

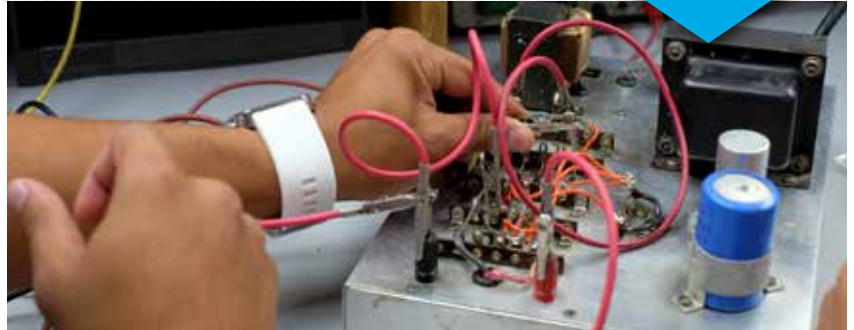


ELECTRICAL & ELECTROMECHANICAL TECHNOLOGY

Associate of Applied Science Degree
Diploma

MILFORD CAMPUS

www.southeast.edu/ElectricalElectromechanical



Electrical and electromechanical technicians are in high demand, and SCC provides you with the tools to get your career on high voltage today! Electricians install, connect, test, and maintain electrical systems for residential, commercial and industrial systems as well as maintain components for climate control, security and communications. Electromechanical technicians visualize, design, create, and repair the many devices that are used throughout the industrial-manufacturing world by combining their electrical and mechanical background. Skills such as welding, hydraulics and machining, along with their electrical capabilities, are used every day to keep industry running. Robotics and automated control systems are a large part of industry, and our graduates receive many hours of training in these areas. Electricians may install and maintain the electronic controls for machines in business and industry.



ELECTRICAL FOCUS

Types of jobs available:

- Residential, commercial and industrial construction environments
- Designing, installing, maintaining, and upgrading advanced electrical control circuits

ELECTROMECHANICAL FOCUS

Types of jobs available:

- Designing, installing, maintaining, and upgrading industrial automated systems
- Designs in the machining, welding, fabrication, wiring, and installation of new and existing production equipment

Graduate Earnings

Recent graduates report an average starting wage of \$18.85 per hour.

For more information contact:

Ken Reinsch, Program Chair/Milford
402-761-8258, 800-933-7223 ext. 8258
kreinsch@southeast.edu

or the College Admissions Office
Milford 402-761-8243, 800-933-7223 ext. 8243

Equal Opportunity/NonDiscrimination Policy - It is the policy of Southeast Community College to provide equal opportunity and nondiscrimination in all admission, attendance, and employment matters to all persons without regard to race, color, religion, sex, age, marital status, national origin, ethnicity, veteran status, sexual orientation, disability, or other factors prohibited by law or College policy. Inquiries concerning the application of Southeast Community College's policies on equal opportunity and nondiscrimination should be directed to the Vice President for Access/Equity/Diversity, SCC Area Office, 301 S. 68th Street Place, Lincoln, NE 68510, 402-323-3412, FAX 402-323-3420, or jsoto@southeast.edu. This publication should not be considered a contract between SCC and any prospective student. SCC's Board of Governors reserves the right to make changes in this publication during the life of the publication and without notice. A0718 - ELM (08/17)

What Employers Say About SCC Graduates

“Working closely with the EM & EL instructors has always been a positive and rewarding experience. SCC uses the same methodology and is in ‘sync’ with our own in-house training department. Creating an environment where a student/employee can learn is one thing, but to build an atmosphere where they are tested, challenged and encouraged to think on their own creates a higher level of proficiency and troubleshooting ability. These attributes are not only key to the technical trade, but valuable tools that can be used in all aspects of life. 3M has had great success with SCC students; being able to hit the ground running, demonstrating disciplined expertise, arriving to work on time, and providing a can-do attitude day-in and day-out. All of this is a reflection of the dedication and efforts that go into the Milford Campus.”

Marvin Wiese, Plant Engineering GS, Valley, Neb.

EL/EM Technology Core

Course #	Course Title	Credit hrs.
ELEC1132	DC Principles I	5.0
ELEC1133	DC Principles II	5.0
ELEC1232	AC Principles I	5.0
ELEC1233	AC Principles II	5.0
ELEC1344	Motor Controls	3.0
ELEC1464	Transformers, Three-Phase Systems	7.0
ELEC1474	Predictive Maintenance Principles	3.0
ELEC2534	Programmable Logic Controllers I	5.5
ELEC2546	Electrical Machine Controls	3.0
ELEC2555	Industrial Communications & Alarm Systems	3.0
ELEC2564	Industrial Electronic Controls	9.0
ELEC2614	Robotics and Integrated Automation	8.0
ELEC2624	Programmable Logic Controllers II	13.0
BSAD2155	Career Transition and Management Strategies	4.5
Total		79.0

General Education Requirements (AAS)

Oral Communications	4.5	
Written Communications	4.5	
Mathematics – MATH1050 or higher	4.5	
Science – PHYS1017 or PHYS1150 or PHYS1410	4.5	
Computer – BSAD1010	4.5	
Social Science or Humanities	4.5	
Total		27.0

Electrical Focus

Course #	Course Title	Credit hrs.
ELEC1336	CAD & Electrical Estimating	2.5
ELEC1366	Residential & Commercial Wiring I	7.5
ELEC1367	Residential & Commercial Wiring II	7.5
ELEC1496	Industrial Wiring I	5.5
ELEC1497	Industrial Wiring II	5.5
Total		28.5

Electromechanical Focus

Course #	Course Title	Credit hrs.
ELEC1337	Sketching & CAD	3.0
ELEC1356	Fluid Power	6.0
ELEC1436	Power Transmission & Lubricants	3.0
ELEC1446	Industrial Machines & Mechanical Systems	6.0
MACH1121	Manufacturing Processes	3.5
MACH1131	Manufacturing Processes II for Electromechanical	3.0
WELD1184	Welding for Electrical & Electromechanical	3.0
Total		27.5

Construction Electrician Diploma

Course #	Course Title	Credit hrs.
ELEC1132	DC Principles I	5.0
ELEC1133	DC Principles II	5.0
ELEC1232	AC Principles I	5.0
ELEC1233	AC Principles II	5.0
ELEC1336	CAD & Electrical Estimating	2.5
ELEC1344	Motor Controls	3.0
ELEC1366	Residential & Commercial Wiring I	7.5
ELEC1367	Residential & Commercial Wiring II	7.5
ELEC1464	Transformers, Three Phase Systems	7.0
ELEC1474	Predictive Maintenance Principles	3.0
ELEC1496	Industrial Wiring I	5.5
ELEC1497	Industrial Wiring	5.5
Total		61.5

General Education Requirements (Diploma)

Computer – BSAD1010	4.5	
Mathematics – MATH1050 or higher	4.5	
Total		9.0

Electrician Construction - IBEW Option

The curriculum is provided with the cooperation of representatives of SCC and Nebraska representatives of the International Brotherhood of Electrical Workers, IBEW-Local 265. Applicants must meet the stated SCC and IBEW-Local 265 entrance requirements to be accepted into the program.

The curriculum is normally delivered over a five-year period. Instruction will be delivered at the IBEW training facility.

For more information contact:

Ken Reinsch, Electrical & Electromechanical Technology; Program Chair

402-761-8258, 800-933-7223 ext. 8258,
kreinsch@southeast.edu

Roy Lamb, Director of Training

Joint Apprenticeship and Training Committee (JATC); 402-423-4519

or the College Admissions Office

Milford 402-761-8243, 800-933-7223 ext. 8243

IBEW Training Center

For members of the International Brotherhood of Electrical Workers (IBEW - Local 265)

Classes are held at the IBEW Training Center, 6200 S. 14th St. in Lincoln, and prepares students for a career in the commercial and residential electrical construction industry.

Combination Theory/Laboratory classes one per year, as follows:

Course #	Course title	Credit hrs.
ELET1714	DC Circuits and Conduit Bending	12.5
ELET1719	AC/DC Circuits and Blueprint Reading	12.5
ELET1724	AC Theory, Fire Alarm & Grounding and Bonding	12.5
ELET1729	Logic Circuits and Electrical Motors	12.5
ELET1734	Process Controllers and Special Electrical Circuits	12.5
		62.5 hours

On-the-job Training:

One course of 200 clock hours per year. Skills checklist, as shown on syllabi, verified to SCC by IBEW. Supervision by IBEW members. Location of the OJT site varies with the demands of the Electrical industry.

Course #	Course title	Credit hrs.
ELET1715	Electrical Wiring Applications I	5.0
ELET1720	Electrical Wiring Applications II	5.0
ELET1725	Electrical Wiring Applications III	5.0
ELET1730	Electrical Wiring Applications IV	5.0
ELET1735	Electrical Wiring Applications V	5.0
		25.0 hours

General Education Requirements (AAS)

Oral Communications 4.5

Written Communications 4.5

Plus three classes from the five areas below; no two classes from the same area.

Mathematics, Science, Social Science, Humanities,

and/or Computer Technology 13.5

22.5 hours

Quarter-by-quarter curriculum



First Quarter

ELEC1132	DC Principles I	5.0
ELEC1133	DC Principles II	5.0
ENGL1110	Business Communications	4.5
MATH1050	Thinking Mathematically	4.5
BSAD1010	Microsoft Applications I	4.5
		23.5

Second Quarter

ELEC1232	AC Principles I	5.0
ELEC1233	AC Principles II	5.0
PHYS1017	Technical Physics	4.5
SPCH1110	Public Speaking	4.5
ECON1200	Personal Finance	4.5
		23.5

ELECTRICAL FOCUS

Third Quarter

ELEC1366*	Residential & Commercial Wiring I	7.5
ELEC1367*	Residential & Commercial Wiring II	7.5
ELEC1336*	CAD & Electrical Estimating	2.5
ELEC1344	Motor Controls	3.0
		20.5

ELECTROMECHANICAL FOCUS

Third Quarter

ELEC1337**	Sketching & CAD	3.0
WELD1184**	Welding for Electrical & Electromechanical	3.0
ELEC1356**	Fluid Power	6.0
MACH1121**	Manufacturing Processes	3.5
MACH1131**	Manufacturing Processes II for Electromechanical	3.0
		19.5

Fourth Quarter

ELEC1474	Predictive Maintenance Principles	3.0
ELEC1464	Transformers, Three-Phase Systems	7.0
ELEC1496*	Industrial Wiring I	5.5
ELEC1497*	Industrial Wiring II	5.5
		21.0

Fourth Quarter

ELEC1474	Predictive Maintenance Principles	3.0
ELEC1464	Transformers, Three-Phase Systems	7.0
ELEC1446**	Industrial Machines & Mechanical Systems	6.0
ELEC1344	Motor Controls	3.0
ELEC1436**	Power Transmissions & Lubricants	3.0
		22.0

Construction Electrician Diploma option offered at this point.

Fifth Quarter

ELEC2534	Programmable Logic Controllers I	5.5
ELEC2564	Industrial Electronic Controls	9.0
BSAD2155	Career Transition & Management Strategies	4.5
ELEC2546	Electrical Machine Controls	3.0
ELEC2555	Industrial Communications & Alarm Systems	3.0
		25.0

Sixth Quarter

ELEC2624	Programmable Logic Controllers II	13.0
ELEC2614	Robotics and Integrated Automation	8.0
		21.0



* Additional courses an EM graduate would need to complete to obtain a focus in Electrical Systems. (6 months -- 34 Quarter Credits)

** Additional courses an EL graduate would need to complete to obtain a focus in Electromechanical Systems (6 months--34.5 Quarter Credits)

Estimated Expenses

To determine overall costs, students should plan a budget that includes room, meals, clothing, laundry, medical care, recreation and entertainment, transportation, insurance, etc.

Nebraska Resident tuition rate is \$65.50 per credit hour. Out-of-state tuition rate is \$79.50 per credit hour.

Student fee is \$2 per credit hour. Graduation fee is \$25.

Housing is available at Beatrice and Milford campuses only. Tuition, books and fees are dependent upon classes taken each quarter.

FIRST QUARTER

Tuition And Fees	\$1,587
Books	685
Supplies	66
Total	\$2,338

SECOND QUARTER

Tuition And Fees	\$1,587
Books	560
Total	\$2,147

ELT THIRD QUARTER

Tuition And Fees	\$1,384
Books	475
Tools	350
Total	\$2,209

ELM THIRD QUARTER

Tuition And Fees	\$1,249
Books	225
Tools	80
Supplies	120
Total	\$1,674

ELT FOURTH QUARTER

Tuition And Fees	\$1,418
Books	130
Total	\$1,548

ELM FOURTH QUARTER

Tuition And Fees	\$1,485
Books	180
Tools	400
Total	\$2,065

FIFTH QUARTER

Tuition And Fees	\$1,688
Books	375
Supplies	16
Total	\$2,079

SIXTH QUARTER

Tuition And Fees	\$1,418
Total	\$1,418

Program total ELT: \$11,739

Program total ELM: \$11,721

Basic Tools Required

* May be purchased at the Campus Store.

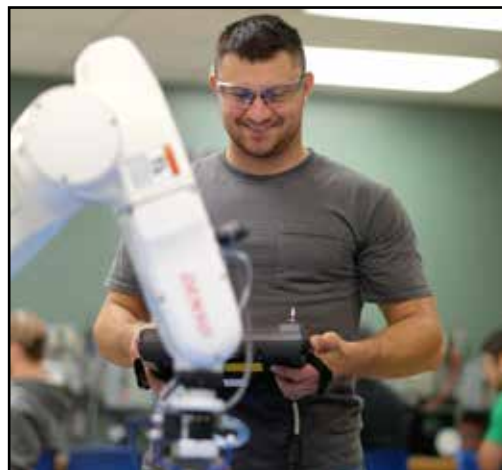
Required Tools to Enter 1st Quarter

- Safety Glasses (must meet Z87 specs.)
- Large 3-Ring Binder (2)
- Graph Paper Pad 10 x 10 (10 sq./in.)
- Electronic Calculator (specifications to be provided in class)
- Flash Drive
- Set of Colored Pencils

Electrical

Tools for 3rd Quarter

- Tool Pouch (equipped with large utility pocket, small utility pocket, two plier pockets, two screwdriver pockets, a chain tape thong and a knife snap)
- Tool Belt (heavy duty leather or fully adjustable poly web)
- Aluminum torpedo level with magnetized strip on bottom
- Steel locking tape (3/4" by 25 feet minimum)
- Electricians pocket knife
- Hammer (heavy duty curved claw)
- 10" adjustable jaw wrench
- 10" pump plier (with plastic dip handles)
- 6 3/4" diagonal cutters (with plastic dip handles)
- 6" long nose pliers with cutters (with plastic dip handles)
- 9 1/4" high leverage lineman plier (with plastic dip handles)
- Phillip screwdriver size #2 with 4" shank
- Standard screwdriver 3/16" blade with 6" shank
- Standard screwdriver 5/16" blade with 6" shank
- Shoes (hard-sole)
- *Architecture Ruler
- Multimeter (see Program Chairperson for details)
- Hard Hat
- 3mm x 100mm Screwdriver
- Wire Strippers w/Terminal Crimp Jaw



Required For 2nd Quarter

- * Pad of Oscillogram paper

Supplies Required For 5th Quarter

- *1 Pad of Oscillogram Paper
- *1 Circuit Breadboard

Electromechanical

Tools for 3rd Quarter

- Some type of leather shoes required. No canvas. Must be high tops.
- *Oxy-Fuel Face Shield
- *Arc Welding Helmet (No. 10 Lens)
- *Leather Gauntlet Welding Gloves
- *Pliers or Locking Pliers (Vice-Grips)
- *Chipping Hammer and Wire Brush
- *Wire Cutter Pliers, Side Cutters
- *Safety Glasses With Side Shields

Supplies Required For 4th Quarter

- Portable Tool Chest
- 1/2" or 3/8" Socket Set (1/4" through 3/4")
- 10" Ratchet For The Above Socket Set
- 5" Extension For The Above Socket Set
- 10" and 8" Adjustable Wrench
- 7 Piece Combination Wrench Set
- Wire Strippers With Terminal Crimp Jaw
- Standard Tip Screwdriver -1/4" Blade With 4" Shank
- Standard Tip Screwdriver - 5/16" Blade With 6" Shank
- Phillips Screwdriver - Size 1
- Phillips Screwdriver - Size 2
- Locking Tape (1/2" by 12 feet)
- Hex Key Set (5/64" through 3/8")
- 6 3/4" Slip Joint Pliers
- 7 3/4" Curved Diagonal Cut Pliers
- 6" long nose pliers
- 10" locking pliers (straight or curved jaw)
- 1 1/2 lb. standard deadblow hammer
- 16 oz. ball peen hammer
- 5 piece punch set (1/16" through 5/32")
- Multimeter (see Program Chairperson for details)
- 3mm x 100mm Screwdriver
- Utility Knife

Electrician Construction – IBEW Option
The IBEW/NECA apprenticeship fund pays the tuition and student fees.

1ST YEAR APPRENTICE

Books	\$ 300
Tools	450
Total	\$ 750

2ND YEAR APPRENTICE

Books	\$ 400
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3RD YEAR APPRENTICE

Books	\$ 500
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4TH YEAR APPRENTICE

Books	\$ 600
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5TH YEAR APPRENTICE

Books	\$ 700
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No costs are shown for tools in the 2nd through 5th years, but it should be noted that the apprentice might need to replace tools from time to time due to normal wear and tear.

