

# 21<sup>st</sup> CENTURY MANUFACTURING WORKFORCE



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Florida House of Representatives  
21<sup>st</sup> Century Competitiveness Committee  
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by

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## Manufacturers in Florida



- There are 16,522 manufacturers in FL; 71% employ fewer than 10 people
- Highest concentration of manufacturing employees is in Broward, Hillsborough, Miami-Dade, Orange, Palm Beach and Pinellas Counties
- Miami is the top manufacturing area in Florida with 49,645 jobs
- Florida manufacturers employ 397,800 Floridians
- The annual average wage in the industry is \$44,292
- Florida ranks #13 in the nation in manufacturing jobs, behind Georgia
- In 2004, Florida's gross state product was \$600 billion; manufacturing represented \$32 billion of that amount, ahead of construction and agriculture

# Manufacturers in Florida



- Brazil and Canada are the leading destinations for exports from Florida
- The leading products exported are fertilizer, office machinery parts, telecommunications equipment, and aircraft and spacecraft parts
- Florida manufacturers make everything from potato chips to microchips
- Manufacturers in Florida have THOUSANDS of jobs open and could produce more product and secure more contracts if they had the skilled workers to do so

## Florida Manufacturing Skills Gap

**“With thousands of jobs available, but a lack of skilled and appropriately educated and trained workers, one of the critical impediments to greater manufacturing success in Florida is an industry-ready workforce.”**



- legislative agenda 2007

- 90% cite shortage of production workers as their top workforce issue<sup>1)</sup>
- 80% have difficulty finding workers with right skills<sup>1)</sup>
- 50% report inadequate employability and problem-solving skills<sup>1)</sup>
- 33% report insufficient reading, writing and communications skills<sup>1)</sup>
- 81% indicate training resulting in industry-recognized certification is important <sup>2)</sup>
- 65% agreed certification would reduce the time needed to train new employees <sup>3)</sup>

# Tropicana Workforce – Florida Facilities

## **Aging work force**

- Average age over 45
- Age Range 18-76
- 65% have more than 10 years of service (vested)

## **Technology is outpacing skills**

- Higher skill level required to function
- Specialized training required after entry

## **Small existing labor pool to find employees**

- Low unemployment ~2.5% unemployment in Manatee County
- Fewer qualified employees from other states due to housing costs
- No statewide “pipeline” of appropriate skills trained graduates

## **Perceptions of manufacturing jobs**

- Potential employees are not aware of the high skill/high wage positions in manufacturing
- Lack of awareness or misperception of manufacturing environment

# Tropicana Workforce – Needs

- Ongoing supply of manufacturing skilled workers with flexible abilities to adapt to changing technology
- Step change in incoming skilled employees’ qualifications requiring nationally recognized skill certification(s)
- Agile, highly developed “athlete of the future” worker able to keep pace with technological change
- Increased collaboration between business, Workforce Boards (regions) and the Education community
- Reform and standardization of manufacturing curricula throughout Florida through FL-ATE and Banner Center
- Increased ability to match future workers to employers with industry-recognized credentials and outreach into K-12 system

# Tropicana Workforce – Competencies Expected for Various Levels of Employment

**Entry:** Jobs with a short learning curve that require only cursory instructions to enable an individual to perform satisfactorily

- Basic skills - 8th grade competency in Math, Reading (English), Writing (English)
- Work ethic, Interpersonal skills, Communications, Teamwork
- Problem Solving
- MSSC Certification
- Basic Computer skills
- Industrial safety skills OSHA-First Aid / CPR
- Manufacturing awareness
- Quality skills, Good Manufacturing Practices (GMP), Definition of Quality, Food Safety

**Semi-Skilled:** Jobs that have a longer learning curve and involve more complex operations and the mastery of more complex pieces of manufacturing equipment.

- Basic skills, >12th grade competency (10th grade – interim target), Math, Reading (English), Writing (English)
- Interpersonal skills (Communications, Teamwork, Problem Solving, Conflict Resolution, Presentation skills)
- Computer skills –Windows
- Same Safety and Quality knowledge/skills along with Advanced Quality (SPC, Quality tools, etc.)
- Basic Science - Applied Math & Physics, Statistics, Biology/Microbiology
- TPM Fundamentals
- Mechanical aptitude/Technical skills
- Use of hand tools
- Manufacturing processes
- Maintenance knowledge
- Basic electricity
- Business knowledge (Accounting, Budgeting)
- MSSC Certification

**High Skilled:** Skilled Trades jobs that require 4 to 5 years to attain a mastery level, such as Electrician or Mechanic. Same base skills as Semi-skilled along with:

- Basic skills, >12th grade competency (10th grade – interim target), Math, Reading (English), Writing (English)
- Mechanical aptitude - Advanced use of hand tools, Manufacturing processes, Advanced blueprint reading,
- Troubleshooting
- Mechanical Concepts
- Hydraulics / Pneumatics
- Specialized Trade Specific skills

## Manufacturing Workforce Needs

Addressing the needs for skilled workers is a required competitive and survival strategy for most manufacturers.

The Educational System must create a rigorous and relevant curriculum that:

- Meets industry competency requirements
- Presents consistent offerings throughout the State of Florida
- Contains articulation pathways for secondary career and technical education students to earn community college credit for the successful demonstration of proficiency in the subject area
- Includes transfer options to universities for community college graduates

# Secondary Academies

**The CHOICE model for career academies from Okaloosa County has been extremely successful.**

- St. Lucie County received CHOICE funding for a manufacturing program in 2006-2007.
- With manufacturers still having thousands of jobs open and the need to create even more jobs to meet production demands, we recommend that the Legislature support CHOICE replication funding and designate a portion of that to create manufacturing CHOICE Academies in Florida again in 2007-2008.

# Secondary Academies

**Other new legislation supporting the creation of Secondary Career Academies or Small Learning Communities must:**

- Provide for a clear articulation pathway to post-secondary education through either:
  - Dual Enrollment or
  - Articulation of Industry Recognized **Certification**

**Offering only 1 pathway will severely limit statewide deployment**

These academies must also:

- Specify Industry participation to ensure relevance
- Adhere to the requirements of Goal Seal Vocational Scholarships

# Certification



Florida's manufacturers have chosen the industry certification as the desired articulation pathway through the adoption of the Manufacturing Skills Standards Council's (MSSC) Production Technician Certification.

The MSSC Certification addresses the core competencies required by all of Florida's Manufacturing sectors:



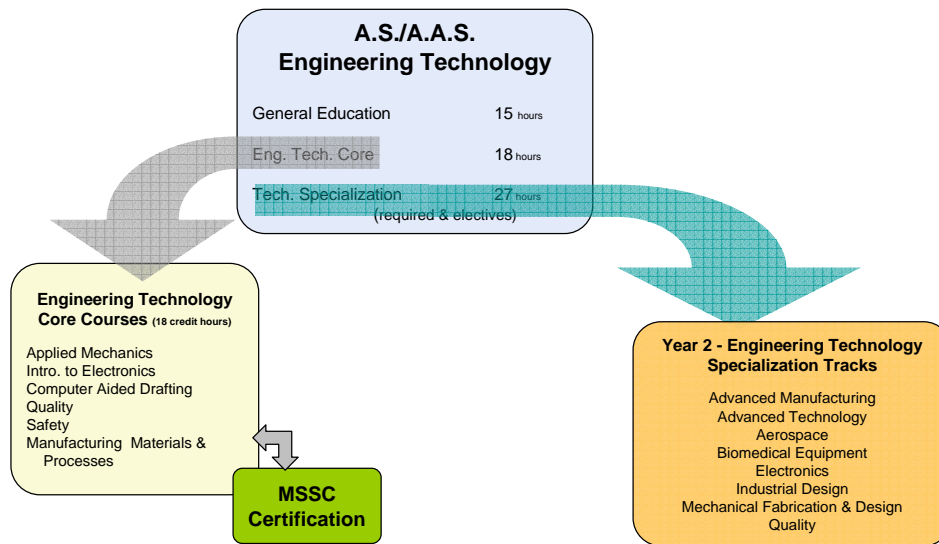
# Certification

The newly created AS/AAS degree in Engineering Technology created by The National Science Foundation funded **FL-ATE** Center for Manufacturing Education has created a new AS/AAS degree program aligned with industry needs and MSSC certification:

- Formatted as a 1+1 degree
  - year-1 the student completes the MSSC certification areas in an 18 credit hour technical core and their general education requirements.
  - year-2 the student chooses a specialization track to advance their skills and knowledge in one of the following areas: Advanced Manufacturing, Quality, Electronics, Materials Design and Fabrication, or Aerospace.
- If the student arrives at the community college with the MSSC Certification they will receive 18 credit hours towards the degree applied as the year-1 technical core.



# AS/AAS Degree – MSSC Certification as Pathway



## Certification

Further supporting this initiative, the Workforce Florida-funded **Employ Florida Banner Center for Manufacturing** is

- Creating curriculum for statewide dissemination supporting the MSSC Certification
- Beta-testing the curriculum with secondary academy students, the unemployed & underemployed, and community college students.
- Delivering the MSSC Certification training to an initial cohort 150 people in Florida
- Establishing MSSC Assessment centers throughout Florida



# Manufacturers – “Skin in the Game”

As stated earlier:

- Addressing the needs for skilled workers is a required competitive and survival strategy for most manufacturers.

The Manufacturers Association of Florida (MAF) has partnered with FL-ATE and the Banner Center to:

- Survey Florida manufacturers on their workforce needs
- Create a new AS/AAS degree program for statewide adoption
- Identify a national industry certification for manufacturing employees
- Create an Outreach campaign to raise student awareness of the high-skill / high-wage / high-tech careers available in Florida Manufacturing
  - » MADE IN FLORIDA campaign
  - » [www.madeinflorida.org](http://www.madeinflorida.org)
  - » “Made in Florida” DVD
  - » “Made in Florida - Industry Tours”
  - » Florida Trend *NEXT* advertorial



## Manufacturing Education Legislative Agenda

- **Industry Certification - Provide for industry certifications such as MSSC to be earned at the high school or community college level**
- **High School Elective - Add back “practical arts” to the high school graduation elective credit option**
- **Career Academies – Authorize the replication of more CHOICE Career Academies and designation of a manufacturing CHOICE Academy in Florida again in 2007-2008 (Treasure Coast High School, St. Lucie County in 2006-2007)**
- **SUCCEED – Designate \$2.5 million in SUCCEED grants for the manufacturing sector in 2007-2008**

# Manufacturing Education Legislative Agenda

- **A++ Career Declarations - Insure that in schools in communities where there is a significant manufacturing presence offer manufacturing related career selections at the middle school and/or high school level**
- **Teacher recruitment - Recruit science, math and technical education teachers**
- **Incentives for career counseling – Reward teachers that direct students with technical aptitudes into those education pathways**

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