

Quinsigamond Community College

Manufacturing Technology

Associate Professor Lee Duerden
BEng Mechanical Engineering - UK
Master of Mathematics for educators - WPI

Workforce training
Certificate – 1 year
Associate degree – 2 year



Why am I here?

What do students do if they don't want to go straight to a 4-year college?

Get a Job

Go to a community college

Win the lottery

Start a business

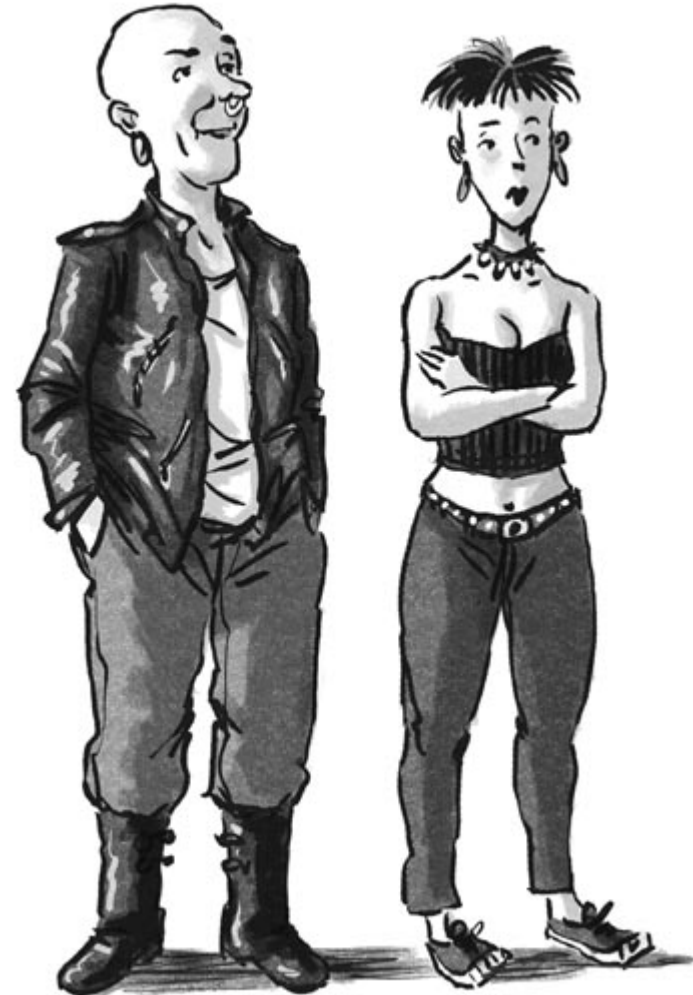
Stay at home

Get married and have children

How many of these are long term prospects?

What are employers looking for?

1. Presentable
2. Punctual
3. Teachable
4. Interested
5. Communication
6. Basic skills



Career paths – w/o HS graduation?

Mechanic

Nurse

Administrative
assistant

Sales person

Hair dresser

Waiter

Technician

Parks and
recreation

Mechanic

Construction
trades

How many of these are possible without
Further education?

What are more realistic options in the Worcester County area?

Teaching

Manufacturing / Engineering

Accounting

Certified Technician

Health Care

Finance

Insurance

Qualified nurse

Hotel and Restaurant

Why do we need K-12 Mathematics?

Why we need K-12 Mathematics for these employers?

Algebra

Measurement

Addition and subtraction

Ratios and proportions

Percentages

Statistics

Multiplication and division

Geometry

Applied Problems?

Who are the manufacturing employers?

Metso

Saint-Gobain

Nypromold

IPG Photonics

United Lens

Prime Metals

Why Applied?

1. Students have a toolbox of math tools.
2. Ask most of them to solve a technical problem, they lack the confidence to choose the most appropriate tools.
3. Employers are looking for this ability.

For example:

A Chef needs to know how much flour to order for the next weeks projected sales?

What are next week projected sales?

Will there be waste? What profit do I need?

There are multiple facets to these questions

Where's the Math?

In the Manufacturing Sector

Desirable skills

1. Basic Math
2. Blueprint reading
3. Safety
4. Quality
5. Metrology (Inspection)

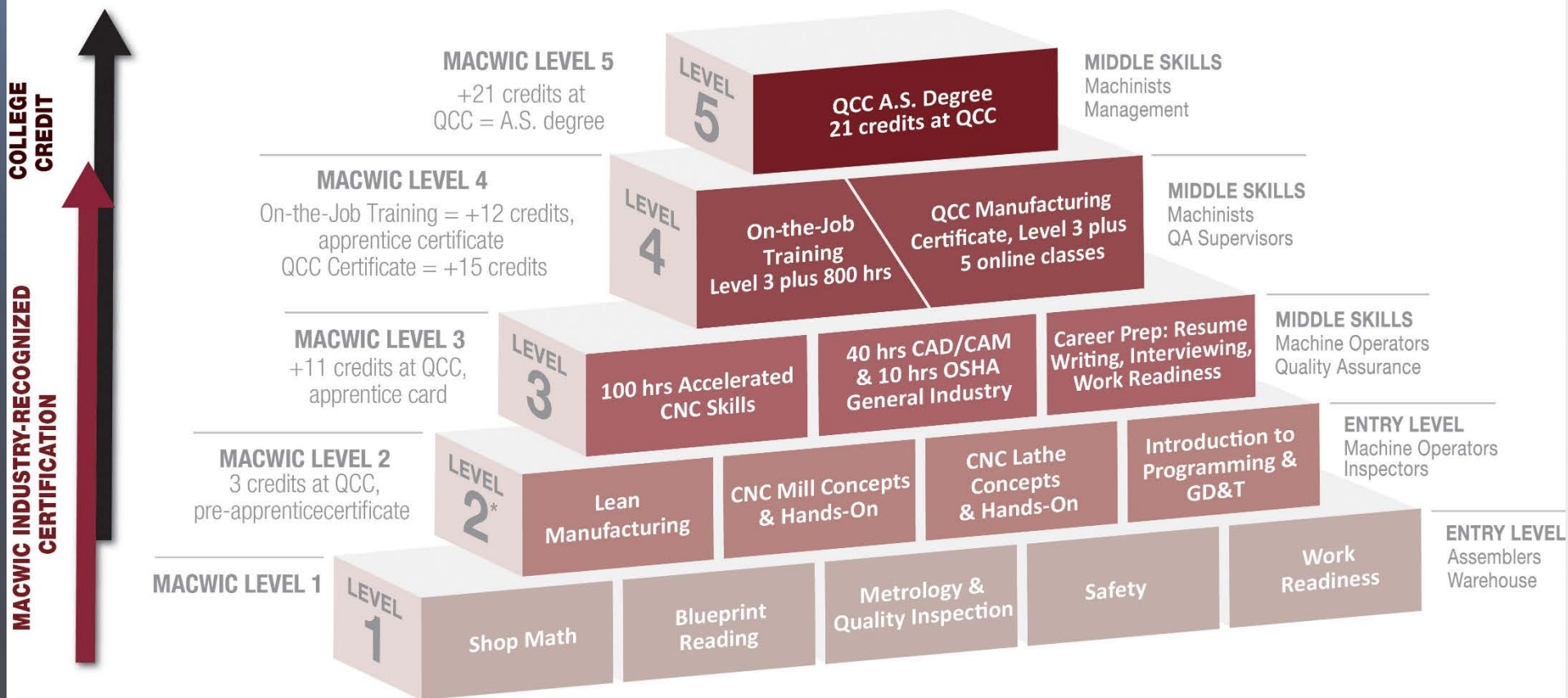


Credentialing

Skills based education

MACWIC

Manufacturing Advancement Center Workforce Innovation Collaborative



*Career/technical students can graduate with a Level 2 certificate. Levels 1 and 2 training can also be taken online.

What is our impression of manufacturing?

Dirty



Unskilled

Hard labor

Low wages

How about now?



Careers

Quality and Inspection

Machine operator

Machine Set up

Machine programmer

Process technician

CAD operator

CAM programmer

Safety supervisor

Procurement technician

Salaries

Entry level - \$13 – 17

Associates Degree - \$15 -
\$23

Degree with 5 years
experience - \$20 - \$32

Case study

Manny Gomez

Graduated from QCC 2009

Joined Metso Automation as Assembler.

Currently he is an area Supervisor.

Nikki Smith

Graduated from QCC 2011

Joined Phillips Precision - Quality

Attended FSU – Bachelors program

Currently is the Quality Manager at Phillips Precision.

Recent Success

Emily Miller

Graduated from QCC 2017

Has 3 different offers from manufacturing companies

Has returned to QCC to bolster her resume

Brandon Avila

Graduated from QCC 2015

Attended FSU – Bachelors program

Working fulltime as Engineering technician

Recent Success

James Walden

Graduated from QCC 2018

Worked as QCC FABLAB assistant.

Joined Perkin Elmer – Digital chip production

Stephen Burris

Graduated from QCC 2018

Journeyman apprentice

Working fulltime as CNC machinist

Workforce training

Killeen Securities

In house workforce training

Summer 2018

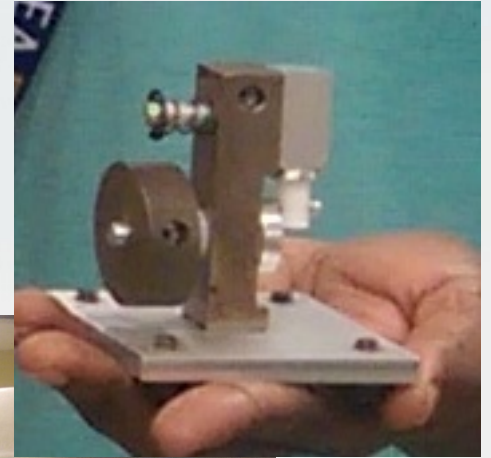
Facility expansion to new facility

Karl Storz

Encourage and fund higher education

26 employees attending QCC Manufacturing program

Workforce training



QCC programs

Manufacturing Technology

Electronics

Robotics

Photonics

Complete 2 years for under \$25,000

Compared to \$86,000

Transfer and save \$61,000