

# INDUSTRIAL AUTOMATION TECHNOLOGY

## (Wallace and Sparks Campuses—Industrial Systems Technology and Nuclear Technology) (Easterling Correctional Facility—Electrical Technology Certificates Only)

The Industrial Automation Technology curriculum provides instruction and skills development in the rapidly growing, related fields of Electricity, Electronics, Industrial Systems Technology, and Nuclear Technology. The curriculum is presented at a high technical level, involving the applications of mathematics, science, and communication skills as well as hands-on training in electrical, process control, mechanical, fluid power, and nuclear technologies. Students will be exposed to a common core of courses and will then choose an area of specialization in Electrical Technology, Industrial Systems Technology, or Nuclear Technology. Successful completion of the program prepares the student for entry-level employment in a variety of industrial-related fields.

### DEGREE CURRICULUM

(Wallace and Sparks Campuses)

<i>Course</i>	<i>Credit Hours</i>
<b>Area I: Written and Oral Communications</b>	<b>6</b>
ENG 101 English Composition I	3
SPH 106 Fundamentals of Oral Communication <b>OR</b>	
SPH 107 Fundamentals of Public Speaking	3
<b>Area II: Humanities and Fine Arts</b>	<b>3</b>
Humanities/Fine Arts Elective	3
<b>Area III: Natural Sciences, Mathematics, and Computer Science</b>	<b>10</b>
CIS 146 Microcomputer Applications	3
MTH 100 Intermediate College Algebra	3
PHS 112 Physical Science II ( <i>Not for Nuclear Technology</i> )	4
CHM 104 Introduction to Inorganic Chemistry ( <i>Nuclear Technology Only</i> )	4
<b>Area IV: History, Social and Behavioral Sciences</b>	<b>3</b>
PSY 200 Psychology	3
<b>Area V: Career and Technical Courses</b>	
<b>Required Orientation Courses</b>	
ORI 101 Orientation to College <b>OR</b>	
ORI 105 Orientation and Student Success	1-3
ORI 104 WorkKeys® Assessment and Advisement	1
<b>Core Technical Course Requirements</b>	
ELT 108 DC Fundamentals <b>OR</b>	
INT 101 DC Fundamentals	3
ELT 109 AC Fundamentals <b>OR</b>	
INT 103 AC Fundamentals	3
ELT 221 Electronics for Electricians	3
ELT 231 Introduction to Programmable Logic Controllers <b>OR</b>	
INT 184 Introduction to Programmable Logic Controllers	3
ELT 209 Motor Controls I <b>OR</b>	
INT 113 Industrial Motor Controls I	3
ELT 212 Motor Controls II <b>OR</b>	
INT 213 Industrial Motor Controls II	3
<b>Total Core Technical Credits</b>	<b>20</b>

### ELECTRICAL TECHNOLOGY CONCENTRATION

<i>Course</i>	<i>Credit Hours</i>
<b>Area V: Required Field of Concentration Courses</b>	
ELT 110 Wiring Methods	3
ELT 114 Residential Wiring I	3
ELT 115 Residential Wiring II	3
ELT 117 AC/DC Machines	3
ELT 118 Commercial/Industrial Wiring I	3
ELT 132 Commercial/Industrial Wiring II	3
ELT 224 Security and Alarm Systems	3
ELT 225 Smart House Wiring	3
ELT 243 Electrical Cost Estimating	3
<b>Total Option Credits</b>	<b>27</b>
<b>Total Credits for Degree</b>	<b>69</b>

### INDUSTRIAL SYSTEMS TECHNOLOGY CONCENTRATION

<i>Course</i>	<i>Credit Hours</i>
<b>Area V: Required Field of Concentration Courses</b>	
INT 100 Mathematics for Industrial Technicians	3
INT 117 Principles of Industrial Mechanics	3
INT 134 Principles of Industrial Maintenance Welding and Metal Cutting Techniques	3
INT 139 Introduction to Robot Programming	3
INT 105 Introduction to Process Technology	3
INT 208 Advanced Process Simulation	3
INT 284 Advanced Principles of Programmable Controllers	3
INT 288 Applied Principles of Programmable Controllers	3
INT 118 Fundamentals of Industrial Hydraulics and Pneumatics	3
<b>Total Option Credits</b>	<b>27</b>
<b>Total Credits for Degree</b>	<b>69</b>

### NUCLEAR TECHNOLOGY CONCENTRATION

<i>Course</i>	<i>Credit Hours</i>
<b>Area V: Required Field of Concentration Courses</b>	
INT 105 Introduction to Process Technology	3
INT 117 Principles of Industrial Mechanics	3
INT 118 Fundamentals of Industrial Hydraulics and Pneumatics	3
INT 292 Nuclear Cooperative Education (Optional)	3
INT 293 Nuclear Cooperative Education (Optional)	3
MTH 103 Introduction to Technical Mathematics	3
PHY 115 Technical Physics	4
NUC 118 Radiation Protection and Detection	3
NUC 119 Reactor Plant Protection and Safety Design	3
NUC 120 Nuclear Plant Systems I	3
NUC 121 Nuclear Plant Systems II	3
<b>Total Option Credits</b>	<b>28</b>
<b>Total Credits for Degree</b>	<b>70-76</b>

**Electrical Technology**  
**Associate in Applied Science Degree**  
**Suggested Course Sequence**

<b>FIRST SEMESTER</b>	<b>SECOND SEMESTER</b>	<b>THIRD SEMESTER</b>
CIS 146	ELT 109	ELT 115
ELT 108	ELT 114	ELT 117
ELT 110	ELT 243	ELT 118
ENG 101	MTH 100	ELT 209
ORI 101 or 105*	Humanities/Fine Arts Elective	INT 184
<b>FOURTH SEMESTER</b>	<b>FIFTH SEMESTER</b>	
ELT 132	ELT 221	
ELT 212	ELT 224	
ELT 225	ORI 104	
PHS 112	SPH 106 or 107	
PSY 200		

**Industrial Systems Technology**  
**Associate in Applied Science Degree**  
**Suggested Course Sequence**

<b>FIRST SEMESTER</b>	<b>SECOND SEMESTER</b>	<b>THIRD SEMESTER</b>
CIS 146	INT 101	ELT 209
INT 100	INT 117	INT 103
INT 134	SPH 106 or 107	INT 118
ENG 101	PSY 200	INT 184
ORI 101 or 105*	Humanities/Fine Arts Elective	
<b>FOURTH SEMESTER</b>	<b>FIFTH SEMESTER</b>	
ELT 212	ELT 221	
INT 105	INT 139	
INT 284	INT 208	
MTH 100	INT 288	
PHS 112	ORI 104	

**Nuclear Technology**  
**Associate in Applied Science Degree**  
**Suggested Course Sequence**

<b>FIRST SEMESTER</b>	<b>SECOND SEMESTER</b>	<b>THIRD SEMESTER</b>
CIS 146	INT 101	ELT 209
ENG 101	INT 117	INT 103
MTH 100	MTH 103	INT 118
ORI 101 or 105*	SPH 106 or 107	INT 184
Humanities/Fine Arts Elective		
<i>*If applicable, ORI 101 or 105 is required for all first-time college students.</i>		
<b>FOURTH SEMESTER</b>	<b>FIFTH SEMESTER</b>	<b>SIXTH SEMESTER</b>
ELT 212	CHM 104	INT 295
INT 105	ELT 221	INT 296
NUC 118	NUC 119	NUC 120
PHY 115	PSY 200	NUC 121
		ORI 104

**CERTIFICATE CURRICULUM**  
**ELECTRICAL TECHNOLOGY**  
**(Easterling Correctional Facility Only)**

<b>Course</b>	<b>Credit Hours</b>
<b>Area I: Written and Oral Communications</b>	<b>3</b>
COM 103 Introductory Technical English II	3

<b>Area III: Natural Sciences, Mathematics, and Computer Science</b>	<b>3</b>
MAH 101 Introductory Mathematics I	3

**Area V: Career and Technical Courses**

<b>Core Electrical Technology Course Requirements</b>	
ELT 108 DC Fundamentals	3
ELT 109 AC Fundamentals	3
ELT 110 Wiring Methods	3
ELT 114 Residential Wiring Methods I	3
ELT 115 Residential Wiring Methods II	3
ELT 117 AC/DC Machines	3
ELT 118 Commercial/Industrial Wiring I	3
ELT 182 Special Topics in Electrical Technology	3
ELT 209 Motor Controls I	3
ELT 212 Motor Controls II	3
ELT 231 Introduction to Programmable Logic Controllers	3
ELT 245 Electrical Grounding Systems	3
<b>Total Core Technical Credits</b>	<b>42</b>

**SHORT CERTIFICATE CURRICULUM**  
**ELECTRICAL TECHNOLOGY**  
**(Wallace Campus and Easterling Correctional Facility)**

<b>Course</b>	<b>Credit Hours</b>
<b>Area V: Career and Technical Courses</b>	
<b>Core Electrical Technology Course Requirements</b>	
ELT 108 DC Fundamentals <b>OR</b>	
INT 101 DC Fundamentals	3
ELT 109 AC Fundamentals <b>OR</b>	
INT 103 AC Fundamentals	3
ELT 110 Wiring Methods	3
ELT 182 Special Topics in Electrical Technology	3
<b>Total Core Technical Credits</b>	<b>12</b>

*After completing the Core Technical Course Requirements, students may choose from the following concentrations:*

**INDUSTRIAL ELECTRICITY CONCENTRATION**

ELT 209 Motor Controls I <b>OR</b>	
INT 113 Industrial Motor Controls I	3
ELT 117 AC/DC Machines	3
ELT 212 Motor Controls II <b>OR</b>	
INT 213 Industrial Motor Controls II	3
ELT 231 Introduction to Programmable Logic Controllers <b>OR</b>	
INT 184 Introduction to Programmable Logic Controllers	3
<b>Total Concentration Credits</b>	<b>12</b>
<b>Total Credits for Short Certificate</b>	<b>24</b>

**RESIDENTIAL AND COMMERCIAL WIRING  
CONCENTRATION**

ELT 114 Residential Wiring Methods I	3
ELT 115 Residential Wiring Methods II	3
ELT 118 Commercial/Industrial Wiring Method I	3
ELT 245 Electrical Grounding Systems	3
<b>Total Concentration Credits</b>	<b>12</b>
<b>Total Credits for Short Certificate</b>	<b>24</b>

**SHORT CERTIFICATE CURRICULUM  
INDUSTRIAL SYSTEMS TECHNOLOGY  
(Wallace and Sparks Campuses)**

<i>Course</i>		<i>Credit Hours</i>
<b>Area V: Required Field of Concentration Courses</b>		
INT	118	Fundamentals of Industrial Hydraulics and Pneumatics 3
INT	113	Industrial Motor Controls I <b>OR</b>
ELT	209	Motor Controls I 3
INT	213	Industrial Motor Controls II <b>OR</b>
ELT	212	Motor Controls II 3
INT	101	DC Fundamentals <b>OR</b>
ELT	108	DC Fundamentals 3
INT	103	AC Fundamentals <b>OR</b>
ELT	109	AC Fundamentals 3
INT	134	Principles of Industrial Maintenance Welding and Metal Cutting Techniques 3
INT	184	Introduction to Programmable Logic Controls 3
INT	284	Advanced Principles of Programmable Controllers 3
INT	288	Applied Principles of Programmable Controllers 3
<b>Total Credits for Short Certificate</b>		<b>27</b>