exercises on Automation Lab

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature	
		Morning	Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AZREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

With the support of the
Erasmus+ Programme
of the European Union

STUDENT TRAINING SCU TO KEC

Day 6 (29th Sept 2023)

ATTENDENCE

Event: Exercises on Automation Lab

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature Morning	Signature Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

With the support of the
Erasmus+ Programme
of the European Union

STUDENT TRAINING SCU TO KEC

Day 7 (30th Sept 2023)

ATTENDENCE

Event: Self Exploration of new culture experiencing local traditions

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature Morning	Signature Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

With the support of the Erasmus+ Programme of the European Union

STUDENT TRAINING SCU TO KEC

Day 8 (1st Oct, 2023)

ATTENDENCE

Event: Exercises on Automation Lab

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature Morning	Signature Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

With the support of the Erasmus+ Programme of the European Union

STUDENT TRAINING SCU TO KEC

Day 9 (2nd Oct, 2023)

ATTENDENCE

Event: Exercises on Automation Lab and Load Dispatch Center visit

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature Morning	Signature Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

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STUDENT TRAINING SCU TO KEC

Day 10 (3rd Oct, 2023)

ATTENDENCE

Event: Laboratory Exercises in Electrical Engineering (Circuit Theory and Electric Machine)

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature Morning	Signature Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

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STUDENT TRAINING SCU TO KEC

Day 11 (4th Oct, 2023)

ATTENDENCE

Event: Laboratory Exercises in Electrical Engineering(Simulation exercises: Microprocessor, Control System and Instrumentation)

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature Morning	Signature Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

With the support of the Erasmus+ Programme of the European Union

STUDENT TRAINING SCU TO KEC

Day 12 (5th Oct, 2023)

ATTENDENCE

Event: Exercises on Power Electronics Lab

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature	
		Morning	Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

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STUDENT TRAINING SCU TO KEC

Day 13 (6th Oct, 2023)

ATTENDENCE

Event: Self Exploration of new culture experiencing local traditions

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature	
		Morning	Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

Kantipur Engineering College
Kathmandu 1998

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STUDENT TRAINING SCU TO KEC

Day 14 (7th Oct, 2023)

ATTENDENCE

Event: Farewell meeting

Organizer: Kantipur Engineering College, Dhapakhel, Lalitpur, Nepal

S.N	Name	Signature	
		Morning	Day
1	AKHILES KRISNA DAMARJATI SANTOSO		
2	AIREL DARA SWASTIKA		
3	DIMAS RAGIL YANUARDI		
4	GRACIA AMELIA ATADY		
5	RICKY JOSE ANDREAS		

5.2.4 Attendance records for students from KEC participating in SCU training.

FAKULTAS TEKNIK
Jl. Pawiyatan Luhur IV/1 Bendan Duwur Semarang 50234
Telp : (024) 8441555 (hunting) Fax : (024) 8415429 – 8445265
Email : elektro@unika.ac.id

Unika SOEGIJAPRANATA

SCU Training Attendance

Date : 09 October 2023
Time : 09.00 – 12.00
Session : I

No	N a m e	Institution	Sign
1	Pralhad Chapagain	Kantipur Engineering College	
2	Ishwor Lal Maharjan	Kantipur Engineering College	
3	Binod Subedi	Kantipur Engineering College	
4	Ima Nath Duwadi	Kantipur Engineering College	

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Jl. Pawiyatan Luhur IV/1 Bendan Duwur Semarang 50234
Telp : (024) 8441555 (hunting) Fax : (024) 8415429 – 8445265
Email : elektro@unika.ac.id

Unika SOEGIJAPRANATA

SCU Training Attendance

Date : 09 October 2023
Time : 13.00 – 16.00
Session : II

No	N a m e	Institution	Sign
1	Pralhad Chapagain	Kantipur Engineering College	
2	Ishwor Lal Maharjan	Kantipur Engineering College	
3	Binod Subedi	Kantipur Engineering College	
4	Ima Nath Duwadi	Kantipur Engineering College	

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Unika SOEGIJAPRANATA

SCU Training Attendance

Date : 10 October 2023
Time : 09.00 – 12.00
Session : I

No	N a m e	Institution	Sign
1	Pralhad Chapagain	Kantipur Engineering College	
2	Ishwor Lal Maharjan	Kantipur Engineering College	
3	Binod Subedi	Kantipur Engineering College	
4	Ima Nath Duwadi	Kantipur Engineering College	

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Unika SOEGIJAPRANATA

SCU Training Attendance

Date : 10 October 2023
Time : 13.00 – 16.00
Session : II

No	N a m e	Institution	Sign
1	Pralhad Chapagain	Kantipur Engineering College	
2	Ishwor Lal Maharjan	Kantipur Engineering College	
3	Binod Subedi	Kantipur Engineering College	
4	Ima Nath Duwadi	Kantipur Engineering College	

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SCU Training Attendance

Date : 11 October 2023
Time : 09.00 – 12.00
Session : I

No	N a m e	Institution	Sign
1	Pralhad Chapagain	Kantipur Engineering College	
2	Ishwor Lal Maharjan	Kantipur Engineering College	
3	Binod Subedi	Kantipur Engineering College	
4	Ima Nath Duwadi	Kantipur Engineering College	

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Unika SOEGIJAPRANATA

SCU Training Attendance

Date : 11 October 2023
Time : 13.00 – 16.00
Session : II

No	N a m e	Institution	Sign
1	Pralhad Chapagain	Kantipur Engineering College	
2	Ishwor Lal Maharjan	Kantipur Engineering College	
3	Binod Subedi	Kantipur Engineering College	
4	Ima Nath Duwadi	Kantipur Engineering College	

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Telp : (024) 8441555 (hunting) Fax : (024) 8415429 – 8445265
Email : elektro@unika.ac.id

Unika SOEGIJAPRANATA

SCU Training Attendance

Date : 12 October 2023
Time : 09.00 – 12.00
Session : I

No	N a m e	Institution	Sign
1	Pralhad Chapagain	Kantipur Engineering College	
2	Ishwor Lal Maharjan	Kantipur Engineering College	
3	Binod Subedi	Kantipur Engineering College	
4	Ima Nath Duwadi	Kantipur Engineering College	

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FAKULTAS TEKNIK
Jl. Pawiyatan Luhur IV/1 Bendan Duwur Semarang 50234
Telp : (024) 8441555 (hunting) Fax : (024) 8415429 – 8445265
Email : elektro@unika.ac.id

Unika SOEGIJAPRANATA

SCU Training Attendance

Date : 12 October 2023
Time : 13.00 – 16.00
Session : II

No	N a m e	Institution	Sign
1	Pralhad Chapagain	Kantipur Engineering College	
2	Ishwor Lal Maharjan	Kantipur Engineering College	
3	Binod Subedi	Kantipur Engineering College	
4	Ima Nath Duwadi	Kantipur Engineering College	

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FAKULTAS TEKNIK
Jl. Pawiyatan Luhur IV/1 Bendan Duwur Semarang 50234
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Unika SOEGIJAPRANATA

SCU Training Attendance

Date : 13 October 2023
Time : 09.00 – 12.00
Session : I

No	N a m e	Institution	Sign
1	Pralhad Chapagain	Kantipur Engineering College	
2	Ishwor Lal Maharjan	Kantipur Engineering College	
3	Binod Subedi	Kantipur Engineering College	
4	Ima Nath Duwadi	Kantipur Engineering College	

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Unika SOEGIJAPRANATA

SCU Training Attendance

Date : 13 October 2023
Time : 13.00 – 16.00
Session : II

No	N a m e	Institution	Sign
1	Pralhad Chapagain	Kantipur Engineering College	
2	Ishwor Lal Maharjan	Kantipur Engineering College	
3	Binod Subedi	Kantipur Engineering College	
4	Ima Nath Duwadi	Kantipur Engineering College	

With the support of the Erasmus+ Programme of the European Union

5.2.5 Attendance records of students from ATM participating in SCU training.

FAKULTAS TEKNIK
Program Studi Teknik Elektro
Jl. Pawiyatan Luhur IV/1 Bendan Duwur Semarang 50234
Telp : (024) 8441555 (hunting) Fax : (024) 8415429 – 8445265
Email : teknikelektro@unika.ac.id

Unika SOEGIJAPRANATA

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE PROGDI. TEKNIK ELEKTRO UNIKA SOEGIJAPRANATA
SENIN, 30 OKTOBER 2023

No.	N a m a	TANDA	TANGAN
1	CRISTONI HASIHOLAN PARDOSI	1	
2	Christian Richardo Hartarto		2
3	THEO MARSEL SURYA MILISCA S.	3	
4	Cornelius Alvin Nathaniel		4
5	Louis Nicholas	5	
6	Hans Adrian		6

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE PROGDI. TEKNIK ELEKTRO UNIKA SOEGIJAPRANATA
SELASA, 31 OKTOBER 2023

No.	N a m a	TANDA	TANGAN
1	Christian Richardo Hartarto	1	
2	CRISTONI HASIHOLAN PARDOSI		2
3	THEO MARSEL SURYA MILISCA SEMBIRING	3	
4	Louis Nicholas		4
5	Hans Adrian Indahsi	5	
6	Cornelius Alvin Nathaniel		6
7		7	

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE
PROGDI. TEKNIK ELEKTRO - UNIKA SOEGIJAPRANATA
RABU, 1 NOVEMBER 2023

No.	Nama	TANDA TANGAN	
1	THEO MARSEL SURYA M.S	1	
2	cornelius alvin nathaniel		2
3	Louis Nicholas	3	
4	Christian Richarda Hartanto		4
5	Hans Adrian Indrasi	5	
6	CRISTONI HASIHOLAN PARDOSI		6

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE
PROGDI. TEKNIK ELEKTRO - UNIKA SOEGIJAPRANATA
KAMIS, 2 NOVEMBER 2023

No.	Nama	TANDA TANGAN	
1	Louis Nicholas	1	
2	Christian Richarda H		2
3	Hans Adrian Indahsi	3	
4	CRISTONI HASIHOLAN PARDOSI		4
5	THEO MARSEL SURYA MILISCA S	5	
6	cornelius alvin Nathaniel		6

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE
PROGDI. TEKNIK ELEKTRO - UNIKA SOEGIJAPRANATA
JUMAT, 3 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Louis Nicholas	1	
2	Christian Richardo H		2
3	Hans Adrian Indahsi	3	
4	CRISTONI HASIHOLAN PARDOSI		4
5	THEO MARSEL SURYA MILISCA S	5	
6	cornelius Alvin nathaniel		6
7		7	

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE
PROGRAM STUDI TEKNIK ELEKTRO FAK. TEKNIK
SABTU, 4 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Louis Nicholas	1	
2	christian Richardo H		2
3	CRISTONI HASIHOLAN PARDOSI	3	
4	Cornelius Alvin Nathaniel		4
5	Hans Adrian Indahsi	5	
6	THEO MARSEL SURYA MILISCAS		6
7		7	

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE
PROGRAM STUDI TEKNIK ELEKTRO FAK. TEKNIK
MINGGU, 5 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Louis Nicholas	1	
2	Christian Richardo H		2
3	CRISTONI HASIHOLAN PARDOSI	3	
4	Cornelius Alvin Nathaniel		4
5	Hans Adrian Indahsi	5	
6	THEO MARSEL SURYA MILISCA S		6

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE
PROGDI. TEKNIK ELEKTRO - UNIKA SOEGIJAPRANATA
SENIN, 6 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Louis Nicholas	1	
2	CRISTONI HASIHOLAN PARDOSI		2
3	Christian Richardo H	3	
4	THEO MARSEL SURYA MILISCA S		4
5	Cornelius Alvin Nathaniel	5	
6	Hans Adrian Indahsi		6
7		7	

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE
PROGDI. TEKNIK ELEKTRO - UNIKA SOEGIJAPRANATA
SELASA, 7 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Louis Nichols	1	
2	Christian Richardo H		2
3	CRISTONI HASIHOLAN PARDOSI	3	
4	Cornelius Alvin Nathaniel		4
5	Hans Adrian Indahs	5	
6	Theo Marsel Surya Milisca Sembiring		6

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE
PROGDI. TEKNIK ELEKTRO - UNIKA SOEGIJAPRANATA
RABU, 8 NOVEMBER 2023

No.	Nama	TANDA	TANGAN
1	Louis Nichols	1	
2	Christian Richardo Hartanta		2
3	CRISTONI HASIHOLAN PARDOSI	3	
4	THEO MARSEL SURYA MILISCA S		4
5	Hans Adrian Indahsi	5	
6	Cornelius Alvin Nathaniel		6

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE
PROGDI. TEKNIK ELEKTRO - UNIKA SOEGIJAPRANATA
KAMIS, 9 NOVEMBER 2023

No.	Nama	TANDA TANGAN	
1	Louis Nicholas	1	
2	Christian Richardo Hosana		2
3	CRISTONI HASIHOLAN PARDOSI	3	
4	THEO MARSEL SURYA MILISCA S		4
5	Hans Adrian Indahsi	5	
6	Cornelius Alvin Nathaniel		6
7		7	

DAFTAR HADIR
KUNJUNGAN UNIVERSITAS ATMA JAYA JAKARTA KE
PROGDI. TEKNIK ELEKTRO - UNIKA SOEGIJAPRANATA
JUMAT, 10 NOVEMBER 2023

No.	Nama	TANDA TANGAN	
1	Louis Nicholas	1	
2	Christian Richardo Hosana		2
3	CRISTONI HASIHOLAN PARDOSI	3	
4	THEO MARSEL SURYA MILISCA S		4
5	Hans Adrian Indahsi	5	
6	Cornelius Alvin Nathaniel		6
7		7	

5.3 Feedback Forms

5.3.1 Feedback from RUB staff concerning PU Students

With the support of the Erasmus+ Programme of the European Union

Capacity Building in the field of higher education

EU-Asia Collaboration for Accessible Education in Smart Power Systems (eACCESS)

Host Institution's Feedback About Students

Name of the Host Institution: RUB
Name of the Sender Institution: PU

Instruction: Please rank your perception from 1 to 10. (10 for best and 1 for worst)

1. Did the quality of students up to your expectation?

1	2	3	4	5	6	7	8	9	10
									X

2. Were the students actively participated in the activities developed for the two-week period?

1	2	3	4	5	6	7	8	9	10
									X

3. How would you describe students' adapting to a new cultural environment?

1	2	3	4	5	6	7	8	9	10
									X

4. Did the students actively participate in social activities or clubs organized by the institute?

1	2	3	4	5	6	7	8	9	10
									X

5. The level of engagement of students during laboratory sessions or practical classes?

1	2	3	4	5	6	7	8	9	10
									X

6. There are many barriers that hindered students' participation in the class discussion and/or laboratory activities?

1	2	3	4	5	6	7	8	9	10
	X								

5.3.2 Feedback from PU students concerning RUB staff.

With the support of the Erasmus+ Programme of the European Union

Capacity Building in the field of higher education

EU-Asia Collaboration for Accessible Education in Smart Power Systems (eACCESS)

T6.8 Exploitation of laboratory facilities and implementation of horizontal staff/student mobility

Feedback form for Student/Staff

Instruction: Please rank your perception from 1 to 10. (10 for best and 1 for worst)

1. Did the Mobility Program respond to your expectation?

1	2	3	4	5	6	7	8	9	10
									✓

2. Was the whole program-schedule attractively developed by the host institution? (Clearly presented and logically structured)

1	2	3	4	5	6	7	8	9	10
									✓

3. Was the program (laboratory training and course work) delivered effectively? (met the expectations, achieved the targets)

1	2	3	4	5	6	7	8	9	10
									✓

4. Did the program motivate the engagement of the participant?

1	2	3	4	5	6	7	8	9	10
									✓

5. Was the program designed to foster an active role on the participants?

1	2	3	4	5	6	7	8	9	10
									✓

6. Will knowledge and skills acquired during the mobility program help you to undertake your responsibilities in future?

1	2	3	4	5	6	7	8	9	10
									✓

7. After the knowledge and skills received from this program, will you be able to provide a training on such topics?

1	2	3	4	5	6	7	8	9	10
								✓	

5.3.3 Feedback from SCU staff concerning PU students.

With the support of the Erasmus+ Programme of the European Union

Capacity Building in the field of higher education

EU-Asia Collaboration for Accessible Education in Smart Power Systems (eACCESS)

Host Institution's Feedback About Students

Name of the Host Institution: Soegijapranata Catholic University, Indonesia
Name of the Sender Institution: Pokhara University, Nepal

Instruction: Please rank your perception from 1 to 10. (10 for best and 1 for worst)

1. The quality of students is up to the expectations of our institution.

1	2	3	4	5	6	7	8	9	10
								V	

2. Were the students actively participated in the activities developed for the two-week period?

1	2	3	4	5	6	7	8	9	10
							V		

3. How would you describe students' adapting to a new cultural environment?

1	2	3	4	5	6	7	8	9	10
									V

4. Did the students actively participate in social activities or clubs organized by the institute?

1	2	3	4	5	6	7	8	9	10
									V

5. The level of engagement of students during laboratory sessions or practical classes?

1	2	3	4	5	6	7	8	9	10
							V		

6. There are many barriers that hindered students' participation in the class discussion and/or laboratory activities?

1	2	3	4	5	6	7	8	9	10
	V								

5.3.4 Feedback from PU students concerning SCU staff.

With the support of the Erasmus+ Programme of the European Union

Capacity Building in the field of higher education

EU-Asia Collaboration for Accessible Education in Smart Power Systems (eACCESS)

T6.8 Exploitation of laboratory facilities and implementation of horizontal staff/student mobility

Staff/Students' feedback about Host Institution

Name of the Sender Institution: PU
Name of the Host Institution: SCU

Instruction: Please rank your perception from 1 to 10. (10 for best and 1 for worst)

1. Did the Mobility Program respond to your expectation?

1	2	3	4	5	6	7	8	9	10
							x		

2. Was the whole program-schedule attractively developed by the host institution? (Clearly presented and logically structured)

1	2	3	4	5	6	7	8	9	10
							x		

3. Was the program (laboratory training and course work) delivered effectively? (met the expectations, achieved the targets)

1	2	3	4	5	6	7	8	9	10
								x	

4. Did the program motivate the engagement of the participant?

1	2	3	4	5	6	7	8	9	10
								x	

5. Was the program designed to foster an active role on the participants?

1	2	3	4	5	6	7	8	9	10
								x	

6. Will knowledge and skills acquired during the mobility program help you to undertake your responsibilities in future?

1	2	3	4	5	6	7	8	9	10
									x

7. After the knowledge and skills received from this program, will you be able to provide a training on such topics?

1	2	3	4	5	6	7	8	9	10
								x	

5.3.5 Feedback from SCU staff concerning KEC staff.

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Capacity Building in the field of higher education

EU-Asia Collaboration for Accessible Education in Smart Power Systems (eACCESS)

Host Institution's Feedback About Students

Name of the Host Institution: SCU
Name of the Sender Institution: KEC

Instruction: Please rank your perception from 1 to 10. (10 for best and 1 for worst)

1. The quality of students is up to the expectations of our institution.

1	2	3	4	5	6	7	8	9	10
						√			

2. Were the students actively participated in the activities developed for the two-week period?

1	2	3	4	5	6	7	8	9	10
								√	

3. How would you describe students' adapting to a new cultural environment?

1	2	3	4	5	6	7	8	9	10
									√

4. Did the students actively participate in social activities or clubs organized by the institute?

1	2	3	4	5	6	7	8	9	10
								√	

5. The level of engagement of students during laboratory sessions or practical classes?

1	2	3	4	5	6	7	8	9	10
									√

6. There are many barriers that hindered students' participation in the class discussion and/or laboratory activities?

1	2	3	4	5	6	7	8	9	10
				√					

5.3.6 Feedback from KEC Staff concerning SCU staff.

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Capacity Building in the field of higher education

EU-Asia Collaboration for Accessible Education in Smart Power Systems (eACCESS)

T6.8 Exploitation of laboratory facilities and implementation of horizontal staff/student mobility

Staff feedback about Host Institution

Name of the Sender Institution: KEC
Name of the Host Institution: SCU

Instruction: Please rank your perception from 1 to 10. (10 for best and 1 for worst)

1. Did the Mobility Program respond to your expectation?

1	2	3	4	5	6	7	8	9	10
								√	

2. Was the whole program-schedule attractively developed by the host institution? (Clearly presented and logically structured)

1	2	3	4	5	6	7	8	9	10
									√

3. Was theprogram (laboratory training and course work)delivered effectively? (met the expectations, achieved the targets)

1	2	3	4	5	6	7	8	9	10
									√

4. Did the program motivate the engagement of the participant?

1	2	3	4	5	6	7	8	9	10
								√	

5. Was the program designed to foster an active role on the participants?

1	2	3	4	5	6	7	8	9	10
							√		

6. Will knowledge and skills acquired during the mobility program help you to undertake your responsibilities in future?

1	2	3	4	5	6	7	8	9	10
								√	

7. After the knowledge and skills received from this program, will you be able to provide a training on such topics?

1	2	3	4	5	6	7	8	9	10
				√					

5.3.7 Feedback from KEC staff concerning SCU students.

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Capacity Building in the field of higher education

EU-Asia Collaboration for Accessible Education in Smart Power Systems (eACCESS)

T6.8 Exploitation of laboratory facilities and implementation of horizontal staff/student mobility

Staff feedback about Host Institution

Name of the Sender Institution: KEC
Name of the Host Institution: SCU

Instruction: Please rank your perception from 1 to 10. (10 for best and 1 for worst)

1. Did the Mobility Program respond to your expectation?

1	2	3	4	5	6	7	8	9	10
								√	

2. Was the whole program-schedule attractively developed by the host institution? (Clearly presented and logically structured)

1	2	3	4	5	6	7	8	9	10
									√

3. Was theprogram (laboratory training and course work)delivered effectively? (met the expectations, achieved the targets)

1	2	3	4	5	6	7	8	9	10
									√

4. Did the program motivate the engagement of the participant?

1	2	3	4	5	6	7	8	9	10
								√	

5. Was the program designed to foster an active role on the participants?

1	2	3	4	5	6	7	8	9	10
							√		

6. Will knowledge and skills acquired during the mobility program help you to undertake your responsibilities in future?

1	2	3	4	5	6	7	8	9	10
								√	

7. After the knowledge and skills received from this program, will you be able to provide a training on such topics?

1	2	3	4	5	6	7	8	9	10
				√					

5.3.8 Feedback from SCU staff concerning ATM students.

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EU-Asia Collaboration for Accessible Education in Smart Power Systems (eACCESS)

Host Institution's Feedback About Students

Name of the Host Institution: Soegijapranata Catholic University, Indonesia
Name of the Sender Institution: Atmajaya Catholic University in Indonesia

Instruction: Please rank your perception from 1 to 10. (10 for best and 1 for worst)

1. The quality of students is up to the expectations of our institution.

1	2	3	4	5	6	7	8	9	10
								V	

2. Were the students actively participated in the activities developed for the two-week period?

1	2	3	4	5	6	7	8	9	10
								V	

3. How would you describe students' adapting to a new cultural environment?

1	2	3	4	5	6	7	8	9	10
									V

4. Did the students actively participate in social activities or clubs organized by the institute?

1	2	3	4	5	6	7	8	9	10
									V

5. The level of engagement of students during laboratory sessions or practical classes?

1	2	3	4	5	6	7	8	9	10
								V	

6. There are many barriers that hindered students' participation in the class discussion and/or laboratory activities?

1	2	3	4	5	6	7	8	9	10
V									

5.3.9 Feedback from ATM students concerning SCU students.

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EU-Asia Collaboration for Accessible Education in Smart Power Systems (eACCESS)

T6.8 Exploitation of laboratory facilities and implementation of horizontal staff/student mobility

Staff/Students' feedback about Host Institution

Name of the Sender Institution: Atma Jaya Catholic University
Name of the Host Institution: Soegijapranata Catholic University

Instruction: Please rank your perception from 1 to 10. (10 for best and 1 for worst)

1. Did the Mobility Program respond to your expectation?

1	2	3	4	5	6	7	8	9	10
								V	

2. Was the whole program-schedule attractively developed by the host institution? (Clearly presented and logically structured)

1	2	3	4	5	6	7	8	9	10
							V		

3. Was the program (laboratory training and course work) delivered effectively? (met the expectations, achieved the targets)

1	2	3	4	5	6	7	8	9	10
									V

4. Did the program motivate the engagement of the participant?

1	2	3	4	5	6	7	8	9	10
								V	

5. Was the program designed to foster an active role on the participants?

1	2	3	4	5	6	7	8	9	10
							V		

6. Will knowledge and skills acquired during the mobility program help you to undertake your responsibilities in future?

1	2	3	4	5	6	7	8	9	10
									V

7. After the knowledge and skills received from this program, will you be able to provide a training on such topics?

1	2	3	4	5	6	7	8	9	10
				V					

5.3.10 Feedback from SCU students concerning KEC staff.

1.	Teaching Approaches	Strongly Agree	Agree	Neutral	Disagree
1.1	The instructor stimulated my interest in the subject.	6	0	0	0
1.2	The instructor managed classroom time and pace well.	5	1	0	0
1.3	The instructor was organized and prepared for every class.	3	3	0	0
1.4	The instructor encouraged discussions and responded to questions.	5	1	0	0
1.5	The instructor demonstrated in-depth knowledge of the subject.	5	1	0	0
1.6	The instructor appeared enthusiastic and interested.	5	1	0	0
1.7	The instructor used a variety of instructional methods to reach the course objectives (e.g. group discussions, student presentations, etc.)	4	2	0	0
1.8	The instructor motivated participants to do their best work.	5	1	0	0
1.9	The instructor was punctual in the class.	4	0	2	0

2.	Assignments and Project	Strongly Agree	Agree	Neutral	Disagree
2.1	Assignments/Projects were useful to enhance self-learning.	2	4	0	0
2.2	Information about the projects was communicated clearly.	5	1	0	0
2.3	Feedback was provided within the stated timeframe.	0	4	2	0
2.4	Feedback showed how to improve my work (e .g. corrections including comments).	3	3	0	0

3.	Resources and Administration	Strongly Agree	Agree	Neutral	Disagree
3.1	The course was supported by adequate resources.	3	3	0	0
3.2	Training Resources and slides for the course were useful.	4	2	0	0
3.3	Instructor gave guidance on where to find resources.	2	4	0	0

4.	Additional Feedback	Strongly Agree	Agree	Neutral	Disagree
4.1	The objectives and syllabus were explained at the beginning of the training.	3	3	0	0
4.2	The training was delivered as outlined in the syllabus.	4	2	0	0
4.3	Projects/ assignments related to the course learning outcomes.	3	3	0	0

5.	Participant Self Evaluation	Strongly Agree	Agree	Neutral	Disagree
5.1	I am satisfied regarding experience of the training.	5	1	0	0
5.2	I participated and contributed constructively during in-class activities.	4	2	0	0
5.3	I feel I am achieving the learning outcomes.	5	1	0	0
5.4	I will implement this learning in my research work.	3	3	0	0

5.5	I will implement this learning in my teaching/project work.	4	2	0	0

6.	**Comments on Strengths and ways of Improvement**
(a)	What did you like best about Automation Training?
	The Lecturer, Lesson and every tools on the automation lab
	the detail teaching from the lecture very helpful to understand and the lecture very friendly
	I like every component automation training, especially for HMI and Scada for automation training.
	I like doing the practical session, especially when trying the VFD because I've never tried adjusting the frequency before, only the voltages.
	Detailed explanation of each component
	Well equipped lab and proper guidance.
(b)	What did you like least about Automation Training?
	Nothing
	-
	Nothing
	I like all the sessions, because it was an new experience and a new lesson for me.
	-
	N/A
(c)	What can be done to improve standard of such training?
	I suggest to add more practical tools and improve the PLC
	-
	I hope many more people can be train or study about industrial automation.
	Perhaps providing more training and collaborating with other to increase knowledge about about electricity.
	More detail, but more updated topics
	Conducting Regular training can help to improve the standard of such training
(d)	Any further, constructive comment:
	Nice experience
	-
	-
	-
	Keep the spirit on.
	N/A