

## Knowledge, Skills Abilities -- Gap Analysis Tool

<b>Electrical Instrumentation Technology Grade 1</b>	<b>Do It All The Time</b>	<b>Limited Experience</b>	<b>Never Do This</b>
101. Knowledge of electrical and instrumentation field as it relates to the water/wastewater industry. (e.g. SOPs and technical manuals)			
102. Perform basic preventive maintenance and unplanned maintenance of E/I tools and equipment used in wastewater systems.			
103. Safe and effective operation of basic electrical hand tools and measuring instruments to perform maintenance and repair of E/I systems			
104. Interpret, record and communicate basic output data on electrical measuring tools and instruments.			
105. Effectively communicate verbal and written technical information in the English Language.			
106. Maintain proper documentation and organized reports by using computerized record keeping systems such as computerized maintenance management systems (CMMS).			
107. Recognize unsafe work situations and take proper actions to prevent accidents			
108. Perform proper work techniques and procedures to minimize accidents including maintaining a clean and safe work environment			
109. Perform basic calculations using electrical formulas and equations.			
110. Read and interpret basic blueprints, schematics, single line drawings and equipment manuals to perform common electrical and instrumentation maintenance on wastewater facilities.			
Total Per Category			

If you have mostly "do it all the time" boxes checked, you may want to explore the next higher grade.  
 If you have a mix of the "do it all the time" & "limited experience", this is likely the right grade.  
 If you have mostly "never do this," you may want to explore a lower grade or get more experience.

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<b>Electrical Instrumentation Technology Grade II</b>	<b>Do It All The Time</b>	<b>Limited Experience</b>	<b>Never Do This</b>
201. Working knowledge of preventive maintenance procedures in the electrical and instrumentation field and utilizing common tools, equipment and methods employed in waste water maintenance.			
202. Accurately analyze test results of equipment and instruments used in wastewater facilities and recommend any changes required.			
203. Read and interpret blueprints, schematics, construction drawings and installation manuals to perform electrical and instrumentation maintenance on wastewater facilities.			
204. Properly use and interpret test instrumentation data to complete regular maintenance procedures and troubleshooting of wastewater equipment.			
205. Effectively communicate verbal and written technical information in the English Language.			
206. Perform calculations by applying basic geometry and algebra to electrical formulas and equations.			
207. Diagnose electrical and instrumentation equipment malfunctions.			
208. Repair electrical and instrumentation equipment.			
209. Calibrate electrical and instrumentation equipment.			
210. Follow safety regulations and SOPs to maintain a safe work environment, and recognize and correct unsafe working conditions.			
211. Accurately and concisely document information into logs, reports, and memos using manual or computerized maintenance management systems.			

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<b>Electrical Instrumentation Technology Grade II</b>	<b>Do It All The Time</b>	<b>Limited Experience</b>	<b>Never Do This</b>
212. Maintain professional relationships with personnel and management, including those in associated departments, and also with vendors, consultants and other business partners.			
Total Per Category			

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<b>Electrical Instrumentation Technology Grade III</b>	<b>Do It All The Time</b>	<b>Limited Experience</b>	<b>Never Do This</b>
301. Apply advanced knowledge of electrical and instrumentation principles to perform complex corrective and preventive maintenance tasks using equipment such as precision measuring devices, special and general electrical and instrumentation test meters.			
302. Safely and properly use all electrical test equipment, PPE, power and hand tools.			
303. In an employee training setting, teach staff electrical and instrumentation principles and applications.			
304. Interpret and apply federal, state and local environment and safety orders and National Fire Protection Association (NFPA) 70E & 820 regulations, and National Electric Code (NEC).			
305. Coordinate predictive/preventive maintenance and repair of electrical and instrumentation equipment related to power production systems including co-generation generators, standby generators, pumps, centrifugal blowers and compressors.			
306. Maintain electrical and instrumentation, power, control and communication systems of water quality treatment plants, pump stations and recycled water facilities.			
307. Using appropriate communications technology, effectively communicate verbal and written reports and technical information to maintenance, operations and management staff.			
308. Establish and maintain cooperative working relationships with agency staff, engineering and management outside vendors, and consultants.			
309. Evaluate, modify and design advanced electrical and instrumentation circuits and control loops.			
310. Accurately recognize, diagnose, and repair electrical and instrumentation equipment problems and recommend upgrades and improvements.			
311. Interpret, implement and document complex maintenance requirements, electrical and instrumentation testing and calibration routines and remote process control systems.			

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<b>Electrical Instrumentation Technology Grade III</b>	<b>Do It All The Time</b>	<b>Limited Experience</b>	<b>Never Do This</b>
312. Perform advanced wastewater and electrical mathematical calculations.			
Total Per Category			

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<b>Electrical Instrumentation Technology Grade IV</b>	<b>Do It All The Time</b>	<b>Limited Experience</b>	<b>Never Do This</b>
401. Implement management directives utilizing comprehensive knowledge of methods, materials and equipment used in the corrective maintenance, preventive maintenance and construction of various types of electrical/instrumentation systems and components in water quality treatment plants, pumping stations and recycled water facilities.			
402. Apply comprehensive knowledge of confined space work entries and safety principles established by OSHA, NFPA (National Fire Protection Association) 70E and state safety orders to all aspects of electrical and instrumentation work, equipment and training of personnel.			
403. Professionally and effectively lead staff by managing employee schedules, assignment of tasks and responsibilities, training requirements, motivation, and performance evaluations, and other staffing functions.			
404. Manage a maintenance program through planning, budgeting and scheduling effective use of personnel, equipment and materials.			
405. Plan, organize, direct and control maintenance tasks associated with water treatment facilities, electrical and instrumentation systems and equipment.			
406. Using appropriate communications technology, effectively communicate verbal and written reports and technical information to maintenance, operations and management staff.			
407. Interpret and apply pertinent internal policies, federal, state, and local laws, codes and regulations such as safety and environmental protection to tasks associated with water treatment plant, pumping stations and recycled water facilities.			
408. Establish and maintain effective working relationships including relationships with staff from other agencies, a variety of government officials and the general public.			
409. Ability to oversee all processes associated with electrical and instrumentation circuits and control loops including planning, coordinating and implementing evaluations, modifications and designing.			

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<b>Electrical Instrumentation Technology Grade IV</b>	<b>Do It All The Time</b>	<b>Limited Experience</b>	<b>Never Do This</b>
410. Manage all aspects of a project to completion including initiation, planning, executing, monitoring, and controlling.			
411. Direct all electrical and instrumentation resources used in water quality treatment plant, pump station and recycled water facilities.			
412. Prepare clear and concise reports of budgets, maintenance activities and operation of equipment.			
413. Mastery of wastewater math and electrical and instrumentation principles.			
Total Per Category			

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