

**Weld-Ed** 

The National Center for Welding Education and Training

**866-529-9353**

**[www.weld-ed.org](http://www.weld-ed.org)**

# Aligning NSF Advanced Technology Education (ATE) Center Programs with the Workforce System



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# NSF ATE Program Overview



- The National Science Foundation's Advanced Technological Education (ATE) program uses educators from two-year colleges to lead initiatives that improve the skills of technicians and the educators who teach them.
- The ATE program invigorates technician education programs with competitive grants to innovative educators who work at or in collaboration with two-year colleges.
- Public community and technical colleges provide most of the postsecondary education available to technicians in the United States.

# What are ATE Centers?



- **ATE Centers** have broad missions as change agents in their fields. The centers—the flagships of the ATE program—have strong connections with regional and national employers of technicians.
- The programs they develop with colleagues in secondary schools, universities, and industry serve as models that others can use to respond more effectively to national, regional, and local economic and educational challenges.

# The Advanced Technological Education program...



- Delivers well-qualified technicians to the workforce saving employers time and money
- Influences changes in the hiring practices of key industries
- Improves STEM curricula and instruction at community and technical colleges, and secondary schools using current research
- Saves school systems and higher education institutions time and money revising curricula and creating new programs for emerging technologies
- Encourages the participation of women and underrepresented groups in STEM fields
- Reaches out to middle school and high school students to inform them of technical career opportunities
- Increases enrollments in mathematics and science courses that prepare students for careers in advanced technology fields
- Works across disciplines to invigorate teaching and address student recruitment and retention

# The Advanced Technological Education program...



- **Overall, the ATE program boosted the academic momentum of technicians and the technological know-how of the nation during a six-year survey period\* by**
  - Developing more than 5,000 different educational materials that were aligned with workforce needs and industry standards
  - Creating more than 2,000 two-year college programs, 16,800 two-year college courses and 1,500 secondary school courses, 150 baccalaureate programs and 800 courses, and 2,000 articulation agreements
  - Offering programs at approximately 4,900 locations that reached 320,000 two-year college students, 48,000 secondary school students, and 6,000 students at baccalaureate institutions
  - Providing professional development opportunities to more than 80,000 educators

# ATECENTERS MAP



# Weld-Ed Mission



## *Vision*

Weld-Ed is a national partnership of colleges, universities, professional societies, government, and private industry committed to increasing the number and quality of welding and materials joining technicians to meet industry demand.

## *Mission*

Weld-Ed strives to improve the quality of education and training services to address the hiring and professional development needs of the welding industry.

# Weld-Ed Partners



- Lorain County Community College - Lead
- Educational partner institutions
  - Provide for dissemination of Weld-Ed educational products and provide information to the center from local business and educational contacts
- Industry partners
- Other partners (NSF, national organizations)

# Educational Partners



- Grant years 1 through 4
  - Ferris State University
  - Pennsylvania College of Technology
  - Texas State Technical College
  - North Dakota Science College
  - The Ohio State University
- Years 3 & 4
  - An additional 4 colleges/universities will be added

# Educational Partners

(cont.)



- Partner criteria included:
  - current program makeup
  - industries served
  - degrees awarded
  - affiliation and involvement with AWS
  - potential for addressing industry needs

# Industry Partners



- Caterpillar
- Northrop-Grumman
- US Army / Marine Corp – Aberdeen
- US Navy Joining Center
- Lockheed Martin
- Nelson Stud Welding
- Welding equipment manufacturers
- Others to be included as appropriate

# Industry Associations



- American Welding Society (AWS)
- WEMCO and RWMA groups of AWS
- National Council for Advanced Manufacturing (NACFAM)
- National Association of Manufacturers (NAM)
- Manufacturing Skills Standards Council (MSSC)

# Other Partners



- NSF ATE Centers
  - NCME – manufacturing resources
  - CAPT (Captech) – processing industry
  - CARCAM – automotive manufacturing
  - MatEd – materials science
  - SpaceTec – aerospace technicians
  - Additional Centers as needs are linked
- CORD (Center for Occupational Research and Design)
- NCATC (National Coalition of Advanced Technology Centers)
- American Association of Community Colleges (AACC)
- League for Innovation in the Community College

# Weld-Ed Goals



**Goal #1 - Increase the number of welding technicians to meet workforce needs.**

**Goal #2 - Make significant gains towards the comprehensive reform of welding education.**

**Goal #3 - Enhanced faculty professional development and continuing education.**

# Weld-Ed Goals continued



**Goal #4 - Ensure the effective and efficient management of the Weld-Ed Center and operations. Establish effective reporting and evaluation of program objectives.**

**Goal #5 - Ensure the sustainability of Weld-Ed and its operations beyond the NSF grant period.**

# What is a skill panel?



# Skill panels are...



- A group of local individuals representing various aspects of the workforce system
  - Industry representatives
  - Educational representatives
    - High schools/vocational schools
    - Community colleges
  - Economic development representatives
  - Local WIB members
  - Local government representatives

# Purpose of the Skill Panel



The purpose of the skills panel is to gather “forward” industry workforce needs data.

## Weld-Ed focuses:

- Welders
- Welding technicians
- Welding Inspectors
- Welding engineers

# What are the differences?



## Advisory Boards

- Historical data
- Follows someone else's lead
- Guidance based

## Skill panels

- Forward data
- Members lead the discussion
- Activity based

# National Weld-Ed Skill Panel Meeting #1



- The first meeting of the Weld-Ed National Skill Panel occurred in Washington, DC at the National Center for Higher Education on March 27, 2008.
- The day long meeting resulted in a course of action that the Skill Panel will follow over the next 18 months.
- The highlights of the meeting follows.....

# Questions to be answered



1. Identify short Term hiring needs of the welding industry (up to 2 years).
2. Identify mid-term hiring needs of the welding industry (3-6 years).
3. Identify long-term hiring needs of the welding industry (7+ years).
4. What impact are baby boomer retirements having on the welding workforce?

# Questions to be answered



5. What technological improvements or new welding/material joining techniques will impact future employment?
6. What technological advancements in welding equipment will impact future employment?
7. What other factors will impact the future of the welding and materials joining industry?

# Questions to be answered



8. What other national trends will impact the industry?
9. What domestic factors impact competitiveness in the welding/materials joining industry?
10. What global factors impact competitiveness in the welding/materials joining industry?

# Questions to be answered



11. What role could economic development play in improving the industry's competitiveness?
12. What role could government sponsored programs such as those from the U.S. Department of Labor play in improving competitiveness?
13. Have there been any educational programs offered by colleges, universities, or equipment manufacturers that have significantly impacted your industry?

# How the information will be used



- The employment information that is gathered will be analyzed and the identified needs will be matched against existing welding and materials joining courses and programs that are offered by the education community.
- The employment information will also be shared with the educational community to create awareness of the industry's need.
- The employment information will also be shared with government and foundations to make them aware of the needs of the industry.
- New curricula that is needed will result in Weld-Ed or one of its educational partners seeking funds from NSF or other sources to develop the curriculum.

# How the information will be used



- The economic development information will form the basis for strategies for the economic development/chamber of commerce community to support the needs of the industry.
- That information will also be used to help facilitate and inform an on-going dialogue between the industry and economic development community.

# How the information will be used



- The information that is gathered about trends, domestic and international factors that influence competitiveness will be analyzed and used to inform the industry, government and legislators regarding positive and negative influences on the industry.
- It is hoped that this information will also form the basis for on-going dialogues between AWS, the industry, related associations, and appropriate federal government agencies and Congress.

# How the information will be used

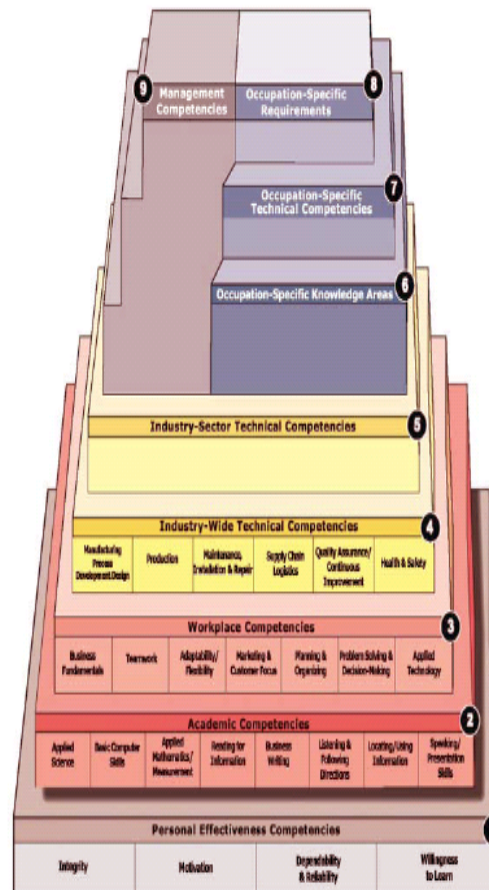


- The overall information will be used to form the basis for the report on the “State of the Welding Industry in the United States”.
- The report will also include regional information that will be gathered by the five regional skill panels.
- This effort will take 18 months (beginning today).
- We anticipate that the national panel will meet two more times in person as well as by conference call every 4-6 weeks.
- We also anticipate breaking the Panel into subcommittees to address some of the issues and activities as we move through the Skill Panel process.

# Industry Competency Models – DOL



Framework of Competencies by the Advanced Manufacturing Industry



# Industry Competency Models – DOL



- The panel will work with the staff to complete the fourth, fifth and sixth tiers of the competency pyramid (we will be a beta test group for this activity).
- We complete those tiers for three specific occupations: welders; welding technicians; and, welding engineers.
- We will also work to complete tiers 7 and 8 which primarily address management related to the three occupations with our university partners.

# Industry Competency Models - MSSC



*MSSC Skill Standards*

**A Blueprint  
*for* Workforce  
Excellence**

# Industry Competency Models – MSSSC



- Fits into the fourth tier of the DOL competency model.
- Developed specifically for the manufacturing industry.
- Defines knowledge, skills, and performance needed by frontline workers.
- Standards reflect the needs of high-performance & best practice workplaces.

# Contact Information



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