

Electrical/Electronics Technology

FALL 2008

[A50140] Degree (Day & Evening); [D50140] Diploma (Day and Evening);
[C50140] Certificate (Day & Evening)

The Electrical/Electronics Technology curriculum is designed to provide training for persons interested in the installation and maintenance of electrical/electronic systems found in residential, commercial and industrial facilities.

Training, most of which is hands-on, will include such topics as AC/DC theory, basic wiring practices, digital electronics, programmable logic controllers, industrial motor controls, the National Electrical Code, and other subjects as local needs require.

Graduates should qualify for a variety of jobs in the electrical/electronics field as an industrial electronics technician or apprentice assisting in the layout, installation and maintenance of electrical/electronic systems.

COMPETENCIES

Randolph Community College is committed to continuous improvement through program evaluation. One part of the evaluation is to assess program competencies. While our program contains many competencies for students to achieve, each year a select few are chosen for assessment purposes. This year, program competency assessment will focus on these:

1. Plan and construct Residential/Commercial/Industrial wiring circuits.
2. Analyze and explain the operation of electrical controls used in industry.
3. Solve and construct electronic circuits.
4. Classify and explain DC and AC circuits.
5. Show proficiency in the use of digital and analog test equipment.

COURSE INFORMATION

Major Courses

Electricity (Degree - 8 courses; Diploma - 7 courses; Certificate - 3 courses; Wiring Certificate - 5 courses; PLC Certificate - 3 courses; Basic Wiring/PLC Certificate - 4 courses) - Degree, diploma, certificate, and wiring certificate students will study diagrams and schematics, electrical computations, and basic wiring. Degree and diploma students will further study DC and AC electricity, and motors and motor controls. Degree, diploma, and wiring certificate students study the National Electrical Code and industrial wiring. Degree students also take an introductory course in programmable logic controllers. Students seeking the PLC certificate also take the courses in diagrams and schematics, electrical computations, and the introductory course in programmable logic controllers. Basic Wiring/PLC certificate students study basic wiring, National Electrical Code, industrial wiring, and the introductory course in programmable logic controllers.

Electronics (Degree - 5 courses; Diploma - 1 course; PLC Certificate - 1 course) - Degree and diploma students will study semiconductor-based devices. Degree students obtain further study in combinational and sequential logic circuits, the characteristics and applications of linear integrated circuits, semiconductor devices used in industrial applications, and programmable logic controllers. PLC certificate students also study programmable logic controllers.

Related Courses

Hydraulics (Degree - 1 course) - This course introduces the basic components and functions of hydraulic and pneumatic systems.

Industrial Science (Degree, Diploma, Certificate, PLC Certificate - 1 course) - This course introduces the principals of industrial safety, OSHA, and environmental regulations.

Information Systems - (Degree, Diploma & Certificate - 1 course) - Introduction to microcomputers and basic software.

General Education Courses

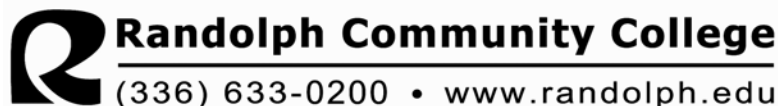
Electives (Degree - 2 courses) - Degree students are required to take a 3-credit-hour social/behavioral science course and a 3-credit-hour humanities/fine arts course.

English (Degree - 2 courses; Diploma - 1 course) - Degree students are required to take English courses that emphasize the writing process and professional communication skills. Diploma students take only the writing class.

Physics (Degree - 1 course) - This algebra-based course introduces fundamental physical concepts as applied to industrial and service technology fields.

Faculty Advisors

The faculty advisors are: Keith Bunting, (336) 633-0257, khbunting@randolph.edu and Anuwar Dau, (336) 633-0257, amdau@randolph.edu.



**ELECTRICAL/ELECTRONICS TECHNOLOGY
CURRICULUM BY SEMESTERS
Degree, Diploma, Certificate (Day)**

	Hours/Week			Sem. Hrs Credit
	Class	Lab	Wk. Exp.	
First Year: Fall Semester				
CIS 113 **Computer Basics	0	2	0	1
ELC 113 **Basic Wiring I	2	6	0	4
ELC 125 **Diagrams & Schematics	1	2	0	2
ELC 126 **Electrical Computations	2	2	0	3
ISC 112 **Industrial Safety	<u>2</u>	<u>0</u>	<u>0</u>	<u>2</u>
	7	12	0	12
First Year: Spring Semester				
ELC 112 *DC/AC Electricity	3	6	0	5
ELC 115 *Industrial Wiring	2	6	0	4
ELN 133 Digital Electronics	<u>3</u>	<u>3</u>	<u>0</u>	<u>4</u>
	8	15	0	13
First Year: Summer Session				
ELC 118 *National Electrical Code	1	2	0	2
ENG 111 * Expository Writing	3	0	0	3
PHY 121 * Applied Physics I	<u>3</u>	<u>2</u>	<u>0</u>	<u>4</u>
	7	4	0	9
Second Year: Fall Semester				
ELC 117 *Motors & Controls	2	6	0	4
ELN 131 *Semiconductor Applications	3	3	0	4
--- Humanities/Fine Arts	3	0	0	3
--- Social/Behavioral Science	<u>3</u>	<u>0</u>	<u>0</u>	<u>3</u>
	11	9	0	14
Second Year: Spring Semester				
ELC 128 Introduction to PLC	2	3	0	3
ELN 132 Linear IC Applications	3	3	0	4
HYD 110 Hydraulics/Pneumatics I	2	3	0	3
MEC 110 Introduction to CAD/CAM	<u>1</u>	<u>2</u>	<u>0</u>	<u>2</u>
	8	11	0	12
Second Year: Summer Session				
ELN 229 Industrial Electronics	2	4	0	4
ELN 260 Programmable Logic Controllers	3	3	0	4
ENG 114 Prof. Research & Reporting	<u>3</u>	<u>0</u>	<u>0</u>	<u>3</u>
	8	7	0	11

**ELECTRICAL/ELECTRONICS TECHNOLOGY
CURRICULUM BY SEMESTERS
Degree, Diploma, Certificate, and
Wiring Certificate (Evening)**

	Hours/Week			Sem. Hrs Credit
	Class	Lab	Wk. Exp.	
First Year: Fall Semester				
CIS 113 **Computer Basics	0	2	0	1
ELC 125 **Diagrams & Schematics	1	2	0	2
ELC 126 **Electrical Computations	2	2	0	3
ISC 112 **Industrial Safety	<u>2</u>	<u>0</u>	<u>0</u>	<u>2</u>
	5	6	0	8
First Year: Spring Semester				
ELC 112 *DC/AC Electricity	3	6	0	5
ELC 113 **Basic Wiring I	<u>2</u>	<u>6</u>	<u>0</u>	<u>4</u>
	5	12	0	9
First Year: Summer Session				
ELC 118 *National Electrical Code	1	2	0	2
PHY 121 * Applied Physics I	<u>3</u>	<u>2</u>	<u>0</u>	<u>4</u>
	4	4	0	6
Second Year: Fall Semester				
ELC 115 *Industrial Wiring	2	6	0	4
ELN 131 *Electronic Devices	<u>3</u>	<u>3</u>	<u>0</u>	<u>4</u>
	5	9	0	8
Second Year: Spring Semester				
ELC 117 *Motors & Controls	2	6	0	4
MEC 110 Introduction to CAD/CAM	<u>1</u>	<u>2</u>	<u>0</u>	<u>2</u>
	3	8	0	6
Second Year: Summer Session				
ELN 132 Linear IC Applications	3	3	0	4
ENG 111 * Expository Writing	<u>3</u>	<u>0</u>	<u>0</u>	<u>3</u>
	6	3	0	7
Third Year: Fall Semester				
ELN 133 Digital Electronics	3	3	0	4
ENG 114 Prof. Research & Reporting	<u>3</u>	<u>0</u>	<u>0</u>	<u>3</u>
	6	3	0	7
Third Year: Spring Semester				
ELC 128 Introduction to PLC	2	3	0	3
ELN 229 Industrial Electronics	<u>2</u>	<u>4</u>	<u>0</u>	<u>4</u>
	4	7	0	7
Third Year: Summer Session				
HYD 110 Hydraulics/Pneumatics I	2	3	0	3
--- Humanities/Fine Arts	<u>3</u>	<u>0</u>	<u>0</u>	<u>3</u>
	5	3	0	6
Fourth Year: Fall Semester				
ELN 260 Programmable Logic Controllers	3	3	0	4
--- Social/Behavioral Science	<u>3</u>	<u>0</u>	<u>0</u>	<u>3</u>
	6	3	0	7

*Courses required for Diploma

** Courses required for Certificate and Diploma

+ Courses required for Wiring Certificate

TOTAL SEMESTER HOURS CREDIT FOR DEGREE 71
TOTAL SEMESTER HOURS CREDIT FOR CERTIFICATE 12
TOTAL SEMESTER HOURS CREDIT FOR DIPLOMA 38
TOTAL SEMESTER HOURS CREDIT FOR WIRING CERTIFICATE 17

**ELECTRICAL/ELECTRONICS TECHNOLOGY
CURRICULUM BY SEMESTERS
PLC Certificate (Day)**

	Hours/Week			Sem. Hrs Credit
	Class	Lab	Wk. Exp.	
First Year: Fall Semester				
ELC 125 Diagrams & Schematics	1	2	0	2
ELC 126 Electrical Computations	2	2	0	3
ISC 112 Industrial Safety	<u>2</u>	<u>0</u>	<u>0</u>	<u>2</u>
	5	4	0	7
First Year: Spring Semester				
ELC 128 Introduction to PLC	<u>2</u>	<u>3</u>	<u>0</u>	<u>3</u>
	2	3	0	3
First Year: Summer Session				
ELN 260 Programmable Logic Controllers	<u>3</u>	<u>3</u>	<u>0</u>	<u>4</u>
	3	3	0	4
TOTAL SEMESTER HOURS CREDIT FOR PLC CERTIFICATE			14	

**ELECTRICAL/ELECTRONICS TECHNOLOGY
CURRICULUM BY SEMESTERS
PLC Certificate (Evening)**

	Hours/Week			Sem. Hrs Credit
	Class	Lab	Wk. Exp.	
First Year: Fall Semester				
ELC 125 Diagrams & Schematics	1	2	0	2
ELC 126 Electrical Computations	2	2	0	3
ISC 112 Industrial Safety	<u>2</u>	<u>0</u>	<u>0</u>	<u>2</u>
	5	4	0	7
First Year: Spring Semester				
ELC 128 Introduction to PLC	<u>2</u>	<u>3</u>	<u>0</u>	<u>3</u>
	2	3	0	3
Second Year: Fall Semester				
ELN 260 Programmable Logic Controllers	<u>3</u>	<u>3</u>	<u>0</u>	<u>4</u>
	3	3	0	4
TOTAL SEMESTER HOURS CREDIT FOR PLC CERTIFICATE			14	

Visit RCC's website: www.randolph.edu
An application for admission is available to be downloaded from the web

**ELECTRICAL/ELECTRONICS TECHNOLOGY
CURRICULUM BY SEMESTERS
Technimark Molding Certificate (C35220TK)**

	Hours/Week			Sem. Hrs Credit
	Class	Lab	Wk. Exp.	
ELC 125 Diagrams & Schematics	1	2	0	2
ELC 126 Electrical Computations	2	2	0	3
ELC 112 *DC/AC Electricity	3	6	0	5
ELC 117 *Motors & Controls	2	6	0	4
ELC 128 Introduction to PLC	2	3	0	3
ELN 229 Industrial Electronics	2	4	0	4
MAC 111 Machining Technology I	2	12	0	6

**TOTAL SEMESTER HOURS
CREDIT FOR TM CERTIFICATE**

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