Manufacturing Pathways

Navigating the pathways to great careers

Industry-aligned, credential-based technical education

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FLATE

Florida's Advanced Technological Education Center of Excellence

NSF Advanced Technological Education

Partners with Industry for a new American Workforce

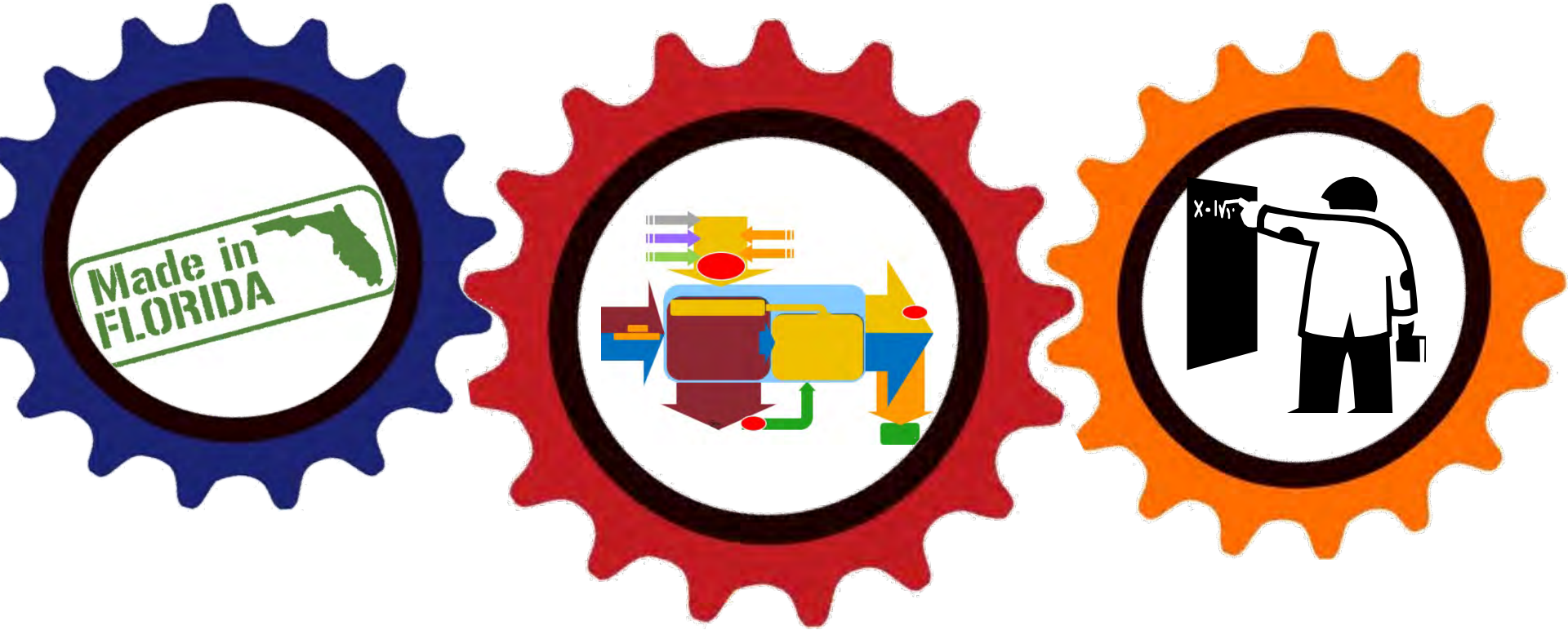
VISION

FLATE will be Florida's leading resource for education and training expertise, leadership, projects, and services to promote and support the workforce in the high performance production and manufacturing community.

Impact locally. Lead nationally.

Impact Florida. Lead Nationally.

Outreach ◆ Curriculum Reform ◆ Professional Development



Tell Teach Train

Advancing Excellence in Engineering Technologies

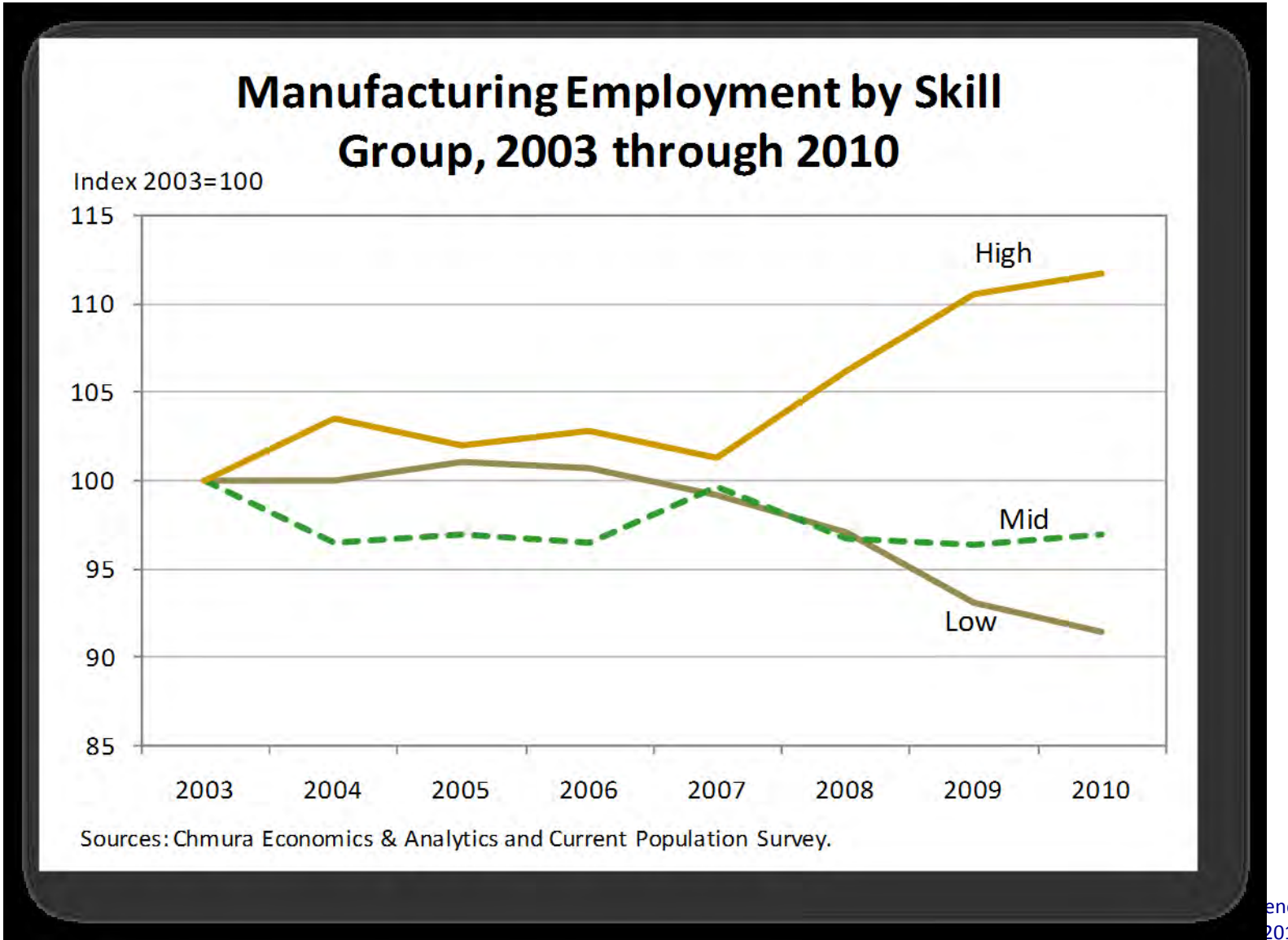
What is manufacturing?

When we think of manufacturing – we think of **PRODUCTION** – how things are made

Manufacturing is a process that takes raw **materials** and **turns** them into (useful) products. It implies **mass production**, as in making products by **hand** or with the help of **machinery**.

MANUFACTURING is changing raw or processed materials into products people can use or just want! This includes cell phones, computers, jeans, orange juice, jewelry, cosmetics, cars…you name it. Everything is manufactured and **YOU** could be part of the action!

Manufacturing Jobs Require Higher Skills



Roadmap for Manufacturing Education

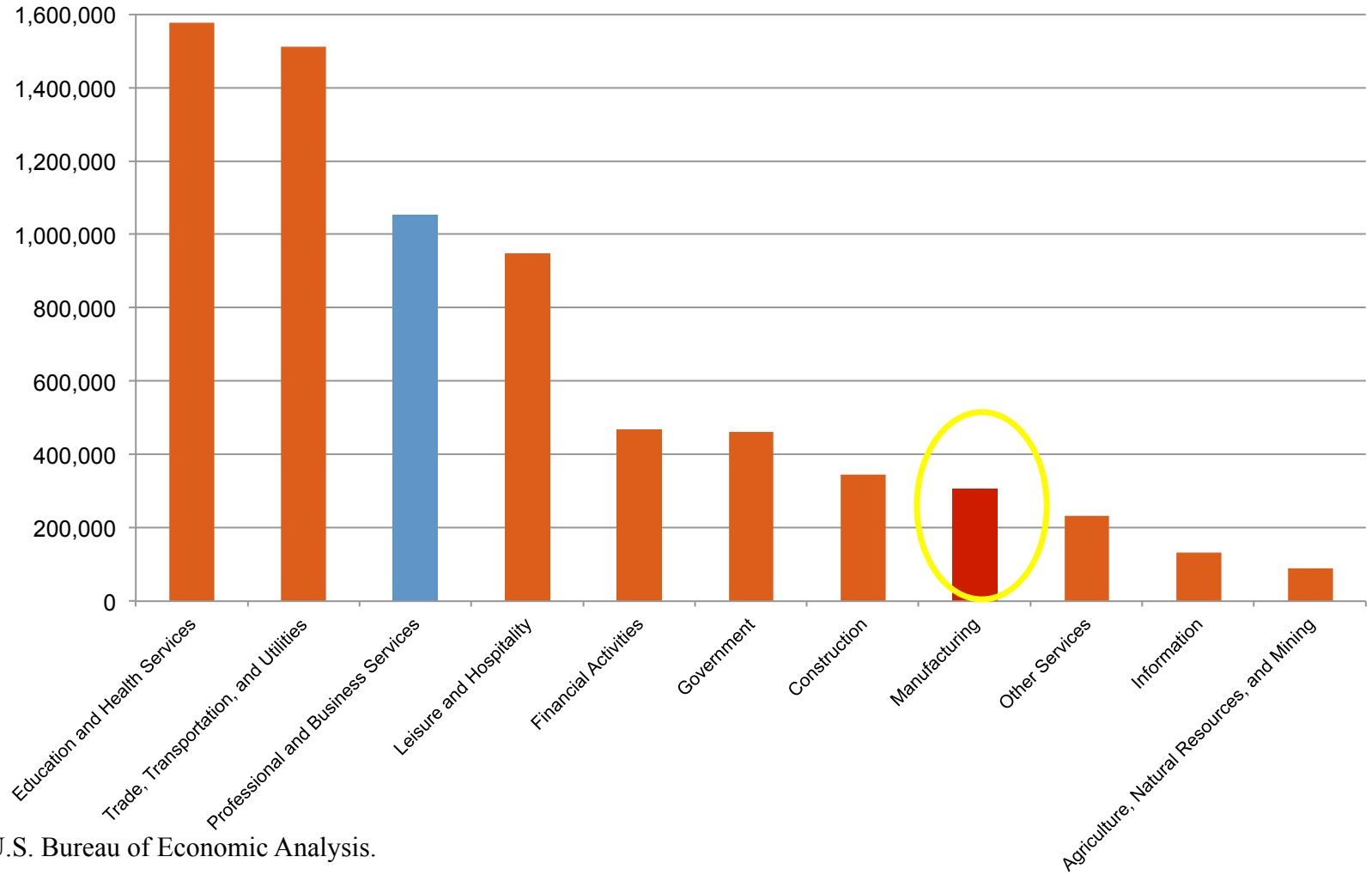
- Integrated academic and technical learning pathways
- More focus on STEM (Science, Technology, Engineering and Math) education
- More integrated career and education pathways to higher education and lifelong learning
- Integration of nationally portable, industry-recognized credentials aligned to educational programs
- Deep engagement of industry with education

dvanced Manufacturing is a Economic Driver in Florida

- Florida Manufacturing Establishments: **14,324**
- Manufacturing Employment: **306,800**
- **$36.7 billion** of the total state output
- Percent of Florida exports: **85%**
- Manufacturing Average Annual Compensation: **$62,859** (54.8% higher than other sectors)

Source: U.S. Bureau of Economic Analysis.

Adv Manufacturing is the 8th Largest Employer in the State



Source: U.S. Bureau of Economic Analysis.

What is manufacturing?

- Engineering & Design
- Product Development
- Business Services
- Information Technologies
- Human Resources
- Construction
- Building Facilities
- Legal
- Packaging
- Marketing
- Logistics & Transportation
- Environmental Health & Safety

BUT – there is much more

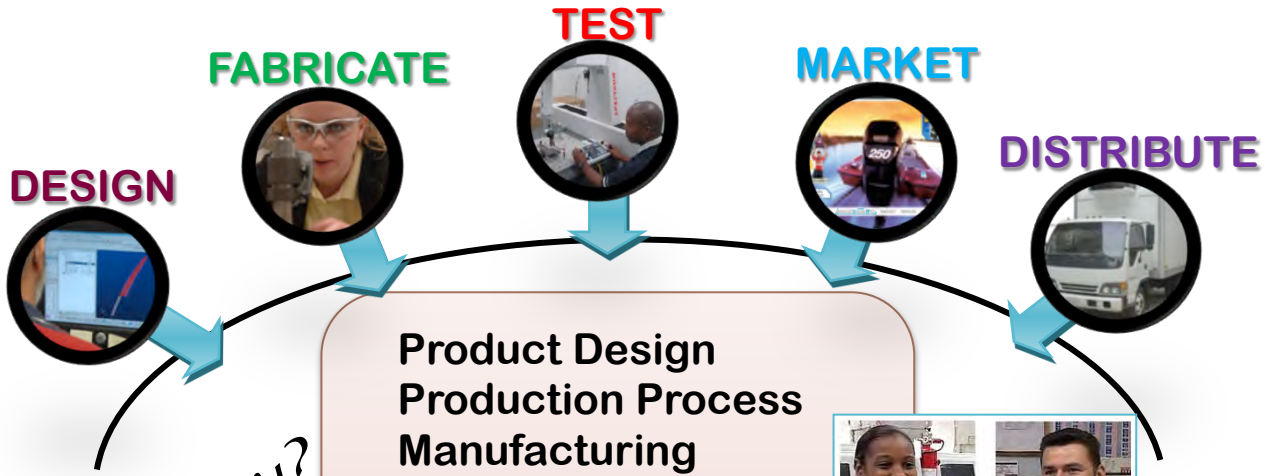
NAM: National Perspective

- Automation
- Aerospace
- Energy
- Pharmaceuticals & Medical
- Food Processing
- Automotive
- Machinery
- Motor Vehicles
- Transportation & Logistics
- Construction
- Paper, Wood, & Printing
- Chemical
- Metal Fabrication
- Plastics & Rubber
- Computer & Electronics

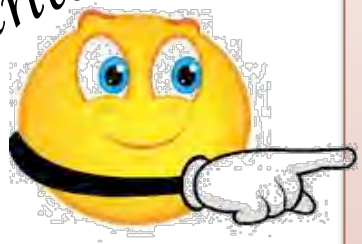
Do what you ♥ in a manufacturing career

Aviation & Aerospace 	Packaging, Beverage, Food & Pharmaceuticals 
Medical Devices & Equipment 	Machining & Product Fabrication 
Transportation & Logistics 	Leisure & Entertainment 
Electronics, Computers & Electrical 	Product Design & System Integration 

What is manufacturing?



What jobs interest you?



- Product Design
- Production Process
- Manufacturing
- Operations
- Engineering
- Fabrication
- Automation and Controls
- Robotics
- Materials Handling
- Quality Assurance
- Packaging Design
- Logistics

Impact Florida. Lead Nationally.

21st Century Manufacturing

PRODUCTION PATHWAYS

- Production Planning & Control
- Manufacturing Engineering
- Maintenance, Installation, Repair
- Quality Assurance
- Logistics and Inventory Control
- Safety & Environmental Assurance

Manufacturing

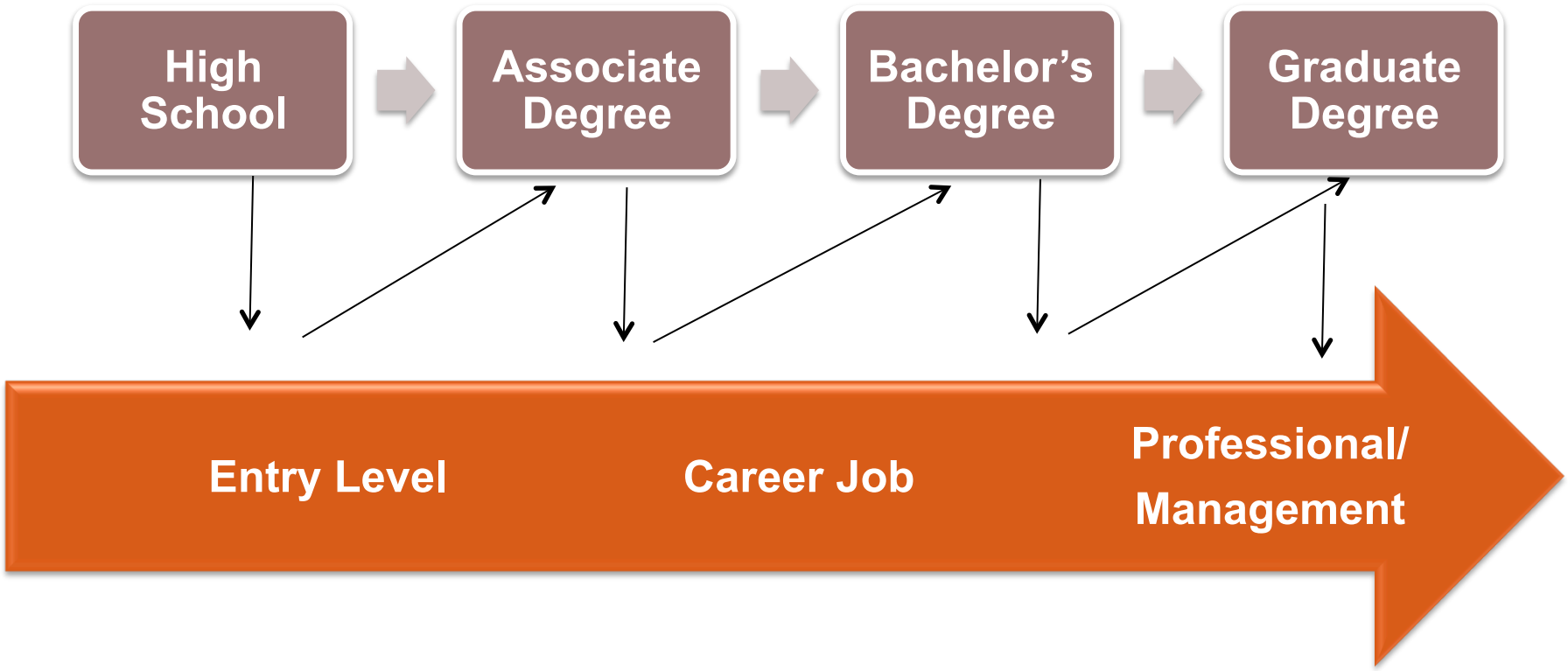
SAMPLE OCCUPATIONS

Machinist
Manufacturing Engineer
Automated Process Technician
Production Engineer
Production Technician
Welding Technician
Quality Technician
Industrial Maintenance Tech

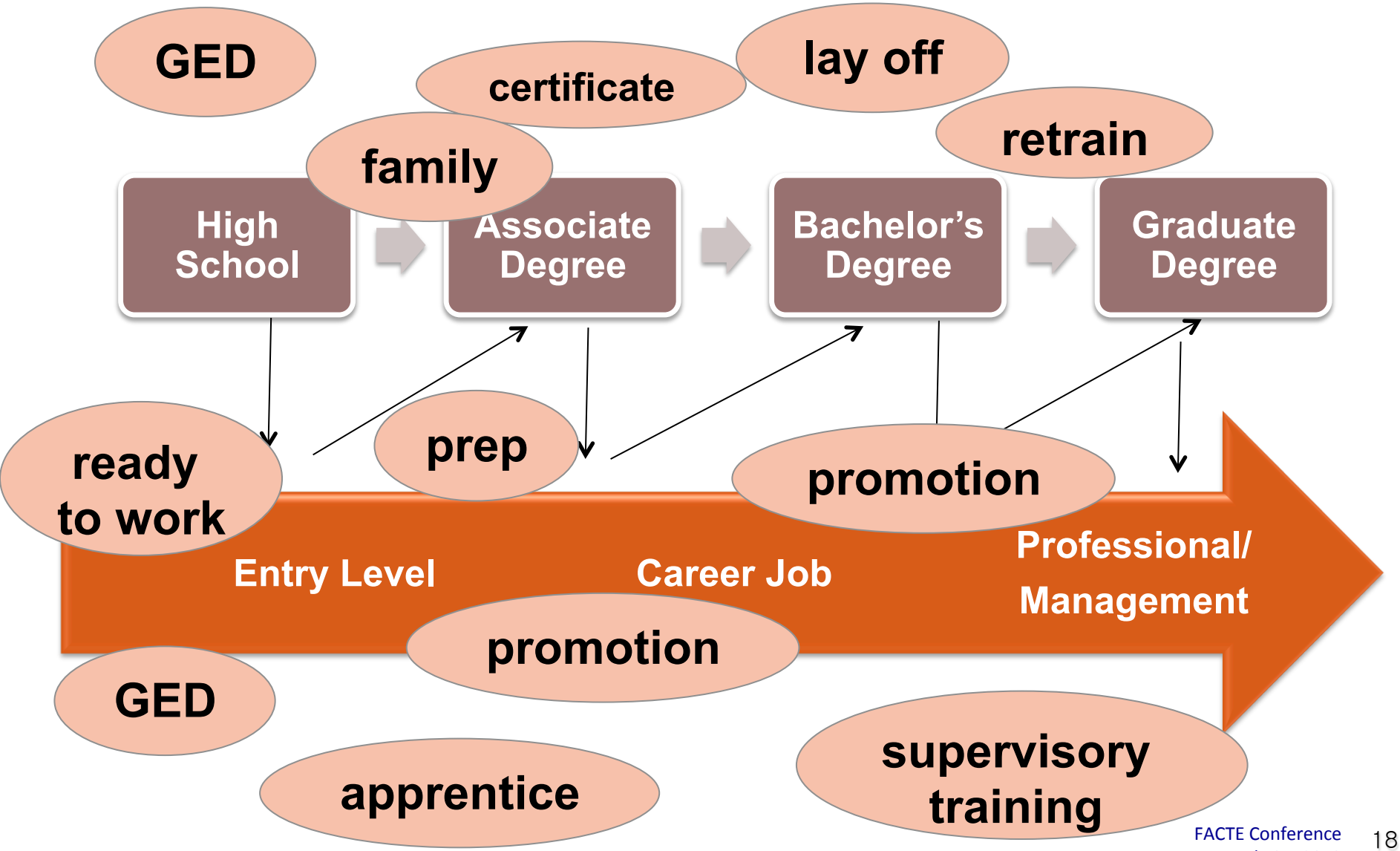
Why?

Why?

Pathways we took



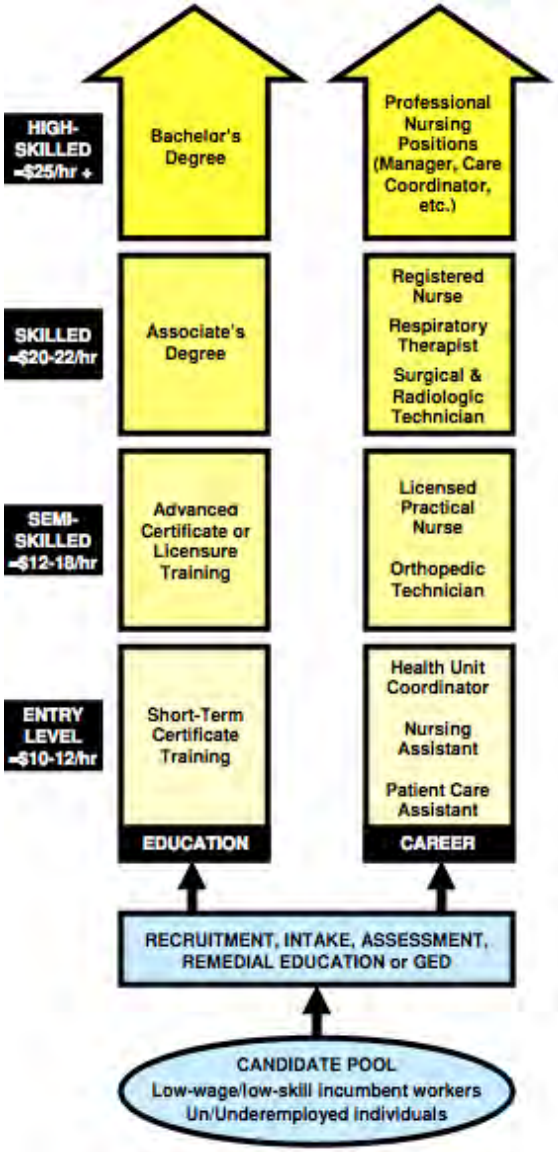
21st Century Career Pathways

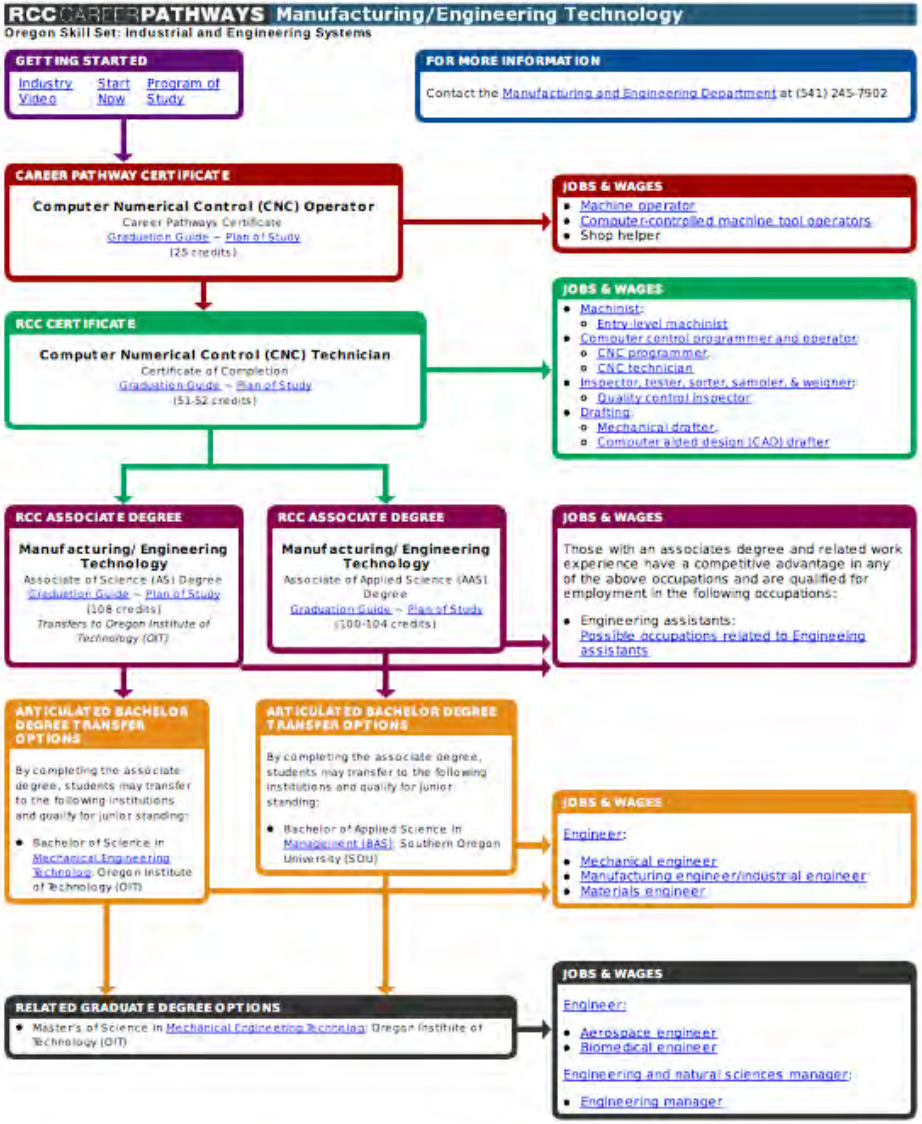


What makes a good Career Pathway?

- Offer early careers awareness/education
- Define clear & concise pathways
- Provide contextualized learning
- Have multiple, clearly marked entry & exit points
- Align & articulate with industry credentials
- Offer stackable industry & education credentials
- Have industry drivers & industry engagement
- Meet local workforce needs
- Provide wrap-around student services
- Include educator professional development
- Is a partnership with a shared vision

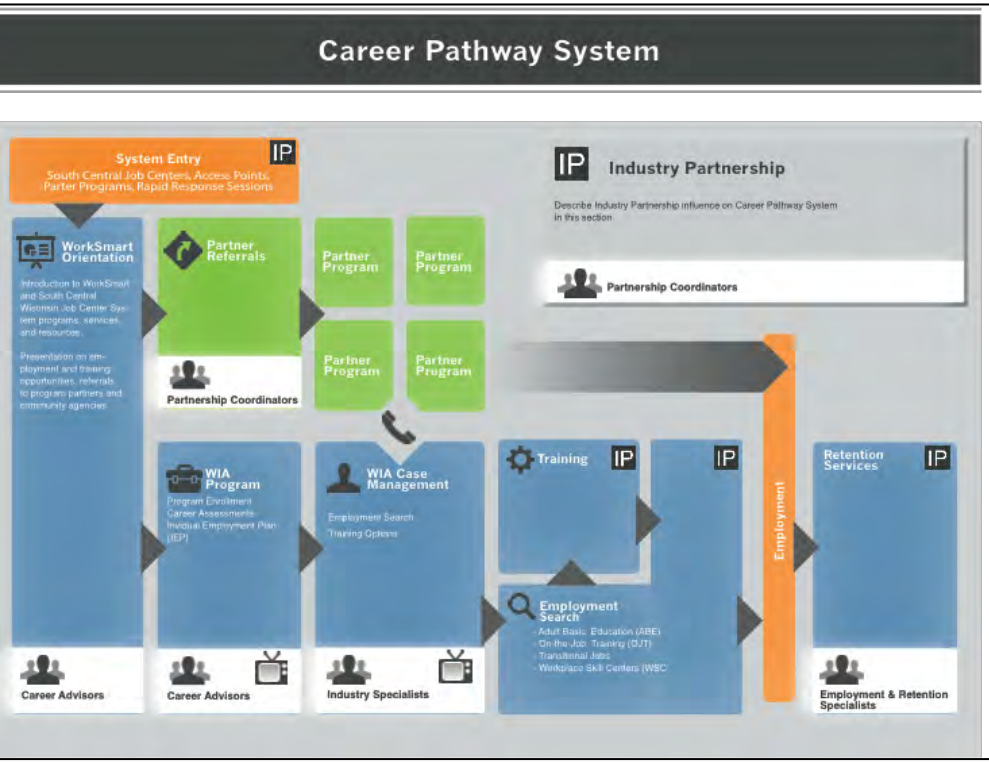
Samples

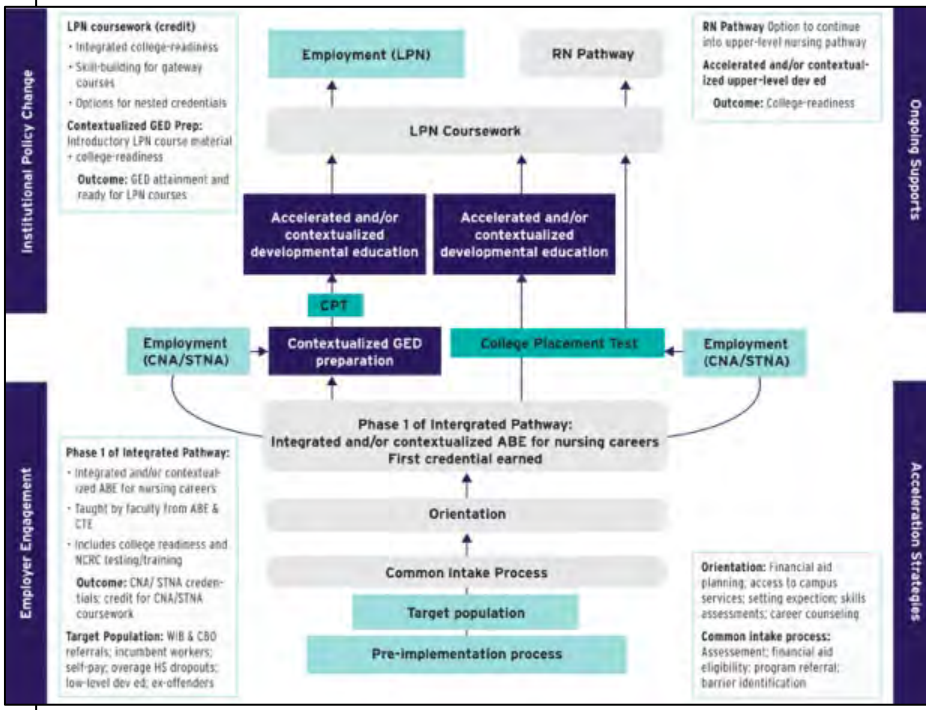




From: JFF

Samples





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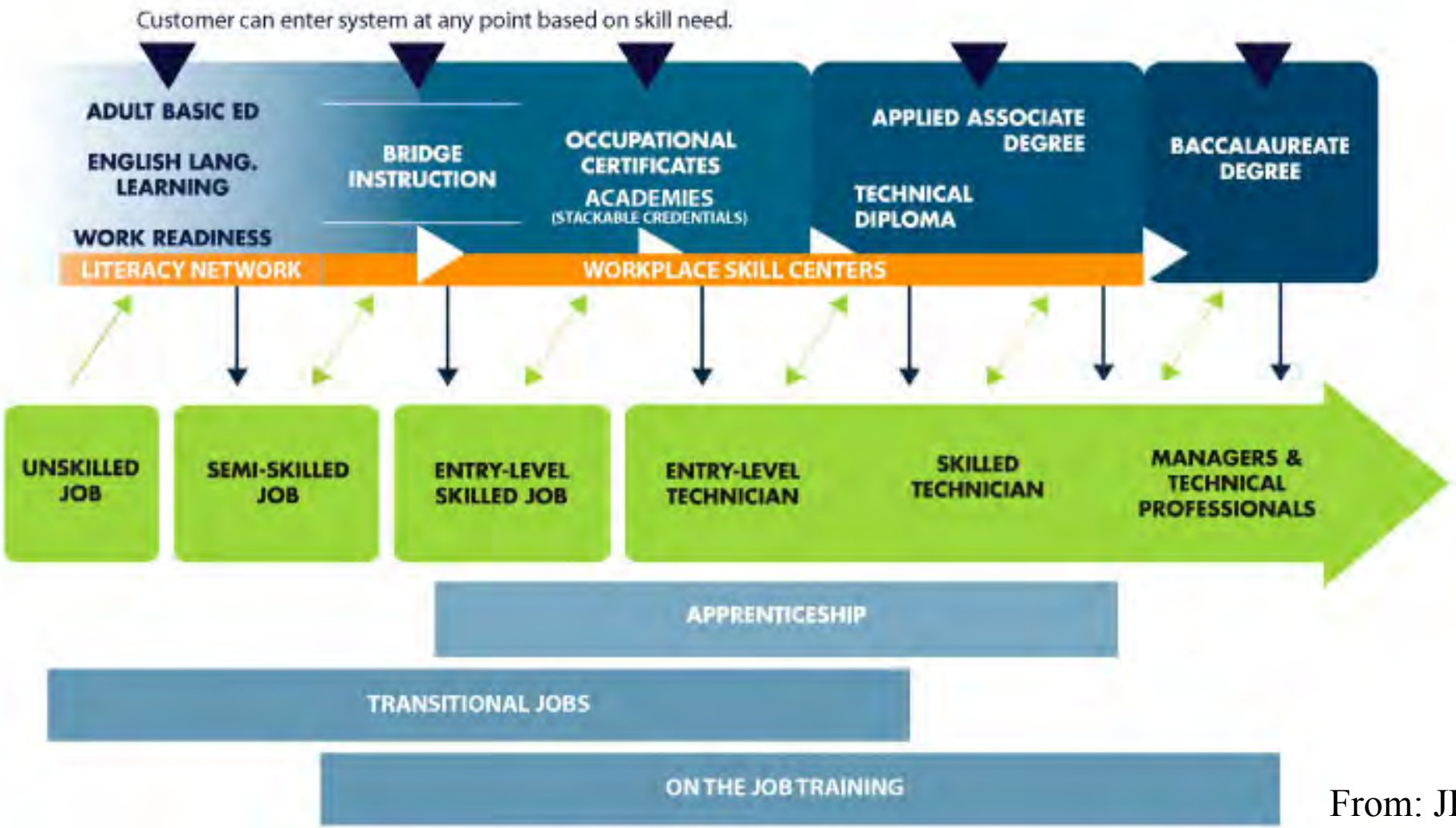


From: JFF

K-16 Pathway Examples: DOE & NASDCTE

BROUGHT to YOU by
National Association of State Directors of Career Technical Education Consortium
(NASDCTEc)

MANUFACTURING

Manufacturing

Name _____

Learner ID _____

School/College/University _____

SAMPLE

Manufacturing

Career Cluster Plan of Study for► Learners ► Parents ► Counselors ► Teachers/Faculty

This Career Cluster Plan of Study (based on Manufacturing Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/ or Degree Major Courses for Manufacturing	SAMPLE Occupations Relating to This Career Cluster
	Interest Inventory Administered and Plan of Study Initiated for all Learners							
SECONDARY	9	English/ Language Arts I	Algebra I	Earth or Life or Physical Science	State History Civics	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Certain local student organization activities are also important including public speaking, record keeping and work-based experiences.	**Introduction to Manufacturing Occupations	► Assembler ► Boilermaker ► Design Engineer ► Environmental Engineer ► Foundry Worker ► Freight, Stock and Material Mover ► Health and Safety Representative ► Industrial Machinery Mechanic ► Inspector ► Labor Relations Manager ► Logistician ► Manufacturing Technician ► Pattern and Model Maker ► Production Manager ► Quality Control Technician ► Safety Engineer ► SPC Coordinator ► Tool and Diemaker ► Traffic Manager ► Welder
	10	English/ Language Arts II	Geometry	Biology	U.S. History		**Information Technology Applications	
	11	English/ Language Arts III	Algebra II	Chemistry	World History Economics		**Employment in Manufacturing Occupations	
	College Placement Assessments-Academic/Career Advisement Provided							
	12	English/ Language Arts IV	Trigonometry or Statistics or other math course	Physics	Psychology		**Applications in Manufacturing Technology	
	Articulation/Dual Credit Transcripted-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.							
POSTSECONDARY	Year 13	English Composition English Literature	Algebra	Chemistry Physics	American Govt. Psychology	All plans of study need to meet learners' career goals with regard to required degrees, licenses, certifications or journey worker status. Certain local student organization activities may also be important to include.	**Safety in the Workplace	
	Year 14	Speech/ Oral Communication	Computer Applications	Biological Science Physcial Science	American History Geography		Continue courses pertinent to the pathway selected.	
	Year 15	Continue courses in the area of specialization.						
	Year 16						Complete Manufacturing Major (4-Year Degree Program)	

**See course descriptions on page 2.

SAMPLE

K 16 Pathway Examples: DOE & NASDCTE

MANUFACTURING, MAINTENANCE & REPAIR

Manufacturing

SAMPLE

Manufacturing: Maintenance, Installation and Repair
Career Pathway Plan of Study for ▶Learners ▶Parents ▶Counselors ▶Teachers/Faculty

*This Career Pathway Plan of Study (based on the Maintenance, Installation and Repair Pathway of the Manufacturing Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.*

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/or Degree Major Courses for Maintenance, Installation and Repair Pathway	SAMPLE Occupations Relating to This Pathway
		Interest Inventory Administered and Plan of Study Initiated for all Learners						
SECONDARY	9	English/ Language Arts I	Algebra I	Earth or Life or Physical Science	State History Civics	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Certain local student organization activities are also important including public speaking, record keeping and work-based experiences.	• Introduction to Manufacturing Occupations	▶Biomedical Equipment Technician ▶Boilermaker ▶Communication System Installer/ Repairer ▶Computer Installer/Repairer ▶Computer Maintenance Technician ▶Electrical Equipment Installer/ Repairer ▶Facility Electrician ▶Industrial Electronic Installer/ Repairer/Manager ▶Industrial Machinery Mechanic ▶Industrial Maintenance Electrician ▶Industrial Maintenance Technician/ Mechanic ▶Instrument Calibration and Repairer ▶Instrument Control Technician ▶Job/Fixture Designer ▶Laser Systems Technician ▶Maintenance Repairer ▶Major Appliance Repairer ▶Meter Installer/Repairer ▶Plumber, Pipe Fitter and Steam Fitter ▶Security System Installer
	10	English/ Language Arts II	Geometry	Biology	U.S. History		• Information Technology Applications	
	11	English/ Language Arts III	Algebra II	Chemistry	World History Economics		• Employment in Manufacturing Occupations	
		College Placement Assessments-Academic/Career Advisement Provided						
	12	English/ Language Arts IV	Trigonometry or Statistics or other math course	Physics	Psychology		• Applications in Manufacturing Technology	
		Articulation/Dual Credit Transcripted-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.						
POSTSECONDARY	Year 13	English Composition English Literature	Algebra	Chemistry Physics	American Government Psychology	All plans of study need to meet learners' career goals with regard to required degrees, licenses, certifications or journey worker status. Certain local student organization activities may also be important to include.	• Safety in the Workplace • Workplace Communication	
	Year 14	Speech/ Oral Communication	Computer Applications	Biological Science Physical Science	American History Geography		• Predictive and Preventive Maintenance • Manufacturing Equipment	
	Year 15	Continue courses in the area of specialization.					• Continue Courses in the Area of Specialization	
	Year 16						• Complete Manufacturing Major (4-Year Degree Program)	

League for Innovation CCTI College and Career Transitions Initiative
NCTEF
National Career Clusters
Project funded by the U.S. Department of Education (VO51B020001)

SAMPLE

Pathway Examples: NAM

ALIGNING STEM EDUCATION, CERTIFICATION AND CAREER PATHWAYS

For Florida via Engineering Technology A.S. Degree

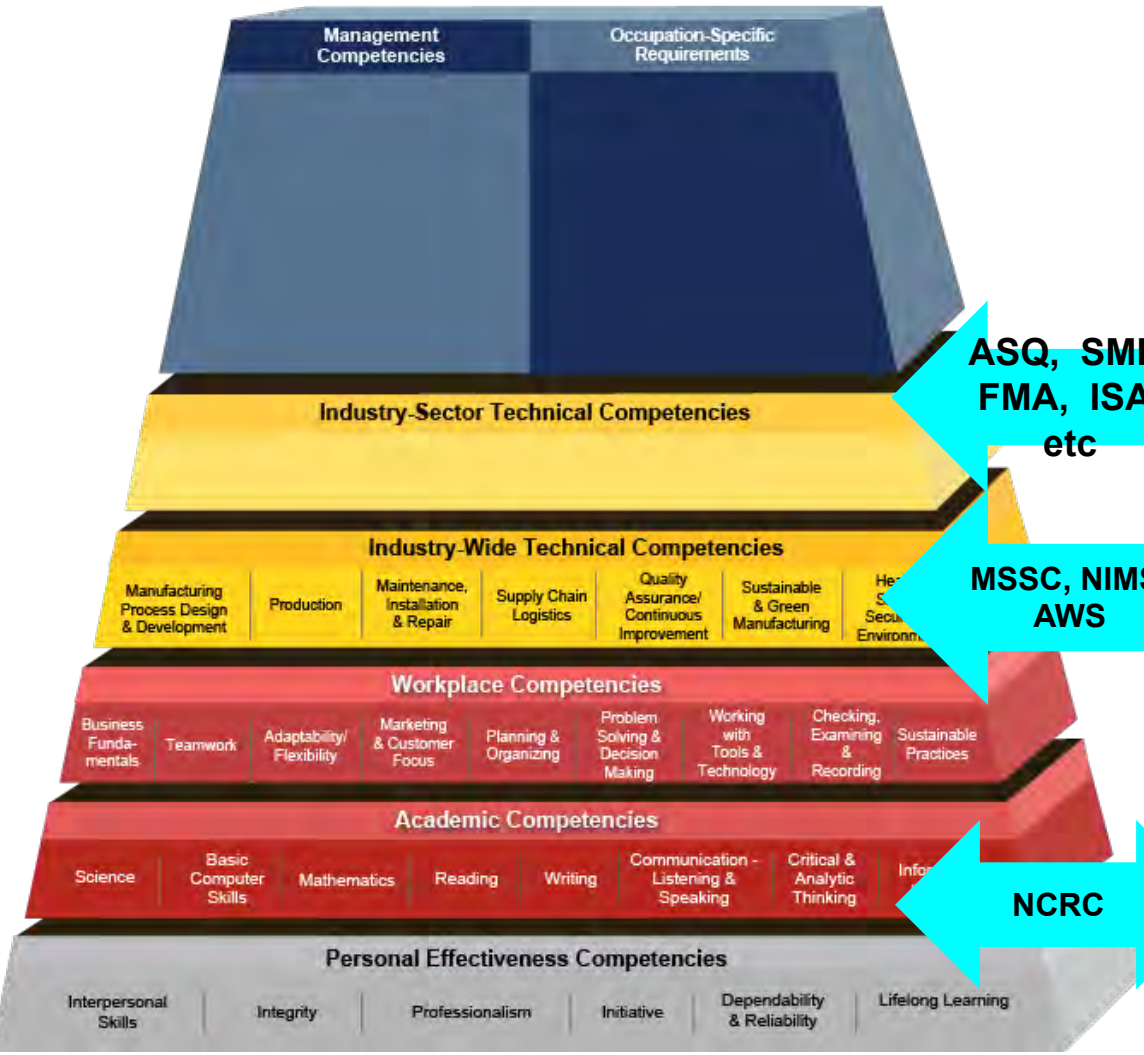
EDUCATION PATHWAY	↔	CERTIFICATION PATHWAY	↔	CAREER PATHWAY
MASTERS OR PHD				
BACHELORS OF SCIENCE / ENGINEERING TECHNOLOGY (various disciplines) • Florida State Colleges; FA&MU; **BACHELOR OF APPLIED SCIENCE / TECHNOLOGY MANAGEMENT/ _____** • Florida State Colleges; USF Polytechnic • Day/evening/hybrid **BACHELOR OF SCIENCE / ENGINEERING DISCIPINES** • USF, UF, UCF, FSU, FAU, FIU,UWF, UNF, private • Day/evening/hybrid	↔	• ISA Certified Automation Professional • SME Manufacturing Engineer • SME Manufacturing Technologist	↔	• Mechatronics Engineer (17-2199.05) • Manufacturing Engineer (17-2199.04) • Mfg Technologist (17-3029.06) • Plant Engineer $51k - $79k
ASSOCIATE IN (APPLIED) SCIENCE – ENGINEERING TECHNOLOGY • 60 Credit Hours/ Two Years Full Time • Day /evening/online/hybrid **ASSOCIATE OF ARTS/ ENGINEERING** • 60 Credit Hours/ Two Years Full Time • Day/evening/hybrid	↔	• College technical certificates • ISA Certified Control Systems Technician • NIMS Level 1, Measurements, Materials, and Safety • Fluid Power certificates	↔	• Robotics Technician (17-3024.01) • Manufacturing Technician (17-3029-09) • Electrical Technician (17-3023) • Mechanical Engineering Technicians (17-3027) • Industrial Engineering Technicians (17-3026) • Computer control programmer (51-4012) $23k - $39K
COLLEGE CREDIT CERTIFICATE PROGRAM • Minimum of 12 Credit Hours/ Less than 1 Full Year • (future alignment to appropriate credentials)	↔	• Engineering Technology Support Certificate • MSSC: Maintenance Awareness; Safety; Quality; Manufacturing Processes and Materials; Certified Production Technician (CPT) • NIMS Level 1, Measurements, Materials,& Safety	↔	• Electro-Mechanical Technician (17-3024) • CNC Operators (51-4011) • Automation Maintenance Technician $17k - $27K
HIGH SCHOOL CAREER PROGRAM Machine Operator/ Maintenance • Less than One Year Full Time	↔	• MSSC CPT (Maintenance Awareness; Safety; Quality; Manufacturing Processes and Materials; • Florida Ready to Work Certificate	↔	• Operator • Production Worker (51-9199) $17K - $27K

Florida Ready to Work (ACT Career Readiness)
Personal Effectiveness * Academic Competencies Workplace Competencies

Applied STEM (High School)	**Out of School/Low Skill Youth/Adults**	**Skilled Adults**
Dual Enrollment - Career Academy – Youth Development Programs	WIA/Career Centers – ESL/VESL - GED/ABE "Bridge" and Foundation Programs	Retraining/Lay Offs – Continuing Education Company Specific Apprenticeship

(Credit hours are based on semester courses)

National Perspective



ASQ, SME, FMA, ISA, etc

MSSC, NIMS, AWS

NCRC

High Quality Middle Class Jobs

Occupation-Specific Certifications

Entry Level Industry Certifications

Ready for Work, Ready for College

Career Paths – Life Long Learning

Florida's A.S. Engineering Technology Degree

60 semester hours

I. General Education – 15 - 18 credit hours

II. ET Core - 18 credit hours

III.8 Specialization Tracts – 24 to 27 credit hours

Florida's A.S. Engineering Technology Degree

60 semester hours

I. General Education – 15 - 18 credit hours

English
Math
Humanities
Science
Social Science

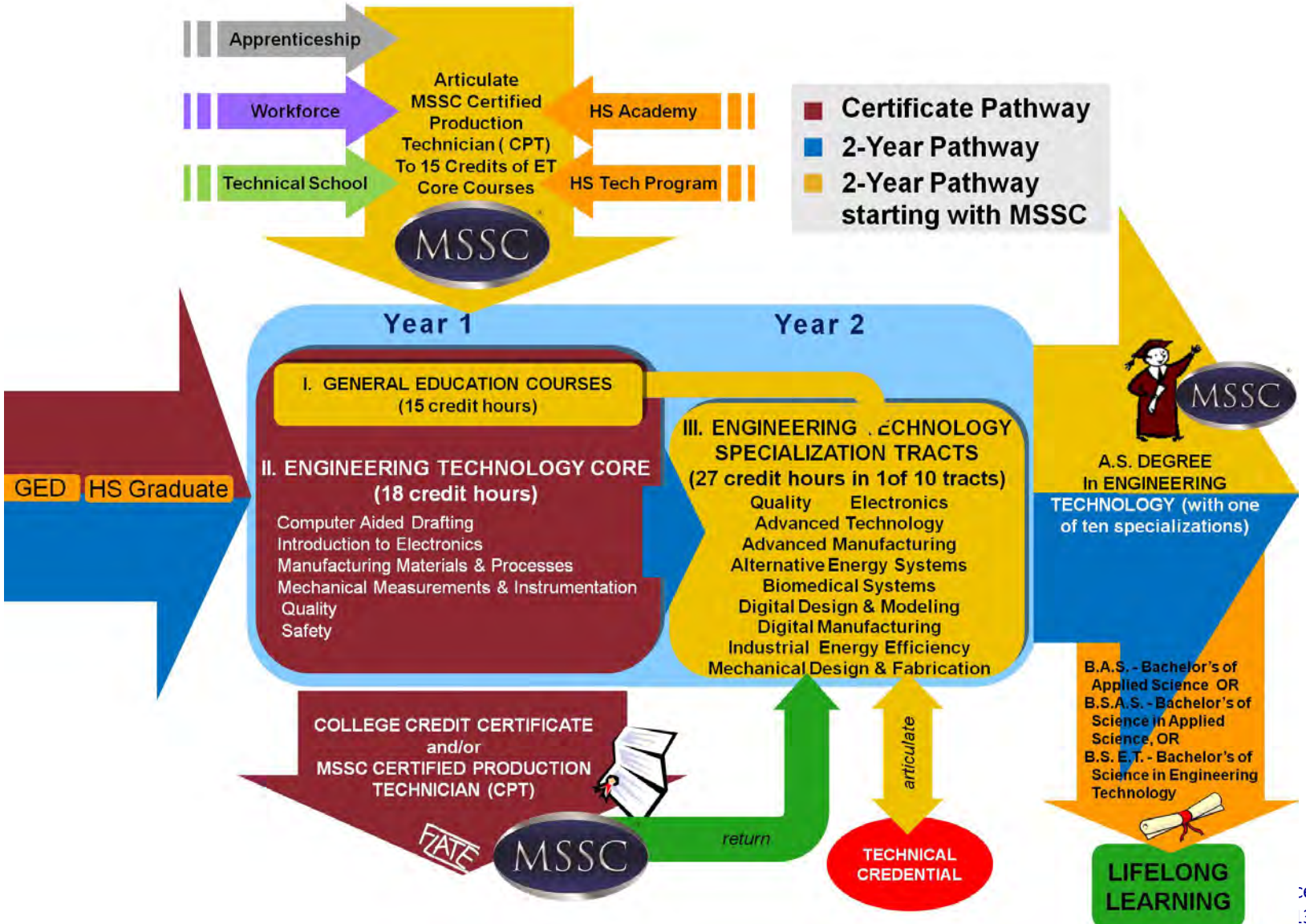
II. ET Core - 18 credit hours

Computer Aided Design
Manufacturing Processes & Materials
Mechanics & Instrumentation
Electronics
Quality
Safety

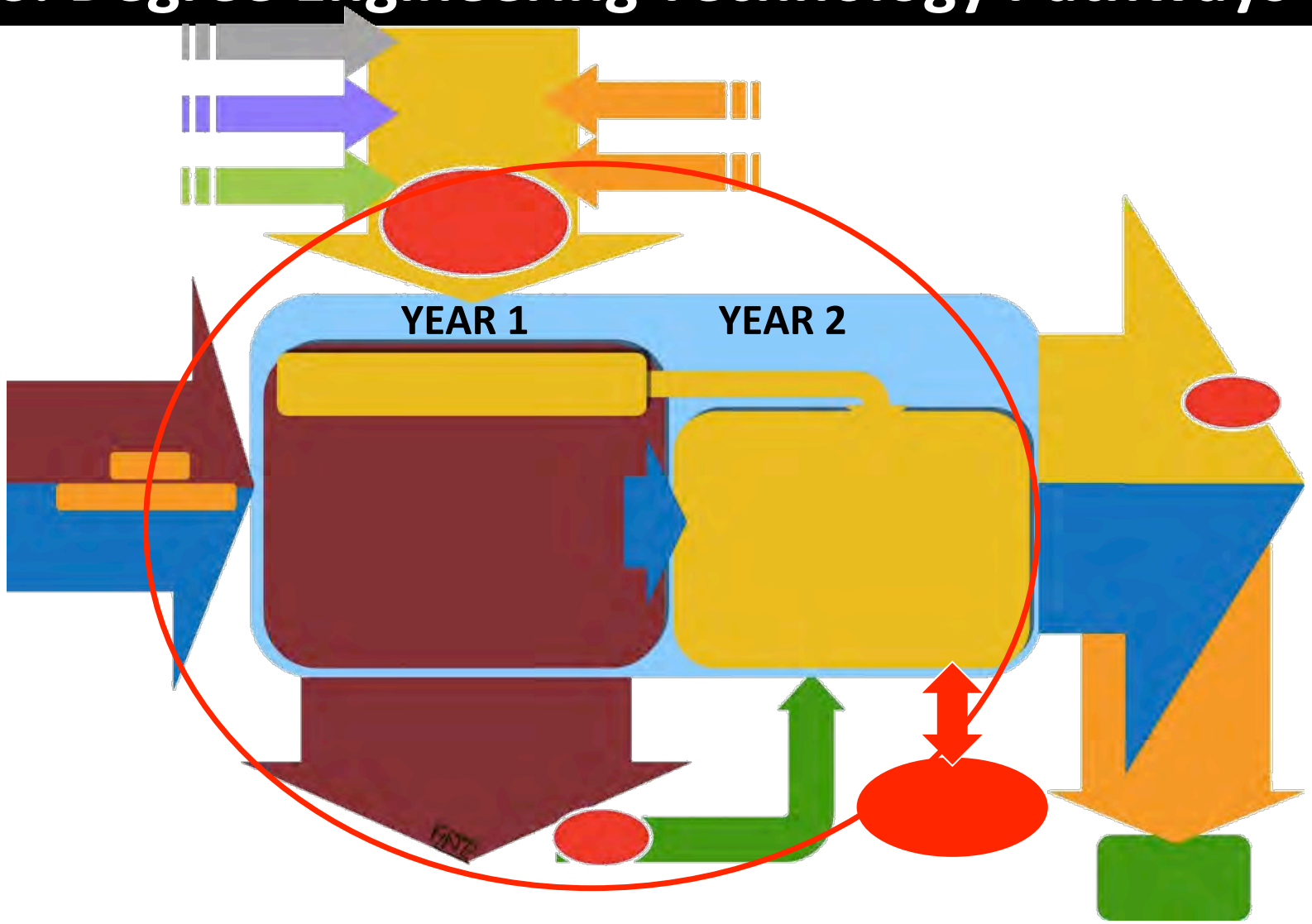
III. 10 Specialization Tracts – 24 to 27 credit hours

Advanced Manufacturing
Biomedical Systems
Electronics
Quality
Digital Manufacturing
Advanced Technology
Digital Design & Modeling
Mechanical Design & Fabrication
Alternative Energy Systems
Industrial Energy Efficiency

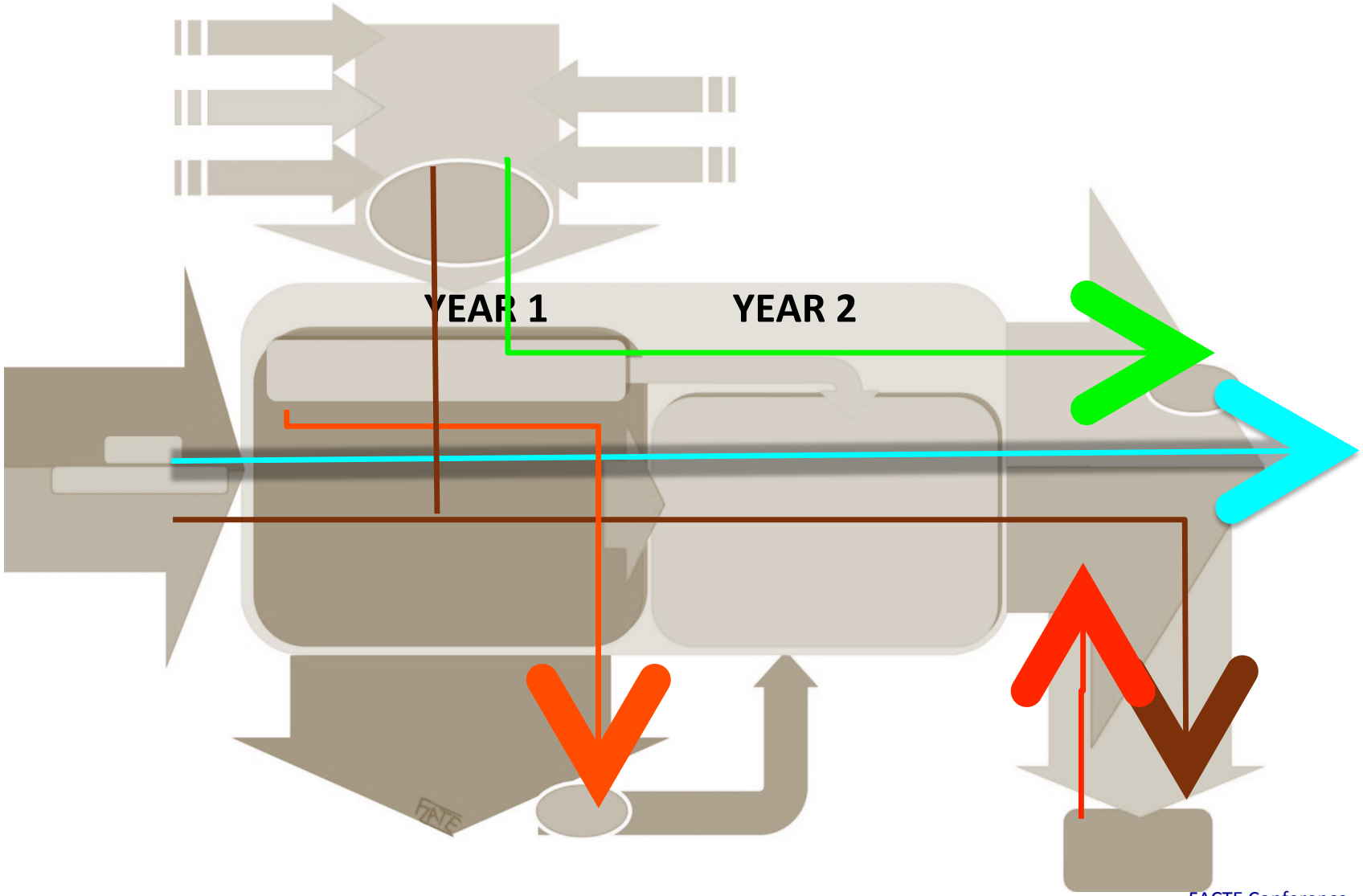
A.S. Engineering Technology Pathways



A.S. Degree Engineering Technology Pathways



A.S. Engineering Technology Pathways



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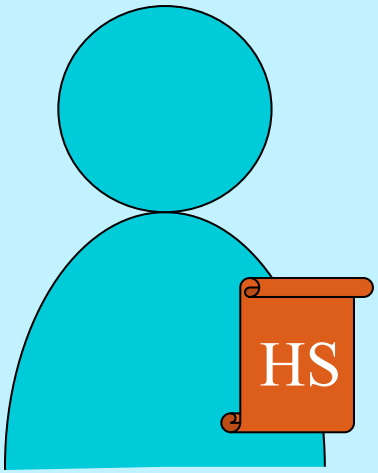
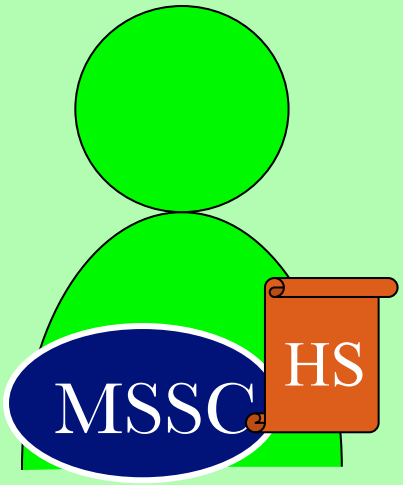
A.S. Engineering Technology Pathways

HS Grad / GED with no Technical Program - *wants AS/AAS Degree*



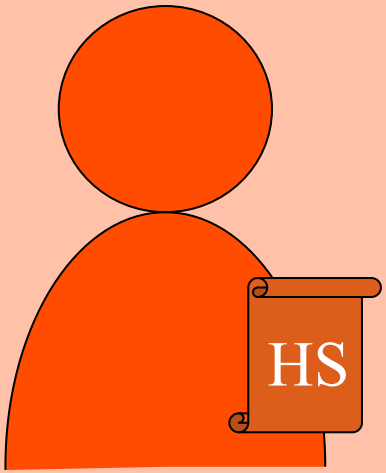
AS Degree (and optional certificates)

HS Grad / GED with MSSC Certification (from HS or work experience)



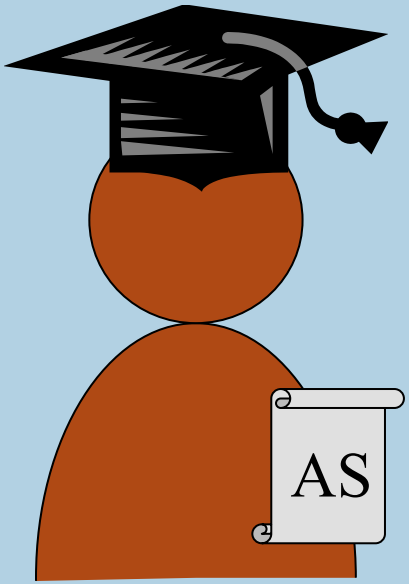
AS Degree & MSSC CPT (and optional certificates)

HS Grad / GED without Technical Program



College Certificate & MSSC CPT

AS ET Graduate



BS Applied Science or BS Eng Tech

ET Degree Technical Core

Quality
Safety
Electronics
Manufacturing Materials & Processes
Mechanical Measurements & Instrumentation
Computer Aided Drafting

MSSC®

Engineering Technology Support Certificate (18 Cr)
Prepared to take MSSC Certification Exams)

ET Degree Technical Core

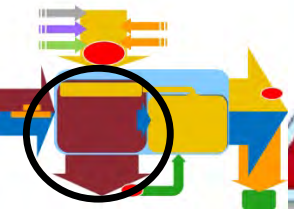
Quality
Safety
Electronics
Manufacturing Materials & Processes
Mechanical Measurements & Instrumentation
Computer Aided Drafting

MSSC®

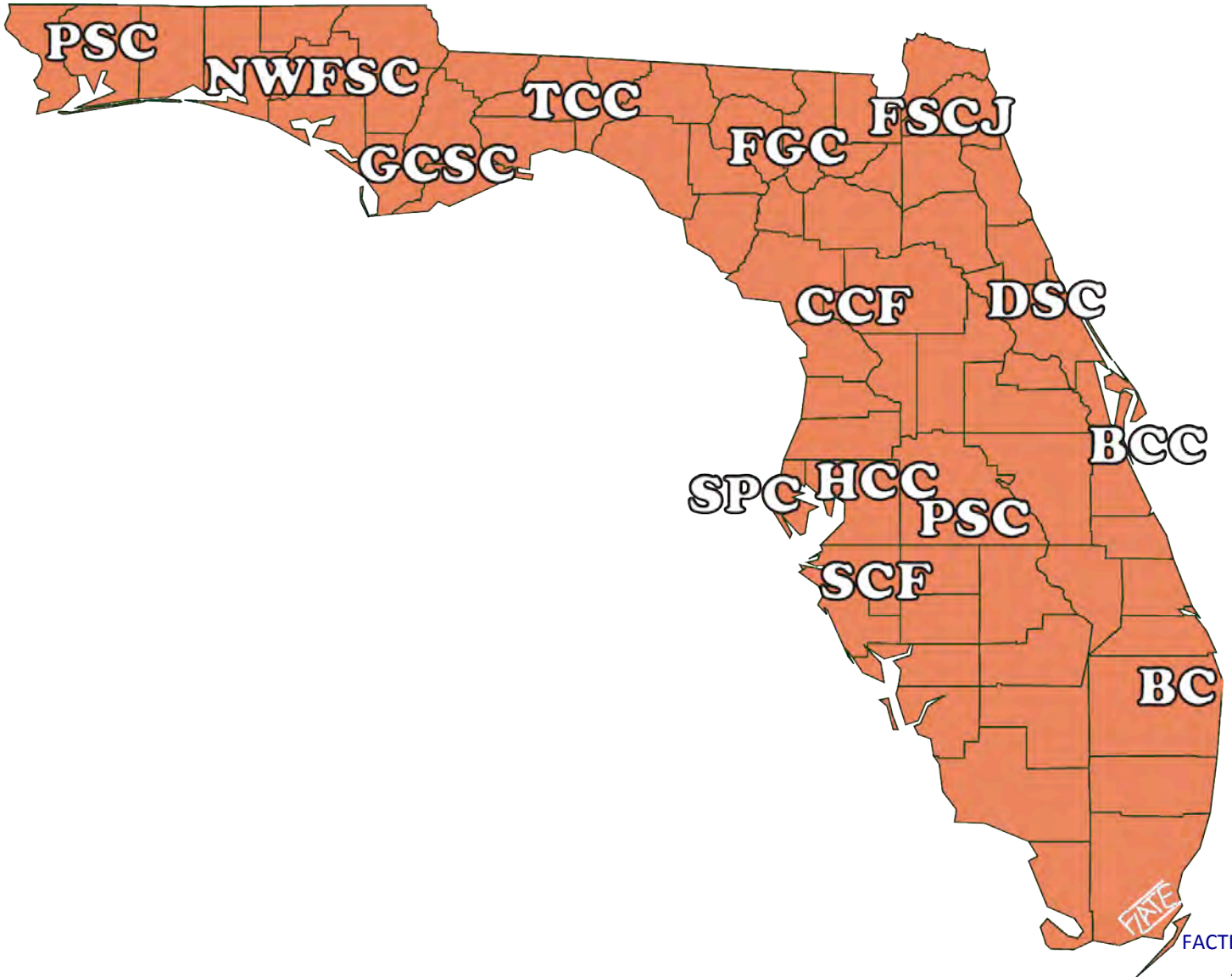
National Certification

Engineering Technology Support Certificate (18 Cr)
Prepared to take MSSC Certification Exams)

Academic Credential



FLATE's Engineering Technology Network



FLATE's Engineering Technology Network

SPECIALIZATION	COLLEGES & LOCATIONS
Quality	College of Central Florida (CF) - Ocala Florida Gateway College (FGC) - Lake City St. Petersburg College (SPC) - Clearwater Tallahassee CC (TCC) - Tallahassee
Electronics	Eastern Florida SC (EFSC) - Cocoa, Palm Bay Broward College (BC) - Coconut Creek State College of Florida (SCF) - Venice St. Petersburg College (SPC) - St. Pete
Advanced Manufacturing	Florida Gateway College (FGC) - Lake City Florida State College (FSCJ) - Jacksonville Gulf Coast SC (GCSC) - Panama City Hillsborough CC (HCC) - Tampa Polk State College (PSC) - Lakeland Tallahassee CC (TCC) - Tallahassee
Mechanical Fabrication & Design	Gulf Coast SC (GCSC) - Panama City Florida State College (FSCJ) - Jacksonville Northwest Florida SC (NWFSC) – Niceville Tallahassee CC (TCC) - Tallahassee

SPECIALIZATION	COLLEGES & LOCATIONS
Advanced Technology	Eastern Florida SC (EFSC) - Cocoa, Palm Bay Tallahassee CC (TCC) - Tallahassee
Biomedical Systems	Broward College (BC) - Coconut Creek St. Petersburg College (SPC) - Clearwater
Digital Design & Modeling	College of Central Florida (CF) - Ocala Gulf Coast SC (GCSC) - Panama City Northwest Florida SC (NWFSC) - Niceville State College of Florida (SCF) - Venice St. Petersburg College (SPC) - St. Pete Tallahassee CC (TCC) - Tallahassee
Alternative Energy Systems	Eastern Florida SC (EFSC) - Cocoa, Palm Bay Broward College (BC) - Coconut Creek Gulf Coast SC (GCSC) - Panama City Tallahassee CC (TCC) - Tallahassee
Industrial Energy Efficiency	Florida State College (FSCJ) - Jacksonville
Digital Manufacturing	Gulf Coast SC (GCSC) - Panama City

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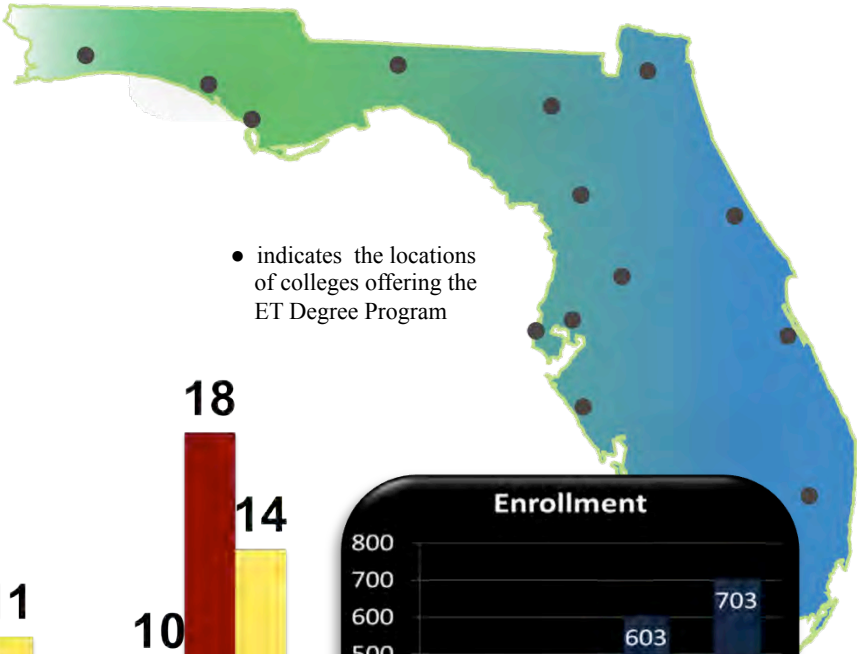
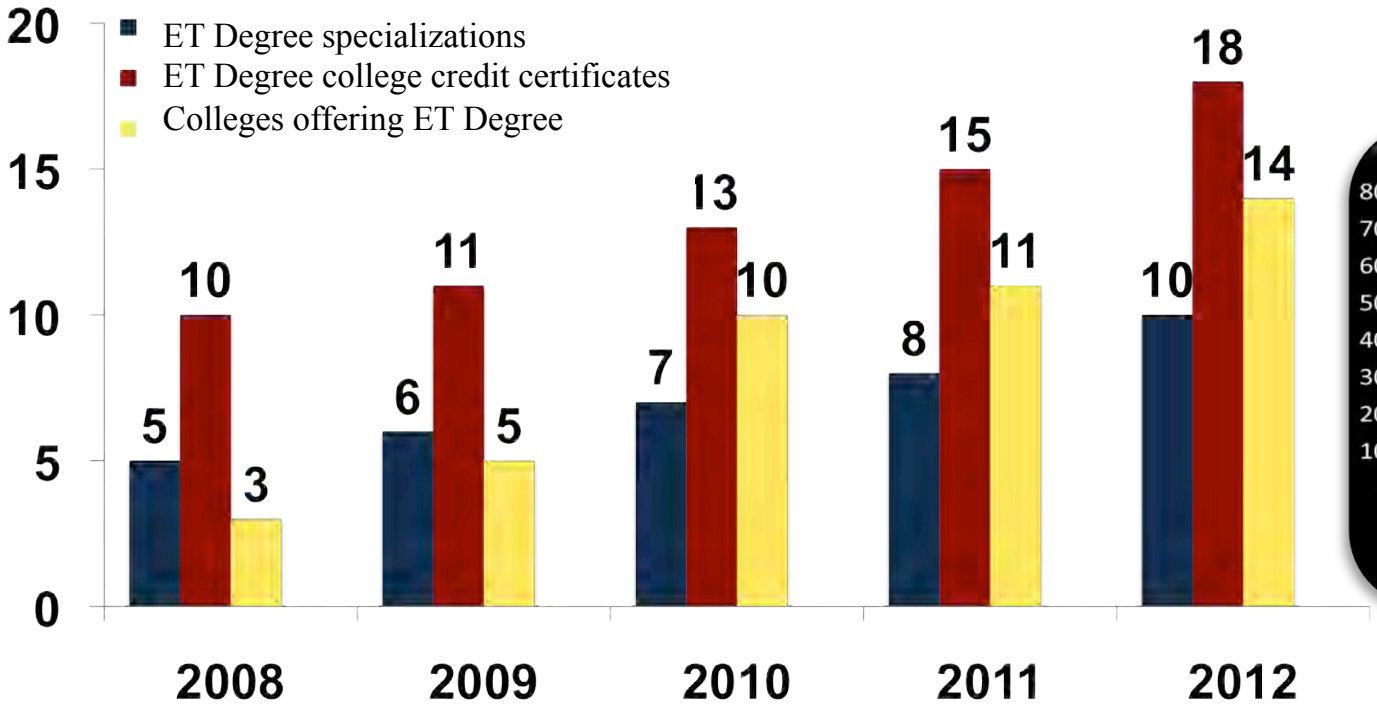
Engineering Technology A.S. Degree

Key Milestones 2008 - 2013



- indicates the locations of colleges offering the ET Degree Program



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FLATE's Engineering Technology Network

Engineering Tech @
St. Petersburg College
(60 credits)

The Engineering Technology Associate in Science degree is a 60 credit hour program. The degree program consists of general education (18cr), ET core (18cr) and specialized technology (24cr) courses. This degree programs consists of four specializations; Digital Design and Modeling, Biomedical Systems, Electronics and Quality.

After completing the ET Core Courses, students will be prepared to take the Manufacturing Skill Standards Council (MSSC) assessments for the Certified Production Technician (CPT).

ENGINEERING TECHNOLOGY
Core Courses

- CAD
- Measurement & Instrumentation
- Manufacturing Processes
- Electronics
- Quality
- Safety

SPECIALIZATIONS
Available

- DIGITAL DESIGN AND MODELING
- BIOMEDICAL SYSTEMS
- ELECTRONICS
- QUALITY

Certificates

NG (12 credits)
RT (18 credits)
12 credits)
12 credits)
2 credits)

ficates, visit
ering Technology

an be your first step
manufacturing, or other high
gree, you can earn over

BREVARD COMMUNITY COLLEGE

ENGINEERING TECHNOLOGY

SPECIALIZATIONS: ELECTRONICS, ADVANCED TECHNOLOGY

PROGRAM DESCRIPTION:
This program prepares students for an entry-level position in a wide range of manufacturing organizations. Students learn the fundamentals appropriate for all types of manufacturing. This program also provides supplemental training for individuals previously or currently employed in the manufacturing industry. After completing the first year, students can take the Manufacturing Skills Standards Council (MSSC) test. The two options available in this degree allow the student to seek employment in several different positions in the high-growth manufacturing industry.
All A.A.S. degree - seeking students must satisfy entry-level assessment requirements and complete all required college-preparatory courses in reading, writing, and mathematics with a grade of "S" or better.

ASSOCIATE IN APPLIED SCIENCE DEGREE

GENERAL EDUCATION and ENGINEERING TECHNOLOGY CORE COURSES

GENERAL EDUCATION (18 credits)	Cr.	ENGINEERING TECHNOLOGY CORE (20 credits)	Cr.
Written Communication Requirement	3	ETDC 2320 AutoCAD Fundamentals	4
Oral Communication Requirement	3	EET 1084 Introduction to Electronics	3
Humanities Requirement	3	ETIC 1830 Materials and Processes	3
MAT 1033 Intermediate Algebra OR MTB 1321 Technical Math	3	ETIC 2851 Applied Mechanics	4
Social/Behavioral Science Requirement	3	ETI 2110 Introduction to Quality Assurance	3
* COS 2100 Microcomputer Applications	3	ETI 1701 Industrial Safety	3

SPECIALIZED TRACK COURSES

ELECTRONICS TECHNOLOGY (22 credits)		Cr.	ADVANCED TECHNOLOGY (22 credits)		Cr.
EETC 1025	Circuit Fundamentals 2	4	AFRC 1100	Introduction to the Workplace OR *approved elective*	4
EETC 1141	Analog Devices	4	EETC 1610	Through-Hole and Surface-Mount Soldering	3
EETC 1142	Analog Circuits	4	EETC 2620	Advanced Surface-Mount Soldering Tech	3
CETC 1114	Digital Fundamentals	4	EST 1520	Instrumentation Fundamentals	3
Technical Electives(see list below)		6	ESTC 1240	Fiber Optic Technologies	3
			ETI 2121	Non-Destructive and Destructive Testing	3
			ETIC 2469	Composite Fundamentals	3

TECHNICAL ELECTIVE COURSES

CETC 1132	Microprocessor Fundamentals	4	ESTC 1240	Fiber Optic Technologies	3
EET 1551	Distributed Electrical Power Gen and Storage	3	ETD 1931	Special Topics	1-4
EETC 1610	Through-Hole and Surface-Mount Soldering	3	ETD 2941	Internship	3
EETC 2325	Electronic Comm. Systems	4	ETIC 2469	Composites Fundamentals	3
EETC 2724	Schematic Capture & Modeling	3	ETIC XXXX	Advanced Composites	3
EETC 2930	Engineering Project Mngmnt	3			

High-Wage High-Skill Careers

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ENGINEERING TECHNOLOGY EDUCATION
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Supporting Florida's High Tech Industry Sectors

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- ure & Entertainment Systems
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- portation & Logistic Products

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ENGINEERING TECHNOLOGY EDUCATION
Insert name of college here: Include branch campus, if any

Manufacturing is a viable and exciting career option for students who are innovative, enjoy using their creativity, get excited about using *new* technology, or are interested in learning how things work.

Want to introduce your students to the world of engineering technology?

FLATE (Florida Center for Manufacturing Education) and its local academic partners offer a variety of options to introduce students to the world of high-tech manufacturing, including:

- **Student Industry Tours** – Over 1,600 students and 150 teachers have participated in the **Made in Florida Tours** of manufacturing facilities. Contact David Gula, Outreach Manager at 813-259-6581 or gula@fl-ate.org, to schedule a tour for your students.
- **Classroom Speakers** – Don't have the time or resources to attend a tour? Contact David Gula, Outreach Manager at 813-259-6581 or gula@fl-ate.org, to schedule a visit to your classroom by a manufacturing expert.
- **Made in Florida Learning Challenges** Middle and High School classroom learning activities based on Florida Manufacturers Visit www.madeinflorida.org/educators.html
- **On the Web**
  - **Made In Florida Virtual Tours** visit www.madeinflorida.org/virtual_tours.htm.
  - **Made In Florida Video on Florida Manufacturing** visit www.madeinflorida.org/video.htm
  - The **National Association of Manufacturers, Dream it - Do it campaign.** New videos are posted every Saturday. Visit www.dreamit-doit.com, go to the Extras tab and click on Cool Videos of Stuff Being Made.
  - **Manufacturing is Cool** – This web site is interactive and includes virtual tours and other tools to inspire young minds. Visit www.manufacturingiscool.com.

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Insert name of college here: Include branch campus, if any

MANUFACTURING IS BIG BUSINESS, and it's getting bigger. Florida's manufacturing industry employs about 400,000 workers and accounts for more than $32 billion of its gross state product.

Florida manufacturers are looking for highly-skilled, technically educated people and the new Engineering Technology degree program promises to keep Florida's manufacturers supplied with highly skilled workers, while providing its graduates with rewarding, high-wage jobs.

The Bureau of Labor Statistics predicts that each year through 2012 employers will be seeking:

- 17,000 industrial and manufacturing engineers
- 14,000 mechanical engineers
- 14,000 engineering technicians
- 273,000 metal and plastic production workers

Average hourly wage with a two-year degree:

• Electrical and Electronic Engineering Technician	$20.53
• Industrial Engineering Technician	19.65
• Mechanical Engineering Technician	19.32
• Electrical and Electronic Drafter	18.96
• Electronic, Computer and Product Service Rep	15.19

Average hourly wage with a four-year degree:*

• Manufacturing Engineer	$36.27
• Systems Designer	35.39
• Electronics Engineer	33.81
• Industrial Engineer	29.81

** 2 year A.S. degrees are a stepping stone to 4 year Bachelor of Applied Science degrees in the State of Florida and articulate to BSET degrees at UCF*

Average Annual Manufacturing Wages 2005	$ 43,423
Average Annual State Wages 2005	$ 36,096

Made in FLORIDA

Thank you!

Marilyn Barger, Ph.D., P.E., CPT
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FLATE's wiki ...full of great FREE RESOURCES for you!

2013 Industry & Educator Recognitions

Submit nominations online @ www.fl-ate.org

Nominations close September 1, 2013

MFG DAY

10.04.13 in FLORIDA!

Open YOUR doors to YOUR future!

*Our goal is to have at least 200 "Made in Florida" Industry Tours on **October 4, 2013 – MFG Day.** Open Your Doors to Your Future!*

Host a "Made in Florida" Industry Tour

Dispel outdated myths about manufacturing
Tell your company's story
Connect with your potential customers
Inspire a new generation of manufacturers
Sign up today: **http://tinyurl.com/on4edv3**

FLATE Can Help

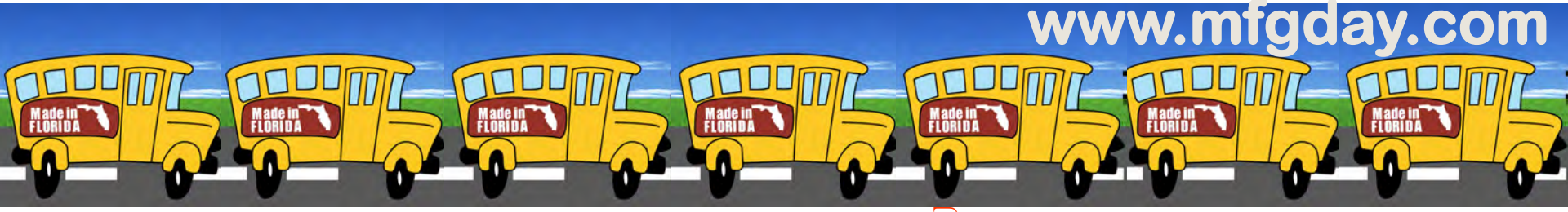
Assist in organizing tours • Survey students & teachers Compile data • Disseminate results • Distribute T-shirts

Manufacturers / Associations

Host tours • Offer lunch & MFG T-shirts • Take photos!

Districts / Schools / Community Groups

Provide transportation • Recruit students, teachers, chaperones



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