



## 1.3. Quality

instruction is assured through the following strategies:



"For Nation's Greater Heights"

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



CERTIFICATE NUMBER: AJA19-0225

College : **College of Engineering**  
 Program : **Bachelor of Science in Electrical Engineering**  
 Job/ Occupation : **ELECTRICAL ENGINEER**

DUTIES	TASKS					
1. <b>diagnose electrical problems using the electrical diagrams or blue print (as built electrical plans)</b>	Gather information	Understand the malfunction	Identify the parameters to be diagnose	Identify the source of the problem	Correct and verify the repair	Performed root cause analysis
WORK BEHAVIORS						
DUTY 1: diagnose the problem						
SKILLS:		KNOWLEDGE:		ATTITUDES:		
Problem solving skills		Excellent understanding in all electrical circuit analysis		Efficient in problem solving with a timely fashion without difficulty  Can easily and effectively identify root causes and recommend exact solution		



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DUTIES 2	TASKS					
2. install, repair, and maintenance electrical power systems( building wiring, controls, electrical machines and transformers)	Install an ideal method of reducing possible issues that may arise in the future	Perform basic installation , repair and maintenance of electric power systems equipment.	Determine the best course of action in starting the work	Protect delicate pieces of installation		
	Perform four fundamental operations					
WORK BEHAVIORS						
DUTY 2: Install and repair electrical system						
SKILLS:		KNOWLEDGE:		ATTITUDES:		
Strong technical, theoretical and hands - on ability.		Well experience in installation, repair and maintenance of electrical power systems.		Team player		



<b>DUTIES 3 FACILITIES MANAGER</b>	<b>TASKS</b>				
	<b>Know electrical operation of the building</b>	<b>Provide strong leadership</b>	<b>Work under time pressure</b>	<b>Disseminate communication effectively.</b>	
<b>WORK BEHAVIORS</b>					
<b>SKILLS:</b>	<b>KNOWLEDGE:</b>			<b>ATTITUDES:</b>	
Proven managerial ability that commands strong leadership who can work under pressure with an effective communication skills to his subordinate	Expert in managerial and organizational functions			Output oriented	



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DUTIES 4		TASK				
Power Plant Manager	Manage power plant operation	Supervise the work and duties of electrical engineers	Provide knowledge to subordinate through effective communication	Assign specific duties and responsibilities	Schedule technical work.	
SKILLS:		KNOWLEDGE:		ATTITUDES:		
Proven managerial and power plant operation ability		Expert in managerial and operational functions.		GOAL oriented		



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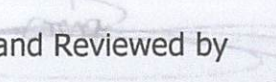
CERTIFICATE NUMBER: AJA19-0225

DUTIES	TASKS					
5. <b>ELECTICAL RESEARCHERS, PROFESSOR AND FACULTY</b>	Conduct research	Perform as an educator	Coordinate LGU'S and non-LGU's in research			
<b>WORK BEHAVIORS</b>						
<b>SKILLS:</b>		<b>KNOWLEDGE:</b>		<b>ATTITUDES:</b>		
Highly skilled in electrical engineering practices and applications		Has an in-depth understanding in all electrical engineering foundation and sciences.		Passionate in electrical work and knowledge-sharing.		

Prepared by

  
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College : **College of Engineering**  
Program : **Bachelor of Science in Electrical Engineering**  
Job/ Occupation : **ELECTRICAL ENGINEER**

DUTIES	TASKS					
1. <b>Diagnose electrical problems using the electrical diagrams or blue print (as built electrical plans)</b>	Gather information	Understand the malfunction	Identify the parameters to be diagnose	Identify the source of the problem	Correct and verify the repair	Performed root cause analysis
WORK BEHAVIORS						
DUTY 1: Diagnose the problem						
SKILLS:	KNOWLEDGE:		ATTITUDES:			
Problem solving skills	Excellent understanding in all electrical circuit analysis		Efficient in problem solving with a timely fashion without difficulty  Can easily and effectively identify root causes and recommend exact solution			



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DUTIES 2	TASKS					
2. InstalING repair, and maintenance electrical power systems( building wiring, controls, electrical machines and transformers)	Install an ideal method of reducing possible issues that may arise in the future	Perform basic installation , repair and maintenance of electric power systems equipment.	Determine the best course of action in starting the work	Protect delicate pieces of installation		
WORK BEHAVIORS						
DUTY 2: Install and repair electrical system						
SKILLS:	KNOWLEDGE:		ATTITUDES:			
Installing and repairing electrical systems	Installation, repair and maintenance of electrical power systems.		Team player Carefulness Keeness in detials			





<b>DUTIES 3 FACILITIES MANAGER</b>	<b>TASKS</b>					
	Know electrical operation of the building	Provide strong leadership	Work under time pressure	Disseminate communication effectively.		
<b>WORK BEHAVIORS</b>						
SKILLS:	KNOWLEDGE:			ATTITUDES:		
Proven managerial ability that commands strong leadership who can work under pressure with an effective communication skills to his subordinate	Expert in managerial and organizational functions			Output oriented		



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SKILLS:		KNOWLEDGE:		ATTITUDES:		
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DUTIES		TASKS				
5. <b>ELECTICAL RESEARCHERS, PROFESSOR AND FACULTY</b>	Conduct research	Perform as an educator	Coordinate LGU'S and non-LGU's in research			
	<b>WORK BEHAVIORS</b>					
<b>SKILLS:</b>		<b>KNOWLEDGE:</b>		<b>ATTITUDES:</b>		
Highly skilled in electrical engineering practices and applications		Has an in-depth understanding in all electrical engineering foundation and sciences.		Passionate in electrical work and knowledge-sharing.		

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UNIDO CONSULTANT



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College : **College of Engineering**  
 Program : **Bachelor of Science in Electrical Engineering**  
 Job/ Occupation : **Electrician**

DUTIES	TASKS					
1. <b>diagnose electrical problems using the electrical diagrams or blue print</b>	Gather information	Understand the malfunction	Identify the parameters to be diagnose	Identify the source of the problem	Correct and verify the repair	Performed root cause analysis
WORK BEHAVIORS						
DUTY 1: diagnose the problem						
SKILLS:		KNOWLEDGE:		ATTITUDES:		
Problem solving skills		Has mechanical aptitude as an innate sense of mechanics		Efficient in problem solving with a timely fashion without difficulty		



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DUTIES	TASKS					
2. install and repair electrical system	Install an ideal method of reducing possible issues that may arise in the future	Offers alternative solution while maintaining safety	Determine the best course of action in starting the work	Protect delicate pieces of installation		
<b>WORK BEHAVIORS</b>						
<b>DUTY 2: Install and repair electrical system</b>						
SKILLS:		KNOWLEDGE:		ATTITUDES:		
Can use different types of tools for installation		Knowledgeable in calibration of electrical equipment, good in problem solving especially in basic mathematics and knowledgeable and has a good understanding on regulatory requirements		Interactive  Ability to work in a team or independently		

DUTIES	TASKS						
3. inspect, troubleshoot and conduct test	Perform four fundamental operations	Perform basic calculations involving fractions and decimal	Perform basic calculations involving percentages.	Perform basic calculation involving ratio and proportion	Perform calculations on algebraic expressions	Perform calculations involving triangles	Calculate taper
<b>WORK BEHAVIORS</b>							
<b>DUTY 3: Inspect, troubleshoot and conduct testing</b>							
SKILLS:		KNOWLEDGE:		ATTITUDES:			



Computing four fundamental operations	Ability to convert English to metric units and vice versa.	Patience  Perseverance
Calculating taper problems		
Converting unit of measurements with accuracy		

DUTIES	TASKS					
4. pinpoint problems using a range of testing device	Select and use measuring tools	Clean and store measuring tools	Select and use angular measuring tools	Maintain angular measuring tools.	Clean and store measuring tools.	
	<b>WORK BEHAVIORS</b>					
<b>DUTY 4: Use measuring instruments</b>						
<b>SKILLS:</b>		<b>KNOWLEDGE:</b>		<b>ATTITUDES:</b>		
Developing skills in using different measuring instruments.		Understand the graduations of the various instruments.  Correct usage of instruments		Care and use of measuring instruments.		

DUTIES	TASKS					
5. Plan the lay-out and installation	Perform inspection of machine	Perform cleaning and lubricating of machine	Perform machine repair and adjustments	Maintain hand and cutting tools		
	<b>WORK BEHAVIORS</b>					
<b>DUTY 4: Perform preventive and corrective maintenance</b>						
<b>SKILLS:</b>		<b>KNOWLEDGE:</b>		<b>ATTITUDES:</b>		



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Applying preventive maintenance in the workshop	Identify the lifespan and function of the parts requiring maintenance	Proper care and use of machine.  Follow the maintenance standard procedure
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## Electrical Engineer

Duties	Task
1. Provide Technical Assistance (Electrical Engineering Consultants in both design and installation)	<ul style="list-style-type: none"> <li>➤ Conduct peer review on electrical designs</li> <li>➤ Oversee electrical design and installation aspects of assign electrical engineering projects</li> </ul>
2. Plan and design of electrical engineering system (Planning and Electrical System Engineer)	<ul style="list-style-type: none"> <li>➤ Perform design and installation analysis in both residential and electrical system engineering projects</li> <li>➤ Oversee the progress of electrical installation projects and ensure installation requirements follows the minimum standard set by the Philippine Electrical Code</li> <li>➤ Design electrical lighting system of buildings, and other types of electrical engineering system.</li> </ul>
3. Design and construct electrical engineering projects (Electrical Project Manager/Electrical Managerial Works)	<ul style="list-style-type: none"> <li>➤ Manage resources and project plans for large-scale electrical projects, such as those involving the electrical installation of building or</li> </ul>



	<p>trouble shooting of electrical system</p> <ul style="list-style-type: none"> <li>➤ <b>Oversee and direct electrical construction projects from design, installation and commissioning of electrical installation</b></li> <li>➤ <b>Review the electrical project in-depth to schedule deliverables and estimate costs</b></li> <li>➤ <b>Oversee all onsite and offsite installation to monitor compliance with Philippine Electrical Code and safety regulations</b></li> </ul>
<p>4. Examine electrical materials and installation parameters</p>	<ul style="list-style-type: none"> <li>➤ <b>Determine the adequacy and strength of electrical materials</b></li> <li>➤ <b>Perform material testing and analysis and study to assess installation site condition</b></li> <li>➤ <b>Plan and conduct electrical exploration effectively</b></li> <li>➤ <b>Perform field and environmental investigations for electrical projects</b></li> </ul>
<p>5. Conduct studies on environmental condition of the installation project site</p>	<ul style="list-style-type: none"> <li>➤ <b>Conduct environmental scanning about the issues and impact of the installation in the area</b></li> </ul>

	<ul style="list-style-type: none"> <li>➤ Develop strategies for the improvement of the design and installation from the established wiring standard of systems, and monitor regulation practices at job sites.</li> </ul>
<p>6. Design appropriate transmission and distribution for the supply of electric power to the various areas for electrical installation and utilization as Electrical Systems Engineer)</p>	<ul style="list-style-type: none"> <li>➤ Gather and analyze needed information and data for in the transmission and distribution systems</li> <li>➤ Supervised the electrical project implementation of the designed transmission and distribution system <ul style="list-style-type: none"> <li>➤ Evaluate the progress of the implementation</li> <li>➤ Commission the project for utilisation.</li> </ul> </li> </ul>
<p>7. Design service drop from the electrical post to the main power entrance of the building as a Transmission and Distribution Engineering ( T@D Engineer)</p>	<ul style="list-style-type: none"> <li>➤ Work for private agencies, LGU's and consulting firms that offers troubleshoot for the government and for private firms that encounters problem in electrical transmission and distribution of power,</li> <li>➤ monitor progress on the development of the solve any</li> </ul>

electrical related problems

Duties	Task 1	Task 2	Task 3	Task 4
1. Provide Technical Assistance (Electrical Engineering Consultants in both design and installation)	Conduct peer review on electrical designs	Oversee electrical design and installation aspects of assigned electrical engineering projects		
<b>Works Behaviors</b>				
Skills	Knowledge	Attitudes		
Analyzing and interpreting design data and analysis for design consultants	Methods of analyzing and interpreting data using electrical design softwares for analysis comparison	Keeness in data, interpreting and imputing		
Analyzing operating manpower and work scheduling	Methods of wiring installation project management in both wiring installation and electrical system design	Patience in dealing with manpower and material resources Attentiveness to details		
Making progress report	Methods of work scheduling	Adaptable to worksite condition		

Duties	Task 1	Task 2	Task 3	Task 4
2.) Plan and design of electrical engineering system ( <b>Planning and Electrical System Engineer</b> )	➤ Perform design and installation analysis in both residential and electrical system engineering projects	➤ Oversee the progress of electrical installation projects and ensure installation requirements follows the minimum standard set by the Philippine Electrical Code	Design electrical lighting system of buildings, and other types of electrical engineering system	
<b>Works Behaviors</b>				
<b>Skills</b>		<b>Knowledge</b>		<b>Attitudes</b>
Analyzing and interpreting design data		Methods of analyzing and interpreting data using electrical design softwares		Keeness in data gathering, interpreting and imputing
Managing and directing actual design process		Methods of implementing wiring design and electrical systems details		Teamwork and communications skills
Making progress report		Methods of work scheduling		Adaptable to worksite condition

Duties	Task 1	Task 2	Task 3	Task 4
3. Design and construct electrical engineering projects ( <b>Electrical Project Manager/Electrical Managerial Works</b> )	➤ Manage resources and project plans for large-scale electrical projects, such as those involving the electrical installation of building or trouble shooting of electrical system	➤ Oversee and direct electrical construction projects from design, installation and commissioning of electrical installation	➤ Review the electrical project in-depth to schedule deliverables and estimate costs	➤ Oversee all onsite and offsite installation to monitor compliance with Philippine Electrical Code and safety regulations
<b>Works Behaviors</b>				
<b>Skills</b>		<b>Knowledge</b>		<b>Attitudes</b>
Organizing budget, resources and deadlines		Methods of organizing resources		Teamwork and communications skills
Making flexible financial		Methods of quantification of the		Self-awareness on the flow of

management	resources	resources
Managing and directing phases of project management which include conception and initiation, planning, execution, performance/monitoring, and project close	In-depth understanding of the phases of project management	Critical thinker

Duties	Task 1	Task 2	Task 3	Task 4
4. Examine electrical materials and installation requirements	➤ Determine the adequacy and strength of electrical materials	➤ Perform material testing and analysis to assess installation site condition	➤ Perform field and environmental investigations for electrical projects	➤ Plan and conduct electrical exploration effectively

**Works Behaviors**

Skills	Knowledge	Attitudes
Evaluate the readiness of material for specific and particular application in electrical installation and electrical system application.	Expertise in the different methods and techniques in investigating and analyzing material strength and durability for a specific application.	Adaptable and able thinker Keeness in data gathering Patience in data gathering
Study the physical aspects of the materials on how it responds to the environmental condition	In depth understanding of the physical and chemical properties of engineering materials  Use of modern techniques and equipment in conducting laboratory investigations on the properties of engineering materials	Patience in conducting laboratory procedures

Duties	Task 1	Task 2	Task 3	Task 4
5.) Conduct studies on environmental condition of the	➤ Conduct environmental scanning about	. Develop strategies for the improvement of the design and installation		

installation project site	the issues and impact of the installation in the area	from the established wiring standard of systems, and monitor regulation practices at job sites.		
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**Works Behaviors**

Skills	Knowledge	Attitudes
Managing resources so that environmental pollution and degradation on wires and other metallic conductor is minimized	Methods on managing resources	Critical thinker Good communication
Develop technology and processes to solve problems in the natural environment	New technologies to solve environmental issues	Adaptability to new ideas
Create a substitute projects that can solve environmental issues	Environmental solutions using environmental technology	Adaptability to new ideas

Duties	Task 1	Task 2	Task 3	Task 4
6. Design appropriate transmission distribution for the supply of electric power to the area of electrical installation as (Electrical Systems Engineer)	Gather and analyze needed information and data for in the transmission and distribution systems	Supervised the electrical project implementation of the designed transmission and distribution system.	Evaluate the progress of the implementation	Commission the project for utilisation.

**Works Behaviors**

Skills	Knowledge	Attitudes
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Managing the provision of the EPERA	In depth understanding on the provision of the EPERA LAW	Critical thinker Good communication
		Adaptability to new ideas

Duties	Task 1	Task 2	Task 3	Task 4
7. Design service drop from the electrical post to the main power entrance of the building as a Transmission and Distribution Engineering (T@D Engineer)	Work for private agencies, LGU's and consulting firms that offers troubleshoot for the government and for private firms that encounters problem in electrical transmission and distribution of power,	monitor progress on the development of the solve any electrical related problems		
<b>Works Behaviors</b>				
<b>Skills</b>	<b>Knowledge</b>		<b>Attitudes</b>	
Providing safe, economical and efficient, wiring installation and systems design	Low voltage characteristics, load traffic flow, low voltage control devices, capacity and level of service, warrants, signal timing and optimization, signal coordination		Analytical thinker Good communication	
Managing a reliable voltage source and voltage fluctuation thus maintaining a linear flow of power improving systems reliability.	Load law planning and source diversification		Adaptability to new trains and Idea.	