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.

Reading Area Community College was selected as a Bellwether Finalist at the 2023 Community College Futures Assembly. The experience of being with thirty of the best community colleges in the nation was an outstanding experience.

We shared best practices and showcased scalable, replicable, and equity-focused programs with documented success. RACC’s presentation focused on our customized training initiative and how we responsibly addressed the need of a global agricultural equipment manufacturer for a rapid turn-around training program for newly hired Computer Numerical Control or CNC operators. As a proactive community partner, we were able to provide training of CNC machine operators while maintaining the integrity of the course, in half the usual time.

YOU ASKED, WE RESPONDED!
RACC is now a PMI preferred training vendor!

see page 14 for our new project management prep class.

Wellness in the Workplace

The past few years have been tough on just about every industry. During the pandemic, people either became more aware of their physical and mental health, or lost sight of it. We are proud to announce the approach to create a sense of belonging within your organization.

Please join us on Tuesday, September 19, 2023 from 8:30am – 11am for a free session: “Wellness in the Workplace” Instructed by Ampersand Integrated wellness.

Registration required at sttc.eventbrite.com.

See page 7 for our new wellness in the workplace prep class.
It is the policy of Reading Area Community College to prohibit discrimination on the basis of race, color, sex, sexual orientation, religion, national origin, age, disability, or status as a disabled or Vietnam Era veteran in regard to the administration of all programs, policies and activities, regardless of whether students or employees are enrolled or employed at the Berks, Schuylkill, or Westmoreland Campus. This policy also applies to all educational endeavors involving students who are non-native English speakers. RACC is an equal opportunity/affirmative action institution. RACC is an equal opportunity employer. It is also the policy of RACC 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 information is available by contacting 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, of merchantability or fitness for a particular purpose, employability, future employment, licensure, certification or availability of courses, programs, facilities or curricula.

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

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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 or call 610.372.4721 Ext. 5120.
Skill Building for Supervisors and Team Leads

Time: 7 Hours  
Price: $595  
Date: 9/28/23 and 12/7/23
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  |  For a customized training at your facility contact Pandora Mazzo at pmazzo@racc.edu or call 610.372.4721 Ext. 5312

Business Communications/Time Management

Time: 7 Hours  
Price: $595  
Date: 10/12/23
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.

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

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 or call 610.372.4721 Ext. 5120

Wellness in the Workplace

Customized training at your facility

The past few years have been tough on just about every industry. During the pandemic, people either became more aware of their physical and mental health, or lost sight of it. We are proud to announce that we have developed a program of wellness that we feel encompasses a body and mind approach to help create a sense of belonging within your organization. We believe this is paramount towards any company’s success. Increased energy and positivity are the goals, and they will aid your company in conquering the number one cause of low employee retention and that is stress. Show your team that you will invest in them, and they will in turn invest in you.

FREE SESSION! 9/19/23  
FROM 8:30AM - 11:30AM  
registration required

To register go to: sttc.eventbrite.com  |  For a customized training at your facility contact Pandora Mazzo at pmazzo@racc.edu or call 610.372.4721 Ext. 5312
Consultative Selling
Time: 7 Hours
Price: $595
Date: 9/14/23
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.

Delivering Superior Customer Service
Time: 7 Hours
Price: $595
Date: 10/12/23
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.

Train the Trainer
Time: 7 Hours
Price: $595
Date: 12/12/23
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.

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 or call 610.372.4721 Ext. 5312
SUPERVISOR TRAINING: THE ENERGETIC AND INFLUENTIAL LEADER

Time: 20 Hours (five, 4-hour sessions)
Price: $1,295
Start date: Wednesdays starting on 10/18/23

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. The workshop starts with the Energy Leadership Index (ELI) assessment that will allow you to understand the concepts of energy, and how they are relate to a Transformative Leadership Development System Based on Seven Levels of Leadership and eight Building Blocks that enable powerful changes in you. In addition to the Energy Leadership Index, you will take a DISC assessment to understand both your personality style and how to better manage those of differing personality styles.

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.

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, 2023 and be completed on or before June 30, 2024. 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.

Contact Pandora Mazzo to discuss detailed company guidelines and to start the application process for funding. 610.372.4721 x5312 or WEDnet@racc.edu
**Business Critical Skills**

Lean Six Sigma Boot Camp

White Belt, 32 Hours - $1995
Yellow Belt, 40 Hours - $3225
Green Belt, 80 Hours - $4345
Black Belt, 120 Hours - $5995
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.

"I was able to start to think about business concepts from a different perspective and really try to address the “why” and get to the root cause of an issue and not just fix the problem in front of me..."

Rachel Luckhart
Senior LIMS Administrator
Suburban Testing Labs

"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**

- White Belt, 32 Hours - $1995
- Yellow Belt, 40 Hours - $3225
- Green Belt, 80 Hours - $4345
- Black Belt, 120 Hours - $5995

**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 (PPEP)
- 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 or call 610.372.4721 Ext. 5312
Developed by PMI and validated by PMP's, RACC’s Workforce Development Group is now a Project Management institute Premier Authorized Training Partner.

**PMI sets the Global standard for Project Management.**

This course is using the materials developed by PMI and satisfies the 35 training hours required to apply for PMP certification. This fun and interactive course contains five modules that immerse you in real-world scenarios, representing various industries and project management situations to help you practice applying principles and concepts at work.

**Who Should Take This Course:**
- PMP candidates
- Mid-level Project Managers
- Those who want or need training requirements to become PMP certified
- Those who want to build-up their knowledge in agile and hybrid approach

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

If you are looking to only earn Professional Development Units (PDUs), this course will help you refresh your project management knowledge and includes new content on agile and hybrid approaches.

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**SAFETY AND FIRST AID**

**OSHA COMPLIANT SAFETY TRAINING TAUGHT AT YOUR FACILITY**

- 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 or call 610.372.4721 Ext. 5312

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**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 or call 610.372.4721 Ext. 5520

**BUSINESS CRITICAL SKILLS**

**IS YOUR WORKFORCE PREPARED FOR AN EMERGENCY?**
CompTIA Certification helps students prepare for their career skills. This curriculum also develops computer skills along with essential practical experience to help students develop fundamental problem-solving abilities. It features an emphasis on Software, including hands-on, e-learning and introduction to advanced concepts.

**IT Essentials: PC Hardware and Software**
- Textbook additional fee.
- Includes test fee.
- Approximate time to complete: 200 hours
- Instructor support during lab hours.

**IT Essentials - Fundamentals**
- ZCOM-336
- $1,815
- 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 (see book from ZCOM 336)
- Approximate time to complete: 200 hours
- Instructor support during lab hours.

**Security+**
- ZCOM-335
- $3,075
- Includes test fee.
- Approximate time to complete: 200 hours
- Instructor support during lab hours.

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**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
- $1,205 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.

**IoT**
- ZCOM-419
- $1,405 for Approx. 90 hours
- Instructor support during lab hours.

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

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**Manufacturing Process & Machining**

**Introduction to Machining**
- ZMTT-105
- $1,920 (textbook additional)
- Theoretical and practical aspects of shop safety, hand tools, precision layout, precision measuring instruments, taps, dies, files, rulers, 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**
- ZMTT-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

**Precision Machining Level 1**

**Basic CNC Operation**
- ZMTT-101
- $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**
- ZMTT-102
- $645
- Teaches basic set up and operation of CNC lathes. Preparation for NIMS Level I certificate: CNC Lathe Operation. 30 hours

**Enterprise Networking, Security, and Automation**
- ZCOM-416
- $1,205 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
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**Precision Machining Level 2**

**Turning Technology Level I**
- ZMTT-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

**CNC Programming**
- ZMTT-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. This program is recommended for the student who wants to further their knowledge in CNC Programming. 75 hours

**Blueprint Reading**
- ZMTT-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

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**Flexible start times available**
### 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-222**  
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 I Programming and Operation exam.

**ENGINEERING GRAPHICS WITH SOLIDWORKS**  
Time: 45 hours  
Cost: $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 610.372.4721, est 5716 or jvecchio@racc.edu for details.

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### Precision Machining Level 4

**CNC MILLING II (Z)MTT-272**  
Cost: $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**  
Cost: $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

**GRINDING TECHNOLOGY (Z)MTT-221**  
Cost: $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**  
Cost: $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**  
Cost: $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 610.372.4721, est 5716 or jvecchio@racc.edu for details.
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.

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 for details.

MANUFACTURING PROCESS & MACHINING

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 21-23

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

MANUFACTURING PROCESS & MACHINING

COMPUTER AIDED DESIGN (CAD)
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.

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 – Hydraulic Track
- **MET 130** Industrial Electrical – CTEC 371
- **MET 140** Industrial PLC (CSC500)

**AMIST 2 (ADVANCED MANUFACTURING INTEGRATED SYSTEMS)**

- **MET 150** Industrial Mechanical 2 – Hydraulic Track
- **MET 160** Industrial Electrical 2 – CTEC 242
- **MET 140-B** Industrial Electrical 2 – CTEC 237

**AMIST 3 (ADVANCED MANUFACTURING INTEGRATED SYSTEMS)**

- **MET 200** Industrial Robotics and Motion Control
- **MET 220** Advanced Industrial PLC

**AMIST 4 (ADVANCED MANUFACTURING INTEGRATED SYSTEMS)**

- **MET 240** Captain Class: Mechatronics Application Project

**CERTIFICATE AND DEGREE PROGRAMS**

**INDUSTRIAL MAINTENANCE TECHNICIAN, MECHATRONICS AAS**

- **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.

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 – Hydraulic Track
- **MET 130** Industrial Electrical – CTEC 371
- **MET 140** Industrial PLC (CSC500)

**AMIST 2 (ADVANCED MANUFACTURING INTEGRATED SYSTEMS)**

- **MET 150** Industrial Mechanical 2 – Hydraulic Track
- **MET 160** Industrial Electrical 2 – CTEC 242
- **MET 140-B** Industrial Electrical 2 – CTEC 237

**AMIST 3 (ADVANCED MANUFACTURING INTEGRATED SYSTEMS)**

- **MET 200** Industrial Robotics and Motion Control
  - Approximately 140 hours of training, 4 college credits
  - Investment: $4,345
  - Robotics & Computer Programming
  - Flexible Manufacturing Systems
  - General Purpose Motion Control System
  - Multi-Axis Motion Control System

**AMIST 4 (ADVANCED MANUFACTURING INTEGRATED SYSTEMS)**

- **MET 240** Captain Class: Mechatronics Application Project

**CERTIFICATE AND DEGREE PROGRAMS**

**INDUSTRIAL MAINTENANCE TECHNICIAN, MECHATRONICS AAS**

**CONTACT 610.372.4721, ext 5716 or jvecchio@racc.edu for details.**

**HUM 100 Critical Thinking 3 cr.**

- **OFSH 10-Hour General Industry Safety Course**
  - OSHA 10-Hour General Industry Safety Course
  - Introduction to the Manual Lathe, Lathe Operations
  - Introduction to the Milling Machine, Milling Operations
  - Introduction to the Milling Machine, Milling Operations

- **MET Courses Plus General Education Requirements**
  - *Student Ed Courses AAS Degree* 31 cr.
  - **CORE 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.
  - **CIT 110 Microcomputer Applications** 3 cr.
  - **SOC 100 Sociology** 3 cr.
  - **Select one** 4 cr.
    - **BIO 150, Biology I**
    - **CHEM 150, Chemistry I**
    - **PHY 245, Physics II**
    - **COM 141 Technical Writing** 3 cr.
    - **HUM 100 Critical Thinking** 3 cr.
**MANUFACTURING/TECHNICAL BASICS**

**MECHANICAL FABRICATION**

**BASIC SKILLS – ZTEC 390**
Average time for course completion: 32 hours
Investment: $475
LAP 1  Threaded Fasteners
LAP 2  Wrenches
LAP 3  Pneumatic System Fabrication
LAP 4  Screwdrivers
LAP 5  Flaps 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

**MAINTENANCE PROCESSES – ZTEC 548**
Average time for course completion: 36 hours
Investment: $1140
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

**Hydraulics**

**INTRODUCTION TO SHOP MACHINERY – ZTEC 558**
Average time for course completion: 90 hours
Investment: $2,625
LAP 1  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

**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  Flaps 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 810.372.4723, ext 5796 or jvecchio@racc.edu for details.
Mechanical Drives

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 Anti-friction 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: $550
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

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

Pumps, Piping

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 325
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

PIPE 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

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

**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

**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

**ELECTRICAL FABRICATION**
Average time for course completion: 12 hours  
Investment: $245

- 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

**ROTATING ELECTRICAL MACHINES DC GENERATORS - ZTEC 205**
Average time for course completion: 12 hours  
Investment: $265

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

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

**ELECTRONIC SENSORS - ZTEC 304**
Average time for course completion: 30 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

**POWER & CONTROL ELECTRONICS - ZTEC 260**
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 - SCS Control
- LAP 3 DC Spindle Drives
- LAP 4 DC Axis Drives
- LAP 5 DC Pulse Width Modulation Drives
- LAP 6 DC Drive Troubleshooting

**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

**ELECTRONIC SENSORS - ZTEC 304**
Average time for course completion: 30 hours  
Investment: $265

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

**PLC ALLEN-BRADLEY SLC500 DATA HIGHWAY 485 SYSTEM - ZTEC 404**
Average time for course completion: 10 hours  
Investment: $265

- 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: $420

- 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.
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 CONTROLOX 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 Analog 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 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 Instruction 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: 15 hours
Investment: $405
LAP 1 Industrial Comm Network (Siemens S7-300 Profibus)
LAP 2 Data Exchange

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 HMII 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

These courses have an open start date.
Contact 610.372.4723, ext 5716 or jvecchio@racc.edu for details.
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: $1,140
PREREQUISITE ZTEC 543 - ROBOTS 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 FM Workcell
- LAP 6 Robot Communications
- LAP 7 Serial Device Applications
- LAP 8 Multitasking

**ROBOTS AND COMPUTER PROGRAMMING - ZTEC 543**
Average time for course completion: 50 hours
Investment: $1,135

- 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

**INTRO TO MOTOMAN 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

**MOTION CONTROL (SERVO) LEARNING SYSTEM - ZTEC 520**
Average time for course completion: 36 hours
Investment: $1,270

- 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

**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

Learn to service and control a robot in an automated environment:
- Robot Safety
- Robot Systems
- Teach Pendant Overview
- Power Up and Jogging
- Frames and Programs Overview
- Instruction Overview
- Inputs/Outputs
- Hands-on Labs and Quizzes

**SUPERVISORS AND MANAGEMENT**

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

**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: $1,140
PREREQUISITE ZTEC 543 - ROBOTS 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 FM Workcell
- LAP 6 Robot Communications
- LAP 7 Serial Device Applications
- LAP 8 Multitasking

**ROBOTS AND COMPUTER PROGRAMMING - ZTEC 543**
Average time for course completion: 50 hours
Investment: $1,135

- 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

**INTRO TO MOTOMAN 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

**MOTION CONTROL (SERVO) LEARNING SYSTEM - ZTEC 520**
Average time for course completion: 36 hours
Investment: $1,270

- 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

**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

Learn to service and control a robot in an automated environment:
- Robot Safety
- Robot Systems
- Teach Pendant Overview
- Power Up and Jogging
- Frames and Programs Overview
- Instruction Overview
- Inputs/Outputs
- Hands-on Labs and Quizzes

**SUPERVISORS AND MANAGEMENT**

These courses have an open start date. Contact 610.372.4721, ext 5716 or jvecchio@racc.edu for details.
WASTEWATER TREATMENT PLANT OPERATOR - CERTIFICATION PROGRAM -

Program Description - This 180-hour certification program prepares you for licensing as a wastewater treatment plant operator. The curriculum was developed by the Pennsylvania Department of Environmental Protection (DEP) to prepare for the DEP’s Operator Certification Exams. Combining this program with work at a local treatment facility will prepare participants for licensing.

AUGUST 14, 2023
Cost: $3,800
The class is taught live in an interactive, remote format.

How You Will Learn - We combine course work with onsite visits to local Wastewater Treatment facilities, plus interactive class discussion with certified operators, out of class assignments, and module end exams.

to register call 610.607.6235

Contact Judith Vecchio for questions and further details at jvecchio@racc.edu | 610.372.4721 Ext. 5716

BECOME A CERTIFIED AUCTIONEER!

Course Begins
AUGUST 14, 2023
Cost: $3,800
The class is taught live in an interactive, remote format.

• Learn the “auctioneer chant”
• Appraisals - antiques, autos, dolls, coins, jewelry, furniture, and more
• Auction laws
• Auctioneering software and online auctions
• 60 hours of observing and working hands-on with a local auctioneer

Please call 610.375.8188 for more information.