ELECTRICAL TECHNOLOGY

PROGRAM PLANNING AND REVIEW FINAL REPORT

2021-2022

OCCUPATIONAL ADVISORY COMMITTEE MEMBERS

Member	Position	Agency
Gary Felmey	Instructor	Eastern Center for Arts and Technology
Jeff Orkin	Chairperson	Orkin Electric Systems, Inc
Joe Farrington	Vice Chairperson	J.F. Electric, Inc.
Ed Paugh	Member	Middle Department Inspection Agency
Fred Fox	Member	Eastern Center for Arts and Technology
William Pfeiffer	Member	Reuter and Hanney, Inc.
Chris Bell	Member	Upper Moreland Township School District
Mario D'Alessio	Member	Student Representative

EXECUTIVE ADVISORY COMMITTEE REPRESENTATIVE

Susan Hoffman	Consultant (Ret.)

SUMMARY OF OCCUPATIONAL OUTLOOK

Data from the U.S. Bureau of Labor and Statistics from May 2020 indicate the construction sector is expected to grow by 6% in commercial and residential between 2020 and 2030. The demand for electricians specifically is expected to grow by 9% for the same period. This percentage may not seem like a significant increase to the overall industry, but it is in addition to the drastic growth that occurred during the previous decade. The need to replace experienced electricians who transfer to other occupations or retire will account for the majority of job openings. Opportunities should be best for persons with the widest variety of skills in electrical.

The statistics note that demand for wind and solar power generation will see significant growth because of increased federal infrastructure spending. While this spending is not specific to wind and solar, the electrical and telecommunications industry will see a good portion of infrastructure spending. The added spending is to improve system reliability and widespread affordable high-speed internet for the entire country.

The industry is also working to meet the future demands coming from all major auto brands electrifying their lineups in the next few years. The outlook is expected to increase its number of nationwide charging stations by 42% compounded in each of the next 8 years. All major manufacturers are on board to have a plug-in electric version of each model by 2030. Heavy investments in electric technology from Ford, General Motors, Chrysler, and Volvo is putting pressure on companies like Toyota and Honda to quickly catch up. The market will be flooded with options in every shape and size all with one thing in common – the need for readily accessible high-speed charging that works across brands. In 2022 alone, Americans are expected to purchase 2 million vehicle charging stations.

GRADUATE DATA REVIEW

Graduate follow-up data for the three years June 2019 through June 2021 indicates that 63% of all students completed all tasks for their career objective and received a final grade of 70% or above. Many of the contributing factors to the sudden drop

in completion statistics are because of the Covid-19 pandemic and the students' inability to have adequate time in the classroom to complete their hands-on tasks. Upon graduation, the overall placement rate for entry into related occupations or related schooling was approximately 80%. Electrical Technology students placing Advanced and/or Competent reached 87% in 2019 on the NOCTI exam. Due to the Covid-19 pandemic, the NOCTI exam was not administered for the previous 2 years. When looking at pre-NOCTI test scores for those years, all but a few didn't achieve advanced or competent level scores on the pre-written exam.

These statistics show us that even though the students were forced to learn remotely, they could still acquire knowledge given the situation. Even with the restraints of the Covid-19 pandemic, the Electrical Technology program still was able to provide adequate learning for the student to be gainfully employed or transition into a post-secondary school upon graduation.

The Occupational Advisory Committee reviewed the supply/demand data and concluded that it fairly represents the state of the industry in EASTERN's employment area.

PROGRAM VIABILITY

Based on the labor market data and the graduate data for EASTERN's students, it was agreed that the Electrical Technology program should be continued. Based on the current popularity of the Electrical Technology program, not only are the employment opportunities in high demand, but so is student interest. With the relatively large number of students being wait-listed each year, it may be necessary to develop a way to provide more seats for students to be exposed to the program.

TRENDS IN THE ELECTRICAL INDUSTRY

In October, the Occupational Advisory Committee (OAC) examined trends in the industry related to technology, business operations, structure of the industry, and types of employees/skills required for employment. Based on the resident expertise of the Occupational Advisory Committee, the following industry trends were identified:

EMERGING TRENDS

- Storm and Disaster Readiness
  - Grounding and Lightning Protection
  - Installation of Backup Power Systems
  - Understanding of NEMA Flood and Natural Disaster Recovery Procedures

TECHNOLOGY

- LED Technology and Commercial Dimming and Controls
  - Daylight Harvesting
  - Building Automation
  - Occupancy and Vacancy Sensing

BUSINESS OPERATIONS

- The committee discussed several topics within business operations. The committee felt that the electrical industry is still a very personalized service, and customers are still looking for customer service catered to their individualized needs. When customers want to install an emergency preparation system, they look to the contractor to transition them from install to routine maintenance schedules. This work may be performed with a different vendor. It is recommended that the contractor understand preventive maintenance and have a working relationship with these vendors. It's essential to make that transition free from issues and conflict to set the customer up for years of continued preventive maintenance service.

STRUCTURE OF THE INDUSTRY

- Most contractors are looking for well-trained electricians. The typical student will graduate and continue onto post-secondary or an apprenticeship program. Typical contractors are looking for journeymen and apprentices working toward journeyman status.

Licensing in Pennsylvania is done on a municipality level. The contractor is the only one required to be licensed and insured to cover the electricians working for the company. No fundamental changes have been made to the structure of the industry.

- The industry is made up of three primary areas: residential, commercial, and industrial. Electrical Technology covers all three areas but utilizes residential to teach the basic concepts of the industry. The program is laid out, so the student spends 70% of the program in residential, 20% in commercial, and 5% in industrial and telecommunications equally. This has worked well to minimize costs and give the students the experience to succeed in the industry. Currently, there is a need for modifications to the facilities to better align with the layout of the curriculum and better serve our students. The shop has difficulty adequately providing space for new industry trends while maintaining the current enrollment trends.

TYPES OF SKILLS REQUIRED FOR EMPLOYMENT

- OSHA 10 Certification
- Hand eye coordination
- Good color vision
- Ability to climb ladders to moderate heights
- Ability to use basic hand tools
- Ability to use basic power tools
- Basic understanding of primary device function and installation practices
- Basic pipe bending skills
- Computer skills
- Willingness to learn
- Detail oriented

RECOMMENDATIONS

Standby Generator system (Briggs and Stratton)
Interlock Kit
Mockup rebuild
Klein Tool replacement
Testing Equipment Upgrade

EQUIPMENT RECOMMENDATIONS WITH PURCHASING TIMELINE:

SCHOOL YEAR 2022-23	
Upgrade Electrical Testing Equipment	$2,000.00
Replace Student Tool Set Storage / Security	$1,500.00
SCHOOL YEAR 2023-24	
Residential Standby and Portable Generator Demonstration Area *with whole home and panel-based transfer systems*	$8,000.00
SCHOOL YEAR 2024-25	
Rebuild Residential Mock-Up in Shop Area	$15,000.00
SCHOOL YEAR 2025-26	
Replace Student Tool Sets	$13,500.00
Total:	**$40,000.00**