



Summer Internships can be chosen from these positions:

- **Service Apprentice - Gas**
Repair customer heating, A/C and appliances. Install and maintain gas distribution system.
- **Apprentice Substation Mechanic**
Maintain high-voltage transformers. Repair substation control circuits.
- **Apprentice Engineering Tech - Electric**
Perform work related to contraction, operation and maintenance of electric systems. Includes drafting, field investigations, record keeping and reporting.
- **Apprentice Relay Tech - Electric**
Maintenance and repair of substation relay systems. Test, calibrate and repair control circuits and relays
- **Apprentice Meter Technician - Electric**
Install and maintain single-phase and three-phase meters.
- **Division Mechanic Assistant-Electric**
Construction and maintenance of underground electric distribution systems, involving manholes, street light poles, transformers and cables.
- **Utility Mechanic Apprentice-Gas**
Installation, maintenance and repair of gas distribution systems. Installation of pipes, meters and equipment, and repair/replacement of sidewalks, pavement and lawns.
- **Apprentice Plant Operator**
Maintenance and repair of equipment such as boiler feed pumps and feed water de-aeration equipment. Testing fuel samples and water quality.

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UTI 101 Introduction to the Energy Utility Industry 3 credits

Prerequisites: ENG 101, MAT 141

Overview of the energy utility industry and occupations, including history of providing reliable service, regulatory influences, electric/gas energy flow and basic terminology, typical conditions for employment, and career opportunities. 2 lecture/2 laboratory hours

UTI 102 Fundamentals of Gas Combustion 3 credits

Prerequisite: UTI 101

Promotes knowledge and skills to diagnose combustion problems and make proper adjustments to obtain complete combustion at the rated input using standard tools. 2 lecture/2 laboratory hours

UTI 103 Fundamentals of Power Alternating Current 3 credits

Prerequisite: EET 130

Examines the energy utility industry alternating current theory, including vector analysis of power (KW, KVARs and KVA), power factor, phase angles, polyphase loads (Wye and Delta) and control of system efficiency. 3 lecture hours

UTI 104 Introduction to Appliance Service 7 credits

Prerequisite: UTI 103

Provides the knowledge and skills to perform piping on residential appliances, utility gas regulators/meters, and gas leak investigation in accordance with industry standards and D.O.T. Pipeline Operator Qualifications regulations. 6 lecture/3 laboratory hours

UTI 105 Inside Plant Operations 7 credits

Prerequisite: UTI 103

Promotes knowledge and skills in electrical energy industry operations of switching stations and substations. Topics include safe work practices/procedures, terms, one-line diagrams, types of stations, safety tagging, interrupting control prints, basic test equipment, and communications. 6 lecture/2 laboratory hours

UTI 106 Introduction to Energy Utility Engineering 5 credits

Prerequisite: UTI 103

Provides the basic technical background and skills for the construction, equipment, practices/procedures, design/layout and typical problems of electrical distribution engineering. 4 lecture/2 laboratory hours

UTI 107 Introduction to Metering 4 credits

Prerequisite: UTI 103

Provides fundamental knowledge and skills for the selection, installation and testing of self-continued watt-hour electrical energy measurement. 3 lecture/2 laboratory hours

UTI 108 Introduction to Underground Utilities 5 credits

Prerequisite: UTI 101

Promotes the knowledge and skills to assist with electric utility underground distribution construction, maintenance, and testing. Topics include safe work practices, construction standards, operating and testing procedures, and personnel qualifications. 4 lecture/2 laboratory hours

UTI 109 Introduction to Gas Distribution 4 credits

Prerequisite: UTI 102

Provides the fundamental knowledge and skills to achieve 16 basic operator qualifications necessary for gas utility construction and maintenance, in accordance with D.O.T. Pipeline Operator Qualifications regulations. 3 lecture/4 laboratory hours

UTI 110 Introduction to Power Plant Operations and Maintenance 6 credits

Prerequisites: UTI 101, UTI 102, UTI 103 with a minimum C grade

Examination of the electric generation process, power plant systems and functions. Topics include an overview of generating site facilities, power company philosophy, interdepartmental responsibilities, communication practices, and health, industrial and environmental safety. Emphasizes the skills necessary for safe power plant operation. 5 lecture/2 laboratory hours

UTI 111 Alternative Energy Sources 3 credits

An introduction to electrical energy generation and its impact on the environment and society. Various energy alternatives such as solar, wind, geothermal, ocean and fuel cells are examined, along with the positive and negative aspects of each. 3 lecture hours



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Energy Utility Technology

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This program is a partnership with PSE&G. Admission to the EUT program requires a high school diploma and completion of all remedial mathematics and English courses. Upon successful completion of the program, the students will be able to:

- Communicate effectively in English both orally and in written form.
- Demonstrate an understanding of the fundamentals of AC and DC electricity.
- Demonstrate an understanding of the fundamentals of gas combustion.
- Work as a team with fellow workers.
- Use a computer to access information from the Internet.
- Demonstrate “one on one” communication skills in an interview.
- Demonstrate mastery of basic algebra and mathematics.
- Demonstrate mastery of job skills learned through co-op experiences in two of the following areas:
 - Appliance service and repair – gas
 - Substation mechanic – electric
 - Apprentice engineering – electric
 - Relay technician
 - Meter technician
 - Division Mechanic – electric
 - Utility Mechanic – gas
 - Apprentice Plant Operator

Students take the academic classes at MCCC campus. These classes are generally available days and evenings, Monday through Thursday.

The UTI training classes, given at various PSE&G training facilities in Edison NJ, are taught all day Fridays and run from 7:30 AM to 3 PM.

Upon successful completion of the first year’s courses, the student will enroll in a paid internship at one of the PSE&G work sites.

Upon successful completion of the second year’s courses, the student will enroll in a second paid internship at another one of the PSEG work sites.

Upon successful completion of the program, the student will be eligible to bid on jobs at the PSE&G website.

For more information contact Prof. Dominic DeFino at defino@mccc.edu or (609)570-3456
www.pseg.com/careers
www.mccc.edu/programs_degree

Energy Utility Technology Curriculum

Course	Course (Lecture/Lab Hours)	Credits
ENG101	English Composition I (3/0)	3
MAT141	College Algebra (4/0)	4
IST101	Computer Concepts with Applications (2/2)	3
UTI111	Alternative Energy Sources (3/0)	3
UTI101	Introduction to the Energy Utility Industry (2/2)	3
UTI102	Introduction to Gas Combustion (2/2)	3
UTI103	Fundamentals of Power Alternating Current (3/0)	3
EET130	Fundamentals of Electronics (2/2)	3
ENG102	English Composition II (3/0)	3
	General Education elective (3/0)	3
	Energy Utility elective	3
UTI281	Energy Utility Cooperative Education I	4
CMN112	Public Speaking (3/0)	3
	General Education elective (3/0)	3
CMN122	Organizational Communication (3/0)	3
HPE110	Concepts of Health and Fitness (1/2)	
	[HPE 111 is an acceptable alternative]	2
	Social Science or Humanity elective	3
	Energy Utility elective	4 to 7
UTI282	Energy Utility Cooperative Education II	4

Energy Utility Electives

- UTI 104 Introduction to Appliance Service (6/3)
- UTI 105 Inside Plant Operations (6/2)
- UTI 106 Introduction to Energy Utility Engineering (4/2)
- UTI 107 Introduction to Metering (3/2)
- UTI 108 Introduction to Underground Utilities (4/2)
- UTI 109 Introduction to Gas Distribution (3/4)
- UTI 110 Introduction to Power Plant Operations & Maintenance (5/2)

Notes

HPE111 can substitute for HPE110.
 MAT135 is a pre-requisite for MAT141.
 General Education electives must be chosen from the approved catalog list.

Special Program Requirements

All courses must be passed with a “C” or better.
 UTI101 must be passed with a “B” or better.
 Students must complete ENG101 and MAT141 to be eligible for UTI281

