Minnesota Advanced Manufacturing Partnership
Presenters

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Agenda

• Skills Gap in Advanced Manufacturing
• Accelerating Pathways & a restructured academic framework with stackable, portable credentials
• Industry Recognized Credential and Credit for Prior Learning
• Veterans and Credit for Prior Learning
• Effective Models to Address the Skills Gap
Critical Middle Skills Gap

Manufacturers need more technically trained employees

- 67% moderate-to-severe shortage of qualified workers
- 56% expect shortage to worsen next 3 to 5 years
- 5% jobs unfilled due to lack of qualified candidates

The National Focus

President Obama’s Advanced Manufacturing Partnership (AMP) Steering Committee 2.0

5 work groups within the AMP initiative:

- Transformative Technologies
- National Network for Manufacturing Innovation (NNMI)
- Scale-up Policy
- Image of Manufacturing
- Demand–Driven Workforce Solutions
The Minnesota Workforce Solution

Goals

• Greater number of technically trained employees
• Fill vacant manufacturing jobs
• Support growth in manufacturing

Minnesota Advanced Manufacturing Partnership

• Advanced Manufacturing Education Pathways
• National Credentialing System
• Bridging Modules for Veterans
• Apprenticeship Models
• Variety of Instructional Models
• A project of the Minnesota Advanced Manufacturing Partnership (MnAMP)
• Funded by the U.S. Department of Labor – 15 Million
• 12 colleges, 360 and MNCEME Centers of Excellence
• Three disciplines of manufacturing
  – Machining
  – Mechatronics
  – Welding
Consortium

- Century College
- Dakota County Technical College
- Lake Superior College
- Minneapolis Comm & Technical College
- MN State Comm & Technical College
- MN West Comm & Technical College
- Normandale Comm College
- Northland Comm & Technical College
- Ridgewater College
- Riverland Comm College
- St. Paul College
- South Central College
- 360 – Bemidji State
- MNCEME-MSU
Learn Work Earn Strategies

• Create seamless career pathways in advanced manufacturing that offer stackable and portable credentials.
• Create/Update academic programs in advanced manufacturing to match employer needs by aligning industry recognized credentials within pathways.
• Develop long-term collaborative partnership with manufacturing employers.
• Improve job placement and retention through learner support and wrap around services.
Advanced Manufacturing Core
Credit or Non-Credit
CMAE Credits
OR
MSSC Certified Production Technician (CPT) Credential
CMAE 1522: Quality Practices (2)
CMAE 1514: Safety Awareness (2)
CMAE 1526: Maintenance Awareness (2)
CMAE 1518: Manufacturing Process & Production (2)
Credit for Prior Learning will be awarded if taken non-credit and received
MSSC Certified Production Technician Credential

On-The-Job Opportunities
Registered Apprenticeship
Dual Training

Mechatronics
Industrial Maintenance Certificate
Adv. Manufacturing Core 8
Certificate Credits 17
Total Credits 25

Welding Certificate
Certificate Credits 16
Total Credits 16

Manufacturing Production Technician (MPT) Certificate
Adv. Manufacturing Core 8
Certificate Credits 9
Total Credits 17

Computer Integrated Machining (CIM) Right Skills Now Certificate
Adv. Manufacturing Core 8
Certificate Credits 12
Total Credits 20

Computer Integrated Machining Diploma
Right Skills Now Certificate 20
Diploma Credits 46
Total Credits 66

Mechatronics Diploma
Industrial Maintenance Certificate* 20
Diploma Credits 19
Total Credits 39

Mechatronics AAS Degree
Mechatronics Diploma 39
AAS Degree Credits 21
Total Credits 60

Welding Diploma
Welding Certificate 16
Welding Internship 2
MPT Certificate 17
Total Credits 35

Computer Integrated Machining AAS Degree
CIM Diploma* 62
AAS Degree Credits 10
Total Credits 72

*Except 5 Credits - MATH 1660, MECH 2240

*Except 4 Credits - CIM 2211
Advanced Manufacturing Core
Credit or Non-Credit
CMAE Credits 8
OR
MSSC Certified Production Technician (CPT) Credential

CMAE 1532: Quality Practices (2)
CMAE 1514: Safety Awareness (2)
CMAE 1526: Maintenance Awareness (2)
CMAE 1518: Manufacturing Process & Production (2)

Credit for Prior Learning will be awarded if taken non-credit and received MSSC Certified Production Technician Credentials.

Automation & Robotics Systems Diploma
Adv. Manufacturing Core 8
Diploma Credits 56
Total Credits 64

Automation & Robotics AAS Degree
Adv. Manufacturing Core 8
Diploma Credits 44
General Education 16
Total Credits 67

Machining Technician Diploma
Adv. Manufacturing Core 8
Diploma Credits 24
Total Credits 32

CNC Precision Manufacturing Technician Diploma
Adv. Manufacturing Core 8
Diploma Credits 56
Total Credits 64

CNC Precision Manufacturing Technician AAS Degree
Adv. Manufacturing Core 8
Diploma Credits 44
General Education 15
Total Credits 67

Entry Level Welder Certificate
Certificate Credits 13
Total Credits 13

Welding Diploma
Adv. Manufacturing Core 8
Diploma Credits 20
Total Credits 34

Industrial Welding Diploma
Adv. Manufacturing Core 8
Diploma Credits 56
Total Credits 64

Advanced CNC Certificate
Certificate Credits 11
Total Credits 11

Industrial Welding AAS Degree
Adv. Manufacturing Core 8
Diploma Credits 49
General Education 15
Total Credits 72

Employment
Advanced Manufacturing Core
Credit or Non-Credit
- CMAE Credits: 8
- OR
- MSSC Certified Production Technician (CPT) Credential

Manufacturing Workplace Foundations
Certificate
- Adv. Manufacturing Core: 8
- Certificate Credits: 7
- Total Credits: 15

Vacuum and Thin Film Technology
AAS Degree
- MWF Certificate*: 11
- AAS Credits: 49
- Total Credits: 60

*Except 4 technical elective credits

Credit for Prior Learning will be awarded if taken non-credit and received MSSC Certified Production Technician Credential

On-The-Job Opportunities
Registered Apprenticeship Dual Training

Employment
- Equipment Maintenance Technician
- Field Service Technician
- Process Technician
- Engineering Technician
Industry Recognized Credentials

- Recognize an individual’s skills as measured against industry standards
- Connect different levels of training
- Provide an HR tool to recruit, hire, place, and promote
- Sets expectations for employee advancement
History of Skills Certification

• The Manufacturing Institute established a consortium of partners to align *industry certification* to an *Advanced Manufacturing Competency Model*, the result is the *Skills Certification System*.

• The System aligns industry competencies to manufacturing education and career pathways.

**Why Certifications Matter…**

• Opportunity to elevate and standardize the programs offered by community and technical colleges across the country.

• Credentials also carry a prestige that conveys respect on both those individuals that have earned the credential and the occupations that demand it.
MnAMP Core Curriculum

• Manufacturing Skills Standards Association – Certified Production Technician
• Four courses – CMAE course code
• Participant received 8 credits pathway to certificate, diploma and/or degree in a manufacturing program of study
  - Quality Practices
  - Safety Awareness
  - Maintenance Awareness
  - Manufacturing & Production
Third-Party Certifying Associations

AWS - American Welding Society
NIMS - National Institute for Metalworking Skills
MSSC - Manufacturing Skills Standards Council
PMMI - Packaging Machinery Manufacturers Institute

Others as earned in a college program of study or as determined by the employer
MnAMP Credentials

- MSSC Pre-requisite to entering Dual Training or Registered Apprenticeship
- Faculty Credentialing
- Test Sites
- Non-Credit vs. Credit
- Credit based classes – face to face/online – 360
- Telepresence with employers
- Credit for Prior Learning for credential
Charting the Future for a Prosperous Minnesota
Competency/Certification & Credit for Prior Learning

- All 31 institutions over a 3 year period
- A tool kit for College & University Implementation
- Military & Industry Recognized Credentials
- Technical and Liberal Arts Programs
Benefits of CPL

Figure 1. Degree Completion by PLA Credit-earning for All Students

- Did not earn degree or credential
- Other
- Earned Bachelor's Degree
- Earned Associate's Degree

- Did not earn PLA credit (n=46,581)
- Earned PLA credit (n=15,594)
Military Branches

US Military

Army
- Military Occupation Specialty (MOS)

Marine Corps
- Occupational Field

Navy
- Rating or Designator

Air Force
- AFSC

Coast Guard
- Group and Rating

Curriculum

1. Standardized occupation related training
2. Syllabus driven
3. Texts, manuals and references
4. Classroom + field experience
5. Outcome oriented instruction
6. Competency based examination
7. Awarded Occupation
8. Earn levels and ranks through continuing education, experience and performance
Military CPL

Mapping military experience to college courses to provide Veterans CPL

• Veteran’s Education Transfer System (VETS)
  - http://www.mnscu.edu/college-search/public/military
Welcome to VETS*, the Veterans Education Transfer System. Created by the Minnesota State Colleges and Universities, VETS is an online application that helps past, present and future servicemen and servicewomen determine how their military training can count for credit at Minnesota State Colleges and Universities institutions.

VETS is a product of the Veterans Re-Entry Education Program. Funds for the Veterans Re-Entry Education Program were provided from a 2008 (P116Z0805259) and a 2009 (P116Z0960310) congressionally-directed grant award.
These programs may award credits, but do not have established credit agreements. To request that an institution evaluate credits to a program, click Request Review or when enrolling submit an [official military transcript]. To discuss the request or admission process, or other options you can [Connect with an Advisor].

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Two Paths to Learn Work Earn
Dual Training/Registered Apprenticeship

- 3 Apprenticeship Models
- MRTP – Required Instruction through +Connect
- College Enrollment – Work Learn Earn – Cohort
- Company Based

- Funding
  - Minnesota Apprenticeship Initiative
  - Pipeline - Legislative
What is +Connect

A series of 8 week training courses led by live instructors via mediated telepresence. Employees can train right at their company, making +Connect ideal for incumbent workers and those in apprenticeships or dual-training programs.
The Right Signals Initiative

- Existing industry-recognized credentials
  - National Institute of Metalworking Skills (NIMS)
  - American Welding Society (AWS)
- Reframed strategy
  - Heating, Ventilation, Air Conditioning, Refrigeration (HVACR)
  - Auto Body and Collision Technology
Questions?

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