



## **OUTCOME/S**

O.1. The curriculum is responsive and relevant to the demands of the times.



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**SURIGAO STATE COLLEGE OF TECHNOLOGY**  
 Narciso St., Surigao City, Philippines, 8400  
<http://www.ssct.edu.ph>

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## COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY

City Campus

Second Semester, Academic Year 2021-2022

### Outcomes Based-Education (OBE) Syllabus in IC 106

#### EE Review 2

Course Credit: 2.0 units(36hrs)

#### Institutional Vision, Mission, and Goals

##### Vision:

An innovative and technologically-advanced State College in Caraga.

##### Mission:

To provide relevant,

- high quality and sustainable instruction,
- research, production and extension programs and
- services within a culture of credible and responsive institutional governance.

##### Goals:

- Foster application of the discipline and provide its learner with industry-based training and education particularly in engineering, technology and fisheries.
- Conduct and utilize studies for the development of new products, systems and services relevant to Philippine life and of the global village.
- Promote transfer of technology and spread useful technical skills, thus empowering its learners and their activities.

#### SSCT Core Values

Service-Oriented

Socially Responsive

Committed

Transformational

#### SSCT Quality Policy

Surigao State College of Technology provides quality instruction, research, extension programs and production services to satisfy its customers by responding to their needs and expectations and continually improving its quality management system.





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### Institutional Graduate Attributes (IGA)

:

- Visionary Leader
- Effective Communicator
- Competent Technologist
- Self-Directed Lifelong Learner

### Program Goals

The Electrical Engineering program aims to design and apply the generation, transmission, and distribution of electrical energy to produce competent engineers that exhibit positive work ethics and flexibility in work conditions for the development of Caraga.

### Program Educational Objectives (PEO) and Relationship to Institutional Mission

Program Educational Objectives (PEO)	Mission		
	a	b	c
EE-PEO1. Demonstrate professionalism in electrical engineering and apply professional ethics thru communication and collaboration.	✓	✓	✓
EE-PEO2. Use appropriate techniques, resources, and modern tools necessary for analysis, design, and modelling of complex electrical systems	✓	✓	✓
EE-PEO3. Plan, lead, and implement designated tasks, interact with other engineering professionals, and take leadership roles in electrical engineering organization.	✓	✓	✓
EE-PEO4. Engage in lifelong learning able to discover new opportunities for continuing personal and professional development in electrical engineering	✓	✓	✓

### Program Outcomes (PO) and Relationship to Program Educational Objectives (PEO)

Program Outcomes (PO)	Program Educational Objectives (PEO)			
	1	2	3	4
EE-POa. Apply knowledge of mathematics and sciences to solve complex engineering problems	✓	✓	✓	✓
EE-POb. Develop and conduct appropriate experimentation, analyze and interpret data				
EE-POc. Design a system, component, or process to meet desired needs within				



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realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability, in accordance with standards				
EE-POd.Function effectively on multi-disciplinary and multi-cultural teams that establish goals, plan tasks, and meet deadlines				
EE-POe.Identify, formulate, and solve complex problems in electrical engineering	✓	✓	✓	✓
EE-POf.Recognize ethical and professional responsibilities in engineering practice				
EE-POg.Communicate effectively with a range of audiences				
EE-POh.Understand the impact of engineering solutions in a global, economic, environmental, and societal context				
EE-POi.Recognize the need for additional knowledge and engage in lifelong learning				
EE-POj.Articulate and discuss the latest developments in the field of electrical engineering				
EE-POk.Apply techniques, skills, and modern engineering tools necessary for electrical engineering practice				
EE-POl.Demonstrate knowledge and understanding of engineering and management principles as a member and/or leader in a team to manage projects in multidisciplinary environments				

## Course Description

This course is a 2 unit lecture intended for 4th year standing Electrical Engineering students. The course includes topics on Electrical Engineering that are relevant to electrical engineering practice and board exam.

## DACUM Main Duties (DMD)

- EE-DMD1. Diagnose electrical problems using the electrical diagrams or blue print (as built electrical plans)
- EE-DMD2. Install, repair, and maintenance electrical power systems( building wiring, controls, electrical machines and transformers)
- EE-DMD3. Facilities Manager
- EE-DMD4. Power Plant Manager
- EE-DMD5. Electrical Researchers, Professor and Faculty





**Course Outcomes (CO) and Relationship to Program Outcomes (PO)**

Program Outcome (PO) / Level	Course Outcomes (CO)	Assessment Task (CO-AT)	DACUM Links				
			1	2	3	4	5
EE-POa <i>Enabling</i> Apply knowledge of mathematics and sciences to solve complex engineering problems;	IC106-CO1: Apply higher engineering mathematics and sciences to solve complex engineering problems.	Students solve a set of electrical engineering problems to test their knowledge on higher mathematics and sciences.  Criteria – 70% correct answers and solution  Total Points: 100 points					✓
EE-Poe <i>Enabling</i> Identify, formulate, and solve complex problems in electrical engineering.	IC106-CO2: Identify and apply electrical engineering formulas to solve real world electrical engineering problems.	Students create a portfolio of solved electrical engineering problem sets by applying the appropriate engineering formulas.  Criteria – 70% correct answers and solution  Total Points: 100 points	✓				✓

**Course Outcomes (CO) and Relationship to Intended Learning Outcomes (ILO)**

Course Outcomes (CO)	Intended Learning Outcomes (ILO)
IC106-CO1: Apply higher engineering mathematics and sciences to solve complex engineering problems.	IC106-ILO1: Review the fundamental concepts, laws, theorems, and circuit techniques in dc circuits and analyse problems involving them. (IC106-CO1, IC106-CO2)
IC106-CO2: Identify and apply electrical engineering formulas to solve real world electrical engineering problems.	IC106-ILO2: Review the fundamental concepts and laws in ac circuits and analyse problems involving them. (IC106-CO1, IC106-CO2)



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	<p><i>IC106-ILO3:</i> Review the concepts and topics on electrical machines and calculate electrical engineering problems involving them. (IC106-CO2)</p> <p><i>IC106-ILO4:</i> Review the concepts and topics on power system analysis and calculate electrical engineering problems involving them. (IC106-CO2)</p> <p><i>IC106-ILO5:</i> Review the concepts and laws on illumination and solve electrical engineering problems involving them. (IC106-CO2)</p> <p><i>IC106-ILO6:</i> Review the concepts and topics on power plants and solve electrical engineering problems involving them. (IC106-CO2)</p>
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#### Detailed Course Content

Intended Learning Outcomes (ILO)	Topics	Time Frame	Teaching and Learning Activities(TLA)	Assessment Tasks (ILO-AT)	Target	Resources	Values Integration	Remarks
<i>IC106-ILO1:</i> Review the fundamental concepts, laws, theorems, and circuit techniques in dc circuits and analyse problems involving them. (IC106-CO1, IC106-CO2)	<b>1. DC CIRCUITS</b>  1.1. <i>Basic Concepts</i> 1.2. <i>Basic Circuit Laws</i> 1.3. <i>Analysis Methods</i> 1.4. <i>Circuit Analysis Techniques</i> 1.5. <i>Capacitors and Inductors</i> 1.6. <i>First-Order</i>	8.0 hrs.	Learning Module 1 <i>Asynchronous</i>	Problem analysis quiz and problem set on DC circuits	70% of the students shall have a rating of at least 3.0	Videos online, modules, e-books, and worksheets	Core Value: <i>Committed</i>  Sub-Value: <i>Determined in the review of dc circuits</i>	





	1.7. <i>Circuits Second-Order Circuits</i>							
IC106-ILO2: Review the fundamental concepts and laws in ac circuits and analyse problems involving them. (IC106-CO1, IC106-CO2)	<b>2. AC CIRCUITS</b>  2.1. <i>Sinusoids and Phasors</i> 2.2. <i>Sinusoidal Steady-State Analysis</i> 2.3. <i>AC Power Analysis</i> 2.4. <i>Three-Phase Circuits</i> 2.5. <i>Magnetically Coupled Circuits</i> 2.6. <i>Frequency Response</i>	8.0 hrs.	Learning Module 2 <i>Asynchronous</i>	Problem analysis quiz and problem set on AC circuits	70% of the students shall have a rating of at least 3.0	Videos online, modules, e-books, and worksheets	Core Value: <i>Committed</i>  Sub-Value: <i>Dedicated in the review of ac circuits</i>	
<b>MIDTERM EXAMINATION– 2.0 Hrs.</b>								
IC106-ILO3: Review the concepts and topics on electrical machines and calculate electrical engineering problems involving them. (IC106-CO2)	<b>3. ELECTRICAL MACHINES</b>  3.1. <i>Transformers</i> 3.2. <i>DC Motors</i> 3.3. <i>DC Generators</i> 3.4. <i>Synchronous Generators</i> 3.5. <i>Synchronous Motors</i> 3.6. <i>Induction Motors</i> 3.7. <i>Single-phase and special-purpose motors</i>	6.0 hrs.	Learning Module 3 <i>Asynchronous</i>	Problem analysis quiz and problem set on electrical machines	70% of the students shall have a rating of at least 3.0	Videos online, modules, e-books, and worksheets	Core Value: <i>Committed</i>  Sub-Value: <i>Determined in the review of electrical machines</i>	



IC106-ILO4: Review the concepts and topics on power system analysis and calculate electrical engineering problems involving them. (IC106-CO2)	<b>4. POWER SYSTEM ANALYSIS</b>  4.1. <i>Transmission Lines</i> 4.2. <i>Power Flows</i> 4.3. <i>Symmetrical Faults</i> 4.4. <i>Symmetrical Components</i> 4.5. <i>Unsymmetrical Faults</i>	5.0 hrs.	Learning Module 4 <i>Asynchronous</i>	Problem analysis quiz and problem set on power system analysis	70% of the students shall have a rating of at least 3.0	Videos online, modules, e-books, and worksheets	Core Value: <i>Committed</i>  Sub-Value: <i>Determined in the review of power system analysis</i>	
IC106-ILO5: Review the concepts and laws on illumination and solve electrical engineering problems involving them. (IC106-CO2)	<b>5. ILLUMINATION</b>  5.1. <i>Basic Illumination</i> 5.2. <i>Lighting Calculations</i>	3.0 hrs.	Learning Module 5 <i>Asynchronous</i>	Problem analysis quiz and assignment on illumination	70% of the students shall have a rating of at least 3.0	Videos online, modules, e-books, and worksheets	Core Value: <i>Committed</i>  Sub-Value: <i>Perseverant in the review of illumination</i>	
IC106-ILO6: Review the concepts and topics on power plants and solve electrical engineering problems involving them. (IC106-CO2)	<b>6. POWER PLANTS</b> 6.1. <i>Load Characteristics</i> 6.2. <i>Types of Power Plants</i>	2.0 hrs.	Learning Module 6 <i>Asynchronous</i>	Problem analysis quiz and assignment on power plants	70% of the students shall have a rating of at least 3.0	Videos online, modules, e-books, and worksheets	Core Value: <i>Committed</i>  Sub-Value: <i>Perseverant in the review of power plants.</i>	
<b>FINAL EXAMINATION – 2.0 Hrs.</b>								

#### References:

Charles Alexander & Matthew Sadiku (2016). *Fundamentals of Electric Circuits*. 6<sup>th</sup> ed. McGraw-Hill Education  
 Stephen D. Umans (2014). *Fitzgerald & Kingsley's Electric Machinery*. 7<sup>th</sup> ed. McGraw-Hill  
 Hemchandra Madhusudan Shertukde (2019). *Power System Analysis Illustrated with MATLAB and ETAP*. CRC Press Taylor and Francis Group





J. Duncan Glover, Thomas J. Overbye, & Mulukutla S. Sarma (2017). *Power System Analysis & Design*. 6<sup>th</sup> ed. Cengage Learning  
 Mark Karlen, et al. (2017). *Lighting Design Basics*. 3<sup>rd</sup> ed. John Wiley & Sons, Inc.  
 Turan Gönen (2014). *Electric Power Distribution Engineering*. 3<sup>rd</sup> ed. CRC Press, Taylor & Francis Group

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### Course Requirements:

- Solved Electrical Engineering Problem Sets(CO-AT1)
- Portfolio of Solve electrical Engineering Problem Sets(CO-AT2)
- Quizzes and Assignments
- Midterm and Final exams

### Course Evaluation:

Criteria	Lecture Grade
➤ Quizzes and online outputs/interaction (ILO-AT)	25%
➤ Performance Tasks (CO-AT)	35%
➤ Major Exams (Midterm and Final)	40%
<b>TOTAL</b>	<b>100%</b>

Grade Computation:  $\frac{\text{Midterm Grade} + \text{Final Grade}}{2} = \text{Average Grade}$

Grade Point	Description
1.0	Excellent
1.5 – 1.1	Very Good
2.0 – 1.6	Highly Satisfactory
2.5 – 2.1	Good
2.9 – 2.6	Satisfactory
3.0	Passing
5.0	Failed due to poor performance, absences, withdrawal without notice
DRP	Dropped with approved dropping slip
INC	Incomplete requirements but w/ passing class standing. INC is for non-graduating students only
NG	No Grade

Source: SSCT Student Handbook



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### Course Policies:

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1. Attendance shall be checked in every class session in the Google Meet. This is to monitor the absences incurred by the students in terms of the allowable number of absences for a course as stipulated in the Student Handbook.
2. During online classes, video camera shall be turned on all the time and microphone shall be turned off. The microphone shall be unmuted only if the student's name is called to participate in class discussion.
3. Major examinations in multiple-choice type shall be done online. For problem solving type, detailed solutions shall be written legibly in separate sheets of paper and shall be converted to pdf form prior to submission.
4. Cheating in major examinations which include attempts to defraud, deceive, or mislead the instructor in arriving at an honest assessment shall entail zero score.
5. Plagiarism which is a form of cheating that involves presenting the ideas or work of another as one's own work shall entail zero score.
6. Projects shall be submitted on or before the deadline. Students who submit unsatisfactory projects shall be given the chance to improve their works on the condition that they resubmit the revised outputs on the date set by the instructor. Non-submission of a project on the deadline shall entail zero score.
7. An INC grade shall be given to students who fail to submit the course requirements of at least 95% of the projects and quizzes or failure to take the major examinations.

### Revision History:

Revision No.	Revised by	Date of Revision	Date of Implementation	Highlight of Revision
1	Engr. Andy Bong F. Navarro	January 11, 2021	January 15, 2021	Followed OBTL Format as per CMO #101 S. 2017
2	Engr. Vernon V. Liza	January 24, 2021	February 7, 2021	DACUM Workshop vis-à-vis CMO No. 101 S. 2017





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Prepared by:

  
**ENGR. VERNON V. LIZA**  
Guest Lecturer

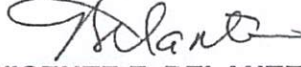
Date: 1-25-2022

Noted by:

  
**ENGR. ROBERT R. BACARRO, MECE, MBA**  
Dean, CEIT

Date: 1-28-2022

Checked and reviewed by:

  
**ENGR. VICENTE Z. DELANTE, MEng'g**  
Program Chair, BSEE

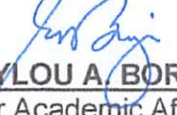
Date: 1-28-2022

Recommended by:

  
**RONITA E. TALINGTING, PhD**  
Campus Director

Date: 1-31-2022

Approved by:

  
**EMMYLOU A. BORJA, EdD**  
VP for Academic Affairs

Date: 1-31-2022

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## COLLEGE OF ENGINEERING AND INFORMATION TECHNOLOGY 1<sup>st</sup> Semester, Academic Year 2020-2021

### COURSE SYLLABUS IN IC 102 – INTRODUCTION TO ELECTRICAL ENGINEERING

#### Institutional Vision, Mission, and Goals

##### Vision:

An innovative and technologically-advanced State College in Caraga.

##### Mission:

To provide relevant,

- high quality and sustainable instruction,
- research, production and extension programs and
- services within a culture of credible and responsive institutional governance.

##### Goals:

- Foster application of the discipline and provide its learner with industry-based training and education particularly in engineering, technology and fisheries.
- Conduct and utilize studies for the development of new products, systems and services relevant to Philippine life and of the global village.
- Promote transfer of technology and spread useful technical skills, thus empowering its learners and their activities.

#### Institutional Intended Learning Outcomes

: SSCT graduates are expected to:

- Demonstrate innovation and technological skills;
- Exhibit critical thinking, collaboration, and communication;
- Manifest leadership, adaptability, and responsibility

#### Program Goals

The Electrical Engineering program aims to design and apply the generation, transmission, and distribution of electrical energy to produce competent engineers that exhibit positive work ethics and flexibility in work conditions for the development of Caraga.





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## Program Educational Objectives and Relationship to Institutional Mission

Program Educational Objectives	Mission		
	a	b	c
PEO 1. Innovative and knowledgeable in the latest trends in electrical engineering and demonstrate in their jobs as professional the technical expertise and practical skills.	✓	✓	✓
PEO 2. Flexible in working with multidisciplinary teams, responsible for providing solutions in electrical engineering showing attributes of professionalism and critical thinking.	✓	✓	✓
PEO 3. Engage in lifelong learning and are taking leadership roles in electrical engineering organization that are valuable to the advancement of the society.	✓	✓	✓

## Program Outcomes and Relationship to Program Educational Objectives

Program Outcomes	Program Educational Objectives		
	1	2	3
a. Apply knowledge of mathematics and sciences to solve complex engineering problems	✓	✓	✓
b. Develop and conduct appropriate experimentation, analyze and interpret data	✓	✓	✓
c. Design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability, in accordance with standards	✓	✓	✓
d. Function effectively on multi-disciplinary and multi-cultural teams that establish goals, plan tasks, and meet deadlines	✓	✓	✓
e. Identify, formulate and solve complex problems in electrical engineering	✓	✓	✓
f. Recognize ethical and professional responsibilities in engineering practice	✓	✓	✓
g. Communicate effectively with a range of audiences	✓	✓	✓
h. Understand the impact of engineering solutions in a global, economic, environmental, and societal context	✓	✓	✓
i. Recognize the need for additional knowledge and engage in lifelong learning	✓	✓	✓



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j Articulate and discuss the latest developments in the field of electrical engineering	✓	✓	✓
k. Apply techniques, skills, and modern engineering tools necessary for electrical engineering practice	✓	✓	✓
l. Demonstrate knowledge and understanding of engineering and management principles as a member and/or leader in a team to manage projects in multidisciplinary environments	✓	✓	✓

**Course Code**  
**Course Descriptive Title**  
**Course Credit**  
**Pre-requisites/Co-requisites**

IC 102  
Introduction to Electrical Engineering  
2 units lectures  
None

## Course Description

This course provides the students a sound background in the theory and concepts of the fundamentals and basic law of electricity and magnetism. Practical applications such as electrical equipment, electrical safety, and electrical symbols are introduced.

## Course Outcomes and Relationship to Program Outcomes

Course Outcomes: After completing this course, the students must be able to	Program Outcomes												
	a	b	c	d	e	f	g	h	i	j	k	l	m
CO 1: Explain electricity and know the basic electrical concepts and units.													
CO 2: Describe Current, Voltage, and Resistance and Identify color code in Resistors.													
CO 3: Apply Ohm's law when solving DC circuits problems													
CO 4: Explain the principles of capacitance and the difference between Cells and batteries.													
CO 5: Apply Kirchhoff's current and voltage laws in solving circuits													





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CO 6: Determine how an AC voltage is produced with an AC generator (alternator); Identify the types of meters available for AC measurements.	I									I				
CO 7: Solve for unknown quantities in series and parallel AC Resistive circuits; Apply Ohm's law to AC resistive circuits.	I									I				
CO 8: Distinguish the capacitive reactance in an AC capacitive circuit.	I									I				
CO 9: Distinguish the inductive reactance in an AC circuit.	I									I				
CO 10: Analyze the Anatomy of Engineering Profession	I									I				
CO 11: Distinguish the criteria for becoming a registered engineer and professional engineer	I									I				
CO 12: Identify careers in the electrical field.	I									I				
CO 13: Differentiate Technician and an Engineer	I									I				
CO 14: Identify the dangers of working with electricity	I									I				
CO 15: Discuss safety practices when using hand tools.	I									I				
CO 16: Identify the nine categories of hazardous materials, based on their chemical and physical properties.	I									I				
<b>Level:</b> I – Introductory E – Enabling D – Demonstrative														

## Detailed Course Syllabus

Course Outcomes	Topics	Time Frame	Teaching and Learning Activities	Assessment Tasks	Resources	Values Integration	Remarks
Express understanding of the Vision and Mission statements of SSCT, including its Goals and Objectives;	<b>ORIENTATION ON THE COURSE</b>  <b>VMGO</b>	1 hr.	<i>Documentary Analysis of Syllabus and Grading System</i>		Computer/ Projector for Power point presentation of the VMGO  Syllabus	Obedience, Punctuality, Diligence	







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CO 4: Explain the principles of capacitance and the difference between Cells and batteries.  CO 5: Apply Kirchhoff's current and voltage laws in solving circuits.	<b>2.2</b> Capacitance, Cells and Batteries	2 hrs	(upon request)			confidence, Self-awareness	
	<b>2.3</b> Kirchhoff's Law	2 hrs	Online discussion using Google meet				
CO 6: Determine how an AC voltage is produced with an AC generator (alternator); Identify the types of meters available for AC measurements.  CO 7: Solve for unknown quantities in series and parallel AC Resistive circuits; Apply Ohm's law to AC resistive circuits.  CO 8: Distinguish the capacitive reactance in an AC capacitive circuit.  CO 9: Distinguish the	<b>3. Alternating Current (AC) Circuits.</b>  <b>3.1</b> Alternating Current and AC Measurements  <b>3.2</b> Resistive AC Circuits  <b>3.3</b> Capacitive AC Circuits  <b>3.4</b> Inductive AC Circuits	2 hrs  1 hr. 1 hr. 1 hr.	Instructor provides reading module which can be available online and offline/hardcopy (upon request)  Online discussion using Google meet	Online quiz using Google classroom  Assignments	Module from instructor, Personal Computer, Laptop, Cell phone, Online Resources	Discipline, Cooperation and collaboration, Self-confidence, Self-awareness	



inductive reactance in an AC circuit.							
<b>MIDTERM EXAMINATION: 2.0 Hours</b>							
CO 10: Analyze the Anatomy of Engineering Profession  CO 11: Distinguish the criteria for becoming a registered engineer and professional engineer	<b>4. Branches/Specializations in Engineering</b>  4.1 Anatomy of Engineering Profession  4.2 Professional Engineer	1 hr.  1 hr.	Instructor provides reading module which can be available online and offline/hardcopy (upon request)  Online discussion using Google meet	Online quiz using Google classroom  Assignments	Module from instructor, Personal Computer, Laptop, Cell phone, Online Resources	Discipline, Cooperation and collaboration, Self-confidence, Self-awareness	
CO 12: Identify careers in the electrical field.  CO 13: Differentiate Technician and an Engineer	<b>5. Job Opportunities or Careers in Electrical Engineering</b>  5.1 Careers in Electrical Engineering  5.2 Difference between Technician and an Engineer	1 hr.  1 hr.	Instructor provides reading module which can be available online and offline/hardcopy (upon request)  Online discussion using Google meet	Online quiz using Google classroom  Assignments	Module from instructor, Personal Computer, Laptop, Cell phone, Online Resources	Discipline, Cooperation and collaboration, Self-confidence, Self-awareness	
CO 14: Identify the dangers of working with electricity.  CO 15: Discuss safety practices when using hand tools.	<b>6. Electrical Safety.</b>  6.1 Safety  6.2 Tools and equipment  6.3 Hazardous Materials	4 hrs.  4 hrs.  4 hrs.	Instructor provides reading module which can be available online and offline/hardcopy (upon request)	Online quiz using Google classroom  Assignments	Module from instructor, Personal Computer, Laptop, Cell phone, Online Resources	Discipline, Cooperation and collaboration, Self-confidence,	





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CO 16: Identify the nine categories of hazardous materials, based on their chemical and physical properties.			Online discussion using Google meet			Self-awareness	
FINAL EXAMINATION: 2.0 Hours							

#### References:

- Adrian Waygood. *An Introduction to Electrical Science*. Taylor & Francis Group, 2nd ed. 2019
- Earl Gates. *An Introduction to Basic Electricity and Electronics Technology*. Delmar, Cengage Learning, 2014.

#### Course Requirements:

- Oral Participation during Class discussion
- Portfolio of Problem Sets
- Individual Project using Math Equation Editor in MS-Word
- Midterm & Final Examination

#### Course Evaluation:

<u>Criteria</u>	<u>Lecture Grade</u>
➤ Major Exams (Midterm and Finals)	40%
➤ Performance Task (Project / Assignments)	35%
➤ Quizzes and Online outputs/interaction	25%
<b>TOTAL</b>	<b>100%</b>



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Grade Point	Description
1.0	Excellent
1.5 – 1.1	Very Good
2.0 – 1.6	Highly Satisfactory
2.5 – 2.1	Good
2.9 – 2.6	Satisfactory
3.0	Passing
5.0	Failed due to poor performance, absences, withdrawal without notice
DRP	Dropped with approved dropping slip
INC	Incomplete requirements but w/ passing class standing. INC is for non-graduating students only
NG	No Grade

Source: SSCT Student Handbook

### Course Policies:

1. Attendance will be checked in every class sessions to prove the students' presence in the class. This is to monitor whether absences incurred by the student is still within the allowed number of absences for a course as stipulated in the Student Handbook.
2. Excuse from the class will only be honoured if a Memo from the school is issued before the absence or valid excuse letter from parents/guardians is presented after the absence. No other excuses will be entertained.
3. The use of multiple choice questionnaires is used during the midterm and final examination. However, for problem solving, a detailed solution is required written legibly in a separate long size bond paper or newsprint.
4. Cheating in midterm and final examination will entail a zero score. Cheating is defined to include an attempt to defraud, deceive, or mislead the instructor in arriving at honest grade assessment.
5. Plagiarism in papers and other works will entail zero score. Plagiarism is a form of cheating that involves presenting as one's own work the ideas or work of another.
6. Students who fail to take the midterm and final examination as scheduled shall be required to write an explanation letter address to the Program Chair, noted by the parents/guardian, and approved by the Dean. After that, he/she can take the missed examination.
7. Clearance is required when the student take the final examination based on No Clearance No Examination Policy.
8. Project shall be submitted on the set deadline by the instructor. Unsatisfactory project will not be accepted. However, the student will be given a chance to improve their project. Non-submission of the project on the set deadline means a zero score.





**SURIGAO STATE COLLEGE  
OF TECHNOLOGY**

"For Nation's Greater Heights"

Document Code No.	FM-SSCT-ACAD-002
Revision No.	00
Effective Date	20 September 2018
Page No.	10 of 10

**Revision History:**

Revision No.	Date of Revision	Date of Implementation	Highlight of Revision
1	August 2019	1st Sem, AY 2019-2020	Followed OBTL Format as per CMO #101 S. 2017
2	December 5, 2020	1st Sem, AY 2020-2021	Followed suggestion from ChED COPC.

**Preparation, Review, and Approval:**

Prepared by:

**ENGR. MARK MARVIN D. PAGLINAWAN**  
Guest Lecturer

Date: \_\_\_\_\_

Noted by:

**ENGR. ROBERT R. BACARRO, MECE, MBA**  
Dean, CEIT

Date: \_\_\_\_\_

Checked and Reviewed by:

**ENGR. VICENTE Z. DELANTE, MEng'g**  
Program Chair, BSEE

Date: \_\_\_\_\_

Recommended by:

**DR RONITA E. TALINGTING**  
Campus Director

Date: \_\_\_\_\_

Approved by:

**EMMYLOU A. BORJA, EdD**  
VP for Academic Affairs

Date: \_\_\_\_\_





*"To the Sun's Greater Heights"*

Republic of the Philippines  
**SURIGAO STATE COLLEGE OF TECHNOLOGY**  
Narciso Street, Surigao City



CERTIFICATE NUMBER: AJA19-0221

A Narrative Report in  
On-The-Job-Training Undertaken at Engineering Department 206  
in Surigao State College of Technology  
Located at Narciso St., Surigao City

Presented to the Placement Office  
Surigao State College of Technology  
Narciso St. 8400, Surigao City

In Fulfillment of the Requirements of the Degree of  
Bachelor of Science in Electrical Engineering

Submitted by:  
**MENCHIE ROSE P. MADELO**  
BSEE – 3A

Submitted to:  
**DR. RHODA MAY B. MACALAM**  
Placement Coordinator

Summer Class 2021

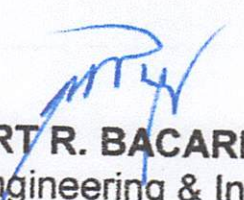




COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY

ENDORSEMENT

This is to endorse MENCHIE ROSE P. MADELO, a bonafide student of Surigao State College of Technology under the BSEE program to undergo **On-the-Training** (OJT) of 240 hours after having been evaluated by the Program Chair to be compliant of the mandatory academic requirements set by the college.


  
**ENGR. ROBERT R. BACARRO, MECE, MBA**  
Dean, College of Engineering & Information Technology

CERTIFICATION


To whom this may concern:

This is to certify that MENCHIE ROSE P. MADELO a third year BSEE student to undergo the 240 hours **On-the-Job Training** (OJT), this summer A.Y. 2020-2021 in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING**.

This certificate is given on June 30, 2021 for whatever purposes this may serve him/her.

  
**RHODA MAY B. MACALAM, DBA**  
Placement Coordinator

Noted By:

  
**RONITA E. TALINGTING, PhD**  
Campus Director





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## INTRODUCTION

On-the-job training (OJT) is one method for allowing students to put their ideas and computations learnt in school into reality. It also helps students develop relevant knowledge and abilities by allowing them to practice in a real-world setting. Colleges and universities require their students to partake in such training for a specific number of hours as part of their curriculum.

An OJT or internship program allow students to experience the actual techniques of a certain work while using genuine tools, equipment, and papers. In effect, a student trainee's employment becomes a growth arena where they can learn more about their chosen subject and apply what they learned in school.

This internship tactic can be used by employers to recruit new employees. The trainer or supervisor will monitor the trainee's progress, they can determine whether the trainee will make a good recruit after completing their internship based on their performance, demeanor, and attitude.

OJT's may infuse the organization with new ideas. They may be able to contribute considerably to brainstorming sessions or research if given the opportunity to speak their opinions freely and without fear, and so help increase the organization's productivity. Employers are the one who's capable of assisting their employees while training interns. The process of mentoring the trainees tests their patience, improves their teaching abilities, and makes them more sensitive to the demands and mindset of the younger generation. The supervision program also





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Narciso Street, Surigao City



CERTIFICATE NUMBER: AJA19-0225

teaches them how to communicate their knowledge and respond to questions. As a result, the internship serves as a training ground for the company's future managers.





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**SURIGAO STATE**  
**COLLEGE OF TECHNOLOGY**

Document Code No.	FM-SSCT-REG-002
Revision No.	00
Effective Date	01 January 2019
Page No.	1 of 1

**Certificate of Registration**  
Summer, 2020 - 2021

ID No.: - 02380	Last Name <b>Madelo</b>	First Name <b>Menchie Rose</b>	Middle Name <b>Placeros</b>	Sex <b>Female</b>
-----------------	----------------------------	-----------------------------------	--------------------------------	----------------------

PROGRAM: <b>Bachelor of Science in Electrical Engineering</b>	YEAR LEVEL: <b>Fourth Year</b>
STATUS: <b>OLD</b>	

Section	Course	Day	Time	Room	Lec Hrs.	Lab Hrs.	U
BSEE - 3A	Practicum - On-the-Job Training (240 hrs)	[M,T,W,Th,F]	[02:00PM-04:00PM]	[EB 304]	2	0	

Total Units

*Signature*

Certified by: CLARET D. RUAYA  
College Registrar

03/26/2021 04:11:55





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Narciso Street, Surigao City



CERTIFICATE NUMBER: AJA19-0225

## RESUME

**Name:** Menchie Rose P. Madelo  
**Address:** P-2, Pautao, Bacuag, Surigao del Norte  
**Contact no.:** 09475987406  
**Email Address:** [menchierosemadelo@gmail.com](mailto:menchierosemadelo@gmail.com)



**Objectives:** To gain important knowledge and abilities that will allow me to put my school background to good use. In exchange, I pledge my service and commitment to be an asset for the duration of my training.

## PERSONAL BACKGROUND:

**Date of Birth:** May 02, 1997  
**Place of Birth:** Pautao, Bacuag, Surigao del Norte  
**Gender:** Female  
**Age:** 24 Years Old  
**Height:** 5'2"  
**Weight:** 52 kg  
**Status:** Single  
**Religion:** Roman Catholic  
**Citizenship:** Filipino

## SCHOLASTIC DATA:

Level	School	Year Attended
Primary:	Pautao elem. School	2009-2010
Secondary:	Bacuag Nat'l Agro-industrial School	2013-2014
Tertiary: 3 <sup>rd</sup> Year	Surigao State College Of Technology	Up-to-Present
Course/Major:	BS Electrical Engineering	

## WORK EXPERIENCE:

Position	Inclusive Date	Company	Address
ELECTRICIAN	June 01, 2018	OIC	Bacuag, Surigao del norte

## TRAININGS/SEMINARS ATTENDED:

Title	Inclusive Date	Address
EIM	AUGUST 04, 2021	Capitol, Surigao City





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Narciso Street, Surigao City



CERTIFICATE NUMBER: AJA19-0225

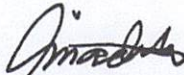
### CHARACTER REFERENCES:

Name	Position	Address	Contact no.
1. Darius M. Wenceslao	Monitoring Officer	Borja Street,	09309081081
	(Mining Engineer)	Washington, S.C.	
2. Romel C. Dela Cruz		1503 RRIBN-Commandant	09108934394
		Lipata, S.C.	
3. Josephine C. Tase	Manager	Brgy. Ipil, S.C.	09153458861

### IN CASE OF EMERGENCY, PLEASE NOTIFY:

Name	Address	Contact no.
Josefa P. Madelo	P-2 Pautao, Bacuag, Surigao del Norte	09978372158

I hereby certify that the above information is true and correct to my best knowledge and belief.

  
**MENCHIE ROSE P. MADELO**  
Student Trainee Applicant





This is the Surigao State College of Technology.

## COMPANY HISTORY

Surigao State College of Technology (SSCT) was formerly Surigao Del Norte School of Arts and Trades, established as a trade school with the help of then Governor Jose C. Sering on August 8, 1969 by virtue of Republic Act 6057 under the supervision of Supt. Marcelo S. Bonilla of Cebu School of Arts and Trades, Cebu City.

The school formally started its operation on September 15, 1969 with borrowed technology teachers from three different schools of the province. There were 103 pioneering students in the first secondary trade and the trade technical curricula. Two 2-storey buildings were constructed upon donation of 1.2 hectares of land through the Provincial Government. Along with this, several machineries were acquired from Japan Overseas Cooperation Volunteers; Technical Vocational Education Program; Asian Development Bank; and Philippine Australian Technical Vocational Education Program, which became instruments of becoming a full-fledged higher institution offering Bachelor of Science in Industrial Technology and the Bachelor of Science in Industrial Education.





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CERTIFICATE NUMBER: AJA19-0225

Through the efforts of the late Senator Robert Z. Barbers, R.A. 8650 merged SNSAT with the Malimono School of Fisheries, a secondary school that offered the Revised Fisheries Curriculum of 1972 under P.D. 223 in 1975, thereby creating the Surigao State College of Technology (SSCT) which was signed into law on June 5, 1998 by then President Fidel V. Ramos. With the conversion of SNSAT and

Malimono School of Fisheries to a State College, there was a major review of its organization, curriculum, and programs and standards under Dr. Teresita T. Tumapon who took the seat as the 1st College President on September 25, 1998.

The Surigao del Norte College of Agriculture and Technology (SNCAT) which was formerly the Mainit National Agricultural School (MNAS) by virtue of R.A. 5256 1983 Batas Pambansa Blg. 358 on May 26, 1969 was integrated to SSCT through a Memorandum of Agreement (MOA) entered into by and between CHED and TESDA on October 10, 2008 duly represented by the TESDA Director and the CHED Regional Director.

Under the Memorandum of Agreement, the Higher Education Programs of Surigao del Norte College of Agriculture and Technology (SNCAT) will be placed under the direct supervision of SSCT. The same was confirmed by the Board through Resolution No. 735 s. 2009 on December 28, 2009 during its 44th BOT Meeting. Dr. Georgito G. Posesano, Professor II of SSCT-Main Campus was designated on November 25, 2010 as its Campus Director.





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The year 2010 marked another milestone in the history of SSCT as the new lady president, Dr. Gloria C. Gemparo, assumed into office as the 5th College President of the Surigao State College of Technology on December 1, 2010 pursuant to BOT Resolution No. 25 s. 2010. With Dr. Gemparo at its helm,

everybody hopes for a bright future as it faces 21st Century challenges in pursuit of quality and relevant education for all its constituents.





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CERTIFICATE NUMBER: AJA19-0225

## COMPANY PROFILE



### **SURIGAO STATE COLLEGE OF TECHNOLOGY**

Former Surigao Del Norte of Arts and  
Trades

Type: State College

Established: June 5, 1998

President: Dr. Gregorio Z. Gamboa Jr.

Location: Surigao City, Surigao del Norte,  
Philippines

Colors: Green

Website: <http://ssct.edu.ph>

Campus:

Surigao City Main Campus  
Del Carmen  
Malimono  
Mainit

## PHILOSOPHY

The Surigao State College of Technology is a community of life-long learners who believe in the worth and total development of every individual. It adheres to the pursuit of excellence and to the democratic tenets, human dignity, wholesome work ethic, equality and equity of opportunity and sustainable progress.





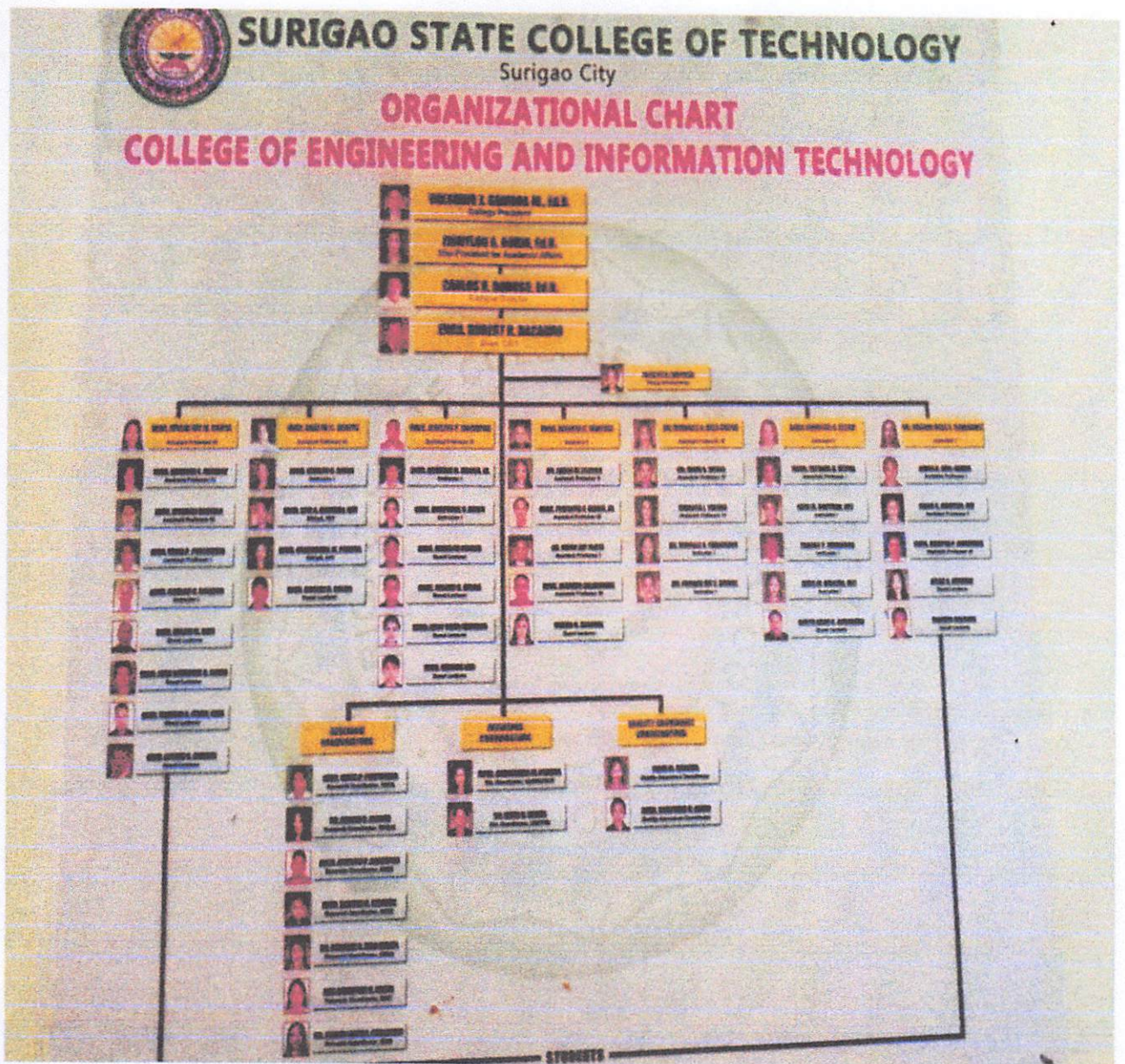
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**SURIGAO STATE COLLEGE OF TECHNOLOGY**  
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CERTIFICATE NUMBER: AJA19-0225

## COMPANY ORGANIZATIONAL CHART



This is the organizational chart of CEIT department.





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Narciso Street, Surigao City



**COLLEGE OF ENGINEERING & INFORMATION TECHNOLOGY**  
**BS in Electrical Engineering**

**CERTIFICATION**

This is to certify that Mr/Ms MENCHIE ROSE P. MADELO from the College of Engineering and Information Technology taking up Bachelor of Science in Electrical Enineering of the Surigao State College of Technology has successfully completed 240 hours of his training ( On-the-Job Training ) on home base distant design of electrical wiring with a performance rating of 90%.

This certification is being issued upon the request of Mr/Ms MENCHIE ROSE P. MADELO for whatever legal purpose it may serve.

  
Engr. Mark Marvin D. Paglinawan  
OJT - INSTRUCTOR



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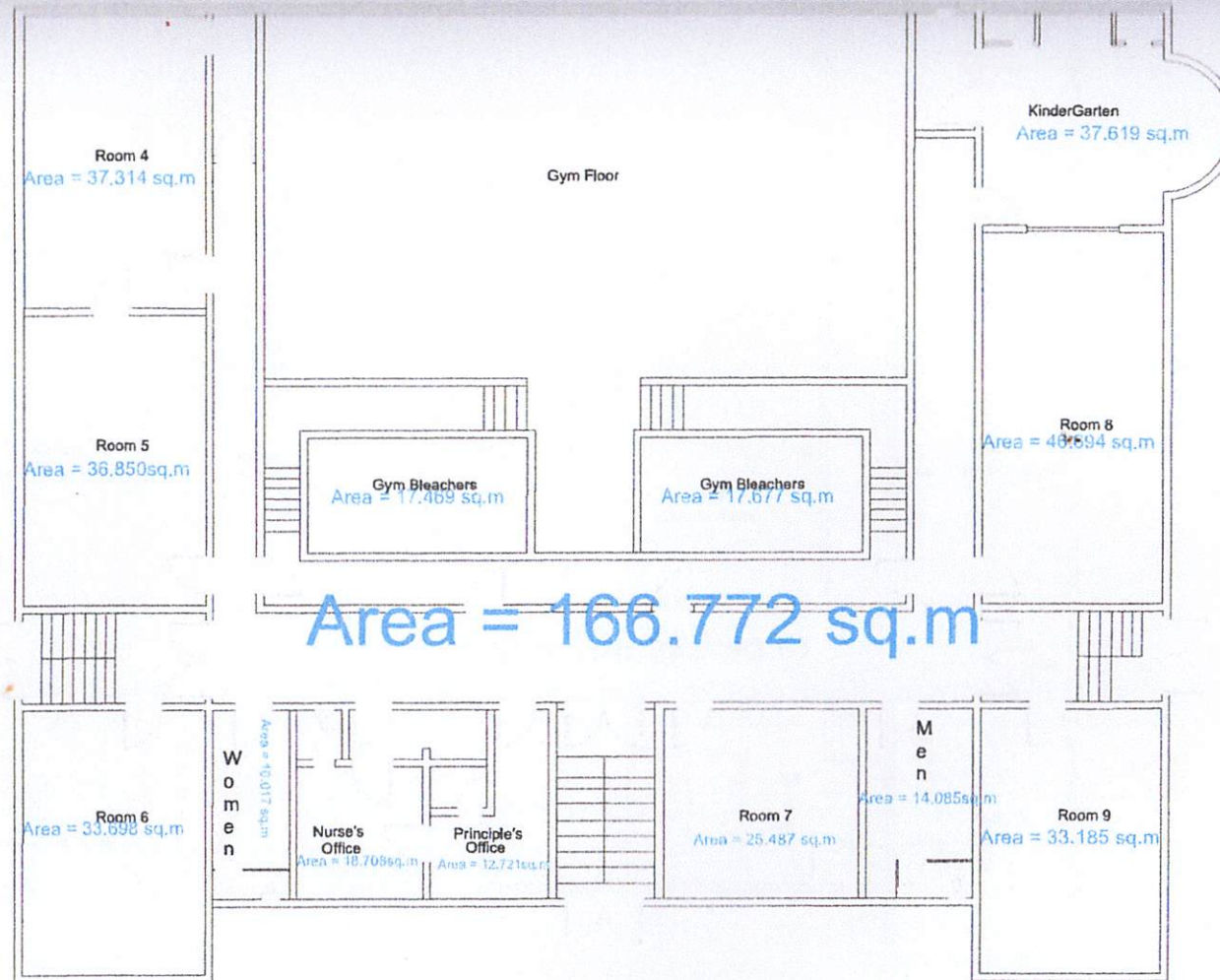
Republic of the Philippines  
**SURIGAO STATE COLLEGE OF TECHNOLOGY**  
Narciso Street, Surigao City



CERTIFICATE NUMBER: AJA19-0225

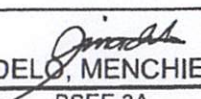
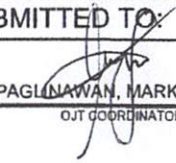
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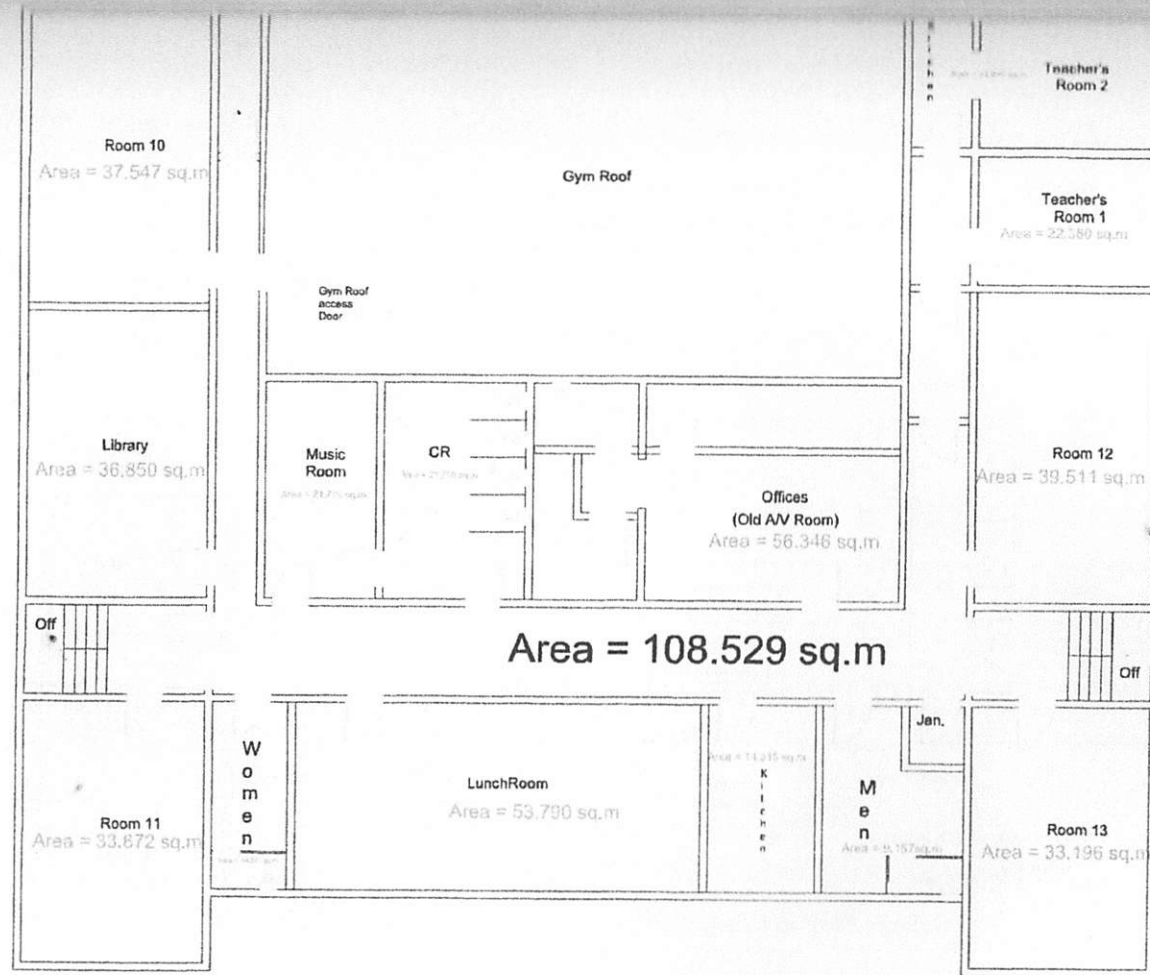




**1st Floor Layout**

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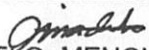
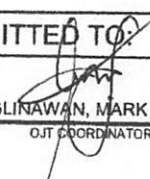
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 <b>MADELO, MENCHIE ROSE P.</b> BSEE 3A	<b>PROPOSED THREE (3)- STOREY SCHOOL BUILDING</b>	 <b>ENGR. PAGLINAWAN, MARK MARVIN D.</b> OJT COORDINATOR	<b>FLOOR PLAN LAYOUT</b>



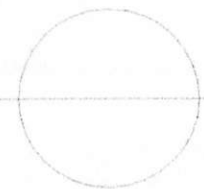
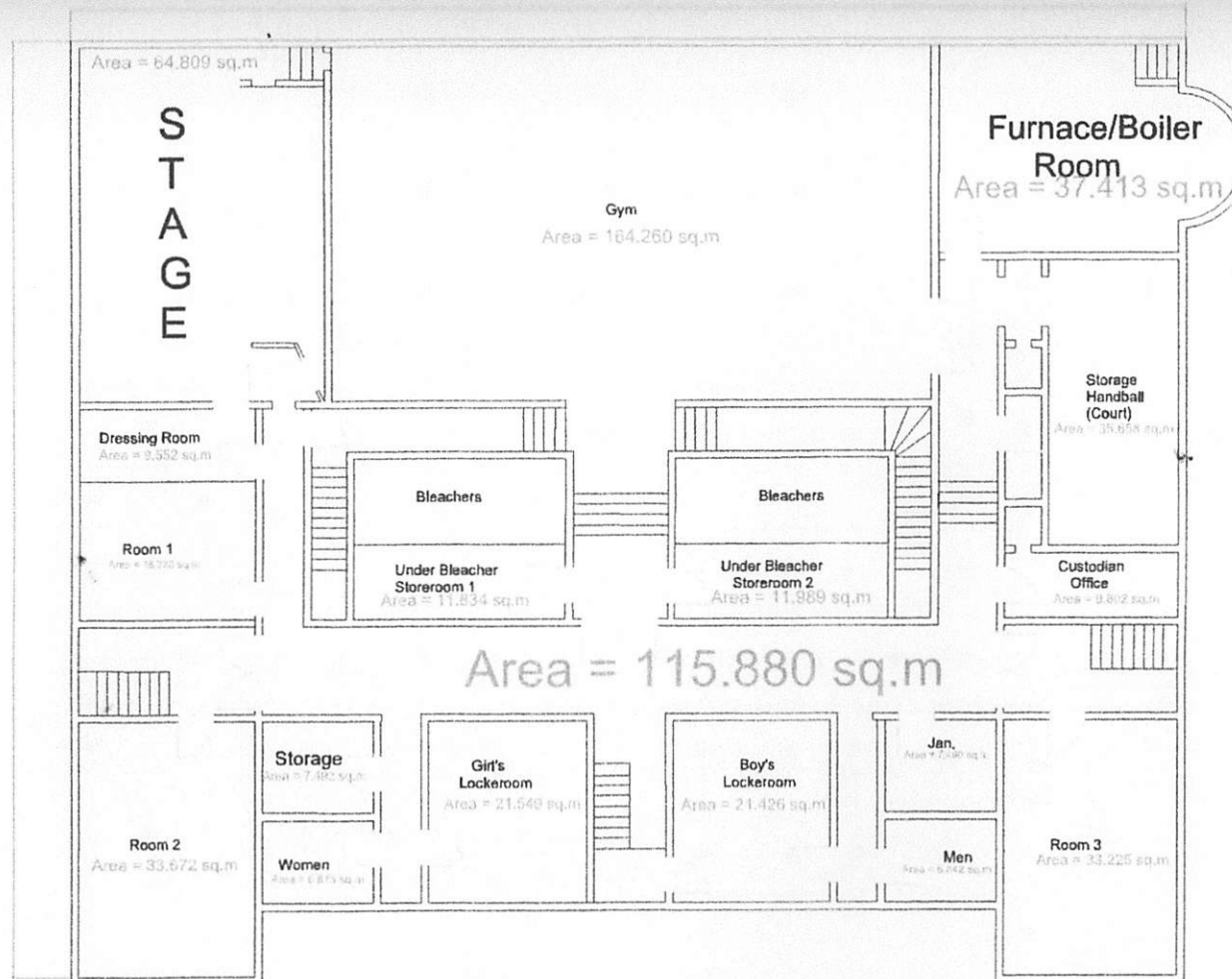
## 2nd Floor Layout

Scale

1:100m

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 <b>MADEJO, MENCHIE ROSE P.</b> BSEE 3A	<b>PROPOSED THREE (3)- STOREY SCHOOL BUILDING</b>	 <b>ENGR. PAGLINAWAN, MARK MARVIN D.</b> OUT COORDINATOR	<b>FLOOR PLAN LAYOUT</b>


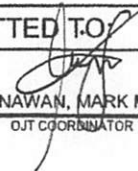


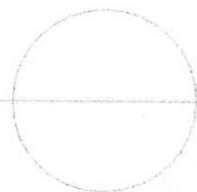
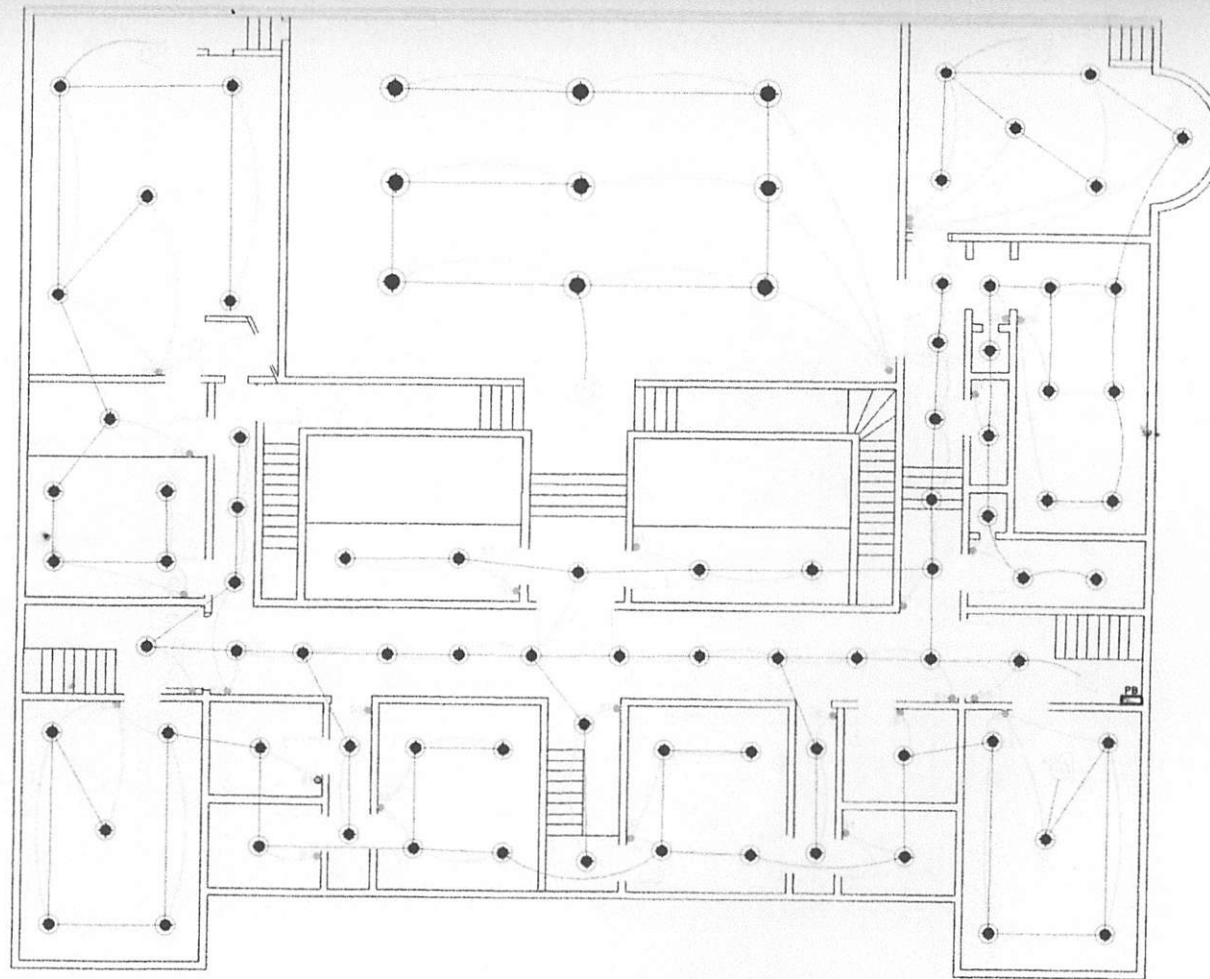


## Basement Layout

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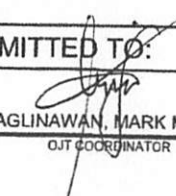
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 <b>MADEO, MENCHIE ROSE P.</b> BSEE 3A	<b>PROPOSED THREE (3)- STOREY SCHOOL BUILDING</b>	 <b>ENGR. PAGLINAWAN, MARK MARVIN D.</b> OJT COORDINATOR	<b>FLOOR PLAN LAYOUT</b>



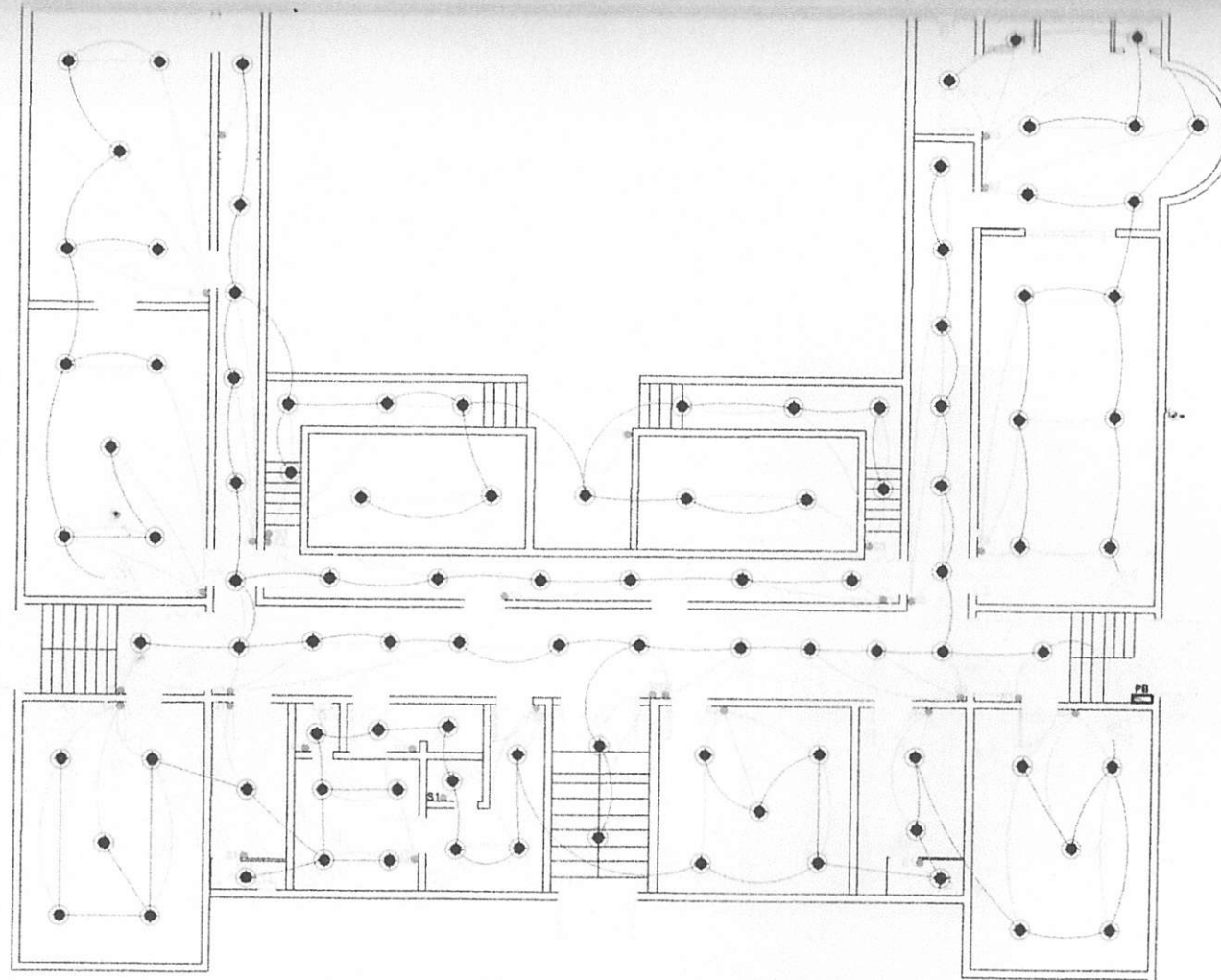
## Basement Layout

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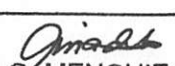
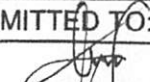
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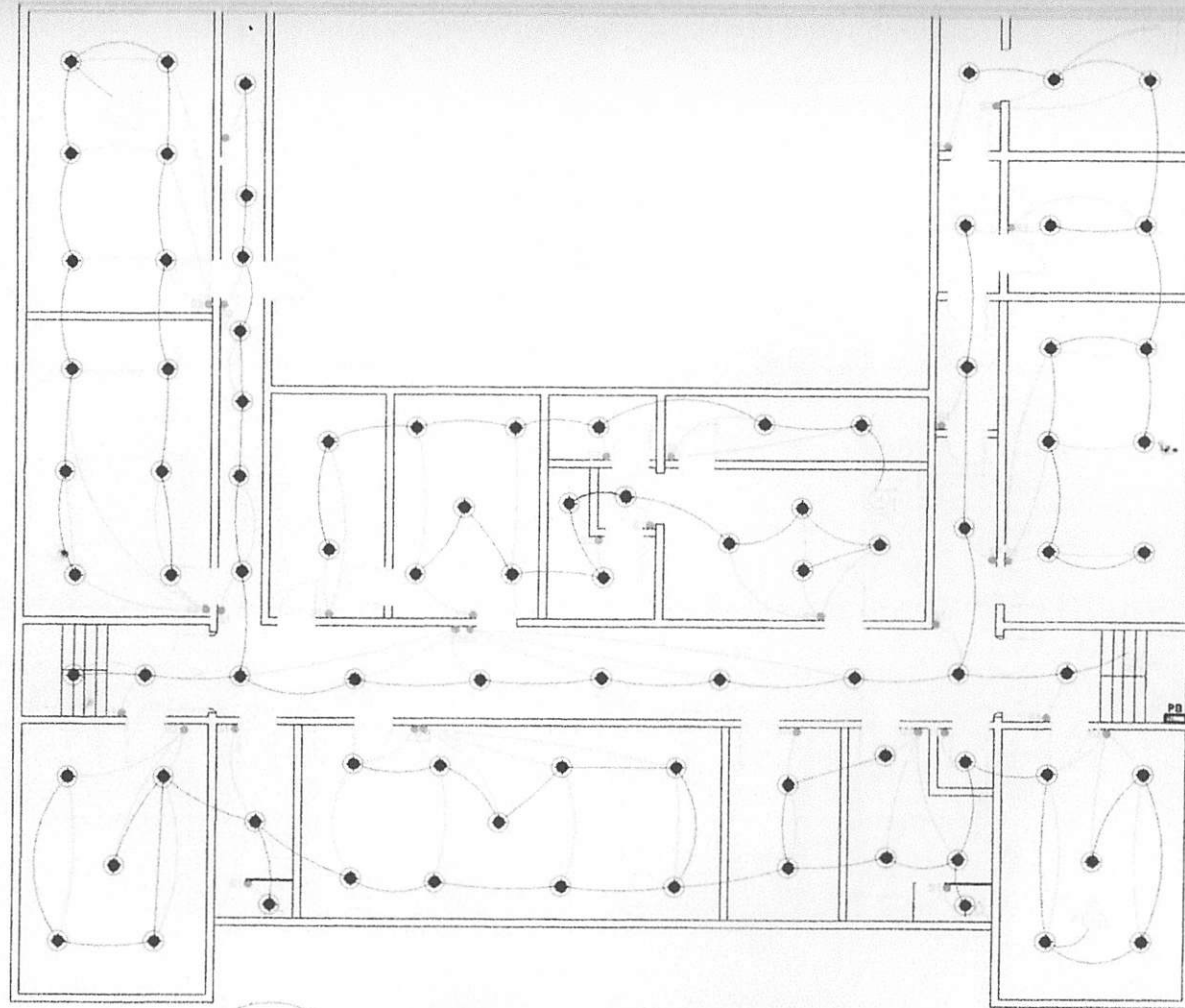




# 1st Floor Layout

Scale 1:100m

SUBMITTED BY:	PROJECT TITLE:	SUBMITTED TO:	SHEET CONTENT:
 <b>MADELO, MENCHIE ROSE P.</b> BSEE 3A	<b>PROPOSED THREE (3)- STOREY SCHOOL BUILDING</b>	 <b>ENGR. PAGLINAWAN, MARK MARVIN D.</b> OJT COORDINATOR	<u>LIGHTING LAYOUT</u>



## 2nd Floor Layout

Scale

1:100m

SUBMITTED BY:

*Menchie Rose P. Madeo*  
MADELO, MENCHIE ROSE P.  
 BSEE 3A

PROJECT TITLE:

PROPOSED THREE (3)- STOREY  
 SCHOOL BUILDING

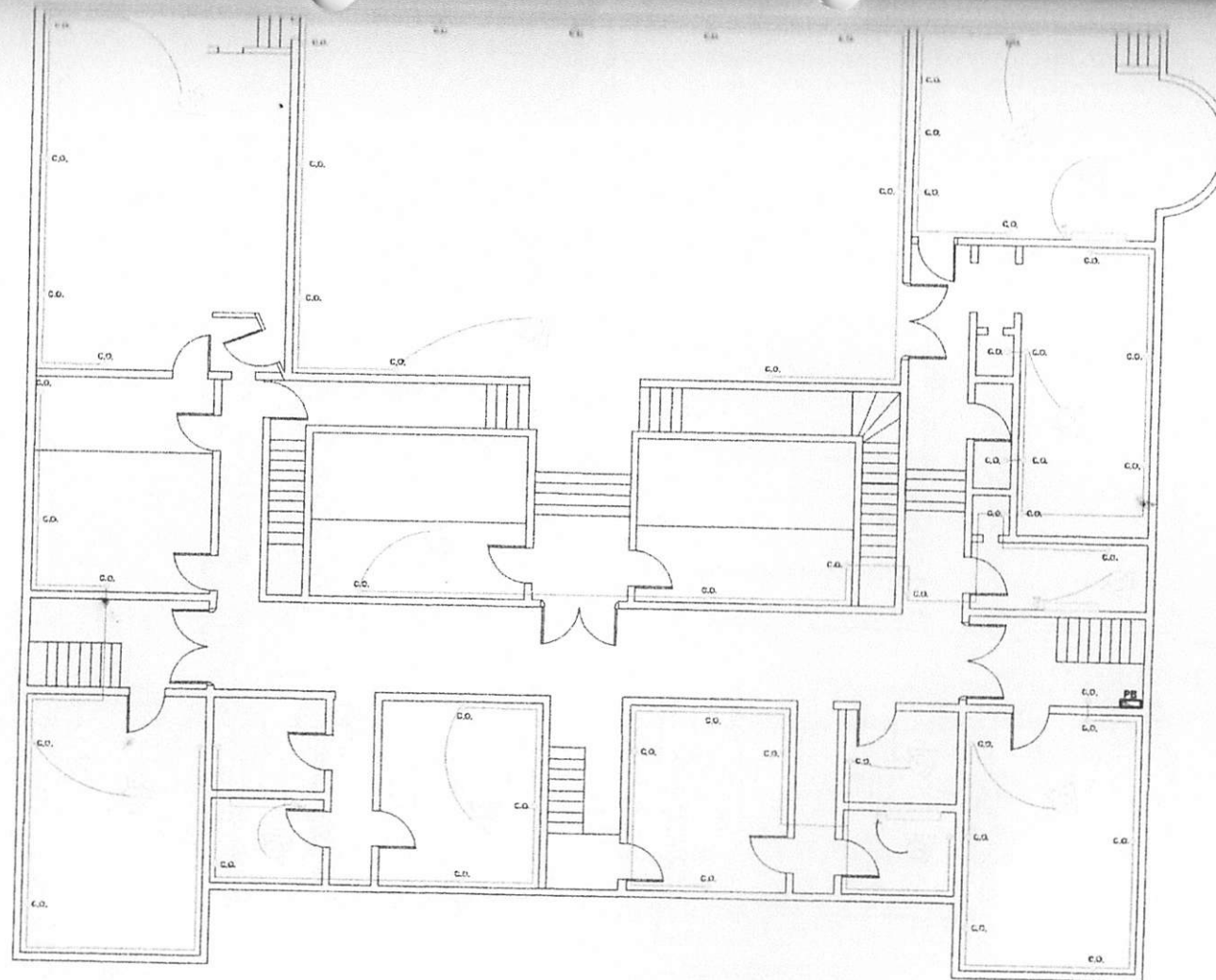
SUBMITTED TO:

*Mark Marvin D. Paglinawan*  
ENGR. PAGLINAWAN, MARK MARVIN D.  
 OJT COORDINATOR

SHEET CONTENT:

LIGHTING LAYOUT





## Basement Layout

Scale

1:100m

SUBMITTED BY:

*Madelo*  
MADELO, MENCHIE ROSE P.  
BSEE 3A

PROJECT TITLE:

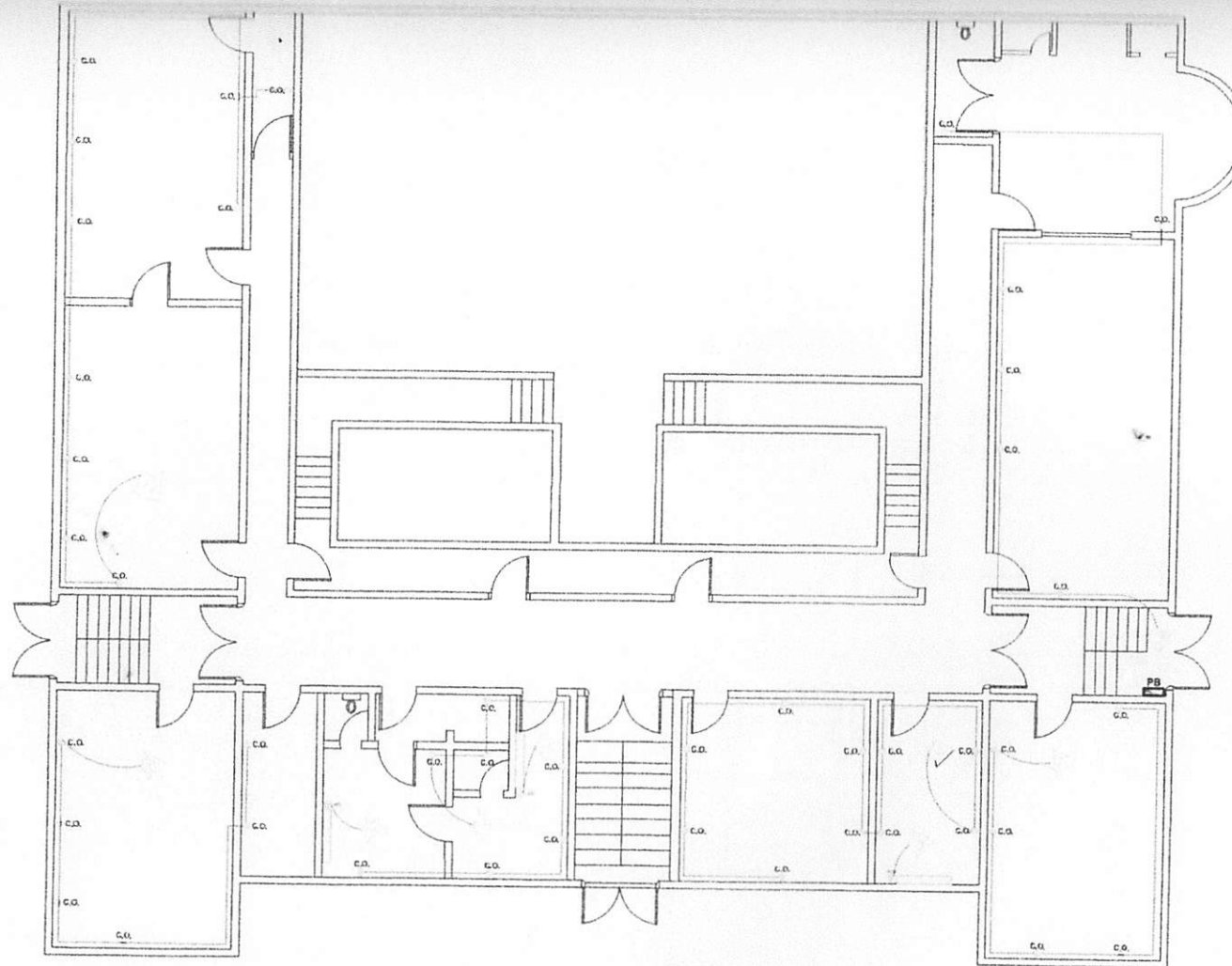
PROPOSED THREE (3)- STOREY  
SCHOOL BUILDING

SUBMITTED TO:

*Engr. Paglinawan*  
ENGR. PAGLINAWAN, MARK MARVIN D.  
OJT COORDINATOR

SHEET CONTENT:

POWER LAYOUT



## 1st Floor Layout

Scale

1:100m

SUBMITTED BY:

MADELO, MENCHIE ROSE P.  
BSEE 3A

PROJECT TITLE:

PROPOSED THREE (3)- STOREY  
SCHOOL BUILDING

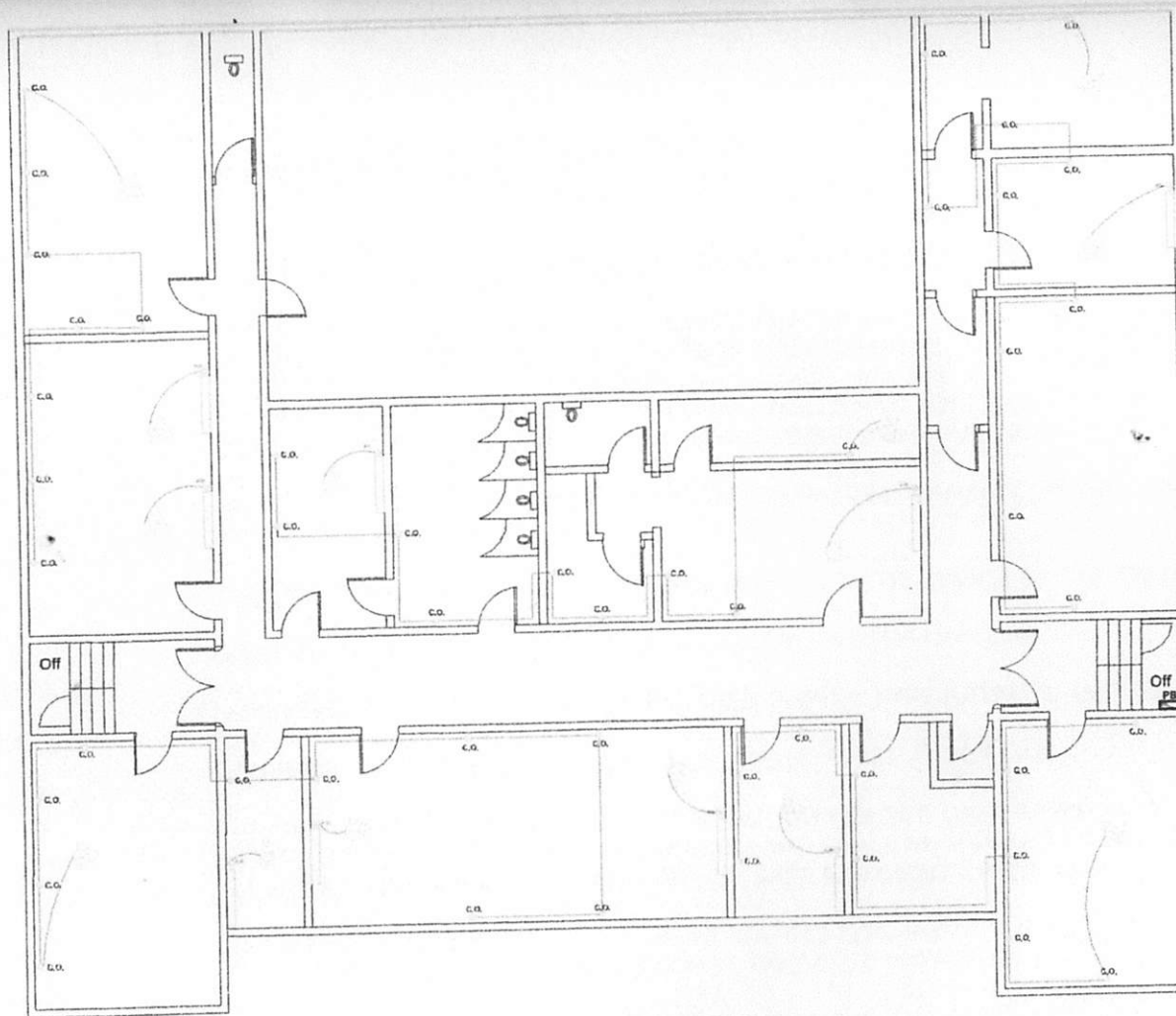
SUBMITTED TO:

ENGR. PAGLINAWAN, MARK MARVIN D.  
OJT COORDINATOR

SHEET CONTENT:

POWER LAYOUT


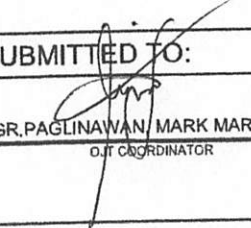




















## 2nd Floor Layout

Scale

1:100m

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## LEGEND:

-  PANEL BOARD
-  LIGHT OUTLET WIRING CONNECTION
-  LIGHT SWITCH WIRING CONNECTION
-  CONVENIENCE WIRING CONNECTION
-  KILOWATT-HOUR METER
-  LED BULB LIGHT
-  DUPLEX CONVENIENCE OUTLET
-  WATERPROOF CONVENIENCE OUTLET
-  WPF C.O.
-  WATERPROOF FLOOR MOUNTED CONVENIENCE OUTLET
-  WFM C.O.
-  RANGE & REF. CONVENIENCE OUTLET
-  AIR CONDITIONING UNIT CONVENIENCE OUTLET
-  S • 1 SINGLE-GANG LIGHT SWITCH
-  S • 2 DOUBLE-GANG LIGHT SWITCH
-  S • 3 THREE-GANG LIGHT SWITCH
-  SW • 1 THREE-WAY LIGHT SWITCH

## ELECTRICAL NOTES:

ALL MATERIALS TO BE USED IN THIS PROJECT SHALL BE OF APPROVED BRAND AND QUALITY.

WIRINGS FOR ALL SYSTEMS SHALL BE TYPE THW OR TW CONDUCTORS USING PLASTIC CONDUIT PIPES. OTHER TYPES OF CONDUCTOR SHALL BE AS INDICATED IN THE DRAWINGS.

CONDUIT SHALL BE EMBEDDED IN COLUMNS, WALLS AND TOPPINGS OF FLOOR SLAB TO ALLOW FLUSH CONNECTIONS AND LIGHTING SYSTEM WHICH MAYBE EXPOSED BETWEEN JOINTS IN CASE A DROP CEILING IS INSTALLED.

SMALLEST TYPE OF CONDUCTOR TO BE USED SHALL BE 3.5 mm<sup>2</sup> TYPE OR THW. TW WIRE SHALL BE INDICATED IN THE DRAWINGS.

WALL SWITCHES INTENDED TO CONTROL LIGHTS ON THE 230 VOLTS SYSTEM SHALL BE RATED 15 AMP. 250 VOLTS.

LIGHT SWITCHES SHALL BE 1.35 METERS ABOVE FINISH FLOOR LINE.


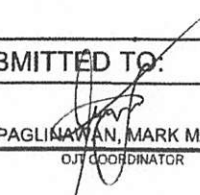
CONVENIENCE OUTLETS SHALL BE FLUSHED DUPLEX TYPE RATED 20 AMPERES 230 VOLTS 60Hz., AC.

CONVENIENCE OUTLETS SHALL BE 30 CM. ABOVE FINISH FLOOR LINE.

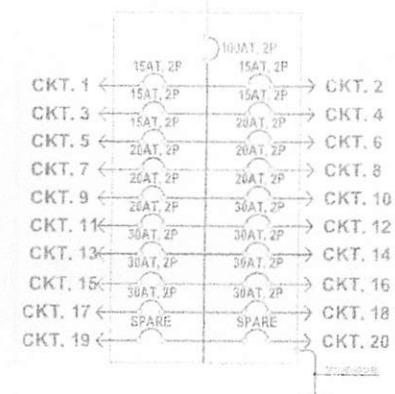
THE CIRCUIT BREAKERS SHALL BE DRAW OUT OR MOLDED CASE AS REQUIRED. THE CIRCUIT BREAKERS SHALL EACH HAVE SUFFICIENT INTERRUPTING CAPACITY AND SHALL BE MANUALLY OPERATED COMPLETE WITH TRIP DEVICES AND ALL NECESSARY ACCESSORIES TO INSURE SAFE EFFICIENT OPERATIONS.



CIRCUIT BREAKERS SHALL BE OF THE INDICATING TYPE PROVIDING "ON" AND "OFF" AND "TRIP" POSITIONS OF THE OPERATING HANDLES AND SHALL EACH BE PROVIDED WITH NAME PLATE FOR BRANCH CIRCUIT DESIGNATION.

GENERAL ELECTRICAL INSTALLATION SHALL BE MADE TO CONFORM TO LOCAL ORDINANCE AND THE NATIONAL ELECTRICAL CODE OF THE PHILIPPINES AND SHALL BE MADE UNDER THE SUPERVISION OF THE DULY LICENSED PROFESSIONAL ELECTRICAL ENGINEER.

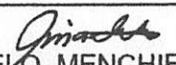
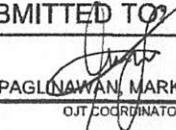
SUBMITTED BY:	PROJECT TITLE:	SUBMITTED TO:	SHEET CONTENT:
 <b>MADELO, MENCHIE ROSE P.</b> BSEE 3A	<b>PROPOSED THREE (3)- STOREY SCHOOL BUILDING</b>	 <b>ENGR. PAGLINAWAN, MARK MARVIN D.</b> OJT COORDINATOR	<b>LEGEND AND ELECTRICAL NOTES</b>





SUBMITTED BY:	PROJECT TITLE:	SUBMITTED TO:	SHEET CONTENT:
 <u>MADELO, MENCHIE ROSE P.</u> BSEE 3A	PROPOSED THREE (3)- STOREY SCHOOL BUILDING	 <u>ENGR. PAGLINAWAN, MARK MARVIN D.</u> OJT COORDINATOR	<u>LINE DIAGRAM</u>

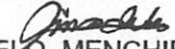
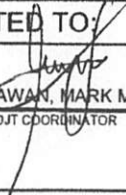
1. DESIGN ANALYSIS (BASEMENT)						
Total Area	727.99	sq.m	STD rating	Unit	Total	Unit
A. General Lighting						
	727.99	sq.m		VA/sq.m	= 2,102.00	VA
B. Convenience Outlet Load						
4	general purpose outlets	180	VA	=	720.00	VA
10	general purpose outlets	180	VA	=	1,800.00	VA
6	general purpose outlets	180	VA	=	1,080.00	VA
6	general purpose outlets	180	VA	=	1,080.00	VA
5	general purpose outlets	180	VA	=	900.00	VA
6	general purpose outlets	180	VA	=	1,080.00	VA
7	general purpose outlets	180	VA	=	1,260.00	VA
7	general purpose outlets	180	VA	=	1,260.00	VA
5	general purpose outlets	180	VA	=	900.00	VA
Total of General Lighting and general purpose outlets					12,182.00	
Application of Demand Factors:						
First 3000 volt Amperes @ 100% DF					= 3,000.00	VA
Reminder @35% Demand Factor					= 3,213.70	VA
Sub Total of Lighting and Convenience Outlet Load					= 6,213.70	VA
C. Other Loads ( Motor Loads Derived If PEC Table 4.30.14.2 Page 629):						
4	units	Airconditioner	1,840.00	VA	= 7,360.00	VA
Sub Total of Other Loads					= 7,360.00	VA
Total Load					= 13,573.70	VA
D. Circuit Requirements						
Use:	5	= 15 AT, CB - 2 Pole OCPD for Lighting Outlets				
Use:	9	= 20 AT, CB - 2 Pole OCPD for General Purpose				
Use:	4	= 30 AT, CB - 2 Pole OCPD for Aircon				
E. Service Entrance Conductors						
Total Load					= 13,573.70	VA
Highest Motor Load					= 1,840.00	VA
Total Full Load Current					61.02	A
From Design Analysis:						
Use:	2	= 30.0 mm <sup>2</sup>	Ungrounded Wire			
Use:	1	= 8.0 mm <sup>2</sup>	Ground Wire			
F. Service Equipment Rating:						
1.0	Nontime Delay Fuse				75.02	A
1.0	Inverse Time Circuit Breaker				71.02	A
Use:	100 AT, 2P Circuit Breaker					

SUBMITTED BY:	PROJECT TITLE:	SUBMITTED TO:	SHEET CONTENT:
 MADELO, MENCHIE ROSE P. BSEE 3A	PROPOSED THREE (3)- STOREY SCHOOL BUILDING	 ENGR. PAGLINAWAN, MARK MARVIN D. OJT COORDINATOR	GENERAL LIGHTING LOAD

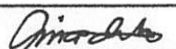
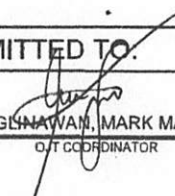


## 2. DESIGN ANALYSIS (FIRST FLOOR)

Total Area	727.99	sq.m		STD rating	Unit		Total	Unit	
A. General Lighting									
	727.99	sq.m			VA/sq.m	=	2,120.00	VA	
B. Convenience Outlet Load									
10	general purpose outlets		180	VA	=		1,800.00	VA	
6	general purpose outlets		180	VA	=		1,080.00	VA	
7	general purpose outlets		180	VA	=		1,260.00	VA	
10	general purpose outlets		180	VA	=		1,800.00	VA	
5	general purpose outlets		180	VA	=		900.00	VA	
6	general purpose outlets		180	VA	=		1,080.00	VA	
Total of General Lighting and general purpose outlets							10,040.00		
Application of Demand Factors:									
First 3000 volt Amperes @ 100% DF						=	3,000.00	VA	
Reminder @35% Demand Factor						=	2,464.00	VA	
Sub Total of Lighting and Convenience Outlet Load						=	5,464.00	VA	
C. Other Loads ( Motor Loads Derived If PEC Table 4.30.14.2 Page 629):									
3	units	Air conditioner	1,840.00	VA	=		5,520.00	VA	
Sub Total of Other Loads							=	5,520.00	VA
Total Load							=	10,984.00	VA
D. Circuit Requirements									
Use:	14	=	15 AT, CB - 2 Pole OCPD for Lighting Outlets						
Use:	20	=	20 AT, CB - 2 Pole OCPD for General Purpose						
Use:	16	=	30 AT, CB - 2 Pole OCPD for Aircon						
E. Service Entrance Conductors									
Total Load							=	10,984.00	VA
Highest Motor Load							=	1,840.00	VA
Total Full Load Current							49.76	A	
From Design Analysis:									
Use:	2	=	30.0	mm <sup>2</sup>	Ungrounded Wire				
Use:	1	=	8.0	mm <sup>2</sup>	Ground Wire				
F. Service Equipment Rating:									
1.0	Nontimed Delay Fuse						63.76	A	
1.0	Inverse Time Circuit Breaker						59.76	A	
Use:	100	AT, 2P Circuit Breaker							

SUBMITTED BY:	PROJECT TITLE:	SUBMITTED TO:	SHEET CONTENT:
 <b>MADEO, MENCHIE ROSE P.</b> BSEE 3A	<b>PROPOSED THREE (3)- STOREY SCHOOL BUILDING</b>	 <b>ENGR. PAGLINAWAN, MARK MARVIN D.</b> OJT COORDINATOR	<b>GENERAL LIGHTING LOAD</b>

3. DESIGN ANALYSIS (SECOND FLOOR)						
Total		sq.m	STD rating	Unit	Total	Unit
Area	2,177.79					
A. General Lighting						
	2,177.79	sq.m		VA/sq.m	= 7,105.00	VA
B. Convenience Outlet Load						
8	general purpose outlets		180	VA	= 1,440.00	VA
10	general purpose outlets		180	VA	= 1,800.00	VA
10	general purpose outlets		180	VA	= 1,800.00	VA
10	general purpose outlets		180	VA	= 1,800.00	VA
9	general purpose outlets		180	VA	= 1,620.00	VA
10	general purpose outlets		180	VA	= 1,800.00	VA
Total of General Lighting and general purpose outlets					17,365.00	
Application of Demand Factors:						
First 3000 volt Amperes @ 100% DF					= 3,000.00	VA
Reminder @35% Demand Factor					= 5,027.75	VA
Sub Total of Lighting and Convenience Outlet Load					= 8,027.75	VA
C. Other Loads ( Motor Loads Derived if PEC Table 4.30.14.2 Page 629):						
1	unit	Refrigerator	400.00	VA	= 400.00	VA
4	units	Air conditioner	1,840.00	VA	= 7,360.00	VA
2	units	Floor Standing Air conditioner	1,840.00	VA	= 3,680.00	VA
Sub Total of Other Loads					= 11,440.00	VA
Total Load					= 19,467.75	VA
D. Circuit Requirements						
Use: 14 = 15 AT, CB - 2 Pole OCPD for Lighting Outlets						
Use: 20 = 20 AT, CB - 2 Pole OCPD for General Purpose						
Use: 16 = 30 AT, CB - 2 Pole OCPD for Aircon						
E. Service Entrance Conductors						
Total Load					= 19,467.75	VA
Highest Motor Load					= 1,840.00	VA
Total Full Load Current					86.64	A
From Design Analysis:						
Use: 2 = 38.0 mm <sup>2</sup> Ungrounded Wire						
Use: 1 = 14.0 mm <sup>2</sup> Ground Wire						
F. Service Equipment Rating:						
1.0 Nontimed Delay Fuse					100.64	A
1.0 Inverse Time Circuit Breaker					96.64	A
Use: 125 AT, 2P Circuit Breaker						

SUBMITTED BY:	PROJECT TITLE:	SUBMITTED TO:	SHEET CONTENT:
 MADELO, MENCHIE ROSE P. BSEE 3A	PROPOSED THREE (3)- STOREY SCHOOL BUILDING	 ENGR. PAGLINAWAN, MARK MARVIN D. OJT COORDINATOR	GENERAL LIGHTING LOAD



# SHORT CIRCUIT ANALYSIS

Method 1: Using Per Unit Impedance Method

A. Assuming:

Available Utility Short Circuit Capacity is 10000 MVA

50 KVA Transformer \* (Maximum Supply for Residential is only at 50 KVA

\*Please note that a smaller transformer than this will result to a Lower KAIC rating making this assumption conservative.

Z = 1.5 Impedance Z of Transformer at Worst Case (%)

L = 50 Length of conductor to Fault (ft)

B. Compute for per unit SCI Impedance (puZs)

PuZs = KVA Base / SC Utility Fault kVA

PuZs = 100/1000000

PuZs = 0.0001 p.u.

C. Compute for unit % impedance (puZt)

PuZt = 1.5 /

100

PuZt = 0.015 p.u.

D. Compute for Feeder Impedance in Ohms (puZw)

From Standard Electrical Handbook

Table for copper Wire and Cable Electrical Characteristics

R = 3.4800 ohms/mile

XL = 0.6500 ohms/mile

XC = 0.1500 ohms/mile

Z =  $\sqrt{R^2 + (XL - XC)^2}$

Z = 3.5157 ohms/mile

E. Conversion

puZw = Z(of copper Wire) XL (Length of conductor to Fault)

puZw = 3.15 ohms/Mile \* 1Mile/5280 Feet \* 25.00 Feet

puZw = 0.0333

Simplified diagram

puZ<sub>total</sub> = puZs + puZt + puZw

= 0.0150 + 0.0150 + 0.0333

= 0.0483

ISC (sym) = 1 x base

VA

puZ<sub>total</sub> = 230 V

ISC (sym) =  $\frac{1}{0.0483} \times \frac{230}{50000}$

= 0.0483

ISC (sym) = A

4,501.51

ISC (sym) =  $\frac{4,501.51}{1000} \times 12\% \text{ SF}$

= 4,501.5

ISC (sym) =  $\frac{4,501.5}{1000} \times 125\%$

= 5.6269

ISC (sym) = A

Therefore:

Use:

9.00 KAIC for Main Circuit Breaker but Check line Fault and Line

10.00 KAIC for Branch Circuit Breaker but Check Line Fault and Line To Neutral Fault

puZ<sub>s</sub> = 0.0001

puZ<sub>t</sub> = 0.0150

puZ<sub>w</sub> = 0.0333

SUBMITTED BY:

MADELO, MENCHIE ROSE P.  
BSEE 3A

PROJECT TITLE:

PROPOSED THREE (3)- STOREY  
SCHOOL BUILDING

SUBMITTED TO:

ENGR. PAGLINAWAN, MARK MARVIN D.  
OJT COORDINATOR

SHEET CONTENT:

SHORT CIRCUIT

## PB1 VOLTAGE DROP CALCULATION

Feeder wire data (transformer to service equipment-section 1)

Itotal Full Load Current	=	61.0161	A
Size of Wire	=	30	mm <sup>2</sup> THHN
R per kilometer	=	0.1900	ohms/km
X <sub>i</sub> per kilometer	=	0.0450	ohms/km
Length of feeder Line Wire	=	15	m

Feeder wire data (service equipment to highest load -section 2)

Itotal Full Load Current	=	8.0000	A
Size of Wire	=	8	mm <sup>2</sup> THHN
R per kilometer	=	0.0520	ohms/km
X <sub>i</sub> per kilometer	=	0.7800	ohms/km
Length of feeder Line Wire	=	30	m

Line Section Voltage Drop (VD1)

$$VD_1 = \frac{\text{length}}{305} \times \frac{(V R^2 + X_i^2)}{m} \times I_{\text{section-1}}$$

$$VD_1 = \frac{15}{305} \times \frac{0.19526}{m} \times 61.02 \text{ A}$$

$$VD_1 = 0.5859 \text{ V}$$

Line Section Voltage Drop (VD2)

$$VD_2 = \frac{\text{length}}{305} \times \frac{(V R^2 + X_i^2)}{m} \times I_{\text{section-1}}$$

$$VD_2 = \frac{30}{305} \times \frac{0.78173}{m} \times 8.00 \text{ A}$$

$$VD_2 = 0.6151 \text{ V}$$

Total Voltage Drop

$$VD_T = VD_2 + VD_1$$

$$VD_T = 0.6151 + 0.5859$$

$$VD_T = 1.2011 \text{ V}$$

% Voltage Drop

$$\% VD = \frac{VD_T}{230 \text{ V}} \times 100\%$$

$$\% VD = \frac{1.2011}{230 \text{ V}} \times 100\%$$

$$\% VD = 0.5222 \%$$

Therefore:

Voltage Drop is less than 5% allowable by PEC

## PB2 VOLTAGE DROP CALCULATION

Feeder wire data (transformer to service equipment-section 1)

Itotal Full Load Current	=	49.7565	A
Size of Wire	=	30	mm <sup>2</sup> THHN
R per kilometer	=	0.1900	ohms/km
X <sub>i</sub> per kilometer	=	0.0450	ohms/km
Length of feeder Line Wire	=	15	m

Feeder wire data (service equipment to highest load -section 2)

Itotal Full Load Current	=	8.0000	A
Size of Wire	=	8	mm <sup>2</sup> THHN
R per kilometer	=	0.0380	ohms/km
X <sub>i</sub> per kilometer	=	0.0190	ohms/km
Length of feeder Line Wire	=	30	m

Line Section Voltage Drop (VD1)

$$VD_1 = \frac{\text{length}}{305} \times \frac{(V R^2 + X_i^2)}{m} \times I_{\text{section-1}}$$

$$VD_1 = \frac{15}{305} \times \frac{0.19526}{m} \times 49.76 \text{ A}$$

$$VD_1 = 0.4778 \text{ V}$$

Line Section Voltage Drop (VD2)

$$VD_2 = \frac{\text{length}}{305} \times \frac{(V R^2 + X_i^2)}{m} \times I_{\text{section-1}}$$

$$VD_2 = \frac{30}{305} \times \frac{0.04249}{m} \times 8.00 \text{ A}$$

$$VD_2 = 0.0334 \text{ V}$$

Total Voltage Drop

$$VD_T = VD_2 + VD_1$$

$$VD_T = 0.0334 + 0.4778$$

$$VD_T = 0.5112 \text{ V}$$

% Voltage Drop

$$\% VD = \frac{VD_T}{230 \text{ V}} \times 100\%$$

$$\% VD = \frac{0.5112}{230 \text{ V}} \times 100\%$$

$$\% VD = 0.2223 \%$$

Therefore:

Voltage Drop is less than 5% allowable by PEC

SUBMITTED BY:

*MADELO*  
MADELO, MENCHIE ROSE P.  
BSEE 3A

PROJECT TITLE:

PROPOSED THREE (3)- STOREY  
SCHOOL BUILDING

SUBMITTED TO:



ENGR. PAGLINAWAN, MARK MARVIN D.  
OJT COORDINATOR

SHEET CONTENT:

VOLTAGE DROP



ACTIVITIES/MATERIALS DESCRIPTION	BRAND	QUANTITY	UNIT	UNIT PRICE	TOTAL COST
3.5 mm ø THHN Stranded Copper Wire	ROYU	15	Box=150 meters	1,500.00	22,500.00
5.5 mm ø THHN Stranded Copper Wire	ROYU	3	Box= 150 meters	1,700.00	5,100.00
14.0 mm ø THHN Stranded Copper Wire	ROYU	9	Box= 150 meters	1,400.00	12,600.00
15 mm ø UPVC Conduit Pipe	ANY	200	m	35	7,000.00
FLEXIBLE ELECTRICAL HOSE	ANY	150	m	25	3,750.00
LED LIGHT BULB 20 Watts	FIREFLY	146	pcs	380	55,480.00
LED LIGHT BULB 30 Watts	FIREFLY	48	pcs	345	16,560.00
LED LIGHT BULB 24 Watts	FIREFLY	3	pcs	150	450.00
LED LIGHT BULB 100 Watts	FIREFLY	28	pcs	950	26,600.00
Florescent Lamp 40 Watts	FIREFLY	268	pcs	250	67,000.00
Florescent Lamp 60 Watts	FIREFLY	65	pcs	350	22,750.00
ONE GANG SINGLE WAY LIGHT SWITCH	OMNI	24	pcs	80	1,920.00
TWO GANG SINGLE WAY LIGHT SWITCH	OMNI	17	pcs	140	2,380.00
THREE WAY LIGHT SWITCH	OMNI	60	pcs	135	8,100.00
TWO GANG CONVENIENCE OUTLET	OMNI	157	pcs	110	17,270.00
ACU OUTLET	PANASONIC	5	pcs	530	2,650.00
SQUARE BOX	ANY	6	pcs	65	390.00
CIRCUIT BREAKER (15 A) BOLT IN TYPE	ROYU	13	pcs	275	3,575.00
CIRCUIT BREAKER (20 A) BOLT IN TYPE	ROYU	16	pcs	305	4,880.00
CIRCUIT BREAKER (30 A) BOLT IN TYPE	ROYU	5	pcs	330	1,650.00
MAIN BREAKER (60 A) BOLT IN TYPE	ROYU	1	pc	100	100.00
PANEL BOARD	ROYU	1	pc	4750	4,750.00
CEMENT	ANY	18	pcs	250	4,500.00
SERVICE ENTRANCE CAP 2in	ANY	1	pc	40	40.00
GALVANIZED GROUND ROD 2in	ANY	1	pc	850	850.00
ELBOW CONNECTOR 2in	ANY	45	pcs	15	675.00
MISCELLANEOUS EXPENDITURES	ANY				50,000.00
TOTAL ESTIMATED MATERIAL COST					PHP343, 530
TOTAL ESTIMATED LABOR COST for ELECTRICIANS				500	Php 72,000.00
TOTAL ESTIMATED LABOR COST for FOREMAN				700	Php 100,800.00
PROJECT MGT./ SUPERVISION/ ENGINEERING					Php1,000,000.00
TOTAL COST					PHP1, 516, 330.00

SUBMITTED BY:	PROJECT TITLE:	SUBMITTED TO:	SHEET CONTENT:
 <b>MADELO, MENCHIE ROSE P.</b> BSEE 3A	<b>PROPOSED THREE (3)- STOREY SCHOOL BUILDING</b>	 <b>ENGR. PAGLINAWAN, MARK MARVIN D.</b> OJT COORDINATOR	<b>COST ESTIMATE</b>

## Feeder wire data (transformer to service equipment-section 1)

Total Full Load Current	=	86.6424	A
Size of Wire	=	38	mm <sup>2</sup> THHN
R per kilometer	=	0.1900	ohms/km
X <sub>L</sub> per kilometer	=	0.0450	ohms/km
Length of feeder Line Wire	=	15	m

## Feeder wire data (service equipment to highest load -section 2)

Total Full Load Current	=	8.0000	A
Size of Wire	=	14	mm <sup>2</sup> THHN
R per kilometer	=	0.0380	ohms/km
X <sub>L</sub> per kilometer	=	0.7800	ohms/km
Length of feeder Line Wire	=	30	m

## Line Section Voltage Drop (VD1)

$$VD_1 = \frac{\text{length}}{305} \times \frac{(\sqrt{R^2 + X_L^2})}{m} \times I_{\text{section-1}}$$

$$VD_1 = \frac{15}{305} \times \frac{0.19526}{m} \times 86.64 \text{ A}$$

$$VD_1 = 0.832 \text{ V}$$

## Line Section Voltage Drop (VD2)

$$VD_2 = \frac{\text{length}}{305} \times \frac{(\sqrt{R^2 + X_L^2})}{m} \times I_{\text{section-1}}$$

$$VD_2 = \frac{30}{305} \times \frac{0.78093}{m} \times 8.00 \text{ A}$$

$$VD_2 = 0.6145 \text{ V}$$

## Total Voltage Drop

$$VD_T = VD_2 + VD_1$$

$$VD_T = 0.6145 + 0.832$$

$$VD_T = 1.4465 \text{ V}$$

## % Voltage Drop

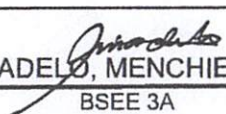
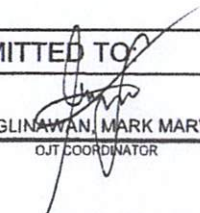
$$\% VD = \frac{VD_T}{230 \text{ V}} \times 100\%$$

$$\% VD = \frac{1.4465}{230 \text{ V}} \times 100\%$$

$$\% VD = 0.6289 \%$$

Therefore:

Voltage Drop is less than 5% allowable by PEC

SUBMITTED BY:	PROJECT TITLE:	SUBMITTED TO:	SHEET CONTENT:
 MADEO, MENCHIE ROSE P. BSEE 3A	PROPOSED THREE (3)- STOREY SCHOOL BUILDING	 ENGR. PAGLINAWAN, MARK MARVIN D. OJT COORDINATOR	VOLTAGE DROP



## ASSESSMENT OF WORK EXPERIENCE



"For Nation's Greater Heights"

Republic of the Philippines  
**SURIGAO STATE COLLEGE OF TECHNOLOGY**  
Narciso Street, Surigao City



CERTIFICATE NUMBER: AJA19-0225

### DOCUMENTATION



OUR FIRST MET UP AND THE  
TIME THAT WE INSTALLED THE  
AUTOCAD

JULY 9, 2021 THE TIME THAT  
WE SPENT OUR FIRST  
OVERNIGHT WORKING OUR  
FLOOR PLAN LAYOUT



JULY 16, 2021 OUR SECOND  
OVERNIGHT HELPING EACH  
OTHER WITH REGARDS ON  
HOW TO DESIGN LIGHTING AND  
POWER LAYOUT



JULY 28, 2021 WE SPENT OUR  
TIME DISCUSSING AND SHARING  
ABOUT THE CALCULATION  
NEEDED TO THE ENTIRE  
PROJECT



AUGUST 9, 2021 UTILIZING OUR  
REMAINING TIME TO FINALIZE  
OUR PROJECT AND ALL THE  
REQUIREMENTS NEEDED  
AFTER OJT







"For Nation's Greater Heights"

Republic of the Philippines  
**SURIGAO STATE COLLEGE OF TECHNOLOGY**  
Narciso Street, Surigao City



## ASSESSMENT OF WORK EXPERIENCE

On-the-job training (OJT) is one of the most fundamental things that students should have done in their school days. In this kind of activity, the skills of each student are the ones that matter the most. OJT focuses on the development of the designated course you are taken. Students are encouraged to take and perform the job to enhance their expertise and do their ability well.

As of now, the OJT is a home-based kind of experience for we are confronting this pandemic. And this kind of OJT has given me much confusion. Instructors are capable of making students understand the specified skills. We, students, learned from it but in this system, our learning about something is not much as good as virtual.

During the on-the-job training, I realized that the online-based kind of OJT is harder than being in virtual performance. It has been given to me a quite struggle for some reason. Using AutoCAD is a bit harder for me for I've never used it before. In addition, the devices like gadgets, etc. added this unstable internet connection made it extra harder for me. Deliberately and asking for some advice from my classmates I yet finished it. Hassles are always on my way to break my concentration, but my motivation is much bigger than my fears and I conquered it all.

The objective of the online OJT is to develop our skills and abilities in our course design. Even in this pandemic we still gain the knowledge we want. We still





choose to continue to learn extra. We'll remain firm hand by hand, with extra courage and enthusiasm to accomplish work despite everything. Work with courage involving your mental and physical effort to fulfill the job the right way. Working alone is worth it but working together is better.

**MEMORANDUM OF AGREEMENT  
for On-the-Job Student Trainees**

This Memorandum of Agreement is made and entered into by and between:

The **SURIGAO DEL NORTE ELECTRIC COOPERATIVE, INC. - SURNECO**, a public entity, with office address at Espina St., Surigao City represented herein by **ENGR. NARCISO I. CALIAO, JR.**, General Manager, who is duly authorized to represent it in this transaction, herein referred to as the **COMPANY**.

and

The **SURIGAO STATE COLLEGE OF TECHNOLOGY** an educational institution, with office address at Narciso Street, Surigao City herein represented by **DR. GREGORIO Z. GAMBOA, JR.**, College President, who is duly authorized to represent it in this transaction, hereinafter referred to as the **COLLEGE**.

**WITNESSETH:** That

**WHEREAS**, the **COMPANY** agrees to accept students of SSCT as trainees in its various facilities in support of the on-the-job training program of the **COLLEGE**;

**WHEREAS**, the **COLLEGE**, with the object of forging Industry-Academe Linkage to complement existing curricula to match industry demand, agrees to endorse their students and provide participants in the said program to be trained in the **COMPANY**.

**NOW, THEREFORE**, for and in consideration of the foregoing premises, the **COMPANY** and the **COLLEGE** do hereby agree to stipulate the following:

**A. The COMPANY shall:**

1. a) Formulate and provide a training plan that includes the contents of the training proper, the schedule and the activities for each phase for the student-trainees in cooperation with the concerned Department of the College; and  
  
b) Execute the training plan in accordance with the agreed training period.
2. Assign personnel who will serve as guides to the student-trainees. The student-trainees will be assigned practical and related works along their area of specialization.
3. May conduct exam to determine the training development of the student as of whatever assessment appropriate to the company policy.
4. Accommodate the student-trainee for a period of (2) months from June 2019 to July 2019 unless extended upon agreement of the **COMPANY** and the **COLLEGE**;

NAME	COURSE
1. JUNE DARYL G. BOC	BSEE – Electrical Engineering
2. CHARNEIL JAN TRAJANO	BSEE – Electrical Engineering
3. JUNNEL P. PALEN	BSEE – Electrical Engineering

5. In case of accident:
  - Free first aid treatment, medicines including free transportation towards the hospital in case of emergency serious injury.
6. Provide General Orientation Program (GOP) to the student-trainees regarding Company Background and Profile, Organizational Structure, Rules & Regulations, Code of Discipline and Conduct, Safety Training, 5S Orientation, On-the-Job Training Terms & Conditions and other topics needed by the student-trainee to comply with company standards.
7. Conduct section trainings and involve the student-trainees in activities and tasks to develop their knowledge, skills, and attitude and creative abilities to become professionals in their field of endeavor.



8. Provide evaluation scheme to gauge the training performance of the student-trainee.
9. Enforce rules that will govern the conduct of the Program in their premises. The said rules shall include sanctions and monetary deductions for cases of material and monetary losses on the part of the COMPANY. Furthermore, the COMPANY shall be allowed to penalize student-trainees for violations of rules and regulations. These shall be made known to the COLLEGE and student-trainees before the start of the training.

**B. The COLLEGE shall:**

1. Recommend highly qualified and competent student-trainees who will undergo the exposure program taking into consideration the requirements of the COMPANY in terms of qualification and number of students.
2. Agree to send its student-trainees listed below to the COMPANY with Biodata/ Resume, Endorsement Letter (coming from the College), Parent's Waiver, Medical Exam Result (with fit to work result) and Police/Barangay Clearance (with no derogatory remarks), for On-the-Job Training.
3. Designate a Program Coordinator who will be assigned with the following responsibilities:
  - a. Initial orientation of the student about the rules, proper attitudes and behavior inside the job-site, particularly towards his works and his co-employees;
  - b. Formulation of supervised training plan in cooperation with the COMPANY;
  - c. Monitor attendance activities, and performance of students during the exposure program;
4. Submit to the COMPANY whatever documents required under the program;
5. Together with the parents/guardian concerned, the COLLEGE and the individual student renounce and waive any claim against the COMPANY for any injury that the student-trainees may sustain or loss that they might suffer, personal or pecuniary, arising from the negligence in the performance of their duties and functions while under training. The waivers of the student-trainees and their respective parents/guardians shall indemnify the COMPANY from additional payment, fines and damages incurred by the student-trainees outside the accident insurance policy provided for by the company and that the COMPANY shall be free and blameless from any accident, negligence, loss or damage to COMPANY, which is attributable to the student-trainees. The waiver shall be submitted to the COMPANY prior to the commencement of the training.
6. Hold the COMPANY free and harmless from any suits whatsoever in connection with this memorandum.
7. Accede to the obligations of confidentiality set out in details as follows:
  - a. All technical or commercial information, e.g., concerning the business of the COMPANY disclosed or to be disclosed to the COLLEGE by or in behalf of the COMPANY in connection with this agreement will be received and held in confidence by the COLLEGE and the student concerned unless and until the COMPANY gives written approval for release of confidentiality;
  - b. The COLLEGE will take all reasonable necessary steps to prevent disclosure of the technical or commercial information and other matters and drawings or other materials, to others and will not disclose the same to others without prior written consent of the COMPANY.

**C. Under this Memorandum of Agreement the following terms and conditions are likewise included:**

1. There will be no employer-employee relationship between COMPANY and the student-trainees of the COLLEGE;
2. The student-trainees training schedule will be from \_\_\_\_\_ to \_\_\_\_\_ on Monday to Saturday or \_\_\_\_\_ am to \_\_\_\_\_ pm Monday to Friday for compressed workweek. However, they are allowed to extend time per day should there be a need for them to finish their OJT task. They may also be assigned on Day/Night Shift if the training necessitates such as training on the actual installation of the machine, etc.
3. The student-trainees will be personally responsible for any and all liabilities for damage to property or to injury to third persons which may be occasioned by their intentional or negligent acts in the course of the training and said monetary damages, shall be deducted from the trainees' training allowance or subsidy;

4. The student-trainees should avoid having personal relations to any of their co-trainee or TPC associate and to do public display of affection;
5. The student-trainees and the COLLEGE shall abide by the rules and regulations of the COMPANY and comply with those imposed for the program, otherwise, they shall be excluded from further participation;
6. The COMPANY reserves the right to discontinue the training of any student-trainee on reasonable grounds upon a receipt of a fifteen (15)-day written notice to the COLLEGE;
7. The COLLEGE may pull out any student-trainee from the COMPANY on reasonable grounds after a receipt of a fifteen (15)-day written notice about such pull-out.
8. Confidentiality and Intellectual Property Rights
  - 8.1 During the duration of the training and thereafter student-trainees must not (other than in the proper course of their duties or as may be required by law):
    - divulge or disclose to any other person or corporation, without the prior written consent of the COLLEGE, any confidential information relating to the COLLEGE or a related or associated corporation or its supplier or customer or each of their respective businesses or any trade secrets of which the student-trainees may become possessed while employed by the COMPANY or prior thereto;
    - use or attempt to use any such confidential information in any manner which may cause or be calculated to cause injury or loss to the COMPANY or a related or associated corporation, or a supplier or customer or any of them;

During the training, student-trainees must use their best endeavors to prevent the unauthorized disclose of any such confidential information by third parties. This restriction will cease to apply to information or knowledge that may come into the public domain.

All designs, slogans, policies, manufacturing techniques, programs or devices relating to the business of the COMPANY or its associated corporation which are discovered, invented, improved or developed by the student-trainees during the course of the training (whether during regular business hours or otherwise) will be the property of the COMPANY whether conceived or developed by the student-trainee solely or jointly with others and the student-trainees must execute any document and do all things as may be required by the COMPANY to or assign the use of such property to the COMPANY provided the COMPANY will bear all costs and expenses related thereto.

9. This agreement shall take effect and in force for the duration of the training and shall continue thereafter, provided, however, that any provision of this Agreement may be amended by after a fifteen (15)-day written notice and consent by both parties, herein and provided further that the COMPANY or the COLLEGE reserves the right to withdraw its participation in the Agreement upon a thirty (30)-day written notice.

IN WITNESS WHEREOF, the parties hereto have signed these presences on this June 20, 2019 in \_\_\_\_\_, Philippines.


**SURNECO, INC.**

**SURIGAO STATE COLLEGE OF TECHNOLOGY**


BY:


BY:

  
**ENGR. NARCISO I. CALIAO, JR.**  
 General Manager

  
**GREGORIO Z. GAMBOA JR., Ed. D.**  
 College President

SIGNED IN THE PRESENCE OF:

  
Marcelina C. Coniate, MBA

  
**ROMEL C. DE LA CRUZ, PhEdD**  
 Placement Coordinator



ACKNOWLEDGEMENT

REPUBLIC OF THE PHILIPPINES  
SURIGAO CITY

} s.s.


BEFORE ME, A notary public for and in the cities and province of Surigao del Norte, this  
day of JUN, personally appeared the following with their Community Tax  
Certificate No., to wit:

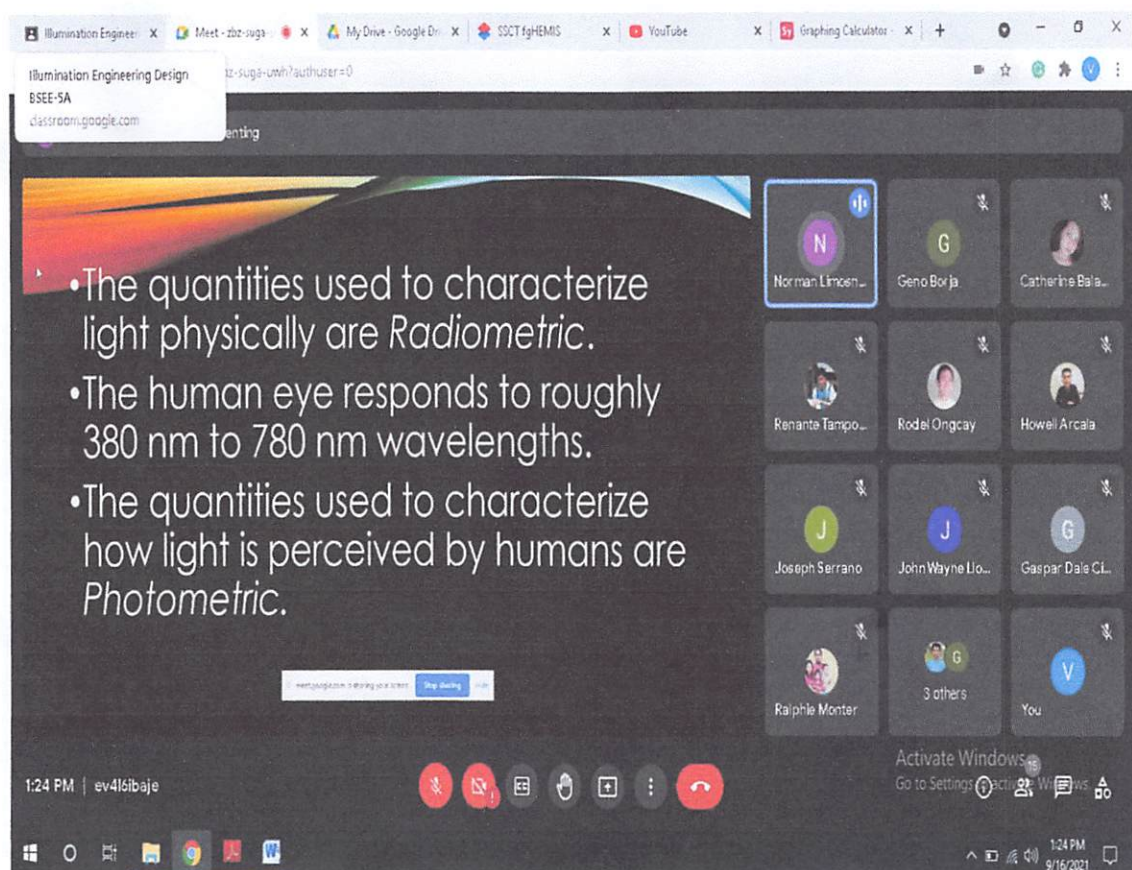
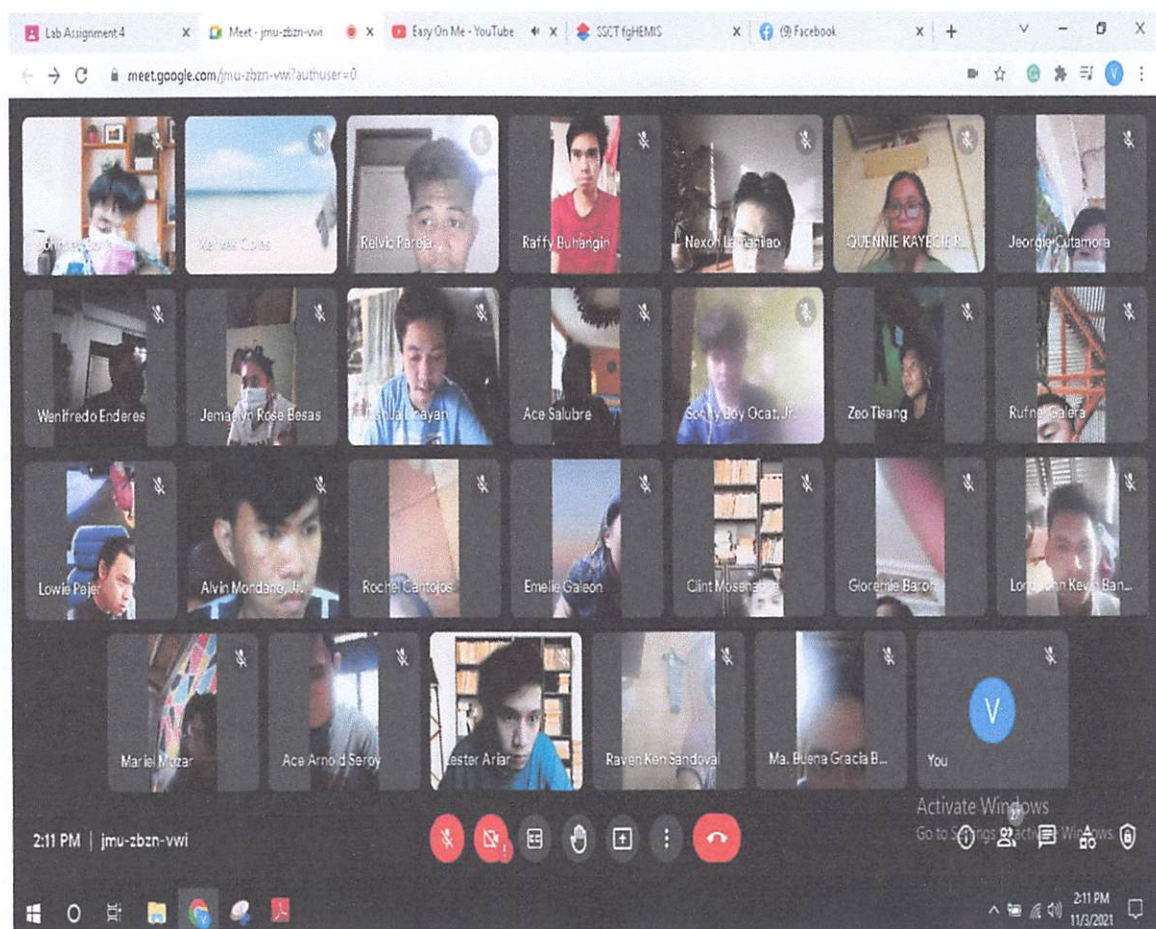
1. DR. GREGORIO Z. GAMBOA, JR. Valid ID SCHOOL No. 20160001  
2. ENGR. NARCISO I. CALIAO, JR. Valid ID Driver's license No. 207-95-011370

Known to me to be the same persons who executed the foregoing Memorandum of Agreement,  
consisting of four (4) pages including this page on which this acknowledgement is written, and they  
acknowledged to me that the same is their own free and voluntary act and deed.


WITNESS MY HAND AND NOTARIAL SEAL ON THE DATE AND IN THE PLACE FIRST  
HEREIN ABOVE WRITTEN.

Doc. No. 2988  
Page No. 592  
Book No. IV  
Series No. 7019

  
ATTY. ALFREDO G. CORD  
NOTARY PUBLIC  
UNTIL DEC. 31, 2020  
PTR No. 0572104 / 4671322  
IBP No. 05482 / NOV. 15, 2018  
ROLL No. 23888 PIN No. 122-868-47  
SURIGAO DEL NORTE SURIGAO CITY  
MCLE No. VI-0000126



Prepared by:

  
MONALEE A. DELA CERNA  
Associate Professor III

















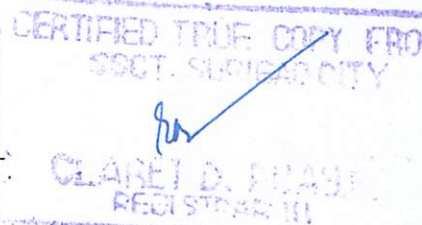




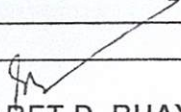
**SURIGAO STATE COLLEGE OF TECHNOLOGY**  
Surigao City

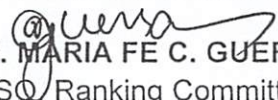
**DEAN'S HONORS LIST**  
2nd Semester, AY 2019-2020


	<i>Major</i>	<i>Ave.</i>
<b>BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING</b>		
1st Year Level SALUBRE, Ace C.	-	1.5158
<b>BACHELOR OF SECONDARY EDUCATION</b>		
3rd Year Level RAMOS, Renceil M.	Filipino	1.4276
ALCERO, Adelwena C.	Filipino	1.4517
BAGOT, Sem R.	Filipino	1.4655
CLAMOTCHA, Aljhon G.	English	1.4966
BIONGCOG, Regene Karezza B.	Mathematics	1.5129
ORILLO, Hyacenth Grace B.	Filipino	1.5345
PANIAMOGAN, Marjorie E.	Filipino	1.5517
TAOTAO, Mirraflor A.	Mathematics	1.5581
CADENAS, Daniel E.	Mathematics	1.5806
SARAGENA, Reschel Meel L.	Mathematics	1.5839
2nd Year Level BIRAD, Mark Ian B.	English	1.4077
CONSTANTE, Daryl R.	English	1.4077
SAGA, Mark Dave D.	Filipino	1.4154
VILLAREAL, Via Cerelle R.	Filipino	1.4154
ELIOT, Francez Aerika P.	English	1.4231
FIGURON, Marlo G.	Filipino	1.4269
SILOS, Avette P.	Filipino	1.4308
BANTIGUE, Jhon Lloyd Z.	Mathematics	1.4333
VILLACENCIO, Queenelyn V.	Filipino	1.4346
EDERA, Frannie L.	Filipino	1.4346
MAGLANGIT, Mary Ann Y.	English	1.4346
BORJA, Gracielle Novi S.	English	1.4385
GERCAN, Noime T.	English	1.4385
GORDONAS, Joan A.	Filipino	1.4385
GALIDO, Laarni May C.	English	1.4423
RUIZ, Mark Denver Jusuah M.	Filipino	1.4500
ALLEGRO, Roselyn G.	English	1.4538
JAYSON, Catherina S.	English	1.4615
PALES, Bernie Jane A.	Filipino	1.4654
HAGONOS, Angelica C.	Mathematics	1.4667
PAGLINAWAN, Chlimmae Joy C.	Filipino	1.4692
BINAGATAN, Maribel R.	English	1.4808
MONTECER, Jeneffe B.	English	1.4846
ALABAT, Ella Marie G.	English	1.4885
ALCESO, Charlyn B.	English	1.4885
BAYBAYON, Mabel S.	English	1.4885
ORTOJAN, Rosemarie T.	Filipino	1.4885
SOLIDOR, Wenrey M.	Filipino	1.4885
ANSALE, Marifel B.	Filipino	1.4923
MANONGAS, Diona G.	English	1.4923
NIDEA, Lorence Mae A.	English	1.4923
VELEZ, Kent Nolie A.	English	1.4923
YARSO, Joana Mae E.	English	1.4923
BARNESO, Kerstene Mae O.	Sciences	1.4962
GAMBING, Cheska B.	Filipino	1.4962
ODTOJAN, Jessa D.	English	1.4962
SOREÑO, Angelika N.	English	1.4962
DE LOS REYES, Chem E.	English	1.5000
TOROTORO, Shai Mae P.	Mathematics	1.5037
AVILA, Jenera C.	English	1.5038
PATULILIC, Anthony C.	Filipino	1.5038



Verified and Reviewed by:


  
**CLARET D. RUAYA**  
Registrar, Ranking Committee

  
**MS. MARIA FE C. GUERRA**  
DSO, Ranking Committee

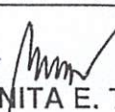
  
**DR. MARILOU B. CARNICER**  
Dean, College of Technology

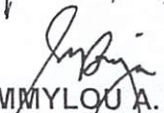
  
**ENGR. ROBERT R. BACARRO**  
Dean, College of Eng'g. & InfoTech

  
**DR. LOUIDA P. PATAG**  
College of Arts & Sciences

  
**DR. LEONIELYN G. MALICAY**  
College of Teacher Education

APPROVED:

  
**DR. RONITA E. TALINGTING**  
Campus Director, City Campus

  
**DR. EMMYLOU A. BORJA**  
VP - Academic Affairs







**SURIGAO STATE COLLEGE OF TECHNOLOGY**  
Surigao City



**PRESIDENT'S HONORS LIST**  
**1st Semester, AY 2021-2022**

			<i>Major</i>	<i>Ave.</i>
<b>BACHELOR OF SCIENCE IN CIVIL ENGINEERING</b>				
1st Yr Level	1	ANTALLAN, Shantal M.	-	1.3053
	2	BAROMAN, Lovely Joy I.	-	1.3158
		MURILLO, Shawn Clifford M.	-	1.3158
	3	CANTILA, Charmie Marie M.	-	1.3211
	4	NAVARRO, Daniel C.	-	1.3368
	5	JUDILLA, Anthony	-	1.3842
		LIATONA, Alyssa L.	-	1.3842
	6	BATAAN, Joseph U.	-	1.3947
<b>BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING</b>				
4th Yr Level	1	TANDAN, Leevan Joey U.	-	1.3950
	2	WENCESLAO, Sweethy M.	-	1.4000
<b>BACHELOR OF SCIENCE IN COMPUTER ENGINEERING</b>				
3rd Yr Level	1	VENUS, Jayvie Mae T.	-	1.4000
1st Yr Level	1	GALIDO, Hannah L.	-	1.4000
<b>BACHELOR OF SECONDARY EDUCATION</b>				
4th Yr Level	1	ALLEGO, Roselyn G.	English	1.1000
		CONSTANTE, Daryl R.	English	1.1000
	2	MANLIGUEZ Christine O.	English	1.1500
	3	AMAR, Jennilyn P.	Sciences	1.2000
		BAJAN, Jhonry P.	Sciences	1.2000
		BAÑACIA, Teresa M.	Sciences	1.2000
		BAROMAN, Prianchel I.	Sciences	1.2000
		DAGASDAS, Dianne Jee S.	Sciences	1.2000
		ENTENDEZ, Jelyn C.	Sciences	1.2000
		MAGLANGIT, Mary Grace Caroline Y.	English	1.2000
		MALASARTE, Jayson C.	Sciences	1.2000
		MERANO, Rizel Jane M.	Sciences	1.2000
		ODTOJAN, Jessa D.	English	1.2000
		PABUA, Lyan Mark	Sciences	1.2000
		SALVADOR, Melojen	Sciences	1.2000
		SALVALOZA, Rocel T.	Filipino	1.2000
		SILA, Marjun E.	Filipino	1.2000
		VILLAREAL, John Kenneth M.	Sciences	1.2000
	4	ACHAS, April Joy A.	Filipino	1.2500
		BANAYBANAY, Lara T.	English	1.2500
		BARNESO Krestene Mae O.	Sciences	1.2500
		BAYBAYON, Mabel S.	English	1.2500
		BILOCURA, Edson B.	Sciences	1.2500
		CEREZO, Jade Stephane B.	Sciences	1.2500
		DESTAJO, Kent Lloyd M.	Sciences	1.2500
		ECHIN, Carmina P.	Sciences	1.2500
		ELIOT, Francez Aerika P.	English	1.2500
		GALAGAR, Allan Jay P.	Sciences	1.2500
		GALAVIA, Paulo M.	Sciences	1.2500
		JAYSON, Catherina S.	English	1.2500
		LERIO, Zaidy T.	English	1.2500
		LETIM, Reggy Jamyl L.	English	1.2500



	5	ANGOB, Jezzalyn O.	Mechanical Technology	1.5080
	6	ESCORRO, Nathaniel P.	Automotive Technology	1.5296
	7	ODONZO, Arjolyn E.	Electronics Technology	1.5480
	8	LACORTE, Jonabeth P.	Electronics Technology	1.5500
	9	ENDRIGA, Arjay S.	Electrical Technology	1.5545
	10	CABAJES, Charlie G.	Electrical Technology	1.5591
	11	COMANDANTE, Joey G.	Electrical Technology	1.5682
	12	CAMINGUE, Jesus O.	Electronics Technology	1.5714
	13	VILLAZON, Angie E.	Electrical Technology	1.5818
	14	PADAO, Mery Jane H.	Electronics Technology	1.5857
	15	ESCATRON, Jorelyn A.	Electronics Technology	1.5880
	16	OCAMPO, Eugene S.	Electrical Technology	1.5909
2nd Yr Level	1	ELAPE, Rey Jan N.	Electrical Technology	1.4154
		SOLIVERES, Brix L.	Electrical Technology	1.4154
		SUAZO, Axel C.	Electrical Technology	1.4154
	2	MACULA, Rovil Marie O.	Electrical Technology	1.4923
	3	COBRILLA, Jenmar P.	Electrical Technology	1.5115
	4	MAH, Ralstone Jay E.	Electrical Technology	1.5346
	5	CORONEL, John Bryan L.	Electrical Technology	1.5538
	6	CREENCIA, Lanros	Electrical Technology	1.5654
	7	MAGPATOC, Abel C.	Electrical Technology	1.5769
	8	EGNO, Rey Marclister L.	Electrical Technology	1.5808

### BACHELOR OF SCIENCE IN INDUSTRIAL TECHNOLOGY

3rd Yr Level	1	ALFON, Delfin Jr. B.	Mechanical Technology	1.5000
	2	JALOP, Mae Kayle C.	Arch'l. Drafting Technology	1.5450
	3	EBUÑA, Michael Pol P.	Electrical Technology	1.5800
1st Yr Level	1	LIMOSNERO, Ark Anglo A.	Arch'l. Drafting Technology	1.4261
	2	GALITO, Bona P.	Arch'l. Drafting Technology	1.4826
	3	MULA, Jelanie E.	Arch'l. Drafting Technology	1.5348
	4	ESPERANZA, Kim Kryshane B.	Arch'l. Drafting Technology	1.5522
	5	MECOMPAL, Sunshine Bless S.	Arch'l. Drafting Technology	1.5609
		PUYALES, Razelle Anne E.	Arch'l. Drafting Technology	1.5609
		RETANAL, Jansen Van P.	Arch'l. Drafting Technology	1.5609
	6	BARIL, Jerome P.	Arch'l. Drafting Technology	1.5696
	7	LLIDO, Maicah D.	WAF Technology	1.5800
	8	MANLUNAS, Glen C.	Mechanical Technology	1.5880
	9	MANAGA, Meralotche G.	Electrical Technology	1.5957
		OBAL, Kristina C.	Arch'l. Drafting Technology	1.5957
	10	MISAGAL, Lynard Joy B.	Mechanical Technology	1.5960

Verified and Reviewed by:

**CLARET D. RUAYA**

Registrar, Ranking Committee

**MARIA FE C. GUERRA**

DSO, Ranking Committee

**MARILOU B. CARNICER, Ph.D.**

Dean, College of Technology

**ENGR. ROBERT R. BACARRO**

Dean, College of Eng'g. & InfoTech

**LOUIDA P. PATAC, Ph.D.**

College of Arts & Sciences

**CARMELIN P. MOSA, Ph.D.**

College of Teacher Education

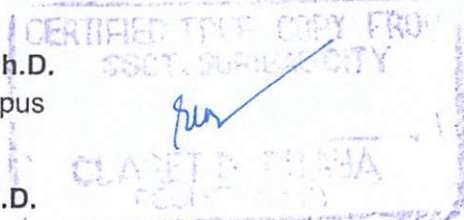
APPROVED:

**RONITA E. TALINGTING, Ph.D.**

Campus Director, City Campus

**EMMYLOU A. BORJA, Ed.D.**

VP - Academic Affairs







**SURIGAO STATE COLLEGE OF TECHNOLOGY**  
Surigao City



**DEAN'S HONORS LIST**  
**1st Semester, AY 2021-2022**

			<i>Major</i>	<i>Ave.</i>
<b>BACHELOR OF SCIENCE IN CIVIL ENGINEERING</b>				
4th Yr Level	1	CARMEN, Adrian F.	-	1.4652
	2	MALICDEM, Lynel Jim A.	-	1.4696
	3	CONSISTENTE, James Keith C.	-	1.5087
	4	BONITE, Kimberly O.	-	1.5174
	5	ACERO, Malyn C.	-	1.5217
		PLAZON, Robert Jr. G.	-	1.5217
		REAMBONANZA, Almira B.	-	1.5217
	6	RESARE, Janissa A.	-	1.5261
	7	JUANITE, Brezel E.	-	1.5348
	8	CONFESOR, Georgie M.	-	1.5435
	9	QUIMBO, Marialle G.	-	1.5522
		SUTANA, Kim D.	-	1.5522
	10	GOLOSINO, Gibson L.	-	1.5565
	11	CANDA, Majola B.	-	1.5652
1st Yr Level		MELGO, John Rome C.	-	1.5652
	12	IGNACIO, Shiloni A.	-	1.5696
	13	YCOT, Riza May S.	-	1.5739
	14	JALIL, Jeff Randolph A.	-	1.5783
		MANANSAD, Dionisa C.	-	1.5783
		MARZON, Jomari B.	-	1.5783
	15	OÑEZ, Jerome V.	-	1.5826
	16	FALCON, Shiela Marie P.	-	1.5870
	17	GALDONES, Irah Clark S.	-	1.5957
	1	ROSALES, Jackquilynne P.	-	1.4211
	2	TANAY, Diana Jane G.	-	1.4263
	3	BELTRAN, Arnold	-	1.4684
		SANCHEZ, Christy Joy B.	-	1.4684
	4	FORTUNA, Mart Vincent A.	-	1.4789
	5	DELA TORRE, Carl Laurence R.	-	1.4895
	6	CAGASAN, Roel Lance B.	-	1.5053
	7	SOLLOSO, Janzen Daryl R.	-	1.5211
	8	MAGALONA, Arthur A.	-	1.5368
		NG, Clover John M.	-	1.5368
	9	TIU II, Charlimagne M.	-	1.5579
	10	RIVERO, Noli Brian A.	-	1.6000
<b>BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING</b>				
4th Yr Level	1	MADELO, Menchie Rose P.	-	1.4200
	2	QUINALAGAN, Hannie Bert D.	-	1.4350
	3	COQUILLA, Stephane Grace D.	-	1.5000
	4	ARLAN, Marc Francis A.	-	1.5250
	5	ALCESO, John Ivan S.	-	1.5750
	6	MAG-USARA, Dinmark A.	-	1.5850
1st Yr Level	1	VILLALOBOS, Nicole Jay J.	-	1.4591
	2	RIVERA, Clyde Mark L.	-	1.4682
	3	GAVINO, Rommel T.	-	1.4818
	4	ABANDULA, Christian V.	-	1.5182
	5	RENCONADA, Llerihs Champverts M.	-	1.5773
	6	GILLES, Dominic L.	-	1.5864
		NAPAROTA, Alan Dale Q.	-	1.5864

3	GANUHAY, Donna Mae S.	-	1.3250
4	RUAYA, Victoria A.	-	1.3375
5	ENTENIA, Ralph Mark V.	-	1.3500
6	EDER, Lenie T.	-	1.3625
7	ESPAÑOLA, Maerl Shane O.	-	1.3750
8	ABUEL, Vincent Brian D.	-	1.4000
	PIODO, Jerecho Albert R.	-	1.4000

#### BACHELOR OF SCIENCE IN TOURISM MANAGEMENT

4th Yr Level	1	SALINO, Jasmin B.	-	1.2250
1st Yr Level	1	LAID, Kazy Belle B.	-	1.3950

#### ENGINEERING TECHNOLOGY

3rd Yr Level	1	CABILAO, Jose I S.	Automotive Technology	1.3889
2nd Yr Level	1	GILLES, Donel L.	Electrical Technology	1.3538

Verified and Reviewed by:

**CLARET D. RUAYA**

Registrar, Ranking Committee

**MARIA FE C. GUERRA**

DSO, Ranking Committee

**MARILOU B. CARNICER, Ph.D.**

Dean, College of Technology

**ENGR. ROBERT R. BACARRO**

Dean, College of Eng'g. & InfoTech

**LOUIDA P. PATAC, Ph.D.**

College of Arts & Sciences

**CARMELIN P. MOSA, Ph.D.**

College of Teacher Education

APPROVED:

**RONITA E. TALINGTING, Ph.D.**

Campus Director, City Campus

**EMMYLOU A. BORJA, Ed.D.**

VP - Academic Affairs

