

Electrical and Electronics Engineering Technologists and Technicians



With prominence of integrating electronics in a wide variety of appliances and technology, the demand for professional workers with a diverse skill set capable of working with electrical and electronic instruments and components increases. Electrical and Electronics Engineering Technologists and Technicians possess the knowledge and skill to assist in research, design, testing, maintenance and manufacturing of products in advanced technologies such as computers, telecommunication systems and power distribution, making them assets in a wide variety of settings and sectors, and aids in their transferability to other professional roles.

Skills

Skills are developed through training and experience, and are the practical proficiencies someone possesses. The following are top key skills electrical and electronics engineering technologists and technicians employ in their work:

1. Critical Thinking
2. Troubleshooting
3. Repairing
4. Operations Monitoring
5. Equipment Maintenance

Tasks

Tasks are the assigned duties that an occupational group performs in their daily work. The following are some of the tasks electrical and electronics engineering technologists and technicians most regularly encounter:

1. Inspect mechanical equipment to locate damage, defects, or wear.
2. Install instrumentation or electronic equipment or systems.
3. Monitor work areas or procedures to ensure compliance with safety procedures.
4. Maintain electronic equipment.
5. Review technical documents to plan work.

Technical Knowledge

Technical Knowledge is the understanding of theory and utility of modern tools in a work environment. The following tools are used by electrical and electronics engineering technologists and technicians regularly:

1. Computer-aided design and manufacturing software
2. Process mapping and design software
3. Industrial control software
4. Analytical or scientific software
5. Compliance software

Abilities

Abilities refer to the innate faculties that allow workers to carry out tasks and activities. The following are the top abilities that electrical and electronics engineering technologists and technicians possess:

1. Problem Sensitivity
2. Near Vision
3. Deductive and Inductive Reasoning
4. Finger Dexterity
5. Information Ordering

Skills Transferability Matrix

FOCAL's Skills Transferability Matrices analyze the transferability of an occupation across a multitude of other occupations on the basis of similarities in **skills, technical knowledge, tasks,** and **abilities** as outlined by the O*Net database. It aims to show workers how to leverage their skill set in changing occupations, planning a career path, and transitioning to other industries. It also assists policy makers and educators address changing skill sets and areas of opportunity for workforce entrants in developing industries. Employers can also use this tool in reskilling or upskilling workers to circumvent skills shortages, and reduce the hiring and training challenges.

Electrical and Electronic Technologists and Technicians					
Occupations	Skills	Technology	Tasks	Abilities	Total
Mechanical engineering technologists and technicians	89%	70%	42%	85%	71%
Electronic service technicians (household and business equipment)	90%	63%	19%	88%	65%
Other repairers and servicers	86%	50%	24%	89%	62%
Industrial electricians	88%	47%	15%	87%	59%
Heating, refrigeration and air conditioning mechanics	89%	47%	17%	84%	59%
Appliance servicers and repairers	87%	43%	15%	86%	58%
Industrial engineering and manufacturing technologists and technicians	80%	67%	0%	84%	58%
Construction millwrights and industrial mechanics	88%	47%	13%	80%	57%
Telecommunications installation and repair workers	90%	37%	14%	87%	57%
Aircraft instrument, electrical & avionics mechanics, technicians & inspectors	86%	40%	6%	89%	55%
Database analysts and data administrators	71%	80%	0%	66%	54%
Power system electricians	89%	33%	4%	88%	54%
Contractors and supervisors, mechanic trades	73%	43%	10%	82%	52%
Broadcast technicians	89%	30%	0%	87%	52%
Supervisors, electronics manufacturing	67%	43%	3%	81%	49%

After scanning over 2,600 skills, technical competencies, tasks, and abilities of each of the 500 occupations as defined by the National Occupational Classification (NOC) system, a skills transferability matrix for electrical and electronic engineering technologists and technicians is produced. In the matrix above, a high score is highlighted in green and indicates the high transferability potential of an attribute of an occupation with these technologists and technicians. Lower or no transferability areas are marked in red. Electrical and electronic technicians and technologists share high degrees of transferability to other roles as professional technologists or technicians in advanced manufacturing, with the closest fit being in mechanical engineering. Though transferability is observed with other jobs requiring practical knowledge and experience in handling electricity, some roles are skilled trades positions, and will likely require additional training or certification. Upward mobility is observed for technologists and technicians to positions in supervision and contracting, meaning that with additional training in management functions, electrical and electronic technologists and technicians can perform in these roles.

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