Mechatronics: Skills for the 21st Century

NFPA Workforce Development Conference

Presenter: Dan Fogarty

September 24, 2012
A Critical Skills Shortage in Pennsylvania Manufacturing

- **Higher Skills Required:** Rapid growth in manufacturing technology
- **Aging Workforce:** ~30% of skilled technicians could retire by 2020
- **Broken Pipeline:** Lack of education and training programs with qualified participants to meet current and future needs

Source: Pennsylvania Center for Advanced Manufacturing Careers – December 2010
Mechatronics & Industrial Maintenance Occupations

- Job openings across the business cycle
- ~1,500 new openings annually state-wide
  - Industrial Maintenance Technicians
  - Robotics Technicians
  - Mechatronics Technicians
- Skills in demand across industry sectors
- Career path requires multiple skill sets
- Skills and knowledge can lead to Associate’s or Bachelor’s degrees

Source: Pennsylvania Center for Advanced Manufacturing Careers – December 2010
What is Mechatronics?

The synergistic application of...

Computer Science
Electrical Engineering
Mechanical Engineering
Controls Engineering
Fluid Power Systems

Mechatronics
Building the Pipeline

Fund for the Improvement of Postsecondary Education

MECHATRONICS
300 Hour Non-credit

Two Goals:

1) Innovative workforce learning community supporting displaced, incumbent, and underemployed workers.

2) Create a model for other workforce programs.
Mechatronics Curriculum

Emphasis on:

- Troubleshooting
- Discovery
- Safety
- Proficiency
- Real-world application
Program Preparation

- Diagnostic Exam
- Remediation
- Interview/Tour
- Registration
- Prep Course

To view video
http://www.ccac.edu/default.aspx?id=149306
Program Outcomes

59 Mechatronics Graduates to Date

- Obtained New Job: 19%
- Received Promotion: 10%
- Enhanced Current Job: 39%
- Continuing Education: 10%
- Job Searching*: 22%

78% have improved their situations!

*Grads from 4/2012
Credentials and Credits

- CCAC is a Certified Provider of AM/IST 1
- 17 credits thru prior learning agreement
- A.S. in Integrated Systems Technology

* Note - See Appendix A or www.imtcpa.org
Coming Fall 2012

Advanced Mechatronics

Robotics & Automation

Process Control

www.ccac.edu
Mechatronics: Skills for Growth in the Fluid Power Industry*

- Project Engineer
- Manufacturing Engineer
- Regional Sales Manager
- Product Manager
- Product Specialist
- Account Specialist
- Production Supervisor
- Lab Supervisor
- Technical Sales Rep.
- Service Representative
- Maintenance Technician
- Lab Technician
- CNC Machinist

*Especially when combined with a Fluid Power Specialist Certification
Appendix A

Industrial Maintenance / Mechatronics

Target Occupations

- Systems Engineer
- Mechatronics Engineer
- Mechatronics Technician/Designer
- Maintenance Supervisor
- Electro-Mechanical Specialist
- Packaging Machinery Technician/Designer
- Maintenance Technician
- Mechanic
- Electrician
- Maintenance Staff

Source: Industrial Maintenance Training Center of PA  www.imtcpa.org