EXPANDING ACCESS TO TECHNOLOGICAL SKILLS FOR THE PURSUIT OF HIGHER EDUCATION THROUGH THE "MODERNIZATION FOR ALL" COMMUNITY PROGRAM

PRINCIPLES 5:
A COMMITMENT TO THE OPPORTUNITY FOR EVERY INTERESTED INDIVIDUAL TO ACQUIRE THE SKILLS AND KNOWLEDGE NECESSARY FOR THE PURSUIT OF HIGHER EDUCATION

ASSOCIATE PROFESSOR ERWIN PARASIAN SITOMPUL, ASSISTANT PROFESSOR ANTONIUS SUHARTOMO, AND ASSISTANT PROFESSOR LYDIA DARMIANTI,
FACULTY OF ENGINEERING, PRESIDENT UNIVERSITY

BACKGROUND OF THE ACTIVITY

Rapid digital transformation has created new opportunities in education and employment, but it has also widened the digital and technological skills gap, especially for students and communities in resource-limited areas. Many junior high school students and village residents in Desa Lontar had limited exposure to renewable energy technology, digital safety education, and basic English communication, which are essential foundational skills for entering higher levels of education and the modern workforce

The "Modernization for All" program was designed as a concrete response to this challenge by introducing practical, accessible, and contextual technology learning. Through hands-on electronics projects, digital literacy education, and basic English communication practice, the program aimed to ensure that every interested individual gains early exposure to knowledge and skills that support their readiness for higher education, particularly in science, technology, and engineering fields.

BACKGROUND OF THE ACTIVITY

The activity was implemented on 16 July 2025 and involved 30 participants consisting of junior high school students and community members. The program followed five structured stages:

1. Pre-Test Stage

Participants' initial understanding of solar energy, online fraud risks, and basic English communication was assessed.

2. Material Delivery Session

Three core modules were delivered:

- Renewable Energy Technology: Introduction to photovoltaic solar panels and their application for street lighting.
- Digital Awareness & Online Fraud Prevention: Identification of common online scams and digital safety strategies.
- Basic English Communication: Greetings, polite expressions, asking directions, and daily conversation.

3. Hands-On Practical Session

Participants practiced:

- Assembling a mini solar-powered street light system,
- Simulating online fraud scenarios and responses,
- Conducting basic English role-play conversations.

4. Post-Test Stage

Learning outcomes were measured through post-activity assessment.

5. Evaluation & Reflection

Feedback was collected through discussions and surveys to evaluate program effectiveness.

All learning activities were conducted using participatory, experiential, and community-based approaches to ensure accessibility and active engagement

OUTPUT OF THE ACTIVITY

The key outputs of this UNAI-related activity include:

- Increased basic technological literacy, particularly in renewable energy systems.
- Improved digital awareness and cyber safety understanding, especially regarding online fraud prevention.
- Enhanced basic English communication skills for daily interactions.
- Increased confidence and motivation to continue education, particularly in science and technology-related fields.
- Strengthened interest in Electrical Engineering and applied technology among students.
- Development of a safe, inclusive, and adaptive learning culture within the community.
- Strengthened collaboration between university students and local communities.

Participants demonstrated significant improvement between pre-test and post-test results, indicating effective skill and knowledge acquisition

FUTURE ACTIVITIES

To ensure sustainability and wider educational impact, the following future activities are recommended:

- Regular replication of technology literacy workshops in other villages and schools.
- Expansion of learning modules into coding basics, robotics, and Internet of Things (IoT).
- Establishment of long-term mentoring programs connecting university students with junior high school learners.
- Development of bilingual (Indonesian–English) learning materials.
- Integration of this program into continuous university service-learning initiatives focused on higher education readiness.