



Project Management Office
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ACTIVITY REPORT

ACTIVITY TITLE: Mindanao Clean Energy Webinar Series 1 Energy Management System (ISO 50001) and Energy Audit (ISO 50002)

DATE: September 30, 2021

VENUE: Online Zoom

PERSON/INSTITUTION HEADING THE ACTIVITY: Mindanao CELLS

1. Head of the Activity: Mindanao CELLS

Heading the activity

NAME	DESIGNATION	OFFICE
Dr. Rogelio C. Golez Jr.	Project Leader	XU MindaCELLs
Julemer Ann G. Aying	Project Manager	XU MindaCELLs
Siegred Lastimoso	Project Monitor	XU MindaCELLs
Marc Nico B. Labadan	Admin Assistant	XU MindaCELLs
Cherry Mae Selma	Finance Officer	XU MindaCELLs
James Patrick Carcueva	Junior Research Assistant	XU MindaCELLs

For Participants Attendance:

- **113 (42.1%)** from **Capitol University**;
- **97 (36.8%)** from **Xavier University Ateneo de Cagayan**
- **44 (16.9%)** from **University of Science and Technology of the Philippines**;
- **7 (2.6%)** from **Central Mindanao University**;
- **2 (0.8%)** from **Saint Joseph Institute of Technology**



OBJECTIVES OF THE ACTIVITY:

- At the end of the activity, student participants are able to
 - Understand the Fundamentals of Wholesale Electricity Spot Market (WESM) in Mindanao.
 - Understand the Energy Management System (ISO 50001) and Energy Management Audit (ISO 50002).

2. OUTPUT OF THE ACTIVITY:

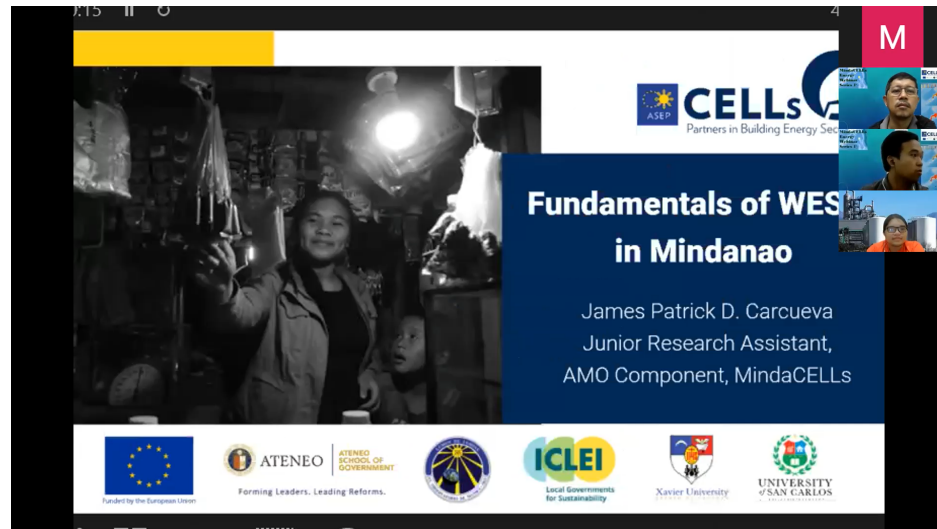
Results of survey questions and its analysis
Activity report and Documentation
List of participants and Evaluation results

3. HIGHLIGHTS OF THE ACTIVITY

Before the start of the activity, there are ASEP-CELLs video loop for the participants to watch and provide information to the participants about ASEP-CELLs in the Philippines and Mindanao.

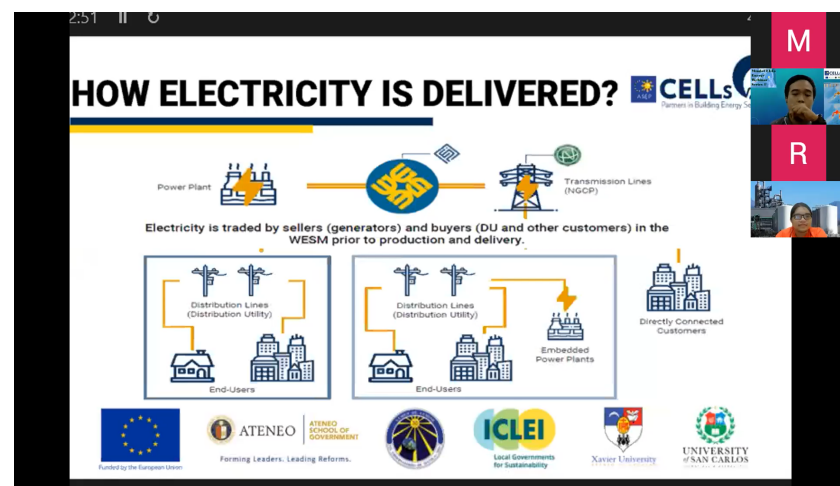
The Program started with Dr. Rogelio giving the Welcoming remarks

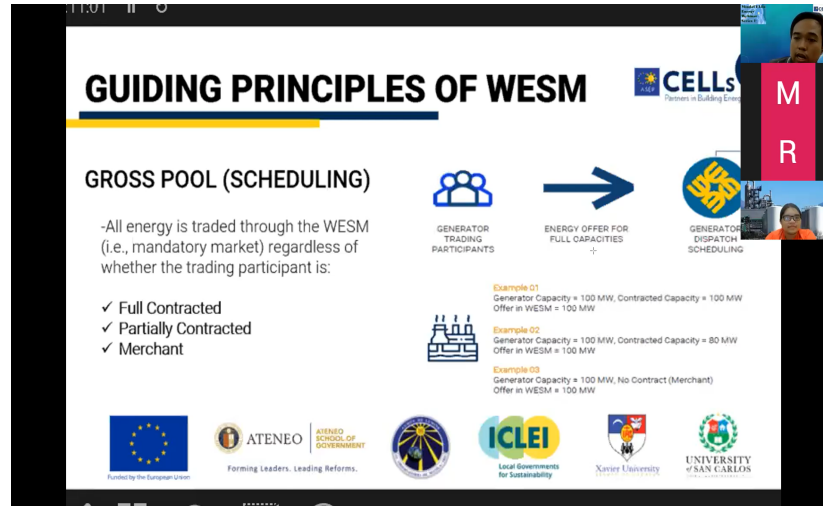
Then proceeded to the 1st Presentation, Fundamentals of WESM in Mindanao by James Patrick Carcueva



He gave the Overview about Wholesale Electricity Spot Market (WESM), where it is a venue for trading electricity as a commodity between buyers and sellers of electricity based on actual demand and supply. He further discussed its background and how it was established under Republic Act.

He also discussed about How Electricity is delivered and the Guiding Principles of WESM

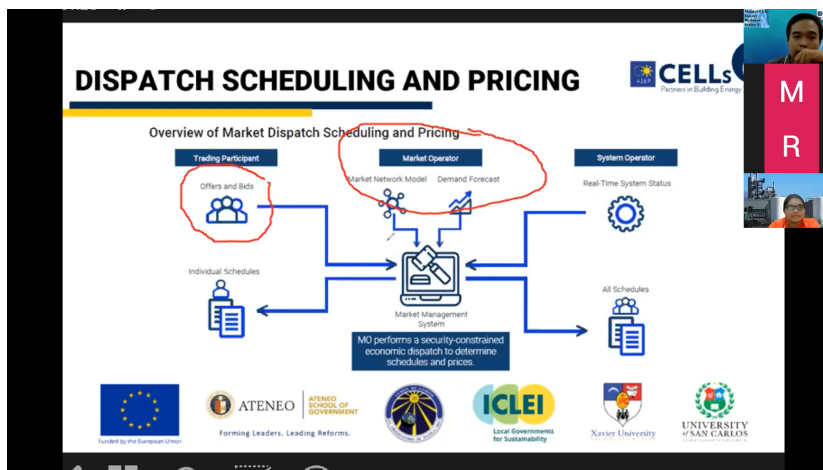




He presented about Local Marginal Pricing (LMP), and how to compute at each location in the power system to reflect the cost of transmission line loss or congestion, or both.

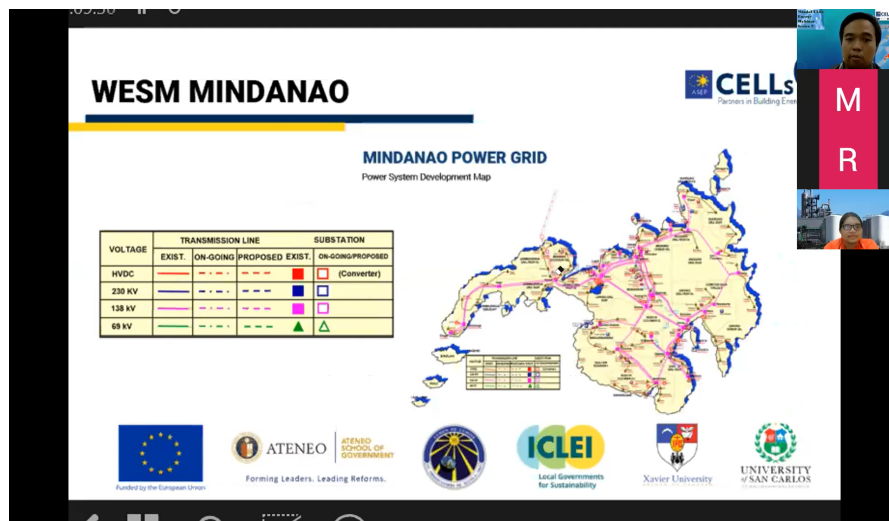
He discussed Energy and Reserve Co-Optimization, how energy and reserve schedules are jointly determined under a single solution and how it is advantageous.

He discussed about Price Determination Methodology, how it provides details as to how schedules and prices are calculated in Market Dispatch Optimization Model.

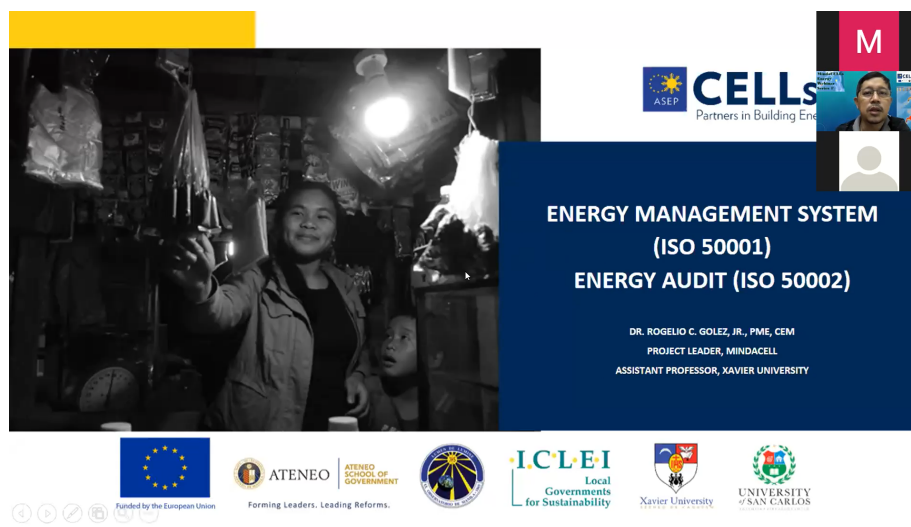


He also discussed about real time power crisis that happened in 2013, and how the IMEM is implemented and designed to provide an immediate venue for transparent and efficient utilization of additional capacities to address Mindanao's energy supply shortfall.

He discussed the benefits of WESM, on how it increases transparency and competition to the grid, and how it lowers the barriers of entry in the power industry.



2nd presentation by Dr. Rogelio C. Golez Jr. on "Overview of Energy Management System (ISO 50001) and Energy Management Audit (ISO 50002)"



ENERGY MANAGEMENT SYSTEM (ISO 50001)
ENERGY AUDIT (ISO 50002)

DR. ROGELIO C. GOLEZ, JR., PME, CEM
PROJECT LEADER, MINDACELL
ASSISTANT PROFESSOR, XAVIER UNIVERSITY

Logos: ASEP, ATENEO, ATENEO SCHOOL OF GOVERNMENT, I.C.L.E.I., Xavier University, UNIVERSITY of SAN CARLOS

He discussed about the background of ASEP CELLS and the project. Also the activities that have been established throughout its span such as Journalist Bootcamp and Virtual Mindanao Energy efficiency and Conservation forum, Webinars etc. He also discussed the studies that have been conducted such as Biomass Energy Potential of Mindanao etc.

He discussed about what is sustainable Energy Management, and how it covers all aspect of energy consumption in the organization.

He presented the Sustainable Energy Roadmap



Sustainable Energy Management Roadmap

Evaluation of energy management status

- Energy policy
- Investment criteria for energy conservation
- Energy team
- Motivation and training practice
- Information system
- Marketing

Logos at the bottom of the slide include: European Union, ATENEO, ATENEO SCHOOL OF GOVERNMENT, I.C.L.E.I. Local Governments for Sustainability, Xavier University, and UNIVERSITY of SAN CARLOS.

Sustainable Energy Management Roadmap

Organization preparation

- Energy policy
- Set up energy management committee or team
- Determine the overall energy baseline and energy saving target
- Conduct awareness training for all staff, etc



Energy Management Matrix

- | | |
|---|---|
| 1. Energy Policy
- Effective management | 4. Information
- Monitoring |
| 2. Organization
- Management functions | 5. Marketing
- Energy awareness |
| 3. Motivation
- Energy issues | 6. Investment
- Saving projects |



He discussed about Energy Efficiency and Energy Conservation; including in the household

Energy Use	Energy Efficiency	Energy Conservation
Lighting	- Replace incandescent bulb and compact fluorescent lamp (CFL) with LED light - Downsize installed light bulb but observe proper illumination level	- Maximize the use of natural daylight - Manually switch off light to reduce its operating time - Install automatic control switches (photo sensor, motion sensor, timer) in order to reduce a light's operating time
Air Conditioning	- Replace an old and inefficient A/C with one having a higher EER or better capability such as inverter technology - Practice preventive maintenance on all A/C and cooling units - Seal gaps and openings around windows and doors in all air-conditioned areas - Provide proper shading and ventilation to an A/C's outdoor condensing unit	Set an A/C's thermostat at a moderate temperature (24°C or 25°C) instead of a colder temperature
Refrigeration	- Replace an old and inefficient refrigerator with one having a higher Energy Efficiency Factor (EEF) or better capability such as inverter technology - Regularly maintain and clean a refrigerator and freezer, including the observance of no ice build-ups	Set a refrigerator's thermostat at a not-so-cold but appropriate temperature
Heating	- Use solar water heater or heat pump for water heating - Sufficiently insulate the hot water storage and its pipelines	Use water coming from the cold-water line instead of hot water whenever possible
Consumer Electronics	Use LED television units and highly efficient computers and laptops	Avoid standby loads by unplugging and switching off laptops and television units when not in use

He also discussed about the Roles of the Government agencies, how each exercise their responsibilities and functions. also further discussed laws that support and establish energy consumption and conservation

He discussed about the positions/ profession that involve such as the Certified Energy auditor and its roles.

Discussed about Energy Auditing and its objectives

Why Energy Auditing?

Designated Establishments

Energy Efficiency and Conservation Act (R.A. 11285)

Other establishments with 100,000 to 500,000 kWh shall submit annual energy consumption reports and integrate into business operation the Energy Management System



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During the open forum there were a few participants who were engaging to the topic and have their questions answered by our speakers. The speakers were awarded with certificates of appreciation; participants were also awarded with Certificate of Participation.

Closing remarks given by Dr. Rogelio Golez Jr.

Results and discussions of survey questions:

Based from figure 1, the result discussions of the questions survey are the following:

In terms of familiarity of the topic **Energy Management system**, there are **61.7%** of students said they are familiar and **27.7%** are not familiar or unfamiliar with the subject, and **10.6%** are strongly not familiar with the subject.

There are **46.2%** of the students are familiar with the **Concept of Energy Audit**, and there are **39.8%** cannot say that they are familiar or unfamiliar with the subject, and **14%** are strongly not familiar with the subject

There are **51.6%** of the students are aware of the **Energy Efficiency and Conservation Act** while **33.3%** cannot say that they are familiar or unfamiliar with the subject, and **15.1%** are strongly not familiar with the subject.

Lastly, on the topic of **Concept of Wholesale Electricity Spot Market (WESM)**, most of them cannot say if they are familiar or unfamiliar with the subject (**39%**), and **39.4%** are familiar with the topic, and among the remaining **21.6%** of the participants are strongly not familiar with the subject.



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I.C.L.E.I.
Local
Governments
for Sustainability



Xavier University



UNIVERSITY
of SAN CARLOS

Are you familiar with the Energy Efficiency and Conservation Act (RA 11285)?

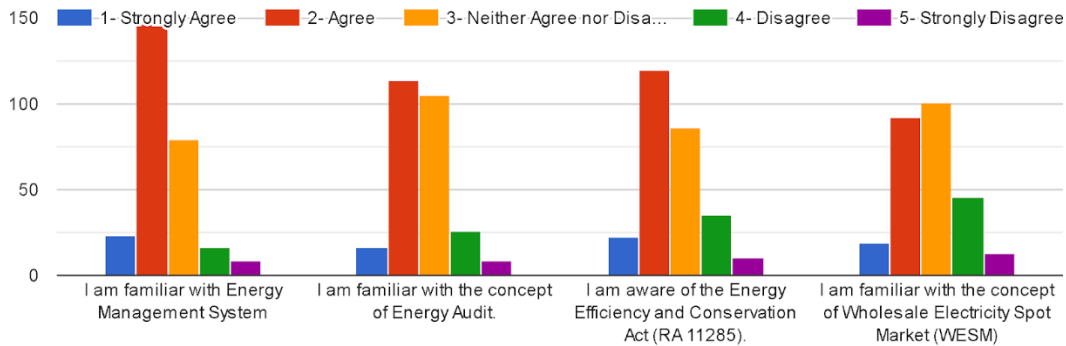


Figure 1. Result of five survey questions

Figure 2 shows the total number of students participated per institutions.

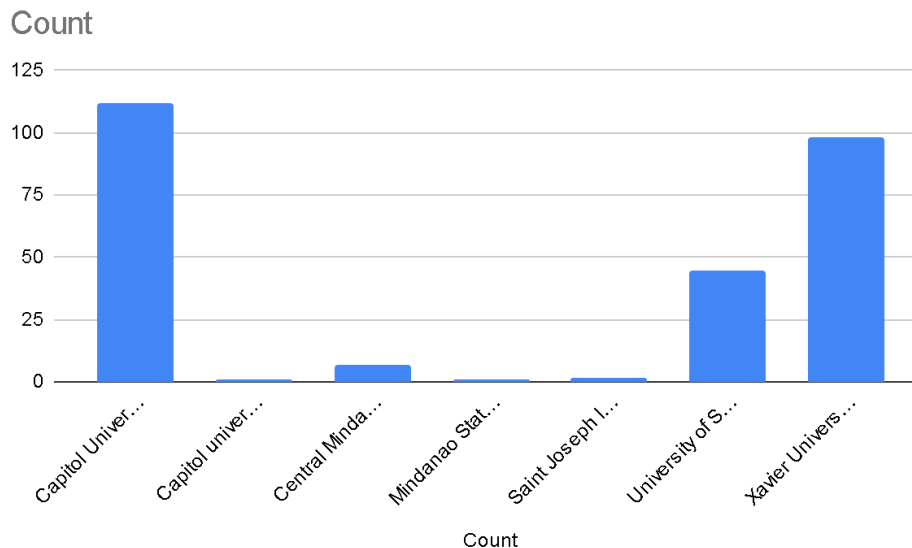


Figure 2 Bar charts of number of students per institutions participated According to the Chart from the Webinar Series 1 Pre-registration, Among the total number of participants (265):



- **113(42.1%)** of the participants are from **Capitol University**;
- **97(36.8%)** of the participants are from **Xavier University Ateneo de Cagayan**
- **44(16.9%)** of the participants are from **University of Science and Technology of the Philippines**;
- **7(2.6%)** of the participants are **Central Mindanao University**;
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Affiliation

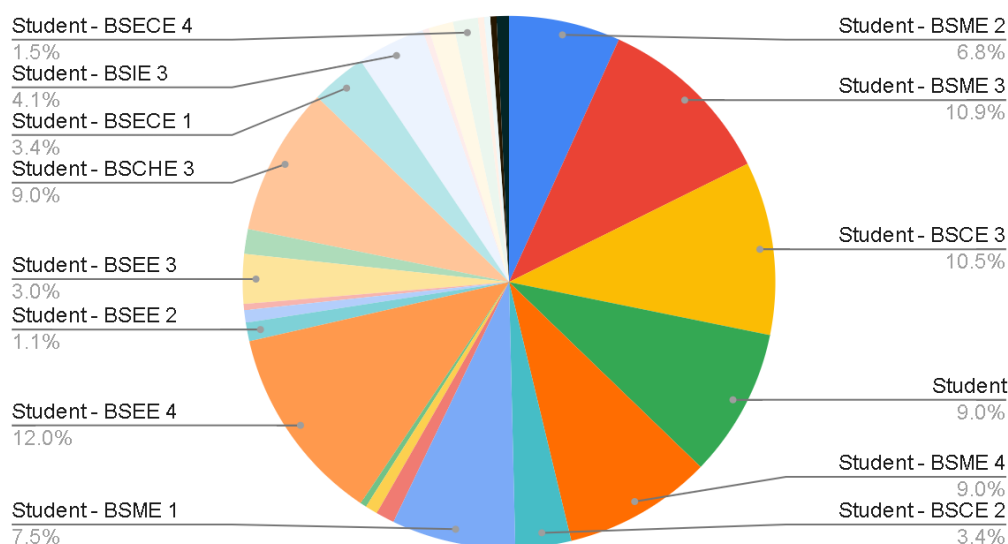


Figure 3 Pie Chart of students per courses and level

Below is the percentage of student participants per course or affiliation:

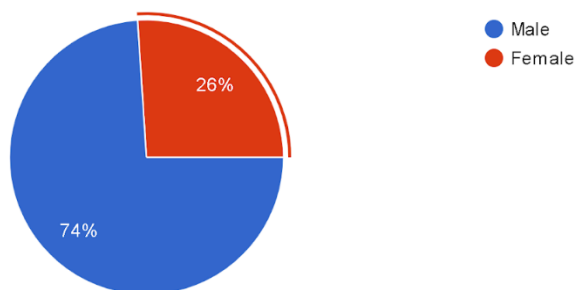
- **91 (34.2%)** are **1st-4th year Bachelor of Science in Mechanical Engineering Students**;
- **47 (17.6%)** are **1st-4th year Bachelor of Science in Electrical Engineering Students**;
- **41 (15.9%)** are **1st-5th year Bachelor of Science in Civil Engineering Students**;
- **24 (9.0%)** are **3rd year Bachelor of Science in Chemical Engineering Students**;
- **13 (4.9%)** are **1st and 3rd year Bachelor of Science in Electronics Engineering Students**



- **11 (4.1%) are 3rd year Bachelor of Science in Industrial Engineering Students;**
- **4 (1.5%) are 1st year Bachelor of Science in Agricultural and Biosystem Engineering;**
- **2 (0.8%) are Faculty**
- **24 (9.0%) are Students who have not specified their Course**
- **8 (3.0%) have not specified their Course and Affiliation**

There are 74% male and 26% female participants.

Gender
265 responses



4. ISSUES/CHALLENGERS/RECOMMENDATIONS:

Issues/ challenges	Recommendations/ agreements
There are more students unable to enter the zoom due to unexpected number of student entry. The zoom was set at 100 participants.	zoom account adjustment

5. NEXT STEPS:

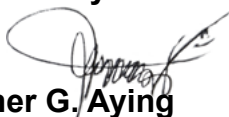
- Preparation of Webinar series 2
- Activity report and documentation of the event



Prepared by:


Marc Nico B. Labadan
Admin Assistant

Endorsed by:

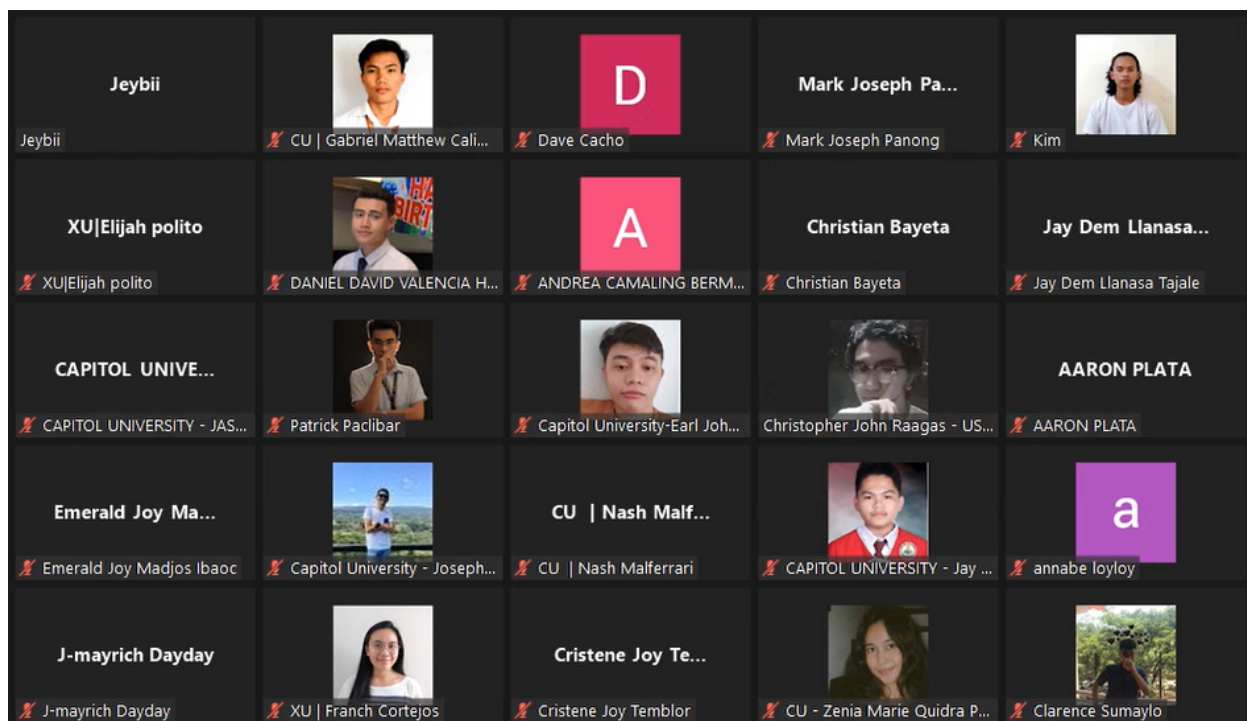
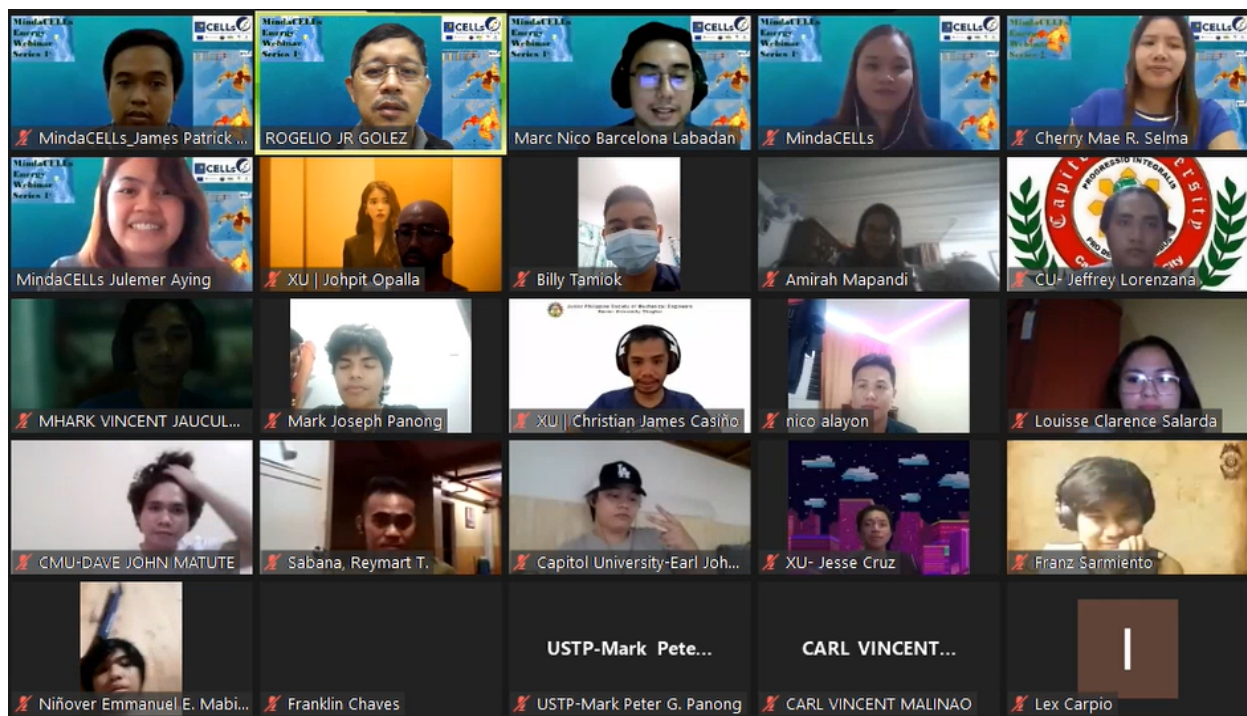

Julemer G. Aying
Project Manager


Dr. Rogelio C. Golez Jr.
Project Leader

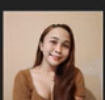
APPENDICES

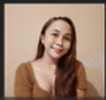
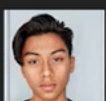
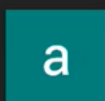
APPENDIX A. Online zoom picture with the participants.







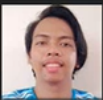
 CU - Zenia Marie Quidra P...	 CU Yngwie Jay & Pearl An...	 Rhea Ventayen	Franklin Chaves	Rey Looc
Gerwin Mifrano	 allan ji baco	 John Francis Esguerra	kyle	CU BUSTAMANTE
Lemz Bacol	Joforce Karl Fre...	 CU - John Carl Francis A. C...	Jalen	Angel Mike Pino
 Earl John Andrij Torregosa	Leah Nacalaban	 CU - Vincent Paul Ragmac	Necole Cabisada	 Job Racaza
iPhone	Carl Auman	 Kenneth John Kwong	Kristal Baldon	 Lyndy Mae Fajardo

 Kenneth John Kwong	Kristal Baldon	 Lyndy Mae Fajardo	 Francis Kaye Mejorada	Clive Nicole Waga
Manny Rosales	JeFord M. Mani...	Godoy, Alexand...	 CU Shyne Tagapulot	Justin Edol
 Jigjig Omandam	 Arjay	USTP Mark Tru...	James Aguilar	 XU Emil Uy
Rachelle Mae Pa...	Clifford Clint	 Tyron Morales	Roldan Pimentel	 XU Azaleah Mari Taglinao
XU - Quiades Va...	 SARAWAGAN LABININAY PI...	nico alayon	Cedric Reyes	JHAY CLIFORD I...



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Cedric Reyes Cedric Reyes	JHAY CLIFORD I... JHAY CLIFORD I. ROSAL	Christine Mariz... Christine Mariz Artajo	XU - Cyvince Hu... XU - Cyvince Hurtado	 CU - Stephen Cagampang
Andrio Gabriel L... Andrio Gabriel L. Almacen	Nicole Trabasas Nicole Trabasas	USTP_Sumagia,... USTP_Sumagia, Larry	Michael Chen M... Michael Chen M. Escalante	CU- Johnlery Ca... CU- Johnlery Cajés
Benjhon Monte Benjhon Monte	 Vince Raguro	 Kaycee Tangapa	 Rojien Morcilla	 Marsthine Sarsalejo
CMU- SHIELLA... CMU- SHIELLA VALDEHUEZA	CMU_Sahm Loui... CMU_Sahm Louise Fernan...	Joven Howie Joven Howie	XU Trestell Trin... XU Trestell Trinidad	Cu John Arvyd... Cu John Arvydas Reontoy
Neil Valent Man... Neil Valent Mancia	Rona Gador Rona Gador	 Mary John Pagarán	 Narfred Egar	Fletcher Karl Ba... Fletcher Karl Banawan

APPENDIX B. List of participant’s name, course and institutions.

Name	Designation	Organization
Gadaga, Jay G.	Student - BSME 2	Capitol University
La Victoria, Rommel, Lawan	Student - BSME 3	Capitol University
Pol, Heather Reen G.	Student - BSCE 3	Capitol University
Lumbay, Dave Edward, T.	Student - BSME 3	Capitol University
Cuñado, John Carl Francis A.	Student	Capitol University
Pimentel II, Rex, D.	Student - BSME 2	Capitol University
Mantilla, Jonard L.	Student - BSME 4	Capitol University
Apalla, Kim Klerck R.	Student - BSME 3	Capitol University
Malana, Joforce Karl Fredrich, D.	Student - BSME 2	Capitol University



Hinampas, Leobert T.	Student - BSCE 3	Capitol University
Reontoy, John Arvydas, A.	Student - BSCE 2	Capitol University
Gadaga, Jay G.	Student - BSME 2	Capitol University
Boco, Jalen Rose E.	Student - BSCE 2	Capitol University
Polinar, Zenia Marie Quidra	Student - BSME 1	Capitol University
Legaspi Jr. Fernando Dalid	Student - BSME 3	Capitol University
Banawan, Fletcher Karl, Boquilla	Student - BSME 2	Capitol University
Mancia, Neil Valent O.	Student - BSME 1	Capitol University
Ibaoc, Emerald Joy M.	Student - BSME 1	Capitol University
Villareal, Joel E.	Student - BSCE 3	Capitol University
Balingit Rene Niñi M.	Student - BSME 3	Capitol University
Feleciano, Phermel M	Student - BSCE 2	Capitol University
Enlawan, Meiji Imri M.	Student - BSME 2	Capitol University
Herrero, Lance Eisenhower P.	Student - BSME 4	Capitol University
Pino, Angel Mike R.	Student	Capitol University
Mahayag, Famille Mariaphere V.	Student - BSME 4	Capitol University
Ventayen, Rhea Mae R.	Student - BSCE 2	Capitol University
Teñosa, Elor John, Bolodo	Student - BSME 3	Capitol University
Temblor, Cristene Joy L.	Student - BSCE 3	Capitol University
Malferrari, Erick Nash A.	Student - BSME 2	Capitol University
Ayag, Leo Andro A.	Student - BSME 3	Capitol University
Cena, Diana Rose B.	Student - BSME 3	Capitol University
Sumaylo, Clarence S.	Student	Capitol University
Dayday, J-mayrich B.	Student - BSME 3	Capitol University



Cabarubias, Jhorvin P.	Student	Capitol University
Malagom, Rachel May M.	Student	Capitol University
Waga, Clive Nicole, E.	Student - BSME 1	Capitol University
Zapanta, Sandy Mae T.	Student - BSCE 3	Capitol University
Tagapulot, Shyne B.	Student - BSME 4	Capitol University
Escalante, Michael Chen M.	Student - BSME 3	Capitol University
Calimutan, Gabriel Matthew S.	Student - BSME 2	Capitol University
Esguerra, John Francis U.	Student - BSME 2	Capitol University
Palmes, Rezahanne D.	Student - BSCE 3	Capitol University
Pacaldo, Clintford Divinagracia	Student - BSME 5	Capitol University
Sagaral, Michael Jr. T.	Student - BSME 3	Capitol University
Lagrosas, Jardiniere Jay, C.	Student - BSME 3	Capitol University
Dagatan, Rudu Zarate	Student - BSCE 3	Capitol University
Esguerra, John Francis U.	Student - BSME 2	Capitol University
Llami, Jasper, Lonon	Student - BSME 2	Capitol University
Edol, Justin R.	Student - BSCE 3	Capitol University
Legaspi Jr. Fernando Dalid	Student - BSME 3	Capitol University
Icayan, Dann Cyrill V.	Student - BSME 3	Capitol University
Guibone, John Mark I.	Student - BSCE 3	Capitol University
Obsioma, Kim N.	Student	Capitol University
Omictin, Darwin G.	Student - BSME 2	Capitol University
Muit, Daniel Dave L.	Student - BSCE 3	Capitol University
Mifrano, Gerwin Cuarteros	Student - BSME 1	Capitol University
De La Vega, Rhea Vanessa B.	Student - BSCE 3	Capitol University
Dejan, Joseph Joshua Yacapin	Student	Capitol University



Floresca, Czny Fer	Student - BSCE 3	Capitol University
Adante, Dimple M.	Student - BSCE 3	Capitol University
Legues, Vincent	Student - BSCE 3	Capitol University
Amores, Paul Harry B.	Student - BSCE 3	Capitol University
Jabiguero, Zoren Lloyd R.	Student - BSCE 2	Capitol University
Villaruz, Raye Kris J.	Student - BSCE 3	Capitol University
Cañas, Brix Dalton V.	Student - BSCE 2	Capitol University
Collados, Gerald G.	Student - BSCE 3	Capitol University
Lloren Marlo John T.	Student	Capitol University
Meñoza, Mc Niel John A.	Student - BSCE 3	Capitol University
Narciso, Shandee M.	Student - BSCE 3	Capitol University
Paragoso, Rachelle Mae, Boyatac	Student - BSCE 3	Capitol University
Ambo, Rennel C.	Student - BSME 1	Capitol University
Leonar, Karl Y.	Student - BSME 1	Capitol University
Bustamante, Jun N.	Student - BSME 1	Capitol University
		Capitol University
Zambas, Mark Joniel, Bacus	Student - BSME 1	
Acut, Jhonralf B.	Student - BSME 3	Capitol University
Abad, Albert T.	Student - BSCE 1	Capitol University
Sarsalejo, Marsthinie O.	Student - BSCE 3	Capitol University
Piloton, Yngwie Jay P.	Student - BSME 2	Capitol University
Looc, Rey	Student - BSME 4	Capitol University
Lorenzana, Jeffrey B.	Student - BSME 4	Capitol University
casiño jekho	Student - BSME 1	Capitol University
Abuel, Jay Kevin B.	Student - BSME 1	Capitol University



Tabamo, Earl John B.	Student - BSME 3	Capitol University
Barbosa , John Kenmer L.	Student - BSME 2	Capitol University
Baculio, Matthew Perkin, C.	Student	Capitol University
Rosal, Jhay Clifford, I	Student - BSME 3	Capitol University
Ganzan, Ian Benedict E.	Student - BSCE 3	Capitol University
Cagampang, Stephen W.	.	Capitol University
Sabana, Reymart T.	Student - BSME 2	Capitol University
Hj Moh Maulana, Almindrib Ybáñez	Student - BSCE 2	Capitol University
Donggon Draizen Jay Tintin	Student	Capitol University
Jayma Earl John Garces	Student - BSME 3	Capitol University
Ragmac Edilberto Domingo III	Student - BSME 1	Capitol University
Galanta, joederey B.	Student - BSME 1	Capitol University
Zamayla, Christian, Jimenez	Student - BSME 3	Capitol University
Santos, Jessa Ruth B.	Student - BSCE 3	Capitol University
Ragmac, Vincent Paul I.	Student	Capitol University
Panhay, Ian Earl L.	Student	Capitol University
Cacho, Dave L	Student - BSCE 2	Capitol University
Loyloy, Annabe R.	Student - BSME 3	Capitol University
Cabigon, Brex, D.	Student - BSME 4	Capitol University
Rosales, Manny	Student - BSME 4	Capitol University
Rojas, Marc Raphael M.	Student - BSCE 2	Capitol University
Tajale, Jay Dem L.	Student	Capitol University
Cajes, Johnlery T.	Student - BSCE 1	Capitol University
Albor, Rick Joville W.	Student - BSME 2	Capitol University
Cuaresma, Rhod Mark C.	Student	Capitol University



Ravidas, Jose Allan Jr C	Student - BSME 1	Capitol University
Limocon, Joey Boy S.	Student - BSME 1	Capitol University
Delapeña, Rizalyn B.	Student - BSME 3	Capitol University
Tangapa, Kaycee Honculada	Student - BSCE 3	Capitol University
Racaza Job C.	Student	Capitol University
Lumindas, Jie B.	Student - BSCE 3	Capitol University
Matute, Dave John Q.	Student - BSME 3	Central Mindanao University
Macarayo, Hannah Jane S.	Student - BSME 4	Central Mindanao University
Fernandez, Sahm Louisse A.	Student - BSME 3	Central Mindanao University
Maglinte, Ian Bartolome P.	Student - BSME 1	Central Mindanao University
Baculanta, Cedric A.	Student - BSME 4	Central Mindanao University
Valdehueza, Shiella May, M.	Student - BSME 2	Central Mindanao University
Morohombsar, Sittie Umaira R.	Student	Mindanao State University - Marawi
Tismo, Tomjun Tizon	Student - BSME 3	Saint Joseph Institute of Technology
Bada, Aljon Hope, Galo	Student - BSME 1	Saint Joseph Institute of Technology
Villaber, Noven S.	Student - BSEE 4	University of Science and Technology of Southern Philippines
Urdaneta, Ruel Jr. B.	Student - BSEE 4	University of Science and Technology of Southern Philippines
Demetila, Joebert C.	Student - BSEE 2	University of Science and Technology of Southern Philippines
Taghap, Edsel Jay O.	Student - BSEE 4	University of Science and Technology of Southern Philippines
Patilano, Eduardo Jr., O.	Student - BSEE 4	University of Science and Technology of Southern Philippines
Panong, Mark Joseph, G.	Student - BSME 3	University of Science and Technology of Southern Philippines
Cutab, Lance Jasper O.	Student - BSEE 4	University of Science and Technology of Southern Philippines



Delas Peñas, Elnard G.	Student - BSME 3	University of Science and Technology of Southern Philippines
Jaunillo, Kent Andre B.	Student - BSME 1	University of Science and Technology of Southern Philippines
Raagas, Christopher John, T.	Student - BSEE 2	University of Science and Technology of Southern Philippines
Siquijor, Jon Vincent Isidor C.	Student - BSEE 4	University of Science and Technology of Southern Philippines
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