

Resources and Partnerships for Community College Engineering and Technology Programs



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A National Science Foundation Center of Excellence

Connecticut College of Technology (COT)

Creation

- Legislatively created in 1995
- Merger of Technical Colleges with Community Colleges
- Established by Higher Education Council

Purpose

- Seamless pathways between community colleges & universities & technical high schools
- Articulation agreements for engineering and technology programs
- Respond to workforce needs through community college programs

Leadership

Recognized as a national model acts as advisory board for RCNGM

- Community Colleges
- State & Private Universities
- High Schools
- Non-Profits
- Business & Industry
- Consultants

Regional Center for Next Generation Manufacturing (RCNGM)

- 3 Rounds of National Science Foundation Advanced Technological Education (NSF ATE) Funding since 2004
- NSF Center of Excellence
- Targets Underserved & Underrepresented Populations
- Manufacturing technician education
- Develops and implements Degrees & Credentials for Workforce Readiness
- Recognized infrastructure of COT as a national model
- Goals: Student Recruitment and Retention, Professional development, Curriculum Development, Articulation Agreements, and Regional Dissemination
- COT enrollment has increased by 269% since creation of RCNGM. Minority enrollment has increased 272% and female enrollment increased 46%.

Industry Partnerships

- Keeps educational programs informed of the latest technologies
- Future workforce learns skills that local companies need in their employees
- Provide experiences for students and educators to learn about advanced manufacturing

Curriculum Development

- Technology Studies Options and curriculum are based on industry needs in the region of the community college

- Program advisory boards include local manufacturers
- Faculty externships require curriculum to be developed based on experience in industry
- Surveys for manufacturing workforce needs



Fig. 1. High school and community college educator tour of Trumpf, Inc. in Farmington, CT

Leveraging

National Science Foundation Collaborations

- Advanced Technological Education Program (ATE) New Performer Grants in CT
- ATE Project Grants with various education organizations (EdAdvance, CBIA, CPEP, NEBHE)
- S-STEM Program partnership with Central CT State University
- Motlow State Community College ATE Subaward

US Department of Labor Grants

- Trade Adjustment Assistance Community College and Career Training (TACCCT) Grants
- Connecticut Manufacturing, Energy, & Transportation (CT MET)
- Connecticut Advanced Manufacturing Institute (CAMI)
- New Apprenticeship Models

CT Advanced Manufacturing Centers

- Created through state and federal funding

SIEMENS Software Grant

- Awarded to CT State Colleges and Universities System- College of Technology
 - All 12 community colleges
 - Central CT State University
 - \$315 million in software – Siemens NX Software Package
 - Includes professional development workshops for faculty

International Partnerships

- ATE Germany Supplement
- Funding for France partnerships through French Embassy

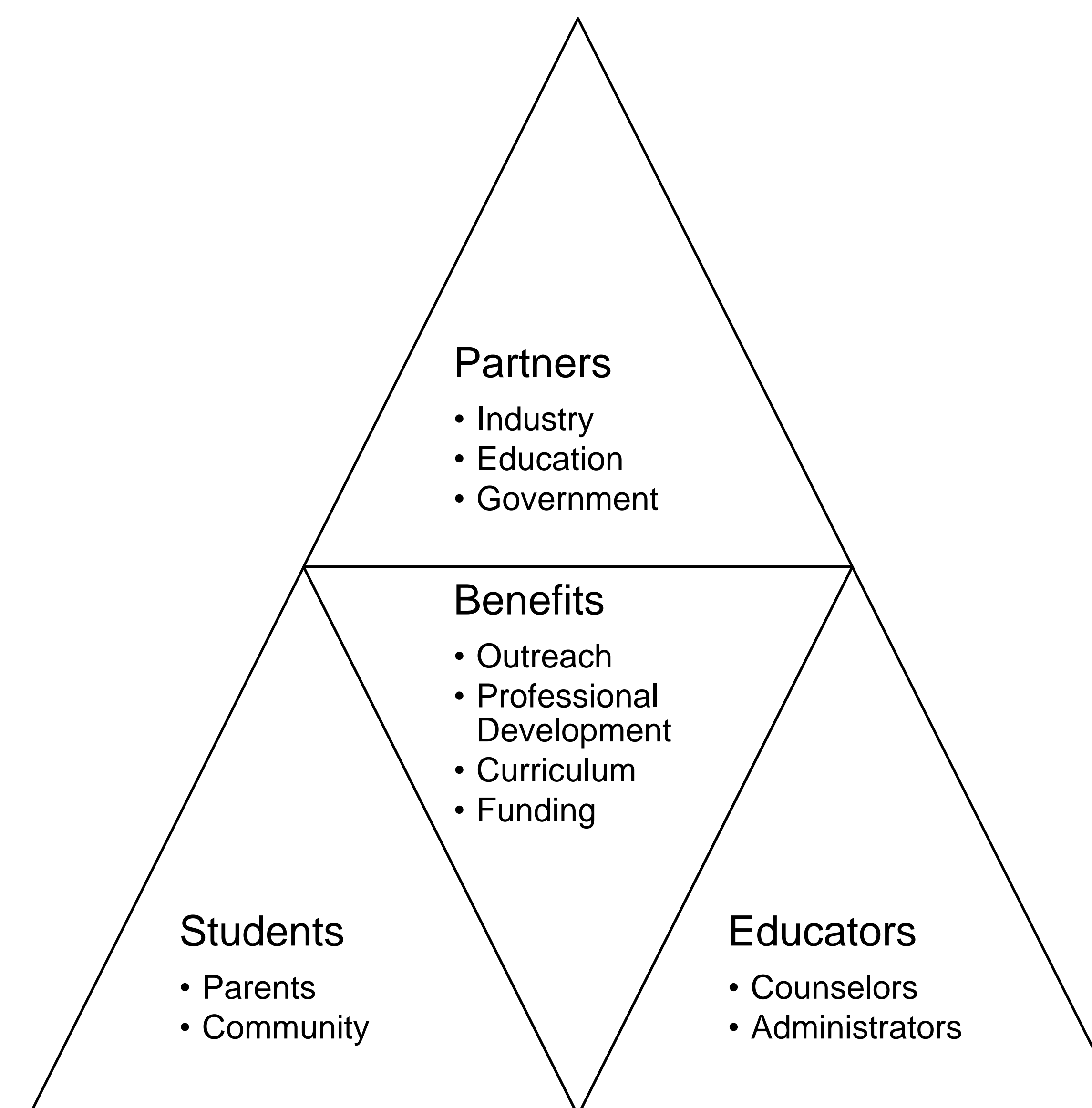


Fig. 2 Benefits of Partnerships

Manufacturing USA Institutes

- Linked Manufacturing USA Innovation Institutes with common goals, but unique concentrations to nurture manufacturing innovation and accelerate commercialization
- Each institute is a public-private membership organization with industry, education, and government partners
- COT-RCNGM is a partner with CESMII and AFFOA and serves on education and outreach committees
- COT-RCNGM is a partner on the Connecticut Apprenticeship Program for Robotics & Automation funded by the ARM Institute. ABB Robotics is the industry partner for the project and is providing robotic arms and training through funding providing by ARM and the CT Department of Economic and Community Development.

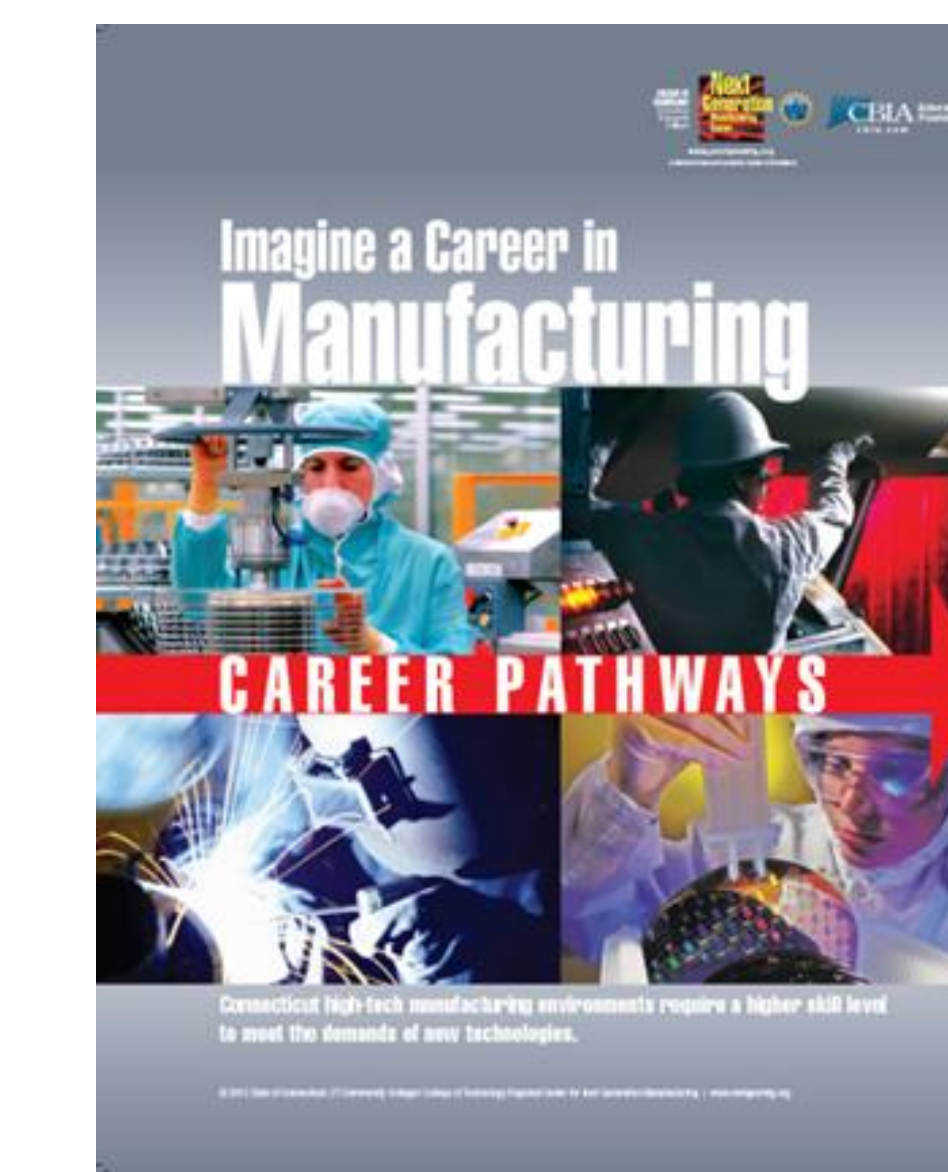


Fig. 3 Manufacture Your Future Educator Guide

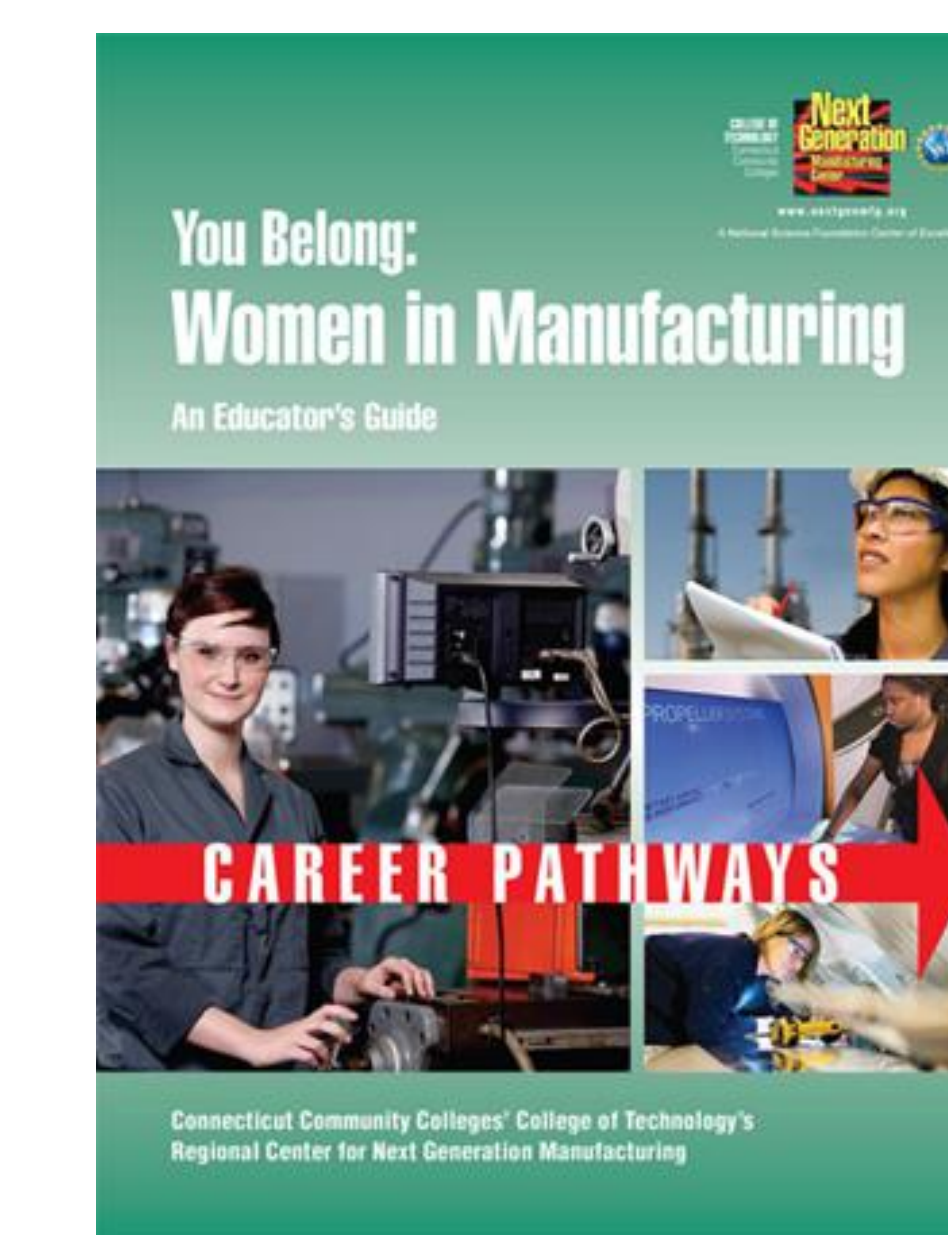


Fig. 4 Women in Manufacturing Educator Guide

Partnering for Outreach

Manufacture Your Future

- What is manufacturing today?
- Educational pathway to a manufacturing career
- Profiles of students from the College of Technology pathways filmed at their companies

You Belong: Women in Manufacturing

- History of Women in Manufacturing
- Why Women Belong in Manufacturing
- Career Pathways
- Salaries and Jobs in Demand
- What is Additive Manufacturing
- Profiles of women filmed at their company

Sample of Technology Studies A.S. Degree Options & Certificates

- Lean Manufacturing & Supply Chain Management Option
- Manufacturing Electro-Mechanical Maintenance Technology Option
- Manufacturing Electronics & Controls Technology Option
- Manufacturing Welding Technology Option
- Advanced Manufacturing Machine Technology Option
- Electrical Option
- Industrial Technology Option
- Technology Management Option
- Computer-Aided Design Option
- Electronics Technology Option
- Computer Engineering Technology Option
- Electric Power Technology Pathway
- Plastics Technology Option
- Biomolecular Science Option
- Technology & Engineering Education Option
- Environmental Science Option
- Sheet Metal Fabrication
- Additive Manufacturing
- CAD/CAM
- Quality Inspection
- Mechatronics
- Metrology
- Electro-Mechanical



Fig. 5 Survey of Workforce Needs

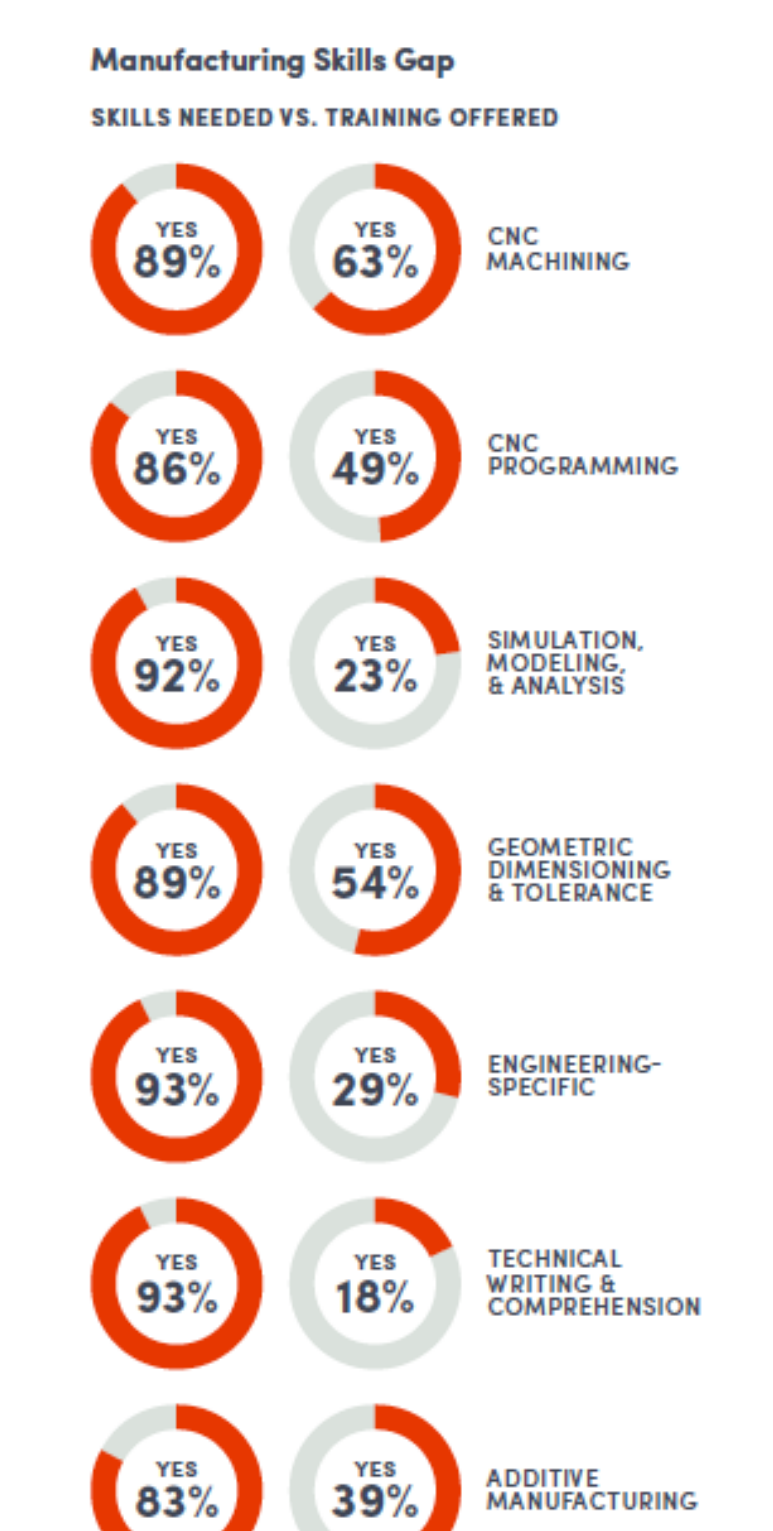


Fig. 6 Sample Findings from Survey of Workforce Needs

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