Debunking the Mysteries of Women in Modern Manufacturing & Our Workforce Challenges

Tue. Oct. 26, 2021
Agenda

• Who is CCAT?
• What are the workforce challenges in CT and how can we advocate for careers in manufacturing and STEM?
• How can we encourage/advocate to stakeholders to consider this dynamic industry?
• What are some best practices on engaging stakeholders to gain exposure and be inspired?
• What are some key take-aways and how can CCAT support your efforts?
CCAT is an applied technology development, demonstration and training center that innovates, validates, demonstrates, and assists with the adoption of leading-edge technologies into Connecticut and the nation’s advanced manufacturing supply chain, while providing vital workforce training and upskilling necessary to fully-utilize the technology advancement.

ADVANCED TECHNOLOGY CENTERS

ADAM: Advanced Design Automation and Metrology

ATOM: Additive Technology Optimization and Machining

Advanced Composite Technology Center
- Demonstrate, Train and Help Companies adopt Industry 4.0 & Digital Technologies
- Foster Industry Partnerships
- Recruitment, Assessment, Job Placement & Retention of underrepresented, young adults, Two-Gen & re-entry populations
- Increase Manufacturing/Technology Awareness

Funding has been provided by CT Department of Economic and Community Development’s Manufacturing Innovation Fund, Connecticut State Board of Education (CSBE); Workforce Solutions Collaborative of Metro Hartford, CT Health and Education Facilities Authority (CHEFA), and Capital Workforce Partners (CWP).
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B.S. Psychology/Spanish, SCSU
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Advanced Design, Automation & Metrology | 4 years @ CCAT
B.S. Mechanical Engineering Sciences, Yale; M.S. Mechanical Engineering, MIT
In the next 10 years, **4.6 million** U.S. jobs will be open in advanced manufacturing...

But only **2.2 million** jobs will be filled!

We have career opportunities flowing from STEM education which need to be shared.

National Association of Manufacturers Manufacturing Institute, 2019
CT’s Chief Manufacturing Officer: Colin Cooper
• Technical high schools
• HS Manufacturing Programs
• Apprentices
• State Colleges & Universities
• Private institutions
• Workforce programs

9,000 CT HS graduates do not go on to college or the military annually

3,000 to 4,000 CT Graduates entering MFG Annually

6,000 to 8,000 newly skilled MFG career candidates annually

MFG Career Candidate Deficit of 3,00 to 4,00 annually

• 35 % of MFG Workforce is 55+
• Jan 20218,00 to 10,00 open positions
The 2020 Perkins Consolidated Annual Report (CAR), student enrollment was provided by career cluster.
Advocacy & Awareness are Key
MANUFACTURING IN CONNECTICUT:  
WE MAKE GREAT STUFF!
Stakeholder Messaging: Modern Manufacturing is...

- Clean & safe
- Innovative & creative
- Technical
- Rewarding
- High paying
Interests/Hobbies = Transferrable Skills

- Attention to detail
- Mechanical Aptitude
- Observation / Research
- Creativity / Design
- Teamwork / Social Skills
- Problem Solving / Critical Thinking
- Project Management
- Customer Service
Career Areas of Advanced Manufacturing

Operations  Technical Support  Quality Assurance  Business Support
Logistics Specialists
$38.20 average CT wage
$25.88 entry level wage

CNC Programmers
$32.24 average CT wage
$21.02 entry level wage

Assemblers
$16.75 average CT wage
$12.08 entry level wage

Welders
$26.02 average CT wage
$16.79 entry level wage

Machine Operators
$24.85 average CT wage
$17.10 entry level wage

Metal Fabricators
$19.81 average CT wage
$14.40 entry level wage
Technical Support

- **Mechanical Drafters**
  - $32.58 average CT wage
  - $21.55 entry level wage

- **Computer Support Specialists**
  - $36.05 average CT wage
  - $23.10 entry level wage

- **Mechanical Engineers**
  - $46.11 average CT wage
  - $31.90 entry level wage

- **Lab Technicians**
  - $20.05 average CT wage
  - $13.77 entry level wage

- **Maintenance Mechanics**
  - $29.87 average CT wage
  - $20.46 entry level wage
Quality Control Technicians
$32.10 average CT wage
$21.84 entry level wage

CMM Operators
( Coordinate Measuring Machine)
$22.77 average CT wage
$19.00 entry level wage
**Accounting & Purchasing Specialists**
$41.60 average CT wage
$27.09 entry level wage

**Office Staff/Customer Service**
$22.98 average CT wage
$13.04 entry level wage

**Managers**
$62.64 average CT wage
$36.23 entry level wage

**Salespeople**
$36.22 average CT wage
$18.95 entry level wage

**Business Support**
Careers in Problem Solving

I enjoy investigating problems by using my analytical skills, researching, and working with data.

Manufacturing engineer

I enjoy using my imagination to create new things. I like to express my creations through art, writing & use of technology.

Materials analyst, engineer, welder, CAD drafter.

I enjoy working with machines and tools.

Manufacturing engineer, CNC machine operator, precision grinder, hydraulic technician.
People, Products & Information Management Careers

I enjoy working with people to solve problems with products. → Quality control inspector, Quality inspector, logistics specialist.

I enjoy leading and managing people in groups and teams. → Manufacturing plant manager, supervisor, product design lead, etc.

I enjoy working with information and finances. → Accounting, Information Technology (IT)
Education and Training Options
What concrete steps can we take as educators, workforce professionals, training specialists and community advocates to

- attract
- advocate
- advance

females and those underrepresented in manufacturing to positively impact the manufacturing workforce of the future?
Reach girls early.

Fourth grade is around the time where girls’ confidence starts to waver, the efficacy begins to change and doubt creeps in, Hudgins said. A 2018 survey by YPulse found girls’ confidence drops 30% between the ages of 8 and 14. That decline begins at a crucial time for coursework decision-making. In fifth grade students begin planning their middle school classes, which will determine the courses they’re able to take in high school. Educators can place girls in coed groups so they’ll learn to be assertive in realistic scenarios.

Show that STEM is everywhere.

Incorporate hands-on, inquiry-based STEM lessons that connect to the real world.

Prompt continuous learning.

Seek out free STEM education materials on the internet, and encourage students to pursue extracurricular STEM activities, such as after-school clubs, summer camps or community service activities that incorporate STEM learning.

Build networks.

Connect girls to female support networks and influencers, including mothers and working role models. Supportive male mentors are also helpful.

Recruiting More Women Engineers | Getting Girls Involved in STEM (syracuse.edu)
Early exposure to CCAT Young Manufacturer’s Academy Summer Programming

Selection of CT High School (Platt) along with Manufacturing trade concentration. June 2021 graduate.

Application and pre-qualification process by CCAT to Pratt & Whitney Pipeline Program 2021. Candidate selected. 7-week paid training at Asnuntuck Community College with hiring letter upon completion. $30+ an hour wage!
Meet CT Companies: Barnes Aerospace

The world is changing.

CTcreates.org
STEM and Modern Manufacturing

- Robotics
- Programming
- Materials Science
- 3D Printing
- Artificial Intelligence
- Augmented Reality
- Data Analytics
- Engineering Design

...and more!
Recommended Strategies

- Working on real-world STEM issues/problems
- Interacting with someone who works in STEM areas
- Learning about STEM careers
- Interacting with a STEM role models
- Designing and carrying out my own STEM project
Fall of 2021: A group of six districts meet to develop and implement strategies to attract and retain females and those from communities currently underrepresented in manufacturing and technology industries. Members meet regularly, share expertise, and work collaboratively in order to positively impact engagement and academic advancement of all students in STEM and manufacturing clusters.

Examples of PLC Program Activities through June 2022:

- District self-reflection on attraction, advocacy, completion
- Alignment of student benchmarks to workforce needs
- Suggestions for best-practice strategies to improve high school outcomes
- Participation in workshops on best practices
- Connections with Industry Ambassador programs and stakeholders
Career Candidate Story: Post-secondary Career Pathway

Connected with CCAT via Training & Education Tool (HOYC). Referred/enrolled in pre-apprentice manufacturing training. Successful completion of Tooling U (SME). Job readiness assistance and career coaching.

Employment in Hartford area manufacturer with successful training completion. Wage increase from ($12) to ($17). Career coaching to identify continue post-secondary options for continued growth.

Post-secondary classes – no focus/major. Personal/family challenges. Certification as flagger: challenges to females on job site, low wage per hour

Barriers addressed to Employment/Training: Affordable housing, COVID impacted services, auto accident, food insecurity, auto insurance, justice involved
2019 Graduates of the Pratt & Whitney sponsored pipeline administered by CCAT with training by Asnuntuck Community College

2021 15 Candidates engaged in training at Asnuntuck Community College

- Recruitment: lense of DEI
- Pre-qualifications and career readiness
- Transition to training process
- Addressing barriers to success
The Advanced Manufacturing Employer Partnership (AMEP) is an employer-led industry partnership focused on the workforce needs of manufacturing companies statewide.

Vision: Every manufacturing position is filled with a qualified employee.
Composition: AMEP comprises three employer-led working groups:

• Career Pathways
• Business Development
• Job Quality

AMEP collaborates and aligns with a network of employers, educators, community organizations, CT state government and municipalities, and economic development agencies in an effort to consolidate resources and streamline processes.

Charles Daniels, AMEP Chair, Chief Financial Officer, Wepco Plastics
Manufacturing Cluster and Pathways Resources

- Today's Skills, Tomorrow's Careers: Career Clusters, Career Pathways, Sample Occupations, and Programs of Study (ct.gov)
- Introducing Students to Manufacturing: Best Practices Guide and Program Resources

CSDE Professional Learning

- Career Readiness PD Playlist
- Apprenticeship Career Path PD Playlist
- Career Exploration PD Playlist
CTcreates.org

Manufacturing Resources for students, parents and educators

- Meet CT MFG Companies videos – more are being added
- Interactive Activities & Games
- Links to resources about Increasing Females in Manufacturing & STEM
CTcreates.org
Celebrate CT MFG Month 2021

Join this national and statewide celebration

• **Attend an event** – Dozens of virtual and in-person opportunities this Fall

• **Watch short videos** made for CT students to virtually Meet CT MFG Companies

• **Engage and invite** rising young professionals (Industry Ambassadors) to inspire the next generation and raise awareness of career opportunities in modern manufacturing. (CCAT can help!)

Contact: Eileen Candels, ecandels@ccat.us
CT MFG Month Events

ManufaCTuring Mania Community Open House at CCAT
Tue. Nov. 16 @ 4:00 - 6:00 pm

Register at ccat.us/events »

ManufaCTuring Mania Community Open House at Goodwin University
Tue. Oct. 26 @ 3:00 - 5:00 pm

Aerospace Components Manufacturers Workforce Opportunities Fair
Wed. Nov. 10, 8:15 – 11:30 am

Register at ctcreates.org/acm
CT MFG MONTH SUMMIT FOR EDUCATORS
Wed. Oct. 27, 4-5 pm
Join us for a collaborative conversation to learn about the importance of manufacturing and technology pathways for your students.

Colin Cooper
Chief MFG Officer
State of CT

Dr. Kelli Vallieres
Exec. Dir. CT Office of Workforce Strategy & Vice Chair, Governor's Workforce Council

Ron Angelo
President & CEO
CCAT

Dr. Melissa Hickey
Reading/Literacy Director
CSDE

Shannon Marimón
Executive Director
ReadyCT

CTMFGMONTH.com
Tour CCAT’s Advanced Technology Center to Inspire ALL Students

- **Tue. Nov. 30, 9-11 am** (In-Person)
- **Tue. Feb. 15, 1-3 pm** (In-Person)

Intro to 3D Printing Technologies for Educators
(On-Demand)

Intro to Manufacturing Careers for Educators
(On-Demand)

Modern Inspection Technologies for Educators
(On-Demand)

Register at **ccat.us/events**
Industry Ambassadors

• Industry Ambassadors represent emerging manufacturing employees that are committed, energetic, and driven within operations, technical support, business support, and quality assurance roles.

• Industry Ambassadors showcase experiences in modern CT Manufacturing companies and career journeys to students.

• Based on The Manufacturing Institute’s national best practice model, CCAT’s Industry Ambassador Program is designed to create greater awareness about careers in manufacturing and technology with a focus on inspiring women and people of color.

We can help you set up meaningful connections to recruit and inspire our future workforce.

Contact: Eileen Candels, ecandels@ccat.us
Now in its 17th year, the annual Women of Innovation® program recognizes women innovators, role models, and leaders in science and technology, including outstanding young women at the high school and collegiate levels pursuing technology professions. These outstanding women in STEM are the researchers, engineers, entrepreneurs, and business leaders who are developing technologies and discovering breakthroughs that are creating a better future for our state.

Women of Innovation® 2021 is a proud collaboration between the Connecticut Technology Council (CTC) and the Connecticut Center for Advanced Technology, Inc. (CCAT).

View the online celebration from 10/14/2021 at womenofinnovation.org
Connect. Collaborate. Utilize Resources.

What new awareness, questions, or ideas do you have after today’s presentation?

What is one resource or take-away that you can easily use to engage students/families/stakeholders?
If there are any resources we can provide or any other ways we can help, please feel free to reach out!

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