



# WORKFORCE

READING AREA COMMUNITY COLLEGE



# SPRING 2024

Ten South Second Street, Reading, PA | 610-372-4721 | 1.800.626.1665 | [racc.edu](http://racc.edu)

## WORKFORCE DEVELOPMENT

The Workforce Development Team at Reading Area Community College is dedicated to providing a continuum of learning in

- Advanced manufacturing skills
- CNC Machining and Manual Machining
- Information technology (IT)
- Market knowledge
- Business Critical Skills
- Business performance and workforce readiness that meets the demands of the local and regional labor market

Manufacturing, IT and business professionals provide training using a hands-on learning approach. The staff of Workforce Development understands employers' technology challenges, operating systems and business performance objectives. We understand that business and industry growth is increasingly centered on new IT applications in addition to advanced technical innovation. We know that successful employers must find new ways to produce and deliver products and services to customers who will purchase these goods at prices that will provide profit. The offerings of the Schmidt Training and Technology Center provide **customized senior leadership and employee training** that adjusts to the unique and changing needs of business and industry employers.



**SCHMIDT TRAINING & TECHNOLOGY CENTER**

## INTRODUCING OUR NEWEST EQUIPMENT

### **Mitutoyo CRYSTA-Apex V544 CNC Coordinate Measuring Machine**

The CRYSTA-Apex V series is a new generation CNC CMM that delivers great versatility and speed while leveraging IoT technologies for smart factory opportunities. The CRYSTA-Apex



V provides accuracy that is unmatched by any previous general purpose measuring machine for small to mid-sized workpieces.

- SMS (Smart Measuring System) – system for on-line monitoring and operational status of a measuring machine

with data visualization to enable product quality improvement

- Real-time CMM and workpiece temperature compensation (standard feature)
- High-speed optimal path scanning with high-speed active scanning
- Multi-sensor support with an array of contact and non-contact probes that includes tactile, scanning, laser, optical, surface finish measuring

### **Universal Robots UR3e**

The UR3e is the ideal definition of a collaborative, industrial robot. Designed to optimize efficiency in confined workspaces, the UR3e offers unmatched flexibility and precision. While the cobot can be mounted on a table working side-by-side with employees, it can also be integrated within a separate workstation for solutions including picking, assembling, and placing parts.



### **Portable Siemens Learning System**

990-PS712 Portable PLC Learning System provides a complete curriculum and application workstation that teaches modern PLC systems as used in today's industry. Students learn a broad range of applications using the robust Siemens S7-1200 PLC and use HMI panels and networks throughout the curriculum. Students learn industry-relevant skills including how to operate and program PLC systems for a wide range of real-world applications.

Within the 990-PS712F, Amatrol offers FaultPro 4.0, the industry's premier program utilizing electronic faults, and covers topics including how to troubleshoot PLC power supply problems, how to test analog and discrete input devices, and how to solve software problems.





# WORKFORCE

READING AREA COMMUNITY COLLEGE

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It is the policy of Reading Area Community College to prohibit discrimination on the basis of race, color, sex, sexual orientation, religion, national or ethnic origin, age, disability, or status as a disabled or Vietnam Era veteran in regard to the administration of all campus programs, services and activities and the admission of students, employment actions, or other sponsored activities. Furthermore it is RACC's policy not to tolerate harassment of any type, including sexual harassment, of or by any employee, student, contractor, vendor, and/or visitor to Reading Area Community College. In addition it is the policy of Reading Area Community College not to discriminate on the basis of sex in its educational programs and activities as required by Title IX of the Education Amendments of 1972. Title IX provides that "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." Sex discrimination includes sexual harassment and sexual assault. Affirmative Action inquiries should be directed to the Affirmative Action Officer, RACC, P.O. Box 1706, Reading, PA 19603 (610.372.4721). All colleges and universities, in compliance with the Pennsylvania College and University Security and Information Act of 1988 and the Student Right-to-Know and Campus Security Act, are required to provide information regarding safety and security procedures and statistics on campus. A copy of this report is available by contacting Marketing and Communications, Room 323, Berks Hall.

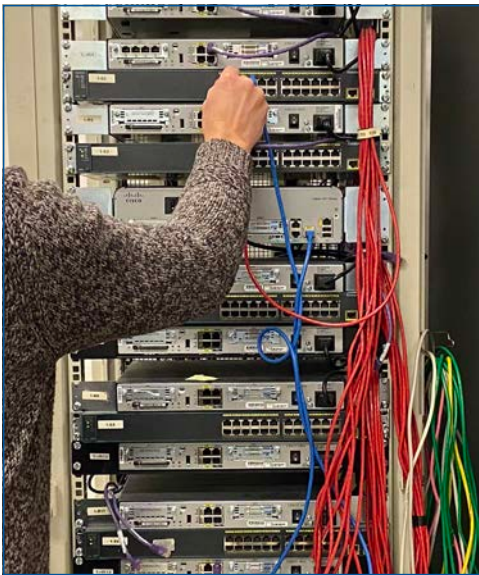
WARRANTY DISCLAIMER. The College and its affiliates hereby disclaim all warranties, whether express, implied or statutory, including, without limitation, any implied warranty of merchantability or fitness for a particular purpose employability, future employment, licensure, certification or availability of courses, program, instructors or curriculum.

For more information on our graduation rates, the median debt of students who have completed programs and other important information, please visit our website at [racc.edu/HEOA](http://racc.edu/HEOA).



# WORKFORCE

READING AREA COMMUNITY COLLEGE  
SCHMIDT TRAINING & TECHNOLOGY CENTER



Information Technology Lab



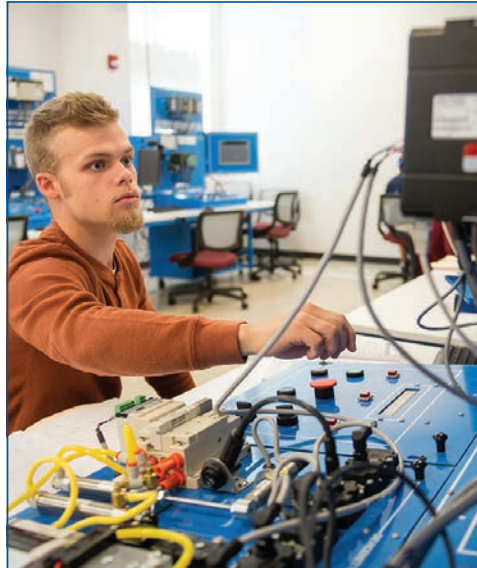
Machining Lab



Mechanical Lab



Electrical Lab



PLC Networking Lab



Smart Automation & Robotics Lab

AVAILABLE  
IN  
SPANISH

CompTIA



**A+ SERIES: IT ESSENTIALS**

IT Essentials: PC Hardware and Software

covers the fundamentals of PC computer technology, networking, and security, and also provides an introduction to advanced concepts. IT Essentials: PC Hardware and Software is a hands-on, e-learning solution with an emphasis on practical experience to help students develop fundamental computer skills along with essential career skills. This curriculum also helps students prepare for the CompTIA A+ certification.

Aligns with 220-1001 & 220-1002  
CompTIA A+ Certification exams

**IT ESSENTIALS - FUNDAMENTALS**

**ZCOM-336** **\$1,815**

**Textbook additional fee.**  
**Includes test fee.**

*Approximate time to complete: 200 hours*  
*Instructor support during lab hours.*

**IT ESSENTIALS - ADVANCED**

**ZCOM-337** **\$1,815**

**Includes test fee.**

Prerequisite of ZCOM 336  
*(use book from ZCOM 336)*  
*Approximate time to complete: 200 hours*  
*Instructor support during lab hours.*



**SECURITY+**

**ZCOM-355** **\$3,075**

**Includes test fee.**

*Approximate time to complete: 200 hours*  
*Instructor support during lab hours.*

INFORMATION TECHNOLOGY



**CCNA 7.0**

**Textbook additional fee.**

*Instructor support during lab hours.*

CCNA 7.0 teaches comprehensive networking concepts and skills, from network applications to the protocols and services provided to these applications. Learners will progress from basic networking to more complex enterprise and theoretical networking models later in the curriculum. There are three courses that make up the CCNA 7.0 curriculum - they are aligned to cover the competencies outlined for the CCNA Certification Exam (200-301).



**ENTERPRISE NETWORKING, SECURITY, AND AUTOMATION**

**ZCOM-416** **\$1205 for Approx. 90 hours**

*Instructor support during lab hours.* **(includes exam)**

**INTRO TO NETWORKS**

**ZCOM-413** **\$875 for Approx. 90 hours**

**SWITCHING, ROUTING AND WIRELESS ESSENTIALS**

**ZCOM-414** **\$875 for Approx. 90 hours**

*Instructor support during lab hours.*

**IIOT**

**ZCOM-419** **\$1,405 for Approx. 90 hours**

*Instructor support during lab hours.*

After completion of this course students can sit for the 200-601 IMINS2

**Prerequisites: Industrial Networking Specialist or CCENT or CCNA Routing and Switching, or any valid CCIE certification.**

**These courses have an open start date.**  
**Contact Judith Vecchio at 610.372.4721, ext 5716 or [jvecchio@racc.edu](mailto:jvecchio@racc.edu) for details.**

## CERTIFICATE AND DEGREE PROGRAMS INDUSTRIAL MAINTENANCE TECHNICIAN, MECHATRONICS AAS

RACC's **Mechatronics/AMIST** technical courses are offered in two instructional delivery/learning models:

- **Traditional** - All training, both theory and hands-on, conducted at the Schmidt Training and Technology Center.
- **Hybrid** - Theory accessed over the Internet with instructor support; hands-on skills taught and assessed at the Schmidt Training and Technology Center. Access to the Internet training site is 24 hours a day, seven days a week.

In both models, instructors with relevant industry experience are available to guide students through the program.

### AMIST 1 (ADVANCED MANUFACTURING INTEGRATED SYSTEMS)

MET 120  
**Industrial Mechanical -  
Hydraulics Track  
ZTEC 356**

Approximately 162 hours of training,  
5 college credits  
Investment: \$4,935  
Traditional or Hybrid Learning

- Hydraulics 1
- Hydraulics 2
- Pneumatics 1
- Pneumatics Maintenance
- Pneumatics Construction
- Piping Systems
- Hydraulic Troubleshooting
- Basic Mechanical Drives
- Light & Heavy Duty V-Belt and Chain Drives

**OR\***

MET 120  
**Industrial Mechanical - Pneumatics  
Track  
ZTEC 371**

Approximately 162 hours of training,  
5 college credits  
Investment: \$4,935  
Traditional or Hybrid Learning

- Pneumatics 1
- Pneumatics 2
- Pneumatics Maintenance
- Pneumatics Troubleshooting
- Hydraulics 1
- Piping Systems
- Basic Mechanical Drives
- Light & Heavy Duty V-Belt and Chain Drives

MET 130  
**Industrial Electrical  
ZTEC 227**

Approximately 120 hours of training,  
4 college credits  
Investment: \$3,535  
Traditional or Hybrid Learning

- Electrical Control Circuits
- Electrical Motor Control
- Electro-Fluid Power 1
- Electronic Sensors
- Residential/Commercial Wiring
- Industrial Electrical Wiring
- Industrial Power Distribution

MET 140-A  
**Industrial PLC (SLC500)  
ZTEC 428**

Approximately 80 hours of training,  
2 college credits  
Investment: \$2,230  
Traditional or Hybrid Learning

- Introduction to PLC
- Basic PLC Programming
- PLC Motor Control
- Discrete I/O Interfacing
- Intro to PLC Troubleshooting
- PLC Systems Troubleshooting
- Event Sequencing
- Application Development
- Timer & Counter Instructions
- Program Control Instructions
- Math and Data Move Instructions

### AMIST 2 (ADVANCED MANUFACTURING INTEGRATED SYSTEMS)

MET 150  
**Industrial Mechanical 2 -  
Hydraulics Track  
ZTEC 369**

Approximately 170 hours of training,  
6 college credits  
Investment: \$4,860

- Spur Gear & Multiple Shaft Drives
- Belts, Lubrication, Shaft Alignment and Couplings
- Mechanical Drives 3 & 4
- Floor Standing Conveyors
- Vibration Analysis
- Laser Alignment
- Hydraulic Maintenance
- Pneumatic Directional Control Valves & Air Logic
- Advanced Pneumatics
- Pneumatic Troubleshooting

**OR\***

MET 150  
**Industrial Mechanical 2 -  
Pneumatics Track  
ZTEC 375**

Approximately 170 hours of training,  
6 college credits  
Investment: \$4,860

- Spur Gear & Multiple Shaft Drives
- Synchronous Belt Drives
- Lubrication Concepts
- Precision Shaft Alignment
- Couplings
- Mechanical Drives 3 & 4
- Floor Standing Conveyors
- Vibration Analysis
- Laser Alignment
- Hydraulic Maintenance
- Hydraulics 2
- Hydraulic Troubleshooting

MET 160  
**Industrial Electrical 2  
ZTEC 242**

Approximately 115 hours of training,  
3 college credits  
Investment: \$2,480

- Basic Electrical Machines System
- Advanced Electric Motor Controls
- DC Electronic Drives
- AC Electronic Drives
- PLC/VFD Wiring

MET 140-B  
**Industrial PLC (SLC500) 2  
ZTEC 433**

Approximately 40 hours of training,  
2 college credits  
Investment: \$1,130

- Analog Application System
- Data Highway 485 System
- Panelview Plus 6 DH-485 System w/ Keypad
- Remote Input/Output

OR\* - pneumatics concentration preferred by food and pharmaceuticals manufacturing, hydraulics concentration preferred by general manufacturing

**These courses have an open start date.  
Contact 610.372.4721, ext 5716 or [jvecchio@racc.edu](mailto:jvecchio@racc.edu) for details.**

**CONTINUED  
ON NEXT PAGE**



## CERTIFICATE AND DEGREE PROGRAMS INDUSTRIAL MAINTENANCE TECHNICIAN, MECHATRONICS AAS

### AMIST 3 (ADVANCED MANUFACTURING INTEGRATED SYSTEMS)

MET 200

**Industrial Robotics and Motion Control  
ZTEC 531**

Approximately 140 hours of training,  
4 college credits

Investment: \$4,635

- Robotics & Computer Programming
- Flexible Manufacturing Systems
- General Purpose Motion Control System
- Multi-Axis Motion Control System

MET 210

**Process Control & Industrial Instrumentation  
ZTEC 437**

Approximately 90 hours of training,  
3 college credits

Investment: \$2,810

**Advanced Industrial PLC - Your choice:**

MET 220

**Advanced Industrial PLC  
AB ControlLogix  
ZTEC 438**

Approximately 170 hours of training,  
4 college credits

Investment: \$4,395

- PLC Controller and Troubleshooting Functions
- Analog I/O Application System
- Panelview Plus 7
- DeviceNet I/O Networking
- ControlNet Networking
- Ethernet/IP Networking

OR

MET 220

**Advanced Industrial PLC Siemens S7-300  
ZTEC 439**

Approximately 140 hours of  
Training, 4 college credits

Investment: \$4,395

- Controller & Troubleshooting Functions
- Analog I/O Application System
- Profibus Communications System
- TP1200 Operator Panel (HMI)
- Remote Input/Output
- Math and Data Move Instructions



**NOW IN A STUDIO 5000  
ENVIRONMENT!**

### AMIST 4 (ADVANCED MANUFACTURING INTEGRATED SYSTEMS)

MET 111

**Manufacturing Fundamentals  
ZTEC 561**

Approximately 30 hours of training  
1 college credit - hybrid learning

Investment: \$625

- Principles of Advanced Manufacturing  
Introduces typical plant processes such as CNC, PLC and Automation  
Reviews typical plant layouts for efficient manufacturing  
Manufacturing personnel and their responsibilities
- Lean Manufacturing  
Introduces principles and methods of workplace organization using 5s methods
- Communication Skills  
Importance of effective communication, listening skills, and feedback
- Safety Practices and Regulations  
Reviews basic workplace safety concepts and practices
- Personal Protection Equipment  
Reviews the importance of Personal Protective Equipment (PPE)  
Identifies the potential hazards that require PPE  
Types of PPE required for different types of hazards  
The worker's role in following PPE guidelines and requirements

MET 240

**Capstone Class:  
Mechatronics Application Project  
ZTEC 522**

Approximately 120 hours of training  
3 college credits

Investment: \$3,520

This course provides students the opportunity to apply skills and knowledge gained from training in the electrical, mechanical and process control program areas to an independent mechatronics project. The student, working with another student or an instructor, will develop and implement a project plan that will demonstrate the student's ability to integrate the skills and knowledge learned.

MET 101

**Introduction To Shop Machinery**

**ZTEC 558**

Average time for course completion: 90 hours  
3 college credits.

Investment: \$2,625

- Quality Assurance
  - Basic Measurement, Precision Measurement, Dimensional Gauging
  - Introduction to SPC, SPC Problem Solving
  - Control Chart Operation, Control Chart Analysis
  - Geometric Dimensioning and Tolerancing
  - Location, Form and Orientation Tolerances
- Blueprint Reading
- Solid Drawing Modeling

- Solid Model creation using Solidworks
- Assembly creation using Solidworks
- Manual Machine Tools
  - Introduction to the Drill Press, Drill Press Operations
  - Introduction to the Milling Machine, Milling Operations
  - Introduction to the Manual Lathe, Lathe Operations
- OSHA 10-Hour General Industry Safety Course

**MET Courses Plus General  
Education Requirements\***

*Gen Ed Courses AAS Degree	31 cr.
CSS 103 College Success Strategies	3 cr.
MAT 160 College Algebra	3 cr.
COM 121 or 122 English Composition	3 cr.
PHY 240 Physics I	4 cr.
IFT 110 Microcomputer Applications	3 cr.
SOC 130 Sociology	3 cr.
<b>Select one</b>	<b>4cr.</b>
BIO 150, Biology I	
CHEM 150, Chemistry I	
PHY 245, Physics II	
COM 141 Technical Writing	3 cr.
HUM 100 Critical Thinking	3 cr.



# « PICK AND CHOOSE - GET CERTIFIED IN JUST WHAT YOU NEED.

## CNC Precision

- (Z)MTT 100 **Basic CNC Operation**
- (Z)MTT 101 **Basic CNC Lathe**
- (Z)MTT 180 **CNC Programming**
- (Z)MTT 185 **CNC Milling Level 1**
- (Z)MTT 276 **Advanced CNC Turning**
- (Z)MTT 272 **CNC Milling Level 2**
- (Z)MTT 288 **CAM Programming**

## Design/CAD

- (Z)MTT 107 **SOLIDWORKS**
- (Z)MTT 132 **Blueprint Reading**
- (Z)MTT 288 **CAM Programming**
- (Z)MTT 310 **Auto CAD**
- ZMTT 330 **Autodesk Fusion 360**
- ZMTT 320 **Autodesk Inventor**
- ZMTT 341 **Solidworks CAM**
- ZMTT 350 **Introduction to 3D Printing**

## Manual Machining Level 1

- (Z)MTT 105 **Intro to Machining**
- (Z)MTT 110 **Basic Machine Tools**
- (Z)MTT 157 **Turning Technology Level 1**
- (Z)MTT 158 **Milling Technology Level 1**

## Manual Machining Level 2

- (Z)MTT 132 **Blueprint Reading**
- (Z)MTT 212 **Milling Technology Level 2**
- (Z)MTT 225 **Turning Technology Level 2**
- (Z)MTT 221 **Grinding Technology**



For description of all courses, reference pages 10-13

Precision Machining Level 1



National Institute for Metalworking Skills®

ENTRY LEVEL CNC MACHINE OPERATOR

**BASIC CNC OPERATION**

**(Z)MTT-100** **\$3,625**

Skills needed for the operation of the CNC mill, CNC lathe and CNC grinder. Preparation for NIMS Level I certificate: CNC Mill Operation. Includes OSHA 10-hour General Industry Training Program. **150 hours**

**BASIC CNC LATHE OPERATION**

**(Z)MTT-101** **\$645**

Teaches basic set up and operation of CNC lathes. Preparation NIMS Level I certificate: CNC Lathe Operation.

**Co-requisite: (Z)MTT-100** **30 hours**

**INTRODUCTION TO MACHINING**

**(Z)MTT-105** **\$1,920 (textbook additional)**

Theoretical and practical aspects of shop safety, hand tools, precision layout, precision measuring instruments, taps, dies, files, reamers, and identification and use of appropriate materials to manufacture parts are covered. Preparation for two NIMS Level I certifications: Measurement, Materials and Safety; Layout and Bench work. **75 hours**

**BASIC MACHINE TOOLS**

**(Z)MTT-110** **\$1,920 (textbook additional)**

Basic operations of the drill press, pedestal grinder and band saw will be covered. Preparation for the NIMS Level I certification: Drill Press. **75 hours**

MANUFACTURING PROCESS & MACHINING

Precision Machining Level 2

**TURNING TECHNOLOGY LEVEL I**

**(Z)MTT-157** **\$1,920 (textbook additional)**

Knowledge, practical learning experience and accident prevention awareness required to perform conventional lathe job planning, set-up and operation. Aspects of conventional, carbide and other tooling materials selection, preparation, and usage will be covered. Preparation to take NIMS Level I certification: Turning between Centers and Chucking. **75 hours**

**MILLING TECHNOLOGY LEVEL I**

**(Z)MTT-158** **\$1,920 (textbook additional)**

Knowledge and skills necessary to identify and safely use various milling cutters and other tools that are adapted to milling machines. This course covers conventional milling machine parts and controls, the function of each part and control and techniques so that students can operate the machines safely and with a high degree of accuracy. Preparation to take the NIMS Level I certification: **75 hours**

**BLUEPRINT READING**

**(Z)MTT-132** **\$1,865 (textbook additional)**

Teaches necessary skills to interpret part drawings. Emphasis will be placed on stimulating the students' creativity and the ability to visualize the drawn object. This course will start with simple part drawings and advance to more complex part drawings. **75 hours**

**CNC PROGRAMMING**

**(Z)MTT-180** **\$1,865 (textbook additional)**

Introduction to "G" and "M" code programming for Milling and Turning. Teaches theory designed to successfully start programming CNC Mills and Turning Centers. This program is recommended for the student who wants to further their knowledge in CNC Programming. **75 hours**

*Flexible start times available*

These courses have an open start date.

Contact Judith Vecchio at 610.372.4721, ext 5716 or [jvecchio@racc.edu](mailto:jvecchio@racc.edu) for details.

## Precision Machining Level 3

### MILLING TECHNOLOGY LEVEL II (Z)MTT-212

**Time: 75 hours**

**Cost: \$1,920 (textbook additional)**

Knowledge and skills necessary to identify and safely use various milling cutters and other tools that are adaptable to milling machines. Students learn to set up work pieces to be properly machined. Preparation for NIMS Level II certification: Milling.

### TURNING TECHNOLOGY LEVEL II (Z)MTT-225

**Time: 75 hours**

**Cost: \$1,920 (textbook additional)**

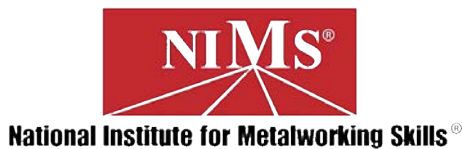
Knowledge, practical learning experience and accident prevention awareness required to perform advanced conventional lathe job planning, set-up and operation. Aspects of conventional, carbide and other tooling materials selection, preparation, and usage will be covered. Preparation for NIMS Level II certification: Turning between Centers and Chucking.

### CNC MILL LEVEL I (Z)MTT-185

**Time: 75 hours**

**Cost: \$2,030 (textbook additional)**

Teaches FANUC "G" and "M" code programming along with set-up and operation of CNC Milling Centers. Designed by FANUC to teach CNC Programming, Set-up and Operation for Machining Centers. Preparation for NIMS CNC Milling Level 1 Programming and Operation exam.



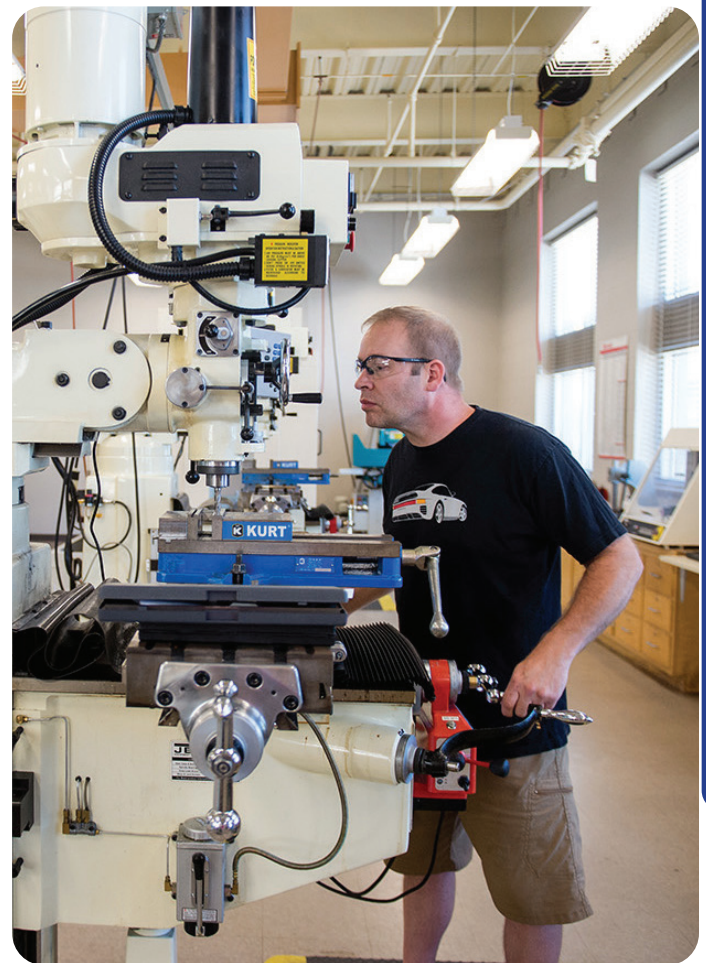
### ENGINEERING GRAPHICS WITH SOLIDWORKS

**Time: 45 hours**

**(Z)MTT-107**

**\$1,315 (No Textbook Required)**

Learn to use SOLIDWORKS to draw 3d part models, 2d part drawings, parametric parts, part assemblies and basic simulation. Exercises include sketching, extruding parts, editing parts, moving assemblies and SimulationXpress. Students will learn the foundational skills of SOLIDWORKS.



*Flexible start times available*

**These courses have an open start date.**

**Contact Judith Vecchio at 610.372.4721, ext 5716 or [jvecchio@racc.edu](mailto:jvecchio@racc.edu) for details.**

Precision Machining Level 4

**CNC MILLING II**

**(Z)MTT-272**

**\$2,030 (textbook additional)**

Designed by FANUC to teach FANUC MACRO Programming. Preparation for NIMS CNC Milling Level II Programming and Operation exam.

**75 hours**



**CAM PROGRAMMING**

**(Z)MTT-288**

**\$1,865 (textbook additional)**

Teaches skills of Computer Aided Manufacturing (CAM) programming using MasterCAM software. Students will learn how to create 2D mill, 3D mill and lathe part geometries and toolpaths. Students will also use the software to create CNC part programs and be able to verify their toolpaths.

**75 hours**

Plus General Education Requirements\*

<b>*Gen Ed Courses AAS Degree</b> .....	<b>25 cr.</b>
CSS 103 College Success Strategies .....	3 cr.
MAT 165 Math Trigonometry .....	3 cr.
IFT 110 Microcomputer Applications .....	3 cr.
SOC 130 Sociology .....	3 cr.
COM 121 or 122 English Composition .....	3 cr.
COM 141 Technical Writing .....	3 cr.
PHY 240 Physics I .....	4 cr.
Humanities Elective .....	3 cr.

Precision Machining Level 4 Electives - Select One

**GRINDING TECHNOLOGY**

**(Z)MTT-221**

**\$1,920 (textbook additional)**

Teaches theoretical and the practical skills development in precision grinding operations. Students will learn to safely use a surface grinder, applying various techniques to make metal parts to blueprint specifications. Preparation for NIMS Level I & Level II certification in grinding.

**75 hours**

**ADVANCED CNC TURNING**

**(Z)MTT-276**

**\$2,030 (textbook additional)**

Designed by FANUC to teach "G" and "M" code programming along with setup and operation of CNC Turning Centers. Preparation for NIMS CNC Turning Level 1 Programming and Operation exam.

**75 hours**



**FIXTURE DESIGN -  
CAD EXPERIENCE PREFERRED**

**(Z)MTT-265**

**\$1,370 (textbook additional)**

Teaches CAD software design of production ready jigs and fixtures. Design features and methods will be discussed.

**45 hours**



*Flexible start times available*

These courses have an open start date.  
Contact Judith Vecchio at 610.372.4721, ext 5716 or [jvecchio@racc.edu](mailto:jvecchio@racc.edu) for details.

## COMPUTER AIDED DESIGN (CAD)

### AUTOCAD - ZMTT 310

Average time for course completion: 36 hours

Investment: \$910

For the new user who needs comprehensive training in AutoCAD, edit and publish drawings with AutoCAD. No previous CAD experience necessary. Drafting, design or engineering experience a plus. **Prerequisite: Working knowledge of the Windows-based operating system.**

### ENGINEERING GRAPHICS WITH SOLIDWORKS

#### ZMTT 107

Average time for course completion: 45 hours

Investment: \$1,315

Learn to use **Solidworks** to draw 3D part models, 2D part drawings, parametric parts, part assemblies and basic simulation. Exercises include sketching, extruding parts, editing parts, moving assemblies and **SimulationXpress**. Students will learn the foundation skills of **Solidworks**.

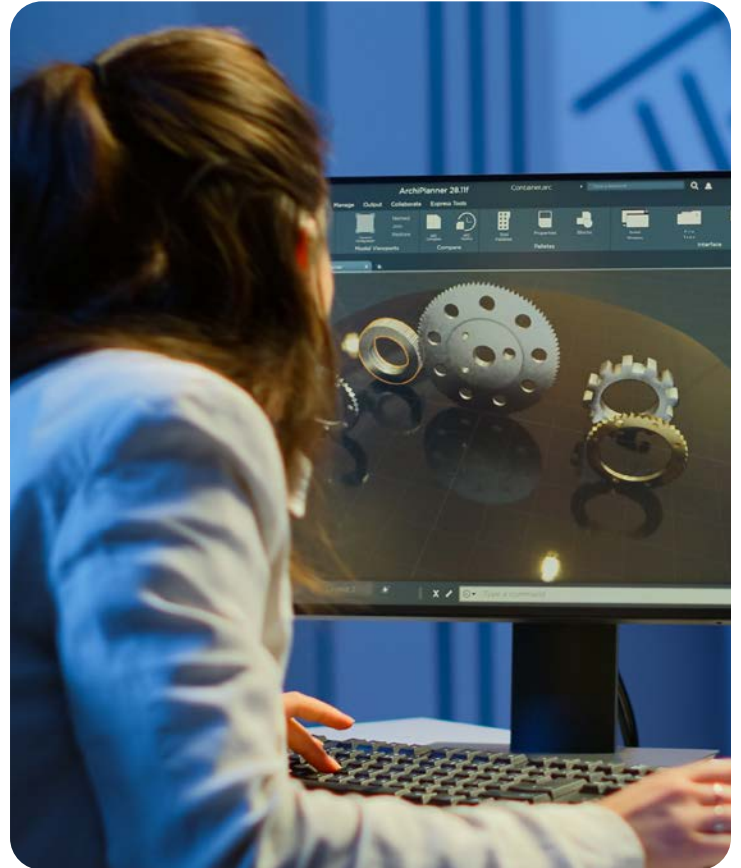
### AUTODESK FUSION 360

#### ZMTT 330

Average time for course completion: 45 hours

Investment: \$1,315

Learn to use Autodesk Fusion 360 to create 3D part models, 2D part drawings and assemblies.



### AUTODESK INVENTOR

#### ZMTT 320

Average time for course completion: 45 hours

Investment: \$1,315

Learn to use Autodesk Inventor to create 3D part models, 2D part drawings and assemblies.

### SOLIDWORKS CAM

#### ZMTT 341

Average time for course completion: 8 hours

Investment: \$305

Learn how to use the included CAM function in Solidworks to create CNC milling toolpaths. You must be able to use Solidworks to complete this class.

### INTRODUCTION TO 3D PRINTING

#### ZMTT 350

Average time for course completion: 8 hours

Investment: \$325

Learn what 3D printing is and how a part gets printed.



Contact Judith Vecchio at  
610.372.4721, ext 5716  
or [jvecchio@racc.edu](mailto:jvecchio@racc.edu) for details.

Hand Tools, Safety, Quality

**MECHANICAL FABRICATION**

**BASIC SKILLS - ZTEC 390**

Average time for course completion: 32 hours

Investment: \$675

- LAP 1 Threaded Fasteners
- LAP 2 Wrenches
- LAP 3 Pneumatic System Fabrication
- LAP 4 Screwdrivers
- LAP 5 Pliers and Locking Devices
- LAP 6 Mallets and Non-Threaded Fasteners
- LAP 7 Torque Wrenches
- LAP 8 Portable Power Tools

**BLUEPRINT READING 1 - ZTEC 516**

Average time for course completion: 12 hours

Investment: \$305

- LAP 1 Multiview Drawings
- LAP 2 Sectional Drawings and Fasteners
- LAP 3 Geometric Dimensioning and Tolerancing

**MANUFACTURING PROCESSES - ZTEC 548**

Average time for course completion: 36 hours

Investment: \$1,140

Prerequisite: ability to read blueprints

- LAP 1 Band Saw Operation
- LAP 2 Intro to the Drill Press
- LAP 3 Drill Press Operations
- LAP 4 Intro to Manufacturing Hand Tools
- LAP 5 Intro to the Manual Milling Machine
- LAP 6 Milling Processes
- LAP 7 Intro to the Manual Lathe
- LAP 8 Turning Operations
- LAP 9 Lathe Operations

**QUALITY ASSURANCE - ZTEC 500**

Average time for course completion: 44 hours

Investment: \$1,320

Prerequisite: ability to read blueprints

- LAP 1 Basic Measurement
- LAP 2 Precision Measurement Tools
- LAP 3 Dimensional Gauging
- LAP 4 Introduction to Statistical Process Control (SPC)
- LAP 5 Control Chart Operation
- LAP 6 Control Chart Analysis
- LAP 7 SPC Problem Solving
- LAP 8 Geometric Dimensioning and Tolerancing
- LAP 9 Location Tolerances
- LAP 10 Orientation Tolerances
- LAP 11 Form Tolerances

**INTRODUCTION TO SHOP MACHINERY - ZTEC 558**

Average time for course completion: 90 hours 3 college credits.

Investment: \$2,625

- Quality Assurance
  - Basic Measurement, Precision Measurement, Dimensional Gauging
  - Introduction to SPC, SPC Problem Solving
  - Control Chart Operation, Control Chart Analysis
  - Geometric Dimensioning and Tolerancing
  - Location, Form and Orientation Tolerances
- Blueprint Reading
- Solid Drawing Modeling
  - Solid Model creation using Solidworks
  - Assembly creation using Solidworks
- Manual Machine Tools
  - Introduction to the Drill Press, Drill Press Operations
  - Introduction to the Milling Machine, Milling Operations
  - Introduction to the Manual Lathe, Lathe Operations
- OSHA 10-Hour General Industry Safety Course

**MECHANICAL AND ELECTRICAL FABRICATION - MET 090/ZTEC 560**

Average time for course completion: 45 hours

Investment: \$899

- LAP 1 Threaded Fasteners
- LAP 2 Wrenches
- LAP 3 Pneumatic System Fabrication
- LAP 4 Screwdrivers
- LAP 5 Pliers and Locking Devices
- LAP 6 Mallets and Non-Threaded Fasteners
- LAP 7 Torque Wrenches
- LAP 8 Portable Power Tools
- LAP 9 Electrical Systems
- LAP 10 Residential Wiring System Components
- LAP 11 Service Connections & Circuit Protection



These courses have an open start date.  
 Contact 610.372.4721, ext 5716 or [jvecchio@racc.edu](mailto:jvecchio@racc.edu) for details.

## Hydraulics

### BASIC HYDRAULICS - ZTEC 300

Average time for course completion: 20 hours  
Investment: \$585

- LAP 1 Hydraulic Power Systems
- LAP 2 Basic Hydraulic Circuits
- LAP 3 Principles of Hydraulic Pressure and Flow
- LAP 4 Hydraulic Speed Control
- LAP 5 Pressure Control Circuits

### INTERMEDIATE HYDRAULICS - ZTEC 301

Average time for course completion: 25 hours  
Investment: \$670

- LAP 1 Hydraulic DCV Applications
- LAP 2 Hydraulic Cylinder Applications
- LAP 3 Hydraulic Relief Valve Operation
- LAP 4 Hydraulic Check Valve Applications
- LAP 5 Accumulator Applications

### ADVANCED HYDRAULICS - ZTEC 302

Average time for course completion: 15 hours  
Investment: \$399

- LAP 1 Hydraulic Motor Applications
- LAP 2 Hydraulic Pump and Motor Performance
- LAP 3 Fluids and Conditioning

### HYDRAULIC TROUBLESHOOTING - ZTEC 308

Average time for course completion: 45 hours  
Investment: \$1,230

- LAP 1 Introduction to Pressure-Compensated Pumps
- LAP 2 Pressure-Compensated Pump Performance
- LAP 3 Troubleshooting Hydraulic Pumps
- LAP 4 Troubleshooting Hydraulic Actuators
- LAP 5 Troubleshooting Hydraulic DCVs
- LAP 6 Troubleshooting Flow Control and Check Valves
- LAP 7 Troubleshooting Pressure Control Valves
- LAP 8 Troubleshooting Unloader and Counter balance Valves
- LAP 9 Troubleshooting Hydraulic Systems

### HYDRAULIC MAINTENANCE - ZTEC 3017

Average time for course completion: 20 hours  
Investment: \$670

- LAP 1 Hydraulic Filter Maintenance
- LAP 2 Hydraulic Fluid Maintenance
- LAP 3 Fittings and Seals
- LAP 4 Hose and Clamping Devices
- LAP 5 Tubing and Component Installation

## Rigging

### RIGGING SYSTEMS 1 - ZTEC 357

Average time for course completion: 35 hours Investment: \$890

- LAP 1 Introduction to Rigging
- LAP 2 Hoists
- LAP 3 Slings and Lifting
- LAP 4 Wire Rope
- LAP 5 Chain Slings
- LAP 6 Fiber Rope
- LAP 7 Industrial Cranes

### RIGGING SYSTEMS 2 - ZTEC 358

Average time for course completion: 15 hours  
Investment: \$395

- LAP 1 Wire Mesh Slings
- LAP 2 Synthetic Slings
- LAP 3 Equipment Movement

## Pneumatics

### BASIC PNEUMATICS - ZTEC 305

Average time for course completion: 16 hours  
Investment: \$450

- LAP 1 Pneumatic Power Systems
- LAP 2 Basic Pneumatic Circuits
- LAP 3 Principles of Pneumatic Pressure and Flow
- LAP 4 Pneumatic Speed Control Circuits

### INTERMEDIATE PNEUMATICS - ZTEC 306

Average time for course completion: 15 hours  
Investment: \$395

- LAP 1 Pneumatic DCV Applications
- LAP 2 Air Logic
- LAP 3 Pneumatic Maintenance

### ADVANCED PNEUMATICS - ZTEC 307

Average time for course completion: 15 hours Investment: \$395

- LAP 1 Moving Loads Pneumatically
- LAP 2 Vacuum Systems
- LAP 3 Air Compressors

### PNEUMATIC TROUBLESHOOTING - ZTEC 309

Average time for course completion: 35 hours  
Investment: \$960

- LAP 1 Pneumatic Troubleshooting
- LAP 2 Air Preparation Troubleshooting
- LAP 3 Troubleshooting Pneumatic Cylinders
- LAP 4 Motor & Rotary Actuator Troubleshooting
- LAP 5 Troubleshooting DCV & Flow Control Valves
- LAP 6 Troubleshooting Vacuum Systems
- LAP 7 Troubleshooting Pneumatic Systems

### PNEUMATIC SYSTEM CONSTRUCTION - ZTEC 324

Average time for course completion: 4 hours  
Investment: \$175

## Lubrication

### CENTRAL LUBRICATION - ZTEC 318

Average time for course completion: 20 hours  
Investment: \$545

- LAP 1 Introduction to Central Lubrication
- LAP 2 Lubrication Concepts
- LAP 3 Simple Series/Progressive Lubrication System
- LAP 4 Troubleshooting Series/Progressive Lubrication Systems
- LAP 5 Piston Distributor Lubrication Systems



**Mechanical Drives**

**Pumps, Piping**

*MECHANICAL DRIVES 1 - ZTEC 311 is a prerequisite for ALL Mechanical Drives and Pumps courses on this page.*

**MECHANICAL DRIVES 1 - ZTEC 311**

Average time for course completion: 35 hours

Investment: \$985

- LAP 1 Intro to Mechanical Drive Systems
- LAP 2 Key Fasteners
- LAP 3 Power Transmission Systems
- LAP 4 Intro to V-Belt Drives
- LAP 5 Intro to Chain Drives
- LAP 6 Spur Gear Drives
- LAP 7 Multiple Shaft Drives

**MECHANICAL DRIVES 2 - ZTEC 312**

Average time for course completion: 35 hours

Investment: \$985

- LAP 1 Heavy-Duty V-Belt Drives
- LAP 2 V-Belt Selection and Maintenance
- LAP 3 Synchronous Belt Drives
- LAP 4 Lubrication Concepts
- LAP 5 Precision Shaft Alignment
- LAP 6 Couplings
- LAP 7 Heavy-Duty Chain Drives

**MECHANICAL DRIVES 3 - ZTEC 313**

Average time for course completion: 35 hours

Investment: \$985

- LAP 1 Plain Bearings
- LAP 2 Ball Bearings
- LAP 3 Roller Bearings
- LAP 4 Antifriction Bearing Selection and Maintenance
- LAP 5 Gaskets and Seals
- LAP 6 Advanced Gear Drives
- LAP 7 Gear Drive Selection and Maintenance

**MECHANICAL DRIVES 4 - ZTEC 314**

Average time for course completion: 20 hours

Investment: \$565

- LAP 1 Brakes and Clutches
- LAP 2 Brake/Clutch Selection and Maintenance
- LAP 3 Linear Ball Bushings
- LAP 4 Ball Screw Drives

**FLOOR STANDING CONVEYORS - ZTEC 315**

Average time for course completion: 4 hours

Investment: \$175

**VIBRATION ANALYSIS - ZTEC 316**

Average time for course completion: 12 hours

Investment: \$385

- LAP 1 Intro to vibration analysis
- LAP 2 Vibration condition monitoring
- LAP 3 Vibration analysis

**LASER ALIGNMENT - ZTEC 317**

Average time for course completion: 8 hours

Investment: \$265

- LAP 1 Intro to laser shaft alignment
- LAP 2 Laser shaft alignment operation

**CENTRIFUGAL PUMP SYSTEMS - ZTEC 319**

Average time for course completion: 20 hours

Investment: \$580

- LAP 1 Centrifugal Pump Operation
- LAP 2 Centrifugal Pump Characteristics
- LAP 3 Centrifugal Pump Troubleshooting
- LAP 4 System Characteristics
- LAP 5 Centrifugal Pump Performance

**DIAPHRAGM PUMP - ZTEC 320**

Average time for course completion: 4 hours

Investment: \$175

**PERISTALTIC PUMP - ZTEC 321**

Average time for course completion: 4 hours

Investment: \$175

**MAGNETIC PUMP - ZTEC 322**

Average time for course completion: 4 hours

Investment: \$175

**CENTRIFUGAL PUMP /STUFFING BOX - ZTEC 323**

Average time for course completion: 4 hours

Investment: \$175

**MULTIPLE PUMP LEARNING SYSTEM - ZTEC 352**

Average time for course completion: 4 hours

Investment: \$175

**GEAR PUMP - ZTEC 353**

Average time for course completion: 4 hours

Investment: \$175

**PISTON PUMP - ZTEC 354**

Average time for course completion: 4 hours

Investment: \$175

**TURBINE PUMP - ZTEC 372**

Average time for course completion: 4 hours

Investment: \$175

**PIPING SYSTEMS - ZTEC 310**

Average time for course completion: 35 hours

Investment: \$1,020

- LAP 1 Metal Piping Systems
- LAP 2 Metal Piping Installation
- LAP 3 Plastic Piping Systems
- LAP 4 Metal Tubing Systems
- LAP 5 Hoses
- LAP 6 Two-Way Valves
- LAP 7 Check Valves and Sloan Valves

**These courses have an open start date.**  
**Contact 610.372.4721, ext 5716 or jvecchio@racc.edu for details.**



## Electrical Systems, Controls, Rotating Equipment

### AC/DC ELECTRICAL SYSTEM - ZTEC 205

#### NEW TO ELECTRICAL? START HERE.

Average time for course completion: 30 hours

Investment: \$825

- LAP 1 Basic Electrical Circuits
- LAP 2 Electrical Measurements
- LAP 3 Circuit Analysis
- LAP 4 Inductance and Capacitance
- LAP 5 Combination Circuits
- LAP 6 Transformers

### ELECTRIC MOTOR CONTROL - ZTEC 207

Average time for course completion: 50 hours

Investment: \$1,370

- LAP 1 Introduction to Electric Motor Control
- LAP 2 Manual Motor Control and Overload Protection
- LAP 3 Control Transformers Control
- LAP 4 Ladder Logic
- LAP 5 Control Relays and Motor Starters
- LAP 6 Introduction to Troubleshooting
- LAP 7 System Troubleshooting
- LAP 8 Reversing Motor Control
- LAP 9 Automatic Input Devices
- LAP 10 Basic Timer Control: On-Delay and Off-Delay

### ELECTRICAL RELAY CONTROL SYSTEMS - ZTEC 231

Average time for course completion: 15 hours

Investment: \$395

- LAP 1 Control Logic
- LAP 2 Sequencing Control
- LAP 3 Timers and Advanced Systems

### ADVANCED ELECTRIC MOTOR CONTROLS - ZTEC 208

Average time for course completion: 50 hours

Investment: \$1,370

- LAP 11 Motor Braking System
- LAP 12 Reduced Voltage Starting Circuits
- LAP 13 Power Generation and Distribution
- LAP 14 Electronic Sensors
- LAP 15 Timers and Counters
- LAP 16 Variable Frequency AC Drive
- LAP 17 Variable Frequency AC Drive, Speed & Torque Control
- LAP 18 Variable Frequency Drives Acceleration, Deceleration, & Braking
- LAP 19 Variable Frequency Drives Fault Diagnostics and troubleshooting
- LAP 20 SCR Speed Motor Control

### ELECTRICAL CONTROL SYSTEM WIRING - ZTEC 209

Average time for course completion: 10 hours

Investment: \$325 (Allen Bradley or Siemens)

- LAP 1 Introduction to Electrical Control Wiring
- LAP 2 Electrical Control System Wiring
- LAP 3 Pneumatic Control Circuit Wiring

### PLC AND VFD ELECTRICAL CONTROL WIRING - ZTEC- 267

Average time for course completion: 5 hours

Investment: \$175

*Prerequisite ZTEC 209 Electrical Control System Wiring*



**These courses have an open start date.  
Contact Judith Vecchio at 610.372.4721, ext 5716 or [jvecchio@racc.edu](mailto:jvecchio@racc.edu) for details.**

## Controls, Rotating Equipment, Drives

### BASIC ELECTRICAL ROTATING MACHINES - ZTEC 206

Average time for course completion: 32 hours

Investment: \$910

- LAP 1 DC Series Motors
- LAP 2 DC Shunt and Compound Motors
- LAP 3 Motor Speed and Torque
- LAP 4 Motor Performance
- LAP 5 Split-Phase AC Motors
- LAP 6 Capacitor-Start AC Motors
- LAP 7 Permanent-Capacitor and Two-Capacitor Motors
- LAP 8 Three-Phase AC Induction Motors

### ROTATING ELECTRICAL MACHINES DC GENERATORS - ZTEC 250

Average time for course completion: 8 hours

Investment: \$265

- LAP 9 DC Generators
- LAP 10 Wound-Rotor Motors

### ROTATING ELECTRICAL MACHINES - ALTERNATORS/SYNCHRONOUS MOTORS - ZTEC 251

Average time for course completion: 12 hours

Investment: \$385

- LAP 11 Alternators
- LAP 12 Alternator Synchronization Methods
- LAP 13 Synchronous Motors

### ELECTRICAL POWER DISTRIBUTION - ZTEC 210

Average time for course completion: 25 hours

Investment: \$699

- LAP 1 Introduction to Raceways
- LAP 2 Basic Conduit Bending
- LAP 3 Advanced Raceways
- LAP 4 Conductors, Disconnects and Overcurrent Protection
- LAP 5 Conduit Sizing and Wire Pulling Techniques

### CONTROL PANEL WIRING - ZTEC 260

Average time for course completion: 15 hours

Investment: \$395 (includes Allen Bradley and Siemens)

- LAP 1 Introduction to Electrical Control Wiring
- LAP 2 Electrical Control System Wiring
- LAP 3 Pneumatic Control Circuit Wiring

### ELECTRICAL FABRICATION - ZTEC 253

Average time for course completion: 12 hours

Investment: \$270

- LAP 1 Introduction to Electrical System
- LAP 2 Residential Wiring System Components
- LAP 3 Service Connections and Circuit Protection

### ELECTRO-FLUID POWER SYSTEM - ZTEC 303

Average time for course completion: 40 hours

Investment: \$1,055

- LAP 1 Introduction to Electrical Control Systems
- LAP 2 Basic Control Devices
- LAP 3 Power Devices
- LAP 4 Control Relays
- LAP 5 Sequencing Control
- LAP 6 Timer Control
- LAP 7 Pressure Control Applications
- LAP 8 Circuit Applications

### ELECTRONIC SENSORS - ZTEC 304

Average time for course completion: 8 hours

Investment: \$265

- LAP 1 Introduction to Electronic Sensors
- LAP 2 Electronic Sensor Applications

### POWER & CONTROL ELECTRONICS - ZTEC 252

Average time for course completion: 50 hours

Investment: \$1,340

- LAP 1 Oscilloscopes
- LAP 2 Linear Power Supplies
- LAP 3 Power Supply Filtration and Regulation
- LAP 4 Solid State Relays
- LAP 5 Discrete Sensing Devices
- LAP 6 Thermal Sensing Devices
- LAP 7 Amplifiers and Operational Amplifiers
- LAP 8 Analog Sensing Devices
- LAP 9 Solid State Switching
- LAP 10 Solid State Speed and Power Control

### AC ELECTRONIC DRIVES - ZTEC 400

Average time for course completion: 35 hours

Investment: \$985

- LAP 1 Introduction to AC Drives
- LAP 2 Configuring A-B PowerFlex 70 Drives
- LAP 3 A-B PowerFlex 70 Control Parameters
- LAP 4 Communications and Diagnostics for A-B PowerFlex 70 Drives
- LAP 5 Troubleshooting A-B PowerFlex 70 Drives
- LAP 6 Configuring and Troubleshooting the A-B PowerFlex 40 Drive
- LAP 7 Configuring and Troubleshooting Servo Drives

### DC ELECTRONIC DRIVES - ZTEC 401

Average time for course completion: 30 hours

Investment: \$830

- LAP 1 Introduction to DC Motion Control
- LAP 2 Basic DC Drives - SCR Control
- LAP 3 DC Spindle Drives
- LAP 4 DC Axis Drives
- LAP 5 DC Pulse Width Modulation Drives
- LAP 6 DC Drive Troubleshooting

Allen - Bradley

AC/DC ELECTRICAL SYSTEMS ZTEC 205 AND ELECTRIC MOTOR CONTROL ZTEC 207 ARE PREREQUISITE COURSES FOR PLC TRAINING.

NOW IN A STUDIO 5000 ENVIRONMENT



Allen-Bradley



**PLC ALLEN-BRADLEY SLC500 W/ TROUBLESHOOTING - ZTEC 428**

Average time for course completion: 80 hours  
Investment: \$2,230

- LAP 1 Introduction to Programmable Controllers
- LAP 2 Basic PLC Programming
- LAP 3 PLC Motor Control
- LAP 4 Discrete I/O Interfacing
- LAP 5 Introduction to PLC Troubleshooting
- LAP 6 PLC Systems Troubleshooting
- LAP 7 Event Sequencing
- LAP 8 Application Development
- LAP 9 PLC Timer Instructions
- LAP 10 PLC Counter Instructions
- LAP 11 Program Control Instructions
- LAP 12 Math and Data Move Instructions

**PLC ALLEN- BRADLEY SLC500 ANALOG APPLICATION SYSTEM - ZTEC 403**

Average time for course completion: 15 hours  
Investment: \$430

- LAP 13 Analog Input Modules
- LAP 14 Analog Output Modules
- LAP 15 Analog Scaling

**PLC ALLEN-BRADLEY SLC500 DATA HIGHWAY 485 SYSTEM - ZTEC 404**

Average time for course completion: 10 hours  
Investment: \$270  
LAP 16 Introduction to DH-485  
LAP 20 Remote I/O

**PLC ALLEN-BRADLEY SLC500 PANELVIEW PLUS 1000DH-485 SYSTEM W/ KEY PAD - ZTEC 405**

Average time for course completion: 15 hours  
Investment: \$430  
LAP 17 Introduction to Panelview  
LAP 18 Panelview Application Editing 1  
LAP 19 Panelview Application Editing 2

**PLC ALLEN-BRADLEY CONTROLLOGIX LEARNING SYSTEM WITH TROUBLESHOOTING - ZTEC 406**

Average time for course completion: 80 hours  
Investment: \$2,230

- LAP 1 Introduction to Programmable Controls
- LAP 2 Basic PLC Programming
- LAP 3 PLC Motor Control
- LAP 4 Discrete I/O Interfacing
- LAP 5 PLC Timer Instructions
- LAP 6 PLC Counter Instructions
- LAP 7 Introduction to PLC Troubleshooting
- LAP 8 PLC Systems Troubleshooting
- LAP 9 Event Sequencing
- LAP 10 Application Development
- LAP 11 Program Control Instructions
- LAP 12 Math and Data Move Instructions

**PLC ALLEN-BRADLEY CONTROLLOGIX ANALOG INPUT/OUTPUT - ZTEC 407**

Average time for course completion: 20 hours  
Investment: \$580

- LAP 13 Analog Input Modules
- LAP 14 Analog Input Configuration and Troubleshooting
- LAP 15 Analog Output Modules
- LAP 16 Analog Output Configuration and Troubleshooting

These courses have an open start date.  
Contact 610.372.4721, ext 5716 or jvecchio@racc.edu for details.

Allen - Bradley (cont.)

**PLC ALLEN-BRADLEY PANELVIEW PLUS 7 LEARNING SYSTEM - ZTEC 408**

Average time for course completion: 15 hours  
Investment: \$420

- LAP 1 Introduction to PanelView Plus 7
- LAP 2 PanelView Plus Application Editing 1
- LAP 3 PanelView Plus Application Editing 2

**PLC ALLEN-BRADLEY CONTROLLOGIX ETHERNET - ZTEC 411**

Average time for course completion: 25 hours  
Investment: \$580

- LAP 1 Industrial Communications Networks
- LAP 2 Remote Input/Output
- LAP 3 Produced/Consumed Data and Messages
- LAP 4 Troubleshooting EtherNet/IP

**PLC ALLEN-BRADLEY DEVICENET FOR CONTROLLOGIX - ZTEC 429**

Average time for course completion: 15 hours  
Investment: \$420

- LAP 1 Industrial Communication Networks
- LAP 2 DeviceNet Input/Output
- LAP 3 DeviceNet Troubleshooting

**PLC ALLEN-BRADLEY CONTROLNET FOR CONTROLLOGIX - ZTEC 430**

Average time for course completion: 15 hours  
Investment: \$420

- LAP 1 Industrial Communications Networks
- LAP 2 Remote Input/Output
- LAP 3 Produced/Consumed Data and Messages

**PLC ALLEN-BRADLEY COMPACTLOGIX - L16 ZTEC 454**

Average time for course completion: 80 hours  
Investment: \$2,230

- LAP 1 Introduction to Programmable Controllers
- LAP 2 Basic PanelView Terminal Operation
- LAP 3 PLC Program Operations
- LAP 4 PLC Programming
- LAP 5 PLC Motor Control
- LAP 6 PLC Timer and Counter Instructions
- LAP 7 Event Sequencing
- LAP 8 Program Control Instructions
- LAP 9 Math and Data Move Instructions
- LAP 10 PanelView Plus Application Editing
- LAP 11 PanelView Plus Application Editing 2
- LAP 12 Analog Inputs
- LAP 13 Analog Outputs
- LAP 14 Variable Output Applications

**PLC TROUBLESHOOTING ALLEN BRADLEY COMPACTLOGIX - L16 ZTEC 455**

Average time for course completion: 20 hours  
Investment: \$580

- LAP 1 Introduction to PLC Troubleshooting
- LAP 2 PLC Systems Troubleshooting
- LAP 3 Analog Input/Output Troubleshooting
- LAP 4 Analog Application Troubleshooting

PLC



*Allen-Bradley*



These courses have an open start date.  
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Siemens

# SIEMENS

## PLC SIEMENS S7-300 LEARNING SYSTEM WITH TROUBLESHOOTING - ZTEC 412

Average time for course completion: 80 hours  
Investment: \$2,230

- LAP 1 Introduction to Programmable Controllers
- LAP 2 Basic PLC Programming
- LAP 3 PLC Motor Control
- LAP 4 Discrete I/O Interfacing
- LAP 5 PLC Timer Instructions
- LAP 6 PLC Counter Instructions
- LAP 7 Introduction to PLC Troubleshooting
- LAP 8 PLC Systems Troubleshooting
- LAP 9 Event Sequencing
- LAP 10 Application Development
- LAP 11 Program Control Instructions
- LAP 12 Math and Data Move Instructions

## PLC ANALOG LEARNING SYSTEM SIEMENS S7-300 - ZTEC 413

Average time for course completion: 25 hours  
Investment: \$580

- LAP 13 Analog Input Modules
- LAP 14 Analog Input Applications and Troubleshooting
- LAP 15 Analog Output Modules
- LAP 16 Analog Output Applications and Troubleshooting

## PLC PROFIBUS SYSTEM SIEMENS S7 - ZTEC 414

Average time for course completion: 15 hours  
Investment: \$405

- LAP 1 Industrial Comm Network (Siemens S7-300 Profibus)
- LAP 2 Data Exchange

## PLC SIEMENS TP1200 OPERATOR PANEL LEARNING SYSTEM - ZTEC 415

Average time for course completion: 15 hours  
Investment: \$420

- LAP 1 Introduction to Siemens HMI Panel
- LAP 2 Application Editing 1
- LAP 3 Application Editing 2

## PLC SIEMENS S7-300 REMOTE I/O - ZTEC 444

Average time for course completion: 5 hours  
Investment: \$175

- LAP 1 - Remote Input/Output

Instrumentation and Process Control

**AC/DC ELECTRICAL SYSTEMS ZTEC 205 AND ELECTRIC MOTOR CONTROL ZTEC 207 ARE PREREQUISITE COURSES FOR PLC TRAINING.**

## PROCESS CONTROL SYSTEM - ZTEC 416

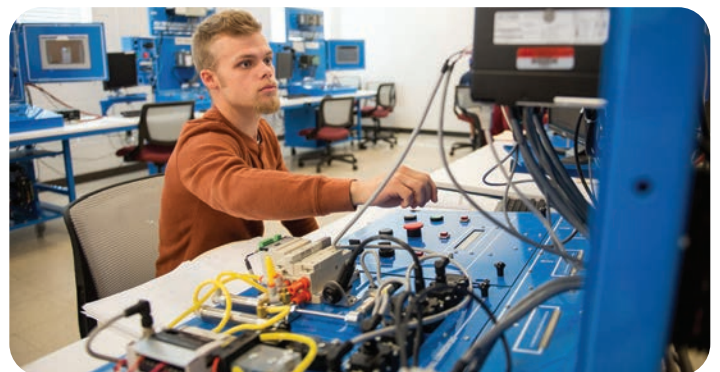
Average time for course completion: 60 hours  
Investment: \$1,570

- LAP 1 Introduction to Process Control
- LAP 2 Instrument Tags
- LAP 3 Piping and Instrumentation Diagrams
- LAP 4 Loop Controllers
- LAP 5 Final Control Elements
- LAP 6 Level Measurement
- LAP 7 Liquid Level Control
- LAP 8 Methods of Automatic Control
- LAP 9 Basic Flow Measurement and Control
- LAP 10 Control Loop Performance
- LAP 11 Ultrasonic Level Measurement and Control
- LAP 12 Differential Pressure Flow Measurement and Control

## THERMAL PROCESS CONTROL - ZTEC 417

Average time for course completion: 60 hours  
Investment: \$1,570

- LAP 1 Introduction to Process
- LAP 2 Control Instrument Tags
- LAP 3 Piping and Instrumentation Diagrams
- LAP 4 Thermal Energy
- LAP 5 Basic Temperature Control Elements
- LAP 6 Loop Controllers
- LAP 7 Final Control Elements
- LAP 8 Temperature Sensors and Transmitters
- LAP 9 Temperature Transmitters
- LAP 10 Basic Temperature Control
- LAP 11 Methods of Automatic Control
- LAP 12 Control Loop Performance



**These courses have an open start date.  
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## INDIVIDUAL COURSES - UPGRADE YOUR SKILLS

Automation has crossed into all plateaus of modern manufacturing. From raw materials to the finished product, manual labor has been replaced with robots, automatic equipment and computer networks, all in effort to produce items that are more accurately made and less costly to manufacture. The workforce needed to service these industries now and in the future will require additional skills.

The Flexible Manufacturing System builds on basic robot operation and programming and adds linear motion, serial communications and multitasking applications.

### **FLEXIBLE MANUFACTURING SYSTEMS - ZTEC 510**

Average time for course completion: 50 hours

Investment: \$1,460

#### **PREREQUISITE ZTEC 543 - ROBOTICS AND COMPUTER PROGRAMMING**

- LAP 1 Intro to Flexible Manufacturing Systems
- LAP 2 Point-to-Point Assembly
- LAP 3 Linear Motion Assembly
- LAP 4 Palletizing
- LAP 5 Robot FMS Workcell
- LAP 6 Robot Communications
- LAP 7 Serial Device Applications
- LAP 8 Multitasking

### **MOTION CONTROL (SERVO) LEARNING SYSTEM - ZTEC 520**

Average time for course completion: 36 hours

Investment: \$1,270

Teaches the fundamentals of current industrial servo drive systems. Servo drives are the core components to precise positioning in packaging, labeling, conveying and CNC machining environments.

- LAP 1 AC Motion Control
- LAP 2 Drive Configuration, Tuning and Operation
- LAP 3 Motion Control System Configuration
- LAP 4 Motion Control System Programming
- LAP 5 Position Control
- LAP 6 Velocity and Current Controls

### **MOTION CONTROL (SERVO) LEARNING SYSTEM 2 - ZTEC 521**

Average time for course completion: 24 hours

Investment: \$845

#### **PREREQUISITE ZTEC 520 - MOTION CONTROL (SERVO) LEARNING SYSTEM**

Teaches multi-axis servo drive configurations as essential for synchronizing multiple operations in packaging, labeling, conveying, CNC machining environments and warehouse management systems.

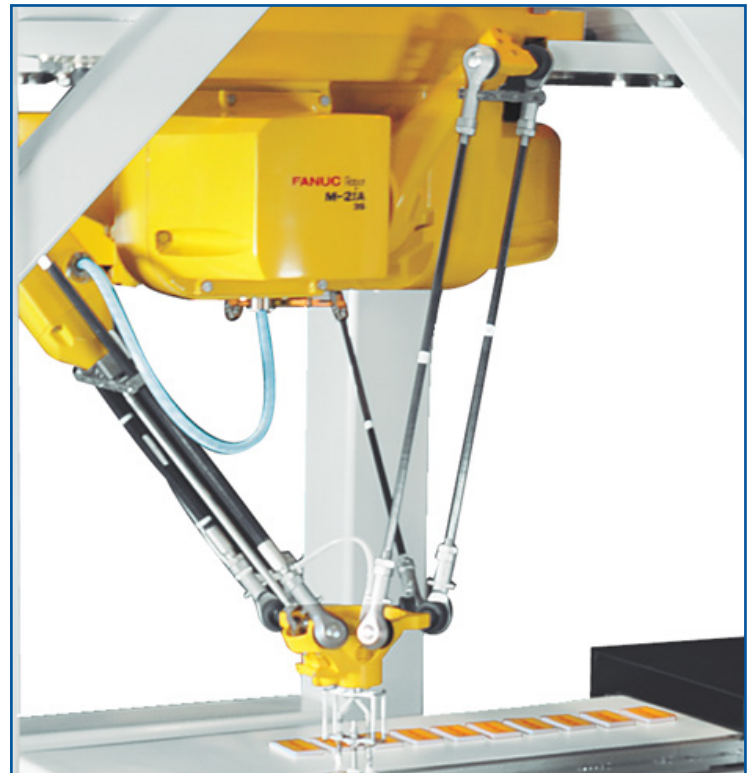
- LAP 1 Multi-Axis Motion Control Systems
- LAP 2 Motion Control Camming
- LAP 3 Synchronized Motion

### **ROBOTICS AND COMPUTER PROGRAMMING - ZTEC 543**

Average time for course completion: 50 hours

Investment: \$1,515

- LAP 1 Basic Robot Operation
- LAP 2 Basic Robot Programming
- LAP 3 Interfacing & Material Handling
- LAP 4 Application Development
- LAP 5 Flexible Manufacturing Cells
- LAP 6 Quality Control
- LAP 7 Production Control



These courses have an open start date.  
Contact Judith Vecchio at 610.372.4721, ext 5716 or [jvecchio@racc.edu](mailto:jvecchio@racc.edu) for details.

**MOTOMAN MERIT CERTIFIED  
ROBOT FS100 BASIC PROGRAMMING  
WITH MATERIAL HANDLING  
ZTEC 556**

Average time for course completion: 32 Hours

This training is provided by RACC as a Motoman Merit Certified facility. The course is designed to help students learn to program and Controller using INFORM programming language (similar to the DX100).

- Safety
- Startup and Shutdown
- Pendant overview
- Jogging in all Coordinate Systems
- Copying, Creating, Deleting and Editing Jobs
- Alarm and Error Recovery,
- Programming and Monitoring Input/Output
- Using Math and Position Variables

**YASKAWA**



**SUPERVISORS AND MANAGEMENT**

**INTRO TO MOTOMAN FS100 BASIC  
PROGRAMMING WITH MATERIAL HANDLING  
ZTEC 559**

Average time for course completion: 8 Hours  
Investment: \$415

Learn and understand the features of the FS100 Robot Controller and Programming Pendant using the INFORM programming language.

- Startup and Shutdown
- Tech Pendant Familiarization
- Pendant Screen
- Jogging and Coordinates
- Alarms and errors
- Selecting a Job
- Robot and Tool Path
- Non-Motion Instructions with Demonstration Program

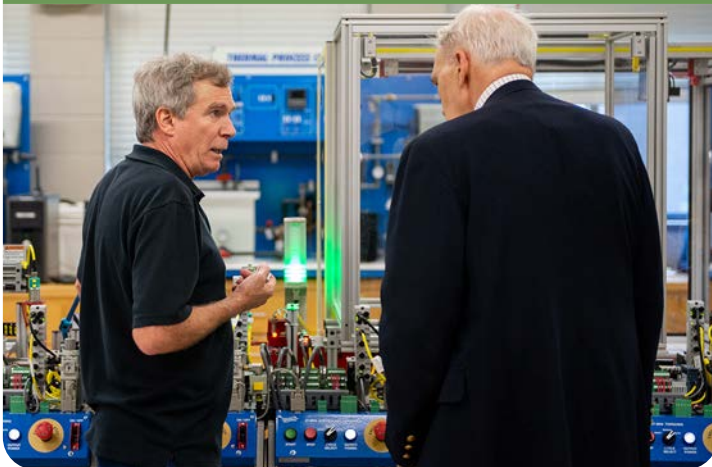
**INTRO TO FANUC® ROBOTS WITH  
HANDLING TOOL SOFTWARE**

**ZTEC 554**  
Average time for course completion: 8 Hours  
Investment: \$415

- Robot Safety
- Robot Systems
- Teach Pendant Overview
- Power Up and Jogging
- Frames and Programs Overview
- Instruction Overview
- Inputs/Outputs
- Hands-on Labs and Quizzes

**These courses have an open start date.  
Contact Judith Vecchio at 610.372.4721, ext 5716 or jvecchio@racc.edu for details.**

Supporting the Training Needs of Pennsylvania's Companies for More Than 20 Years! Formed in 1999 and funded by the Pennsylvania Department of Community and Economic Development, WEDnetPA is the primary delivery system for the Commonwealth's incumbent worker training program. Each year, WEDnetPA serves more than 700 companies and tens-of-thousands of employees, strengthening these businesses and improving Pennsylvania's economy.



Contact David Lerch to discuss detailed company guidelines and to start the application process for funding. 610.372.4721 x6208 or WEDnet@racc.edu



### Company Eligibility

- Must be located in Pennsylvania.
- Must be in an eligible industry cluster, commercial/ industrial in nature and not limited or explicitly defined as ineligible in full guidelines.
- Maximum grant amount is \$2,000 per employee, up to \$100,000 per company per fiscal year.
- Company can only receive funding two years in a row or three out of a five year period.

### Employee Eligibility

- Must be a resident of and employed in Pennsylvania.
- Must earn at least \$12.00 per hour, excluding benefits.
- Must be permanently employed full-time and eligible for full-time benefits.
- Must be an employee of the specific company location for which a grant is awarded.

### Eligible Training

- Must be skill building for current job or advancement.\*
- All of RACC's Options include third-party providers, WEDnetPA partners and qualified in-house staff.
- Must start on or after July 1, 2024 and be completed on or before June 30, 2025. Partial training cannot be reimbursed.
- Cost must be "reasonable" as defined in complete guidelines.
- Each course must be a minimum of 30 minutes in length.

\* Courses in this catalog are eligible for WEDnet reimbursement.



## OSHA COMPLIANT SAFETY TRAINING TAUGHT AT YOUR FACILITY OR ONLINE

- OSHA 10 + 30 HOUR - GENERAL INDUSTRY
- LOCKOUT/TAGOUT
- MACHINE GUARDING
- FALL PROTECTION
- CONFINED SPACE
- FIRE EXTINGUISHERS
- INCIPIENT FIRE BRIGADE

Customized training at your facility!



For more information contact Pandora Mazzo at [pmazzo@racc.edu](mailto:pmazzo@racc.edu) or call 610.372.4721 Ext. 5312

## CPR Training for your Workforce

*CPR custom training options include:*


- Training at organization sites day or evening
- Training on RACC Campus for organizations and individuals



**New** to the RACC's American Heart Association Training Center-**Basic Life Support Classes in Spanish.**

Our Workforce Team delivers custom training solutions that meet your needs. Contact Auria Bradley at [abradley@racc.edu](mailto:abradley@racc.edu) or call 610.372.4721 Ext 5120





*"Reading Truck partnered with the Workforce and Continuing Education team at RACC to upskill our employees and bridge the communication gap in our workplace. Reading Truck utilized the 8 week workplace scenarios. As a member of our leadership team, I appreciate the collaboration and opportunity the professional language development program provides to develop the necessary language skills to assist with retention, recruitment, and safety. All of which help Reading Truck become an employer choice in a competitive labor environment. "*

*Michael Fischetti, VP of HR, Reading Truck*

## **ESL for the Workplace**

Time: 10 - 12 Weeks

Customized training at your facility

This training is designed to improve English language skills for employees that are non-native English speakers. ESL for the Workplace focuses on engaging employees in conversations to help them communicate more effectively with confidence in the workplace. This training is structured in a way to help employees improve reading, writing, and speaking English, which leads to increased productivity and builds a better rapport with co-workers. Training can be customized to meet company needs which can include specific workplace scenarios. Call today for more information.

## **Spanish for the Workplace**

Time: 4 Weeks

Customized training at your facility

Spanish for the Workplace is an introductory training that focuses on Basic Spanish language skills for the workplace. This training is designed to help bridge the gap between English and Spanish speaking supervisors and co-workers leading to more effective communication. Spanish for the Workplace can be customized to meet the needs of real-life workplace scenarios and processes. Spanish language skills training can include basic workplace conversations, job expectations and performance discussions, Safety and Emergency dialogs, and many more scenarios. These sessions also include an introduction to the Hispanic Culture.

For more information contact Auria Bradley, Associate Vice President, Workforce and Continuing Education at [abradley@racc.edu](mailto:abradley@racc.edu) or call 610.372.4721 Ext. 5120

## Skill Building for Supervisors and Team Leads

Time: 7 Hours

Price: \$595

Date: 2/15/24 and 4/18/24

This workshop presents new supervisors and team leads with proven best practices to successfully coach and lead highly productive teams. The supervisor / team lead will learn how to understand and supervise different generations. Understanding this allows the new supervisor / team lead to coach effectively, give and receive constructive feedback using the proper communication skills, conflict management for dealing with difficult behaviors, and effective time management strategies.



To register go to: [sttc.eventbrite.com](https://sttc.eventbrite.com) | For a customized training at your facility contact Pandora Mazzo at [pmazzo@racc.edu](mailto:pmazzo@racc.edu) or call 610.372.4721 Ext. 5312

## Business Communications/Time Management

Time: 7 Hours

Price: \$595

Date: 4/4/24

Effective communication and efficient time and task management are two critical disciplines required for a successful business environment. This workshop provides business personnel with the skills and tools to deliver clear and concise written and verbal communication and enable them to identify and adjust messaging to the behavior style of their audience. Additionally, attendees are provided with tools and methods to prioritize tasks and increase productivity.

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## Diversity, Equity, & Inclusion Training

Customized training at your facility

DEI training aims to create a more harmonious workplace by increasing employee's knowledge and awareness of cultural, religious, or racial differences while delivering information about how a person can change their behavior to be more inclusive. Attendees will explore and challenge their own beliefs and unconscious biases about diversity, and acknowledge discrimination so they can apply the DEI commitment to daily practices and policies in the workplace. This training is customized for your company.



For more information contact Auria Bradley, Associate Vice President, Workforce and Continuing Education at [abradley@racc.edu](mailto:abradley@racc.edu) or call 610.372.4721 Ext. 5120



## The Highly Productive Leader

**Time: 12 Hours (three, 4-hour sessions)**

**Price: \$795**

This workshop follows a process that develops an effective style of leadership that positively influences and changes those you work and interact with, yourself, and your entire organization.

Key focus areas include:

- Effective coaching techniques
- Communication skills; giving and receiving constructive feedback
- Effective time management strategies
- Understanding and supervising different generations
- Conflict management/dealing with difficult behaviors

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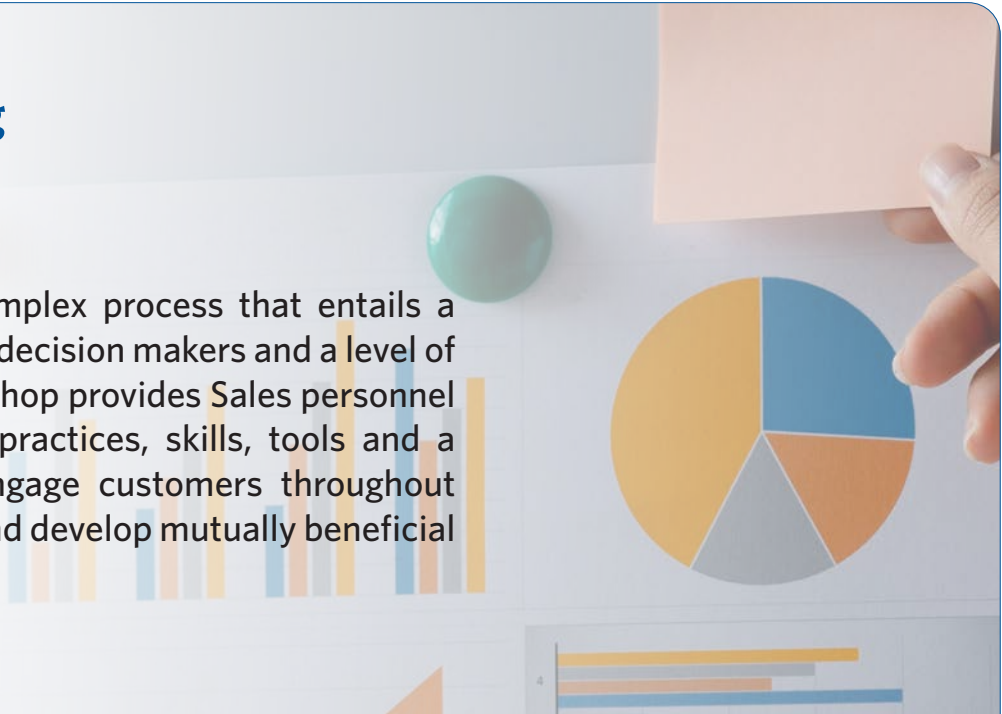
## Consultative Selling

**Time: 7 Hours**

**Price: \$595**

**Date: 5/2/24**

Consultative Selling is a complex process that entails a lengthy Sales cycle, multiple decision makers and a level of risk for the buyer. This workshop provides Sales personnel in a consultative role with practices, skills, tools and a framework to effectively engage customers throughout the complex Sales process and develop mutually beneficial solutions.



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## Delivering Superior Customer Service

**Time: 7 Hours**

**Price: \$595**

**Date: 3/5/24**

Highly functioning Customer Service teams are viewed by their customers as partners, not simply suppliers. The ability to effectively represent your company to the customer and the customer to your company is a competitive differentiator that requires skilled and aligned customer service team members. This workshop provides all customer facing personnel with skills, best practices and tools to enable them to deliver service excellence by managing customer expectations and building customer relationships.



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## **Train the Trainer**

**Time: 7 Hours**

**Price: \$595**

**Date: 2/29/24**

Being a subject matter expert does not necessarily imply the capability to train others. The ability to effectively “train others to train” is a force multiplier for any business and requires the knowledge and skills to both develop and deliver effective and meaningful instruction. This workshop provides subject matter experts with the tools, skills and best practices to develop other trainers in an adult learning environment and expand their organization’s training capacity.

To register go to: [sttc.eventbrite.com](https://sttc.eventbrite.com) | For a customized training at your facility contact Pandora Mazzo at [pmazzo@racc.edu](mailto:pmazzo@racc.edu) or call 610.372.4721 Ext. 5312



## **One-on-One Performance Coaching**

Customized training at your facility

Performance coaching can help identify an employee’s growth, as well as help plan and develop new skills. Our Certified Coaches meet one on one with employees for

- Behavior Change Wellness & Stress Management
- Leadership Development
- Succession planning
- Performance Improvement Plans (PIPs)
- Culture Development and much more

For more information contact Pandora Mazzo at [pmazzo@racc.edu](mailto:pmazzo@racc.edu) or call 610.372.4721 Ext. 5312

## Wellness in the Workplace

Customized training at your facility

3 sessions - 4 hours each

### Topics:

- Introduction to workplace wellness
- Assessment of personal wellness profile
- Multi-dimensional approach to wellness focusing on the 6 key areas of human well-being:
  - » Physical wellbeing
  - » Emotional wellbeing
  - » Career wellbeing
  - » Social wellbeing
  - » Financial wellbeing
  - » Community wellbeing
- Specifics such as nutrition and ergonomics
- Building a personal toolbox for wellbeing
- Stress Management and Resiliency building
- Workplace wellness buddies and ongoing support ideas



### Employer Benefits:

- Fosters the development of healthy work cultures
- Enhances employee morale, job satisfaction, and teamwork
- Engages employees and helps increase productivity
- Helps reduce absenteeism
- Promotes employee retention
- Enhances corporate image, customer stewardship, and social responsibility
- Positions company as “Employer of Choice” - healthy work cultures attract to talent
- Advances industry recognition (i.e. healthy workplace awards)
- Provides wellness solutions and support for an aging workforce
- Promotes safe work practices and helps reduce workforce injuries

### Employee Benefits:

- Heightens awareness, increases knowledge, and expands abilities to improve/maintain personal and family health
- Boosts morale and job satisfaction
- Fosters improved focus and concentration
- Enhances energy levels that contribute to improved productivity
- Helps reduce personal health care costs
- Helps reduce workplace stress and workplace injuries
- Enriches team relationships
- Amplifies overall health and wellbeing

[workplacewellnesscoe.com](http://workplacewellnesscoe.com)

### Instructor:

Laural Miller has teamed up with Workplace Wellness Center for Excellence to become a Certified Executive Wellness Coach. In this certification she can offer wellness programs like the one listed above all the way up to Executive Wellness Coaching and entire company culture change.

To register go to: [sttc.eventbrite.com](http://sttc.eventbrite.com) | For a customized training at your facility contact Pandora Mazzo at [pmazzo@racc.edu](mailto:pmazzo@racc.edu) or call 610.372.4721 Ext. 5312

## Lean Six Sigma Boot Camp

White Belt, 32 Hours - \$1,995  
 Yellow Belt, 40 Hours - \$3,225  
 Green Belt, 80 Hours - \$4,345  
 Black Belt, 120 Hours - \$5,995  
 Customized training at ***your facility***



\*\* Contact Pandora Mazzo for Breakout Session Pricing.

Our Lean Six Sigma Boot Camp solves real problems in real time at ***your facility***. Up to 120 hours of experienced, in-person and interactive training. Change and continuous improvement is a process. It begins with having the necessary skills, tools and techniques to lead a team through a project and to actively and professionally participate in continuous improvement. The Lean Six Belt classes will provide the tools, skills and techniques needed to assist you in becoming a leader in facilitating Lean and continuous improvement. Select a Belt Boot Camp Belt Certification or have a breakout session by select any of our fifteen sessions.

## *Solve real problems in real time at YOUR FACILITY.*

*“Yuasa is very pleased with the projects our White Belt employees completed during their training, and the positive results it has made in our production area. Things are a lot neater and more orderly, as they should have been prior to the completion of this White Belt training. We are looking forward to our next set of upcoming classes and know that we will have the same positive results as we did in our first set of classes.”*

*Christine Wheelen  
 Director of Human Resources  
 Yuasa Inc*

For more information contact Pandora Mazzo at  
[pmazzo@racc.edu](mailto:pmazzo@racc.edu) or call 610.372.4721 Ext. 5312

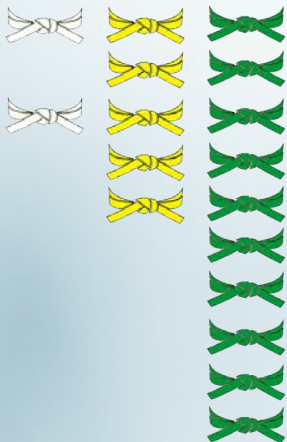



















*"The continuous improvement culture techniques we were so expertly taught will enable us to add to the already realized benefits and continue to add to them well into the future..."*

Kevin Gallen  
Vice President Operations  
Ethosource LLC

**Belts**



**Workshops**

-  Introduction to Lean Principles, Strategies & Techniques (8 Wastes)
-  Kaizen Events (Plan, Conduct & Follow-up)
-  6S Workplace Organization Kaizen
-  Lean Daily Management (SQDC)
-  Root Cause & Corrective Action (8D)
-  Six Sigma - DMAIC (Define-Measure-Analyze-Improve-Control)
-  Kanban Pull Systems (PFEP)
-  Continuous Flow (Cellular Layouts)
-  Quick Changeover (SMED)
-  Total Preventive Maintenance (TPM)
-  Lean Leader / Facilitator / Coach (LFC)
-  The Eight Steps of Value Stream Management (VSM)
-  Six Sigma - Statistical Process Control (SPC)
-  Creating a Continuous Improvement Culture (Kata)
-  Policy Deployment / Hoshin

*\*\* Contact Pandora Mazzo for Breakout Session Pricing.*

For more information contact Pandora Mazzo at [pmazzo@racc.edu](mailto:pmazzo@racc.edu) or call 610.372.4721 Ext. 5312

*The STTC center at RACC is an  
**AUTHORIZED TRAINING PARTNER** of PMI.*

*PMI sets the Global standard for Project Management*

The Project Management certification program is designed for managers and supervisors involved in engineering, research and development, data processing, manufacturing, corporate planning, finance, and marketing.



- *In person instruction by an accredited trainer*
- *Participants are provided 250 PMP prep practice questions*
- *PMI Licensed Course content*



- Module 1- Creating a High Performing Team
- Module 2 - Start the Project
- Module 3 - Plan the Project
- Module 4 - Lead the Project Team
- Module 5 - Support the Project:  
Team Performance
- Module 6 - Close the Project

**TUESDAYS**  
**January 23, 2024 through**  
**March 5, 2024**  
**8AM - 1PM | \$1,995**

**To register go to: [sttc.eventbrite.com](https://sttc.eventbrite.com)**

For more information contact Pandora Mazzo at  
[pmazzo@racc.edu](mailto:pmazzo@racc.edu) or call 610.372.4721 Ext. 5312

# WASTEWATER TREATMENT PLANT OPERATOR

## - CERTIFICATION PROGRAM -

### What's Your Goal?

If your goal is to join the field of Wastewater Treatment as a Plant Operator, obtain your certification as a licensed plant operator, or earn continuing education units to maintain an existing certification, then RACC's Wastewater Treatment Plant Operator Program will get you on the right path.

### We Help You Get There With...

- Instructors who are certified operators and/or subject matter experts
- Class size of 30 students or fewer
- Engaging classroom experiences
- Field trips to better understand treatment processes discussed in class

### Program Description

Reading Area Community College offers a 180-hour certification program designed to prepare new operators for licensing in the high-demand field of wastewater treatment plant operators. The curriculum for the program was developed by the Pennsylvania Department of Environmental Protection (DEP). This program will prepare students for the DEP's operator certification exams. Combining this program with work at a local treatment facility will prepare students for licensing.



### What You Will Learn

The Wastewater Treatment Operator program combines course work, on-site visits to facilities with classroom components, interactive class discussion with current certified operators, out-of-class assignments, and module-end exams. The program utilizes DEP-approved curriculum that is taught by certified operators and other qualified instructors. The course components also offer continuing education units (contact hours) necessary for certified operators to maintain their certifications.

### Career Outlook (from U.S. Bureau of Labor and Statistics)

PA median annual wage - \$57,550

Wastewater operators employed in PA - 5,850

### Admission Requirements

- Graduate of an approved secondary school or hold a high school equivalency diploma (GED)
- Commitment to attendance policies and program requirements

### Class info

Tues. & Thu. 6 PM - 9 PM

January 21, 2024 - 90 Hour Spring Program, \$1,495

August 13, 2024 - 90 Hour Fall Program, \$1,495

### Want To Learn More?

Contact David Lerch at [dlersch@racc.edu](mailto:dlersch@racc.edu) or call 610-372-4721 ext. 6208



**Reading Area Community College**  
**Community Education**  
10 South Second Street  
P.O. Box 1706  
Reading, PA 19603-1706

Non-Profit  
Organization  
U.S. Postage  
**PAID**  
Reading, PA  
Permit No. 755

# WHY UPSKILL YOUR EMPLOYEES?

- Improved employee retention
- Increased employee engagement
- Increased productivity
- Boosted employee morale
- Increased ability to promote from within

*"The only thing worse than training your employees and having them leave is not training them and having them stay"*  
– Henry Ford