Keeping Kansas Competitive

The Advanced Manufacturing Career Pathway
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Driving U.S. Manufacturing Competitiveness

- Research
- Innovation Support & Services
- Education Reform & Workforce Development

6/6/2011
Most Economic Value

Economic Activity Generated by $1 of Sector GDP

Source: U.S. Bureau of Economic Analysis, 2007 Annual Input-Output Tables
Manufacturing in Kansas

- Accounts for 14% of the total output in the state;
- Employs 12.1% of the workforce; and
- Compensates 57.5% higher than other nonfarm employers in the state.

Top 10 Kansas Manufacturing Sectors
(in Billions of Dollars)

- Other transportation equipment manufacturing: $5.1
- Food product manufacturing: $2.7
- Chemical manufacturing: $1.4
- Fabricated metal product manufacturing: $1.2
- Machinery manufacturing: $1.2
- Plastics and rubber products manufacturing: $1.0
- Computer and electronic product manufacturing: $0.8
- Petroleum and coal products manufacturing: $0.7
- Motor vehicle, body, trailer, and parts manufacturing: $0.7
- Printing and related support activities: $0.7
Manufacturing Employment by Skill Group, 2003 through 2010

Talent Drives Innovation

✓ A skilled, educated workforce is the single most critical element and predictor of innovation success.
✓ Finding high quality talent is one of the greatest “pain points” for manufacturers.
✓ As innovation drives U.S. manufacturing, the skill level required for employees has increased, pressuring the U.S. education system.

Source: The Innovation Imperative in Manufacturing – How the United States Can Restore Its Edge
The Challenges

- Even at the height of the global recession, 32% of surveyed companies reported moderate to serious skills shortages in the hiring pool.

- Contributing to our workforce challenges are:
  - Demographics.
  - Technological advances
  - Major deficits in our education system

Source: *People and Profitability—A Time for Change*
Supply Chain Model of the STEM Pipeline

PK – 4th Grade

8th Grade

12th Grade

65% of students do not demonstrate proficiency in math

71% of students do not demonstrate proficiency in math

83% of students do not demonstrate proficiency in math

83% = Lost STEM Pipeline
Manufacturers support policies at every level of education to improve the talent pipeline.
Manufacturers support:

- Technology-infused postsecondary education alternatives;
- Competency-based postsecondary pathways;
- Compressed secondary-postsecondary learning;
- Accelerated pathways to credentials and more “on and off” ramps to postsecondary education;
- More Learn & Earn programs of study;
- More internships and mentorships.
PROVIDING COMPETENCY-BASED, CUSTOMIZED EDUCATION AND TRAINING FOR THE MANUFACTURING WORKFORCE...TODAY AND TOMORROW
Advanced Manufacturing Competency Model

High Quality Middle Class Jobs

Occupation-Specific Certifications

Entry Level Industry Certifications

Ready for Work, Ready for College
The NAM-Endorsed Manufacturing Skills Certification System

- Aligned to the Manufacturing Competency Model
- Nationally Portable
- Third-Party Validated (ISO/ANSI Preferred)
- Industry-Driven
- Data Based and Supported
THROUGH FULL STATEWIDE DEPLOYMENT OF THE NAM-ENDORSED MANUFACTURING SKILLS CERTIFICATION SYSTEM, THE MANUFACTURING INSTITUTE: CAN IMPACT 80% OF COMMUNITY COLLEGES... ...ENROLLING 77% OF COMMUNITY COLLEGE STUDENTS... ...BENEFITTING 84% OF MANUFACTURING EMPLOYMENT
Models

“If you look at how community colleges are organized... developmental education sits in one silo while non-credit workforce training sits in another silo. To achieve real solutions, we have to be much more integrated in how we deploy these assets.

Roderick Nunn, Vice Chancellor, St. Louis Community College

- High school to community college
- ABE/bridge programs to credit certificate/diploma/degree
- Continuing education to for-credit
- Community college integration into current for-credit programs of study
- Pre-apprenticeship to apprenticeship
- Community college to four-year institutions
Kansas Helping to Lead the Nation

Aligning Education to Industry Certifications and Career Pathways

Machine Technology Program Alignment - Kansas Board of Regents

Machine Technology Level 1
- Measurement, Materials and Safety
  (Level 1 NIMS Credential)
- Job Planning, Bench Work and Layout
  (Level 1 NIMS Credential)
- OSHA 10 or 30 card

Level 1
- 15 credit hours of General Education

Degree

Certificate A

A.A.S.
Maximum of 64 credits for state funding

Common Courses within the Program

Notes
- Competencies identified within the 20-24 credit hours of common courses represent opportunities for articulation with T-12.

Colleges seeking to teach additional courses to their AAS (or instead of 64 credits) will need to identify those courses in their plans.

Colleges are encouraged to recommend other NIMS credentials to students completing the AAS to meet regional and local needs.

*The data faculty committee chose to leave the course name and competencies associated with the Math Requirement to the discretion of individual colleges.
Maximizing Flexibility

Foundational Skills + Cross-Cutting Technical Skills
(and the industry-based credentials that support them)

Aerospace Products & Parts Manufacturing

Food Manufacturing

Motor Vehicle Manufacturing

Medical Equipment & Supplies Manufacturing

Architectural & Structural Metals Manufacturing

Pharmaceutical & Medical Manufacturing

Cement & Concrete Manufacturing

Pharmaceutical & Medical Manufacturing
Critical Components Driving Success

1. Identify Regional Economic Demands (Data Validation)
2. Developing a Timeline for Action
3. Engage Industry Leaders/ Building Demand
4. Engaging Faculty and College Leadership
5. Developing Advanced Manufacturing Career Pathways
6. Auditing Programs of Study
7. Aligning to STEM; Emphasizing/Integrating STEM Skills
8. Aligning and Mapping Certifications to Programs
9. Assessing Faculty and Implementing Professional Development
10. Developing Certification Partnerships
11. Deploying Dream It Do It (Student Recruitment)
12. Developing Feeder Systems (WIA, Adult Basic Education)
13. Developing Benchmarks
14. Driving a Policy Agenda
15. Sustaining Certifications (Administrative, Staffing and Fiscal Realities)
Priority Sectors Include:

- Aerospace/Defense
- Automation
- Life Science
- Construction
- Energy
- Plastics and Composites
- Transportation, Distribution, and Logistics
CEWD Approach
Recruiting Students Into Advanced Manufacturing Careers

Ideas That MOVE US.

From nanotechnology to robotics, innovative ideas happen every single day. But who transforms these raw ideas into the must-have products that improve the lives of everyone around us?

With a career in manufacturing, YOU WILL.
“I want to bet on America. I believe we can win. I think talent is here and innovativeness is here…

We have to put the effort in and make sure that the opportunities are ubiquitous so everybody can take advantage of them. If we do that, our manufacturing economy will be strong for a long time to come regardless of what’s going on in the rest of the world.”

Governor John Engler,
President, Business Roundtable
A “Win-Win” Scenario

- Educators
- High-Quality Jobs
- Employers
- Workers
- Regional Development
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