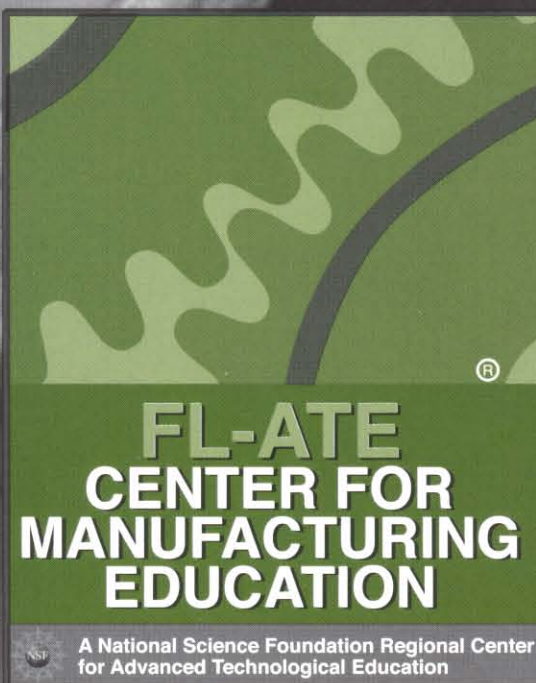
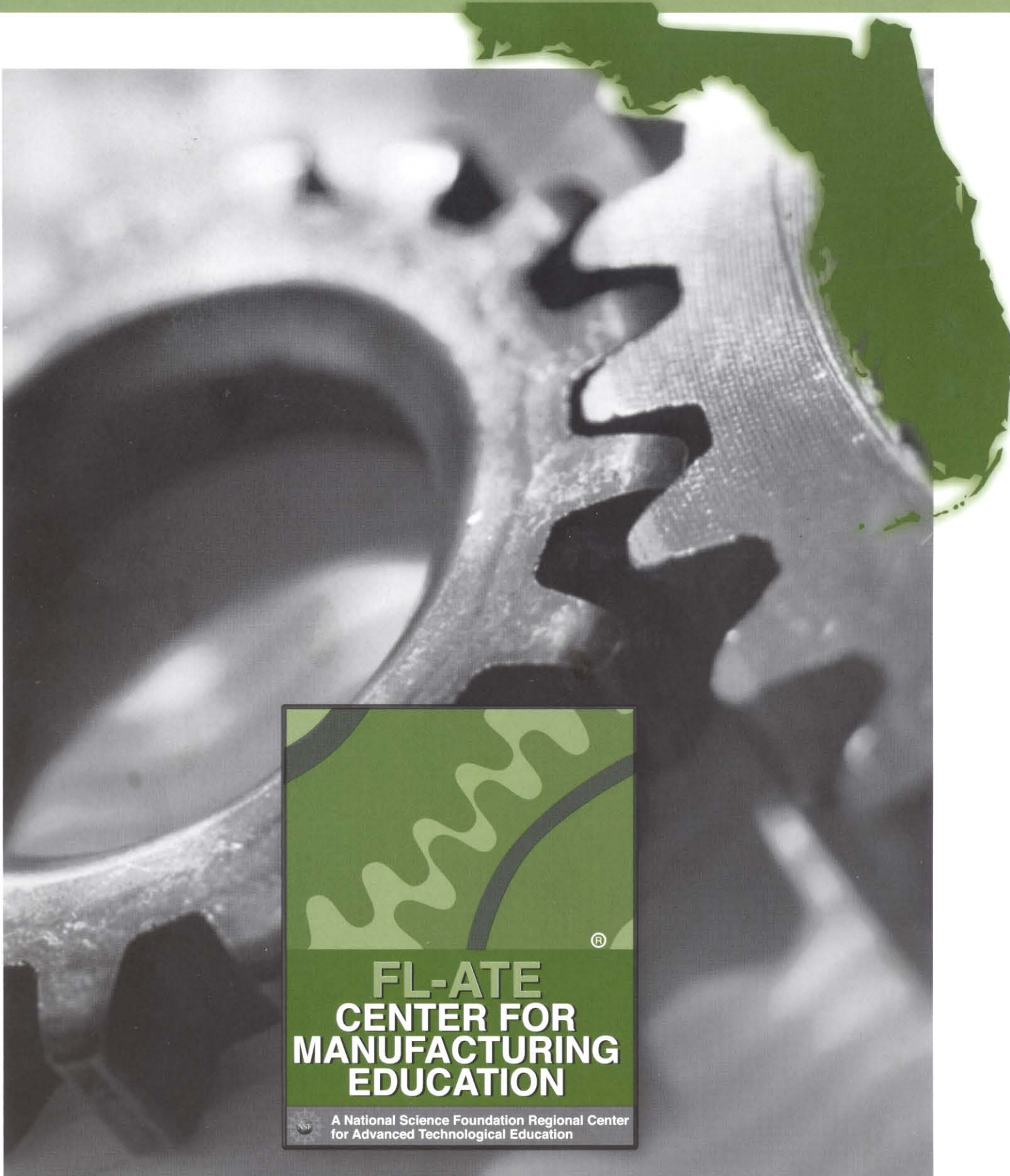


# Florida Advanced Technological Education

Resources for High Performance Manufacturing





**FLATE**

Florida Advanced Technological Education Center for Manufacturing



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FLATE (Florida Advanced Technological Education Center) is a National Science Foundation (NSF) funded Regional Center. It is one of the 36 centers in the United States focused on improving education in science, technology, engineering, and mathematics, and is a leading resource for education and training expertise, projects and services in Florida.

Our **mission** is to create a relevant statewide educational delivery system by supporting technical programs, curriculum development, best practices, student involvement, and outreach activities necessary to meet the workforce capacity and high performance skill needs of manufacturing and its related sectors within the state.

**Our goal is to:**

- To implement a statewide unified education system that positions manufacturing education as a convergent curriculum, optimizes technician preparation in manufacturing and its enabling technologies.
- To provide an effective outreach platform for Florida's high schools, community colleges, industries, and legislature to access information related to the requirements for, and impact of manufacturing education.
- To present professional development opportunities for technical faculty to develop, refine or certify their knowledge base within manufacturing and/or its related enabling technologies and educational pedagogies.
- To identify and secure funds to partially sustain FLATE.

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**FLATE** was created in 2004 through a National Science Foundation Advanced Technological Education grant. The Center is one of 36 Centers of Excellence in the United States focused on improving science, technology, engineering, and mathematics education to meet the technician workforce needs of American advanced technology industries.

## OBJECTIVES

- Identify, produce, and disseminate manufacturing career options information to all stakeholders
- Make all Floridians aware of manufacturing's importance to the economy of the state
- Identify and disseminate training and education options for manufacturing and related enabling technologies technicians
- Offer faculty professional development to meet manufacturers' expectations for technicians
- Enable manufacturing education for underrepresented populations
- Implement the FLATE developed A.S./A.A.S. Engineering Technology Degree curriculum frameworks statewide
- Enable national MSSC Production Technician certification for faculty, teachers, and students
- Enhance working partnerships with FLDOE, industry, workforce and professional organizations, and community colleges
- Establish statewide recognition and endorsement of E.T. Degree characteristics and graduate competencies
- Foster statewide "buy in" by stakeholders including manufacturers, government agencies, & community college partners
- Foster statewide "buy in" by the legislature for support of systemic reform of career and technical education
- Connect economic development efforts to technician workforce training

## IMPACT

### Regional/Statewide Impacts:

- Industry defined/endorsed Engineering Technology Degree (AS/AAS) degree approved by FL DOE in May 2007
  - 14 frameworks for 9 certificates and 5 specializations of the degree
  - 12 partner community colleges; 44 Florida manufacturing companies; FL Department of Education, Workforce Florida, Manufacturers Skill Standards Council, Manufacturers Association of Florida, Regional Associations
  - 3 adoptions in Fall 2007; 3 anticipated adoptions in Fall 2008; 5 potential for Fall 2009
  - 1 articulated high school framework submitted to FL DOE aligned with MSSC certification (2 more in progress)
  - Over 6,000 students enrolled in college programs/courses (ET, CAD, Elect, Manuf, Quality, Mechanical, etc...)
- A statewide articulation agreement for high school students and incumbent workers for 15 credit hours by achieving MSSC Production Technician Certification already impacting 6 existing high school and community college programs
- Working partnership with Florida Department of Education and Workforce Florida, Inc.
- Provided language for Career and Prof. Academy legislation and testified before House and Senate subcommittees
- Awarded the *Banner Center for Manufacturing* for complementary workforce training initiatives (2006-08, \$700,000)
- Facilitated 13 summer externships for STEM & Manufacturing teachers in partnership with the Endeavour Academy
- Provided 50 Professional Development events impacting 1,563 working professionals.
- \$184,000 cash donations from companies around the state for advertorials, student tours, DVD production/distribution
- Over \$85,000 in kind contributions by industry personnel (tours, video filming, curriculum)
- Over 45,000 high school and middle school students influenced by the "Made in Florida" outreach campaign
  - 1726 students, 168 teachers, hosted by 40 different manufacturers in 90 "Made in Florida" Industry tours
  - 15% increase in numbers of students interested in manufacturing careers
  - Over 7,760 responses to date from 2 annual advertorials distributed to all Florida H.S. students
  - Over 32,000 students viewed "Made in Florida" video with 700 DVDs distributed
  - Over 233,000 website hits since 12/05 on [www.madeinflorida.org](http://www.madeinflorida.org)
  - 40 presentations to 2,643 students, 196 teachers, and 244 community & workforce development members
- Annually provided leadership and content for MAF's Manufacturers Summit Workforce & Education program track
- Annually recognize 3 outstanding Educational and Industry stakeholders who are champions of manufacturing education

### National Impacts:

- Over 1,200 FLATE Focus Newsletters distributed nationwide in 2007
- Model for integrating national skill standards into technician 2-year degree curriculum
- Model for industry endorsed 2-year curriculum for A.S./A.A.S. degrees in Engineering Technologies
- Dissemination by 9 national presentations, posters, and published papers on center activities and best practices
- National advisory boards for Technical Education including ATE Centers and projects, MSSC, & HAS 200 Consortium
- Developing industry recognized (Baldrige/Sterling) evaluation model for center and project evaluation
- Developed and delivered the "Toothpick Factory" (simulation game based soft skills modules for classroom delivery) to 50 students and 19 parents as well as facilitated related professional development for 69 faculty





# FLATE — Florida Advanced Technological Education Center

[www.fl-ate.org](http://www.fl-ate.org)



**Hillsborough  
Community College**  
Tampa, FL



## The Center Enhances the Workforce by

- Partnering with the Florida Department of Education (FL-DOE) and colleges for a new statewide manufacturing curriculum
- Networking with stakeholders on shared goals for manufacturing education
- Bringing secondary school students inside manufacturing facilities
- Creating and sponsoring a statewide manufacturing awareness campaign
- Partnering with Workforce Florida for manufacturing workforce education and training

## The Center Serves the Education Community

FLATE has partnered with the FL-DOE, industry, and eight Florida community colleges to realign the statewide manufacturing curricular frameworks for AS and AAS degrees and certificates. This partnership is also reframing seven other manufacturing-related technical programs to reduce redundancy, improve delivery, and minimize program confusion. Complementing this effort, FLATE is leading a statewide industry-academic partnership to redefine the high school curricular frameworks for production technologies and manufacturing academies.

To help community college faculty teach the soft skills employers seek, FLATE offers training using The Toothpick Factory®. This experimental and nonthreatening simulation is staged in a manufacturing context and serves as a vehicle for raising awareness and facilitates the learning of soft skills within technical courses.

For elementary, middle, and high school teachers, FLATE provides professional development that focuses on integrating science, technology, engineering, and mathematics (STEM) throughout the curriculum. More than 300 teachers from across Florida have been introduced to this approach and provided with classroom resources.



Students learn about automated manufacturing processes using a simulator at Hillsborough Community College.

**The updated technical educational pathways will provide Florida manufacturers with a well-trained, skilled workforce for the future, meaning better lives for Florida families.**

**Mike Haycock**  
Vice President - Tropicana





## A quality assurance technician inspects elements of a bar code printer.

### **FLATE Initiates *Made in Florida* Campaign**

The *Made in Florida* campaign introduces students to STEM career paths through manufacturing. The effort unites manufacturers, economic development organizations, workforce agencies, educational institutions, and professional associations to support their common goal of supplying Florida's manufacturing industries with the skilled workforce they need.



### ***Made in Florida* Video**

The campaign's cornerstone is an upbeat, 22-minute video. The *Made in Florida* video highlights the array and diversity of products manufactured in Florida. It provides educational pathway information using interviews of young people who like their careers in manufacturing and see them as secure, challenging, and financially rewarding. FLATE partnered with the Manufacturers Association of Florida to produce and distribute 1,000 copies of the video. It premiered at the second annual Florida Manufacturing Summit and has been rolled out in five regions and viewed by more than 3,000 Floridians.

### ***Made in Florida* Web Site**

The *Made in Florida* web site, [www.madeinflorida.org](http://www.madeinflorida.org), is quickly becoming the key awareness instrument of Florida manufacturing workforce development for students, teachers, faculty, counselors, and parents. It hosts a streaming version of the *Made in Florida* video as well as education and career pathway information, virtual tours of Florida manufacturers, audio interviews of manufacturing professionals, curriculum modules, and links to other related resources.

### ***Made in Florida* Tours**

Over 980 students and 91 teachers have experienced *Made in Florida* tours of manufacturing facilities. The tours in various locations across the state receive support from local industries and government agencies.

### ***Made in Florida* NEXT**

With industry funding, FLATE developed a four-page *Made in Florida* "advertorial" that highlights manufacturing careers. It has been published in *Florida Trend's* NEXT magazine, which is distributed to 750,000 students. The content is also available in Spanish and online at *Florida Trend's* NEXT web site.

**FLATE HAS CATALYZED FLORIDA MANUFACTURERS AND COMMUNITY COLLEGE COMMUNITIES TO BECOME ACTIVE IN OUTREACH AND STATEWIDE REFORM OF ENGINEERING TECHNICIAN EDUCATION.**

# HIGH-WAGE HIGH-SKILL CAREERS THAT ARE MADE IN FLORIDA



## ENGINEERING TECHNOLOGY EDUCATION AT A COLLEGE NEAR YOU!

### Degrees, Certificates & Courses in:

- Electronics
- Advanced Technology
- Composite Materials Fabrication and Repair
- Soldering
- Fiber Optics
- Electronic Design Automation

Two year degrees are stepping stones to Bachelor of Applied Science degrees in the state of Florida and articulate to Bachelor of Science in Engineering Technology degrees.

- *Aligned with the Manufacturing Skill Standards Council Certified Production Technician Certification.*

For information call XXX.XXX.XXXX or email (insert email address here).

COLLEGE LOGO HERE

At a college near you!

The Engineering Technology Degree is your first step towards a fast-paced, challenging tech career where you manufacture the things we use every day. With 2-4 years education past high school, salaries in manufacturing and electronics are \$35K per year or more. Some of your many career options include:

- Production Design
- Manufacturing Operations
- Engineering
- Facilities Maintenance
- Robotics
- Automation & Controls
- Materials Handling
- Quality Assurance
- Packaging Design



[www.madeinflorida.org/pathways.htm](http://www.madeinflorida.org/pathways.htm) · [www.myspace.com/floridaflater](http://www.myspace.com/floridaflater)

This material is based upon work supported by the National Science Foundation under Grant 0402215.  
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## Florida Manufacturers take advantage of new Engineering Technology program, offer incentives

Facing increased competition for talented workers, the high cost of recruiting, and a failing economy, Florida manufacturers are finding new ways to attract new employees and empower the employees they already have.

Several businesses throughout Florida are partnering with community colleges to give employees a competitive edge by providing the tools they need for a successful career in the diverse fields of engineering technology.

A number of community colleges have implemented a new Engineering Technology degree (ET degree) program designed to prepare students for jobs in the manufacturing and related high-technology industries. It is a cohesive, comprehensive program that focuses on a set of core classes that cover introductory computer aided drafting, electronics, instrumentation and testing, processes and materials, quality, and safety.

And some employers are taking advantage of the program, offering in-house certification training, tuition reimbursement, on site courses, and other incentives that help employees access and pay for higher education.

"There aren't enough graduating engineering technicians to fill our need," said Brian O'Connor, Site Director for Lockheed Martin in Ocala.

Companies often find they are competing for talent. In a world of constantly changing technologies, the new ET degree program offers an updated and industry-driven curriculum that is transferrable to many four-year colleges.

In the Tampa bay area, ConMed Linvatec, a medical and surgical equipment manufacturer in Largo, works closely with the Pinellas Technical Education Center and has a number of employees participating in its computer and numerically controlled (CNC) machining apprenticeship program.

"PTEC helps bridge the gap between high school and college. When our employees complete the CNC program they get an automatic promotion," said Todd Gladden, Training Manager for ConMed.

Many who have completed the apprenticeship program move on to St. Petersburg College to pursue the ET degree. As an incentive ConMed picks up the tab.

Dr. Marilyn Barger, Executive Director of Florida Advanced Technological Education Center and one of the architects of the new program, said it offers something that other programs do not.

"The ET degree program offers both high school students in related technology programs and industry employees an opportunity to articulate 15 college credits of the Engineering Technology AS or AAS degree by achieving the nationally recognized Manufacturing Skills Standard Council's (MSSC) Certified Production Technician (CPT) certification," said Barger.



“Couple that with the corporate incentives and you’ve got a win-win situation,” she added.

The 15 articulated credits are aligned to the competencies covered in the industry standards certification. This statewide articulation agreement is the first of its kind in Florida and is a key piece of the unified education pathway that FLATE and its community college and workforce partners are building.

Lockheed recruits graduates from Marion Technical Institute which imbeds the MSSC CPT competencies into their industrial engineering technology program and teaches the MSSC curriculum to its employees. Other companies, such as Harris Corporation, an Aerospace Company in Melbourne, Florida, offer employees MSSC certification and tuition reimbursement. Harris even has faculty from Brevard Community College teach classes on site.

“We have lots of people who are very talented, but who don’t have the degree because they didn’t have the means or the background to pursue it,” said Lockheed’s O’Connor.

The development of the ET program and the partnerships that are forming are proving successful.

“What this program does for students is, it allows them to be part of a career and educational pathway and lays the groundwork for generous compensation later on in their careers,” said Barger.

Amy Wensil, a machine operator at Harris, is one benefactor of the partnership between her employer and BCC. By her own account, Wensil says she was a rebellious youth and rejected the idea of college. But the desire for personal achievement began to surface as she got older. Both of Wensil’s parents hold master’s degrees and each of her five siblings is a college graduate.

“I’m doing this for myself, first and foremost,” said Wensil.

Wensil has completed the MSSC program, is pursuing an ASS degree at BCC, and plans to go on to earn a four-year degree in the field.

“Community college is already an attractive alternative - it’s convenient, affordable, and offers a flexible schedule. These corporate incentives are an added value,” said Barger.

The program is for anyone with an interest in how things work, how they are packaged, designed, or developed, and it’s open to students who are just beginning their college careers, employees already in the industry who want to climb the corporate ladder, or those who are simply looking to make a career change.

Other companies offering incentives include:

- BIC Graphic
- Environmental Technologies
- Smith-Nephew
- Tech Data

*The Toothpick Factory®* is a hands-on activity, set in a manufacturing context, that stimulates discussion and awareness about a wide range of *soft skills* that are essential in today's work and personal relationships.

What are *soft skills*? These are workplace standards of behavior needed by employees to interact and cooperate effectively with co-workers and the general public. Some examples include:

- Effective communication
- Leadership skills
- Team-building skills
- Listening skills
- Flexibility
- Active listening

Are you...

- a good team player?
- able to adapt to changes?
- able to lead others?
- able to communicate effectively?
- able to offer and receive feedback?

....play *The Toothpick Factory* and find out!



Feedback from users:

*"It's a simple concept for teaching a difficult topic."*

*"Provided clarity for a focus on team interaction."*

*"It will engage the students and make it fun."*

*"Good team activity, both in the classroom and at work!"*



## Simulation includes:

- Team Instructions (5)
- Job Function Cards (16)
- Production Scorecard (4)
- Soft Skills Scorecards (20)
- Toothpicks (150)
- Clippers (4)
- Sanders (8)
- \*Client Cards (9)
- \*Client Response Card (4)
- \*\*Market Response cards (9)
- Soft Skills for Success Handout
- Soft Skills Presentation
- Facilitator Guide
- Soft Skills Self-Assessment
- Optional Lesson Presentation
- Survey

\*Included with *Client Team* materials

\*\*Included with *Facilitator* materials

Materials are packaged into Production Team, Client Team, and Facilitator packets.

## Order *The Toothpick Factory*

Price: \$30.00 per kit

Contents: Facilitator Guide, PowerPoint slides, Simulation materials (as listed above) to support 4 Production Teams and 1 Client Team

Contact us: If you would like to order *The Toothpick Factory* or host a *Toothpick Factory* Facilitator's Workshop at your institution, contact Jodi Sutton, Curriculum Coordinator at [sutton@fl-ate.org](mailto:sutton@fl-ate.org) or 813.259.6575.



FLATE welcomes the opportunity to deliver The Toothpick Factory to educators and/or students. We offer our Facilitator's Workshop (Train-the-Trainer) for educators who are interested in utilizing this hands on simulation in their classroom. We also offer our standard version if you would like *us* to facilitate the simulation to students, employees, or faculty for professional development. If you are interested in one of our workshops, please contact Jodi Sutton at [sutton@fl-ate.org](mailto:sutton@fl-ate.org) or 813.259.6575.

Below is a brief overview of the workshops:

### The Toothpick Factory – standard version

Learn:

- What are soft skills?
- Why are soft skills important?
- Why do employers care?
- How soft skills benefit you?
- How The Toothpick Factory will improve soft skills?

### The Toothpick Factory – Facilitator's Workshop

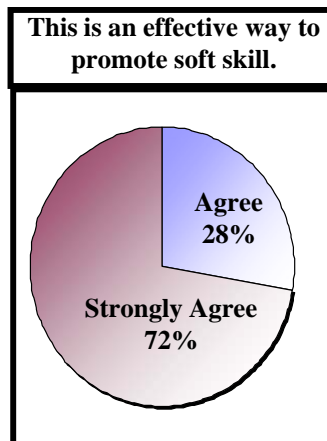
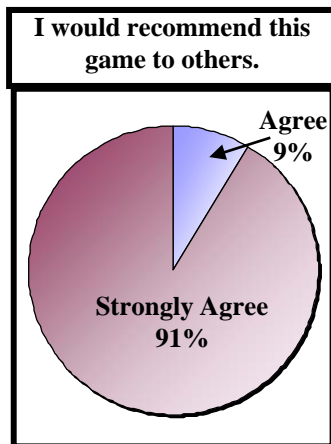
Learn:

- How to plan your session.
- How to manage the simulation.
- How to facilitate the reflective process that follows the game.
- How to integrate the simulation to your curriculum and needs.
- How to culminate the activity and stimulate knowledge.

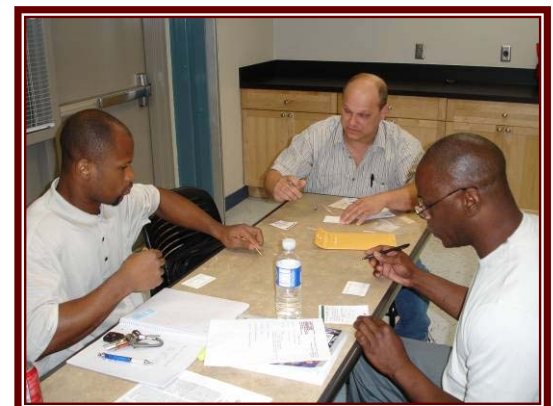
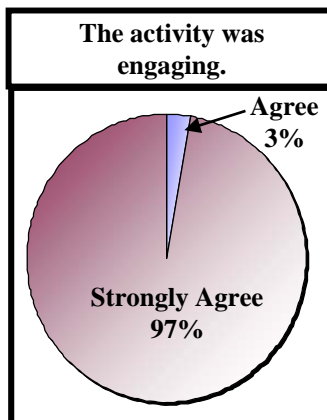
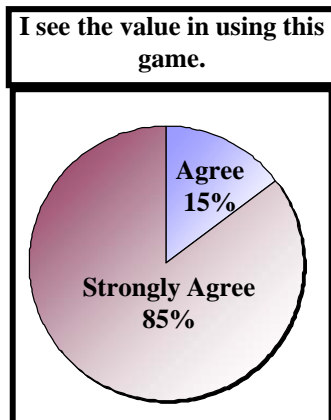
### Surveys – what have others said about The Toothpick Factory...

FLATE has facilitated The Toothpick Factory in several different venues. Each venue offered a different perspective ranging from post secondary educators to the students themselves. Though our audience differed in their objective for participating, they all praised the activity.

Here is a summary of their responses (educators and students):



Professional Development



Continuing Education







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## SUMMER CAMPS: Hands-on Experience in Science, Technology, Engineering, & Mathematics

As part of its outreach initiatives FLATE orchestrated and participated in a number of summer camps for middle school students. The primary focus was on STEM (science, technology, engineering and mathematics) education, and were part of an ongoing effort to teach students about technology and its application in modern manufacturing operations.

At Hillsborough Community College, FLATE hosted its own robotics camp. This week-long event, from July 14-18, was designed to stir students' interest in robotics. Participants included 15 students from Dowdell Middle Magnet School and five from other Hillsborough County schools.

During the camp, students reconfigured Lego® Mindstorms® robots, programmed them to operate utilizing light and sound sensors, and competed in daily challenges. The exercises required team work, accuracy and speed.

Students also toured the Center for Rehabilitation Engineering and Technology lab at the University of South Florida. Here, they test-rode a newly designed robotic wheel chair steered by body movements, and witnessed applications of

robotics technology in providing solutions for the physically handicapped. To view snapshots of the event visit [http://fl-ate.org/robotic\\_camp\\_08/index.html](http://fl-ate.org/robotic_camp_08/index.html)

FLATE also took part in the Composite Materials Camp at Tallahassee Community College. This was another initiative designed to educate students about the use of technology in composites manufacturing.

During the two week-long event, 30 middle school students built skateboards made of composite materials and

*Continued on page 4*



Designing a "light sensor" challenge course.

## The Underwater ROV

At the robotics camp, students witnessed a live demonstration of an underwater ROV (remotely operated vehicles) and learned about its design and operations.

Matt Samide, a 6th grader said "I want one and I am going to try and build an underwater robot." He said he likes programming robots because of the challenges it involves.

For pictures and videos visit [www.fl-ate.org/robotic\\_camp\\_08/index.html](http://www.fl-ate.org/robotic_camp_08/index.html)



Students operating the underwater ROV.



Team ready to start their robotics in the "maze" challenge.



Dr. Marilyn Barger  
Executive Director

## EVENTS CALENDAR

9/11: FLATE IAC meeting at Linvatec (Largo, FL).

9/18: Presentation to Hillsborough County Science Teachers at Florida Aquarium.

9/25-26: Engineering Technology Forum at Seminole Community College.

10/16-18: Florida Technology Education Association (Indian Rocks, FL).

10/17: Hillsborough County Science Teacher Conference.

10/25: Tempest n Tampa: First Robotics Competition (USF Sundome, Tampa FL).

10/29-31: NSF ATE P.I. Conference (Wash. D.C.)

### Enrollment Data Surveys

Calling all high school, technical center, or community college educators to fill out this enrollment data survey:

[http://madeinflorida.org/hs\\_ts\\_survey\\_2008.htm](http://madeinflorida.org/hs_ts_survey_2008.htm)

Your input is vital to the successful future of manufacturing education in Florida!

## From the Executive Director's Desk

There have not been many lazy days at FLATE this summer! In this issue you will read about our successful Lego® Robotics camp as well as other outreach activities for students and teachers alike.

In June, Eric and I attended the American Society for Engineering Education (ASEE) annual conference and exhibition in Pittsburg, PA. Through presentations and posters we told the story of the development of FLATE's Engineering Technology degree; the Toothpick Factory simulation for soft skills; and presented the Engineering Technology Forum as a vehicle for change.

The ASEE conference focused on engineering and engineering technology education at both two and four-year institutions in all disciplines of engineering, industry relationships and other disciplines that support engineering/engineering technology. It also served as an excellent forum to network with professionals working in manufacturing engineering and technology education. You can find a copy of the presentations at FLATE's web page ([www.fl-ate.org/media/publications.html](http://www.fl-ate.org/media/publications.html)) as well as on ASEE conference proceedings page at [www.asee.org](http://www.asee.org).

I also attended the SAME-TEC national conference in July hosted by MATEC, which is another NSF ATE Resource Center. The conference focused on convergent technologies and was a great venue for a FLATE presentation on the Engineering Technology Degree. The presentations evoked significant

interest in the degree, and we will follow-up with several CTE educators in different states with more information.

FLATE also participated in the NSF ATE joint center exhibit – disseminating information about our initiatives in Florida. Last, but not least, we ran a well-received Toothpick Factory workshop with 20 educators from around the country. Closer to home, Eric Roe attended the Florida Association for Career and Technical Education conference ([www.prolinkuptraining.com/facte/](http://www.prolinkuptraining.com/facte/)) in Ponte Verde, FL. Eric manned an information table on FLATE's "Made in Florida" outreach campaign, presented educational resources, and attended sessions on the state and national legislative agendas for career and technical education including Perkins IV accountability.

Eric also participated in the state's new Working Group for Manufacturing. This new initiative is responsible for creating an industry-driven 3-year plan for updating the state secondary curriculum frameworks. Additionally, Dave Gula and Jodi Sutton are both presenting in teacher pre-school professional development sessions this month.

These conferences, workshops, presentations and exhibits are instrumental in building a strong and supportive national network of partners and stakeholders. They also provide us with national and statewide information and resources to share and implement with our partners here in Florida.

## In the Spotlight

Meet Allan Dyer: success behind HCC and FLATE's robotics camp. Dyer is a science teacher at Dowdell Middle Magnet School in Tampa, but is by no means your average middle school teacher. From building model robots to solar-powered cars he is involved in a wide spectrum of projects.

For the Robotics Camp, Dyer



Allan Dyer, Instructor  
HCC/FLATE Robotics  
Camp.

played an integral role in building and developing curriculum. He sifted through software, hand-picked age-appropriate materials, and was the leading force in developing lessons around the Lego® Mindstorms® Robotics program. He says summer camps are a great way to reach out to students, and middle school stu-

dents are the best audience for these

*(Continued on page 4)*

**INSIDE FLATE**

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**COMING SOON!!****FLATE STORE**

Items include: The Toothpick Factory kits, Made In Florida posters, lapel pins, shirts and much more!

## First Engineering Technology Specialist

St. Petersburg College (SPC) is among a pioneering group of colleges in Florida that has taken the lead in adopting the new Engineering Technology degree.

This past summer the school experienced a defining moment in awarding the first "Engineering Support Specialist Certificate" to Adam Palermo.

Palermo is a sophomore at SPC who completed the core requirements of the program this past summer with a perfect 4.0 GPA, and is poised to graduate in May 2009 with an A.S. (Associate of Science) degree in Engineering Technology.

The Engineering Support Specialist Certificate comprises of 18 credits and is part of the 60-credit hour Associate of Science degree in Engineering Technology. It prepares students for

entry-level positions in manufacturing with specializations in engineering design, manufacturing processes and production, quality and product testing.

Brad Jenkins, program director and instructor at SPC said "Palermo was a hardworking student. He is technically savvy, enjoys electronics/manufacturing and will be an excellent technician."

This certificate also aligns with the Manufacturing Skill Standards Council, Certified Production Technician Certification, and is an excellent pathway to acquire the knowledge and skills necessary in the high-tech manufacturing workforce.

For more information contact Brad Jenkins at 813.341.4378 or visit [www.spcollege.edu/program/ENGTECH-CT](http://www.spcollege.edu/program/ENGTECH-CT)

St. Petersburg College**SPC****FLATE'S WIKI**

FLATE's has many resources that are made available online through our



"wiki" (previously available online via WebCT). Our resources range from quick and easy lesson plans to more complex projects for use in science, technology, engineering and math classes. FLATE's wiki also has activities and lessons that will enhance career and education planning as well as professional development.

For more information contact Jodi Sutton at [curriculum@fl-ate.org](mailto:curriculum@fl-ate.org).

## 2008 Florida Manufacturers Week

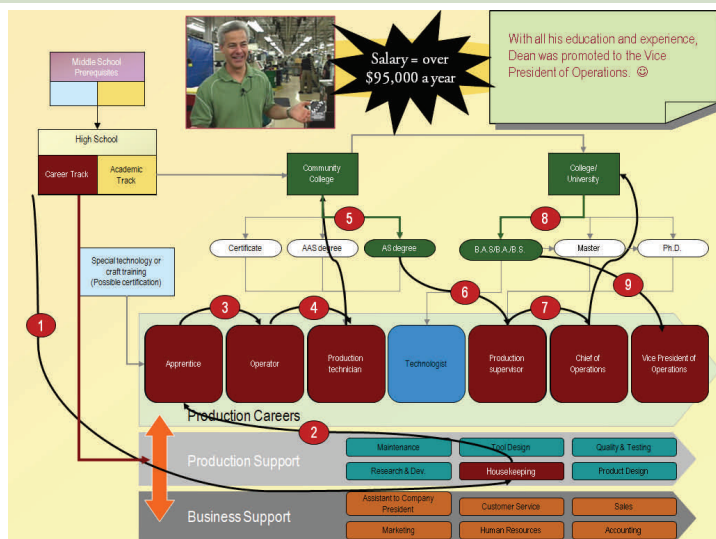
As part of both House and Senate resolutions passed in the 2008 session, through the hard work of the Manufacturers Association of Florida (MAF), and in recognition of more than 16,000 manufacturers throughout Florida, the State of Florida has designated November 3-7 as "Florida Manufacturers Week." This week-long event is scheduled to coincide with MAF's annual manufacturers summit, and will focus on showcasing manufacturers from across the state.

Given FLATE's leading role in manufacturing/manufacturing education, it will be engaging in several promotional aspects of the event. Principally, FLATE proposes to produce a 30-second public service announcement to raise awareness and promote manufacturing in both local and statewide markets.

For more information visit [http://madeinflorida.org/mfg\\_week.htm](http://madeinflorida.org/mfg_week.htm)



# The Interactive Career Pathways: Tracking Educational and Professional Pathways in Manufacturing



Manufacturing is a vast and diverse industry. People who work in the industry come from different educational and professional backgrounds.

The Made in Florida career pathways are interactive tools designed to provide students a look into how “real” people have succeeded in the world of manufacturing. These pathways provide an inside look into the educational and professional pathways of manufacturing professionals throughout Florida. They show students different paths people have taken and how they “made it” to where they are today!

One such pathway is that of Dean, the Vice President of a Florida manufacturing company. Dean built his credentials from the ground up. He started as a janitor and is now the vice president of operations for a major medical manufacturing company. Additionally, he earned his bachelor of science degree while working full-time and going to school part-time.

From a janitor to the vice president of operations, Dean carved his niche by pursuing his ambition to succeed. To view Dean’s and other career pathways visit <http://www.madeinflorida.org/Pathways2.htm>. Don’t miss your calling!

*(Continued from page 2: In the Spotlight)*

exercises. He added, “The hands-on stuff, when they are building and programming is what gets kids excited.” To that effect, he encourages FLATE to

reach out to more students by targeting schools on a county-by-county basis, or by contacting the schools’ subject area leaders, district level supervisors and career specialists.

Looking to the future, Dyer will be working with FLATE to offer several mini robotic training sessions throughout the school year, as well as additional camps next summer. Besides his involvement with the robotics camp, Dyer is engaged in miscellaneous projects at Dowdell Middle School. Through its rocketry unit he teaches students the basics of rocket science and how to construct/launch model rockets. Additionally, he teaches middle school students how to design and build solar-powered cars using photovoltaic cells. Closely related to this effort is his balloon-powered car project where students are introduced to the concepts of car engines, gear ratios, diameter of wheels and how these affect the speed of the car. Dyer is also involved in “Bay Grasses and Bay Classes”—an environmental-awareness program designed to educate students about the ecology of Tampa bay and help restore it.

Outside his involvement with educational and environmental projects, Dyer is a keen outdoor enthusiast. When not in school he spends time with his family hiking, camping, kayaking, canoeing and fly-fishing. He also likes all kinds of music and plays acoustic and bass guitar...a range of talents that makes him one of Florida’s outstanding science teachers!

*(Continued from page 1: Summer Camps)*

carbon fiber, and toured the composites lab at Florida State University.

To make the connection with manufacturing, Dr. Eric Roe gave students an overview of modern manufacturing operations with the “Made in Florida” DVD and led a class exercise on educational and career opportunities the industry offers.

Yet another initiative along these lines was the Tech Stars Engineering for Youth Summer Camp at Manatee Community College. The camp aimed at educating middle school students about basic principles of mathematics, physics, manufacturing processes, automation and machines using conveyors, pulley systems and cranes. At the camp, David Gula, FLATE’s outreach manager, gave presentations about educational pathways and career opportunities in manufacturing. Students were also encouraged to take advantage of the resources available at [www.madeinflorida.org](http://www.madeinflorida.org).

**REMINDER!**

**2008 FLATE AWARDS**

Nominations for the FLATE Awards



are still open until August 31. To nominate your candidates online visit [www.fl-ate.org/awards](http://www.fl-ate.org/awards).

For more information contact Dr. Eric Roe ([roe@fl-ate.org](mailto:roe@fl-ate.org)).

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## FLORIDA ADVANCED TECHNOLOGICAL EDUCATION CENTER

### **NEWS** from

FLATE

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Tampa, FL 33619

Eric Roe, Ph.D.

Director

Tel: (813) 259.6579

email: roe@fl-ate.org

FOR IMMEDIATE RELEASE

### **First Engineering Technology Support Specialist at St. Petersburg College**

Adam Palermo, a sophomore at St. Petersburg College, is the first student in Florida to earn the Engineering Technology Support Specialist college certificate. Palermo completed the core requirements of the program this past summer with a 4.0 GPA, and is poised to graduate in May 2009 with an A.S. (Associate of Science) degree in Engineering Technology. Brad Jenkins, program director and instructor at SPC said “Palermo is a hardworking student. He is technically savvy, enjoys electronics, and will be an excellent technician.”

Palermo is passionate about manufacturing, and encourages other students to consider educational and career pathways in manufacturing. He says manufacturing is a great starting point for a career as it offers many career and employment opportunities. “Manufacturing is a lot more complex than you think. It is interesting to observe the various processes involved in creating a product from conception to completion.” He says the metrology classes he took at SPC have proved extremely helpful in his current job. He added, “It has helped me identify each component part, what they’re made of and gain a deeper understanding about each of their functions in the manufacturing process.”

(more)

## 1<sup>st</sup> add/Engineering Technology Specialist

In addition to these achievements, Palermo is also focusing on earning additional certificates as an AutoCAD technician. He works as an electronic technician at a manufacturing company in Clearwater, and hopes to transfer to a four-year university to pursue a degree in electrical engineering.

The Engineering Support Specialist Certificate is comprised of 18 credit hours of technical coursework and is the foundational core of the 60-credit hour associate of science degree in engineering technology. The certificate and degree prepares students for technical positions in modern manufacturing with specializations in engineering design, manufacturing processes and production, quality and product testing. For more information on the program, or to find colleges that offer the program visit [www.madeinflorida.org/ET\\_Degree/index.htm](http://www.madeinflorida.org/ET_Degree/index.htm)

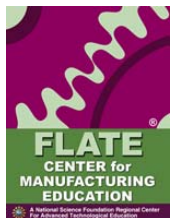
### **About FLATE**

*FLATE is a National Science Foundation center based at Hillsborough Community College. It is committed to ensuring that Florida has a well prepared manufacturing workforce. Created in 2004, it is one of 33 centers in the United States focused on improving science, technology, engineering, and mathematics education to meet the needs of American advanced-technology industries. For more information call 813.259.6579 or visit [www.fl-ate.org](http://www.fl-ate.org).*

### **About St. Petersburg College**

*St. Petersburg College was founded in 1927 as a two-year institution of higher learning. Known then as St. Petersburg Junior College, it provided high-quality, fully-accredited programs with credits that were fully transferable to four-year institutions. In 2001, the Florida Legislature passed legislation allowing the college to offer four-year degrees. In response, the college dropped the word “junior” from its name and became St. Petersburg College. Today, St. Petersburg College offers programs at learning sites in St. Petersburg, Seminole, Clearwater, Tarpon Springs and elsewhere. It also offers courses and degree programs online.*





FLORIDA ADVANCED TECHNOLOGICAL EDUCATION  
CENTER for EXCELLENCE IN MANUFACTURING EDUCATION

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Tampa, FL 33619

David Gula  
Outreach Manager  
Tel: (813) 259.6581  
email: gula@fl-ate.org

FOR IMMEDIATE RELEASE

**Summer Robotics Camp: An Innovative approach to robotics, science and technology**

FLATE -Florida Advanced Technological Education Center for Manufacturing hosted a robotics camp designed to educate middle school students about robotics and its application in modern manufacturing operations. This week-long event, from July 14-18, was held at Hillsborough Community College (HCC) in Brandon, and made possible through a partnership between FLATE, HCC and Dowdell Middle Magnet School.

Participants included 15 students from Dowdell Middle Magnet School, and five middle school students from the Hillsborough School District. The event focused on key concepts of STEM (science, technology, electronics and math) education and was part of a pilot program aimed at creating a “portable robot workshop”.

During the camp, students reconfigured Lego® Mindstorms® robots and programmed them to operate within a “bottle maze,” follow a dark line utilizing light sensors, change directions at certain sounds and stop at a predetermined distance. The exercises required team work, accuracy and speed to get through each of the challenges.

(more)

## 1<sup>st</sup> add Summer Robotics

Students also experienced a live demonstration of an underwater ROV (remotely operated vehicles) and learned about its design and operations. Matt Samide a 6<sup>th</sup> grader said “I want one and I am going to try and build an underwater robot.” He said he likes programming robots because of the challenges it involves.

Additionally students toured the Center for Rehabilitation Engineering and Technology Engineering at the University of South Florida where they saw robotic engineering projects providing solutions for problems caused by physical disabilities. The students also had the opportunity to test-ride a newly designed robotic wheel chair steered by body movements.

Echoing these sentiments, Diane Matthews director of education at the Florida Technical Research and Development Authority said she hopes such an initiative “will help students learn the value of teamwork, and teach them problem-solving skills” which are essential in the work place. Matthews hopes this experience will enable instructors involved in STEM education to introduce a fresh dimension to their teaching experience.

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Hillsborough Community College – Brandon campus serves approximately 6800 students per semester and is home to the college’s manufacturing related academic programs as well as FLATE and the Employ Florida Banner Center for Manufacturing.

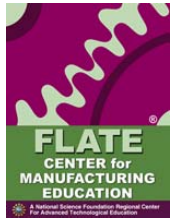
(more)

2<sup>nd</sup> add Summer Robotics

Here students can learn the high-tech skills needed in modern manufacturing, such as controls, hydraulics, pneumatics, robotics, computer aided drafting, and automation. District wide, Hillsborough Community College serves more than 40,000 students on campuses on Dale Mabry Highway and in Ybor City, Plant City and Brandon. HCC also serves students at learning centers on MacDill Air Force Base and in Ruskin. HCC was the recipient of the 2006 Association of Community College Trustees (ACCT) Equity award.

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FLORIDA ADVANCED TECHNOLOGICAL EDUCATION  
CENTER for EXCELLENCE IN MANUFACTURING EDUCATION

NEWS from  
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Director  
Tel: (813) 259.6579  
email: roe@fl-ate.org

FOR RELEASE ON  
April 29, 2008

**Florida SkillsUSA 2008 State Championship: Ensuring a Skilled American Workforce**

FLATE (Florida Advanced Technological Education) Center for Manufacturing is partnering with Tropicana to host modern manufacturing competitions at the 2008 Florida SkillsUSA State Championships.

The two-day competition will be held April 29-30 at the Anthony Rossi training center at Tropicana's headquarters in Bradenton, Fla. The SkillsUSA event represents a culmination of partnerships between students, teachers, and industry working to ensure today's students have the leadership and technical skills needed to succeed in the global marketplace.

Teams of middle and high school students across Florida will be competing for an opportunity to advance to the national championships which will be held in Kansas City, in June.

Two contests will be held for modern manufacturing. The "automated manufacturing technology" event evaluates teams on their usage of computer-aided drafting/design (CAD), computer aided manufacturing (CAM), and computer numerical controlled machining (CNC). CAD operators construct the geometric part; CAM operators generate the tools paths, and the CNC operator sets up and machines the part.

((more))

## SKILLSUSA MANUFACTURING CHAMPIONSHIP/2

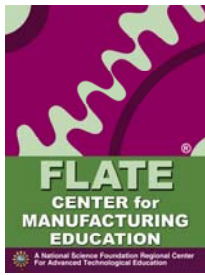
The “robotics and automation technology” event evaluates teams on modern control systems. It requires teams to demonstrate operation of a 5-axis servo-robot, along with a set of sensors and motorized devices to resolve a simulated production process problem. This requires contestants to set up a robotic work cell along with a flow chart indicating the sequence of operation. Each team will be judged on efficiency, speed and teamwork.

For the automated manufacturing technology event, teams will use Denford Mills and Simulations. For the robotics and automation technology event, teams will use Amatrol Robotics Systems. Jaeger Corporation will provide the equipment and simulation software to support team competitions for both events.

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Tropicana Products, Inc., a division of PepsiCo, Inc., is the leading producer and marketer of branded fruit juices. Tropicana markets its products in the U.S. under a variety of brand names, including the Tropicana not-from-concentrate line of juices: Dole ® juices and juice blends; Tropicana Pure 100 percent Juice Blends; Tropicana ® FruitWise™ strips and bars; Tropicana ® Juices and Pure Tropics ® juices; Tropicana Smoothies™ and Tropicana Twister ® juice beverages. For more information visit [www.tropicana.com](http://www.tropicana.com)

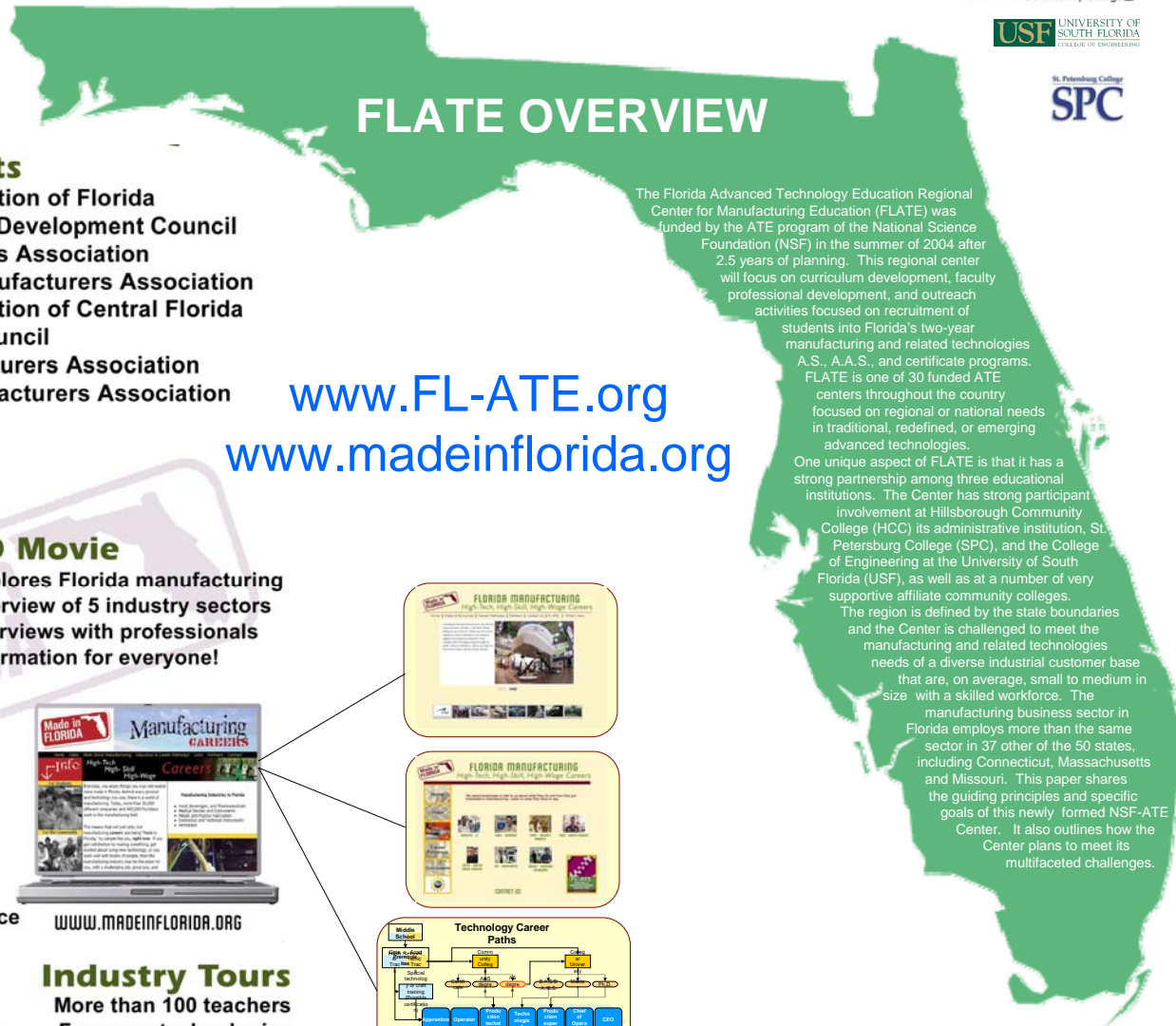
Jaeger is a "Total Solution" full-service educational supplier preparing America's students and workers for tomorrow's world. It represents manufacturers that meet and exceed the expectations of learning requirements for all ages in a K-20 seamless education system. Jaeger provides a range of services, high quality products, correlated to national and state standards, full-time customer service support, and in-depth experience in the education market that results in solid, hands-on applied learning. For more information visit <http://www.jaeger.cc/>



# "Made in Florida" - A Dynamic STEM Career Outreach Campaign

Behind every product you use, every food you bite into, and every technology you turn on, there is a world of Manufacturing. Today, technology and global economic competition are combining in unprecedented ways to change work and redefine the American workplace so that manufacturing jobs are technology jobs. Attracting a new generation of students onto this Science, Technology, Engineering and Mathematics (STEM) pathway is critical, not only for the success of the students as they enter the workforce, but for the success of America's economy. The "Made in Florida" campaign introduces students to the STEM career path through Manufacturing. It provides: students with the tools to make education and career decisions; educators with tools to enhance their classroom experience; and gatekeepers such as parents and counselors, with the information they need to understand this dynamic career cluster.

The effort has brought economic development organizations, workforce agencies, educational institutions, and professional associations together to support a common goal. With our partners in community colleges across the state, local school districts, the regional manufacturing associations, the Florida Department of Education Community College Division and the Manufacturing Association of Florida, FLATE is beginning to make a significant impact!



## Regional Rollouts

Manufacturers Association of Florida  
Tallahassee Economic Development Council  
Bay Area Manufacturers Association  
Sarasota Regional Manufacturers Association  
Manufacturers Association of Central Florida  
Polk Manufacturers Council  
South Florida Manufacturers Association  
Marion Regional Manufacturers Association

[www.FL-ATE.org](http://www.FL-ATE.org)

[www.madeinflorida.org](http://www.madeinflorida.org)

## DVD Movie

- \* Explores Florida manufacturing
- \* Overview of 5 industry sectors
- \* Interviews with professionals
- \* Information for everyone!



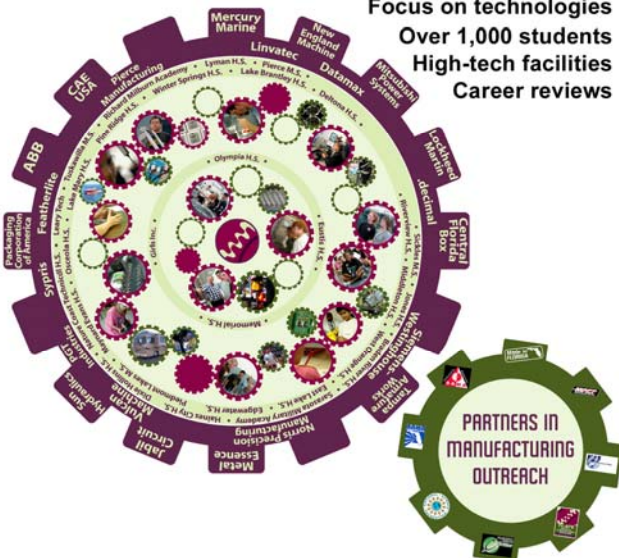
[www.madeinflorida.org](http://www.madeinflorida.org)

## Online Resources

- \* Virtual tours
- \* Streaming video
- \* Employee interviews
- \* Career & education info
- \* Venue for Florida's workforce

## Industry Tours

More than 100 teachers  
Focus on technologies  
Over 1,000 students  
High-tech facilities  
Career reviews



## Florida Trend NEXT

- \* Sent to all FL H.S. students
- \* Teacher activity guide
- \* Four page advertorial
- \* Industry sponsored
- \* Response system
- \* Online form
- \* En Español





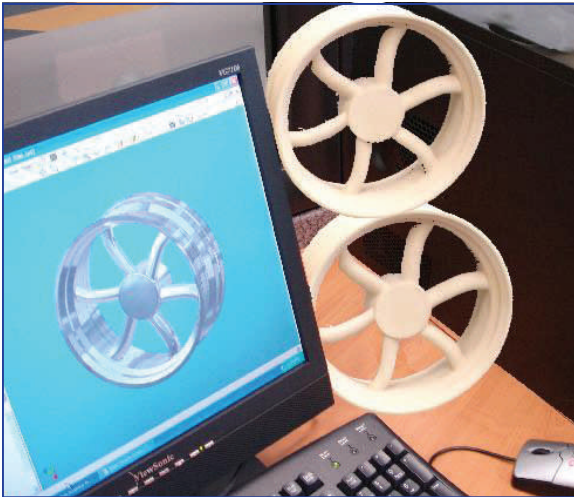
www.

Made in  
FLORIDA

.org

# What is Manufacturing?

## Discovering great careers in Florida



Manufacturing is the process of changing raw or processed materials into products people can use.

Many COOL careers that use your **imagination** and **skills** with the HOTTEST technologies to make better things for our world!



Statewide over **16,000 manufacturing** companies and **400,000 Floridians** make products you use everyday

Manufacturers make almost every product you use, from the rims you buy, to the jeans you wear, to musical instruments you play.

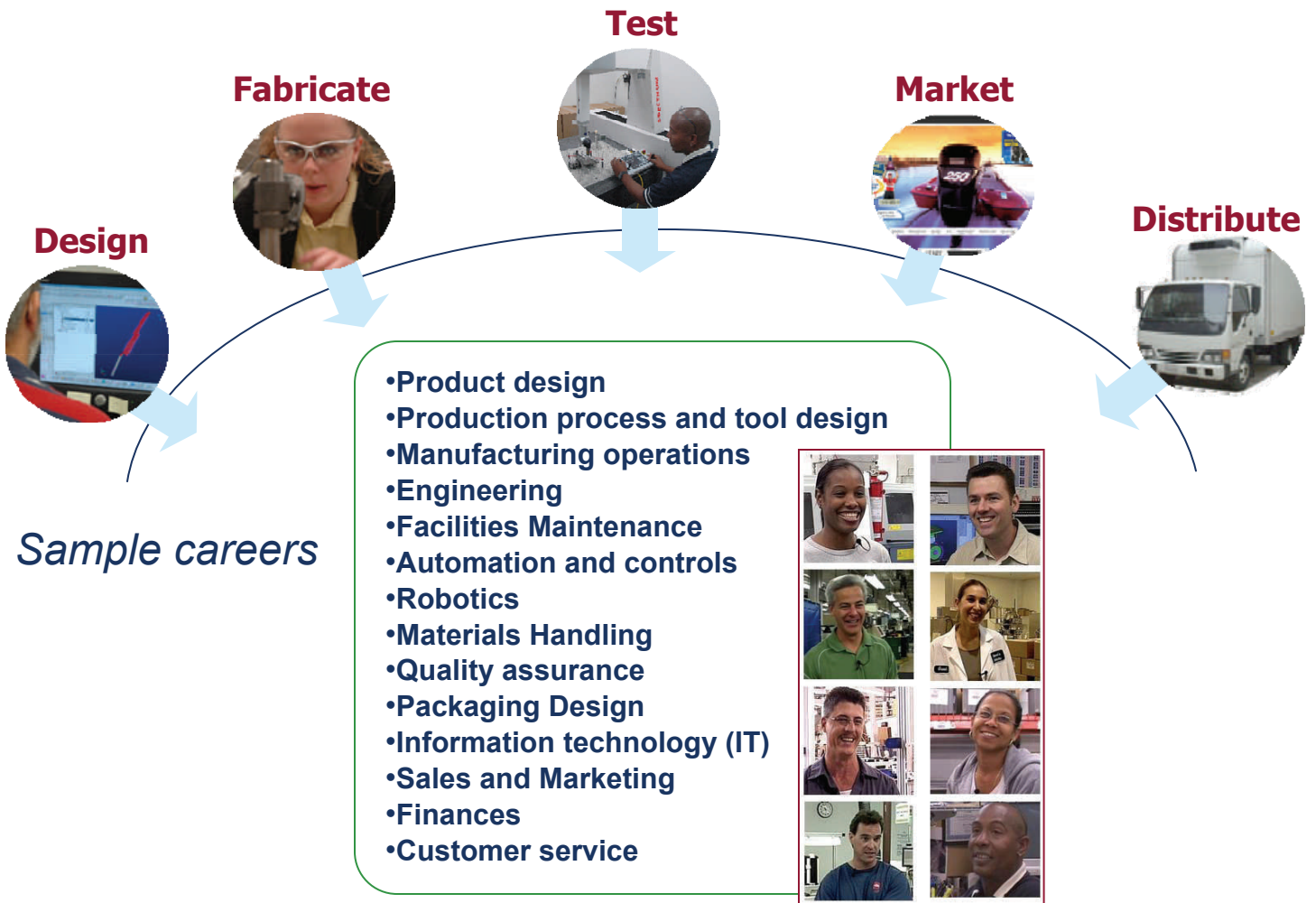
If you get satisfaction by making something, get excited about using new technology, or you work well with teams of people, then the manufacturing industry may be the place for you.



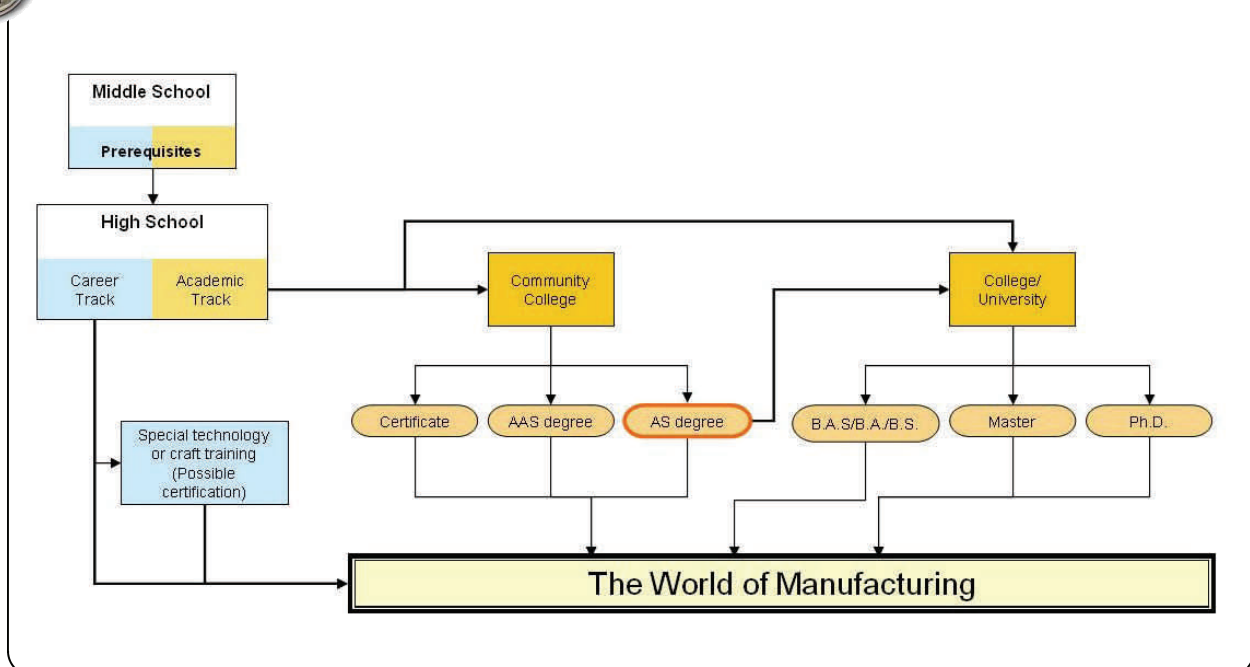
### These are some manufacturing sectors

Biological and medical	Systems Engineering
Leisure & Entertainment	Metals and Plastics
Aviation and Aeronautics	Transportation
Electronic Devices	Processing
Food, Paper, Beverage & Cosmetics	

# Which aspects of the manufacturing process might interest you?



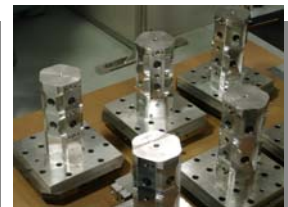
## Academic paths leading to careers in manufacturing



Visit [www.madeinflorida.org](http://www.madeinflorida.org) to learn more about careers in manufacturing!



- There are approximately 16,900 manufacturing companies in Florida, employing more than 390,000 residents.
- Florida ranks thirteenth in the nation in terms of manufacturing jobs. California, Texas, and Ohio top the list respectively.
- Manufacturing contributes \$35.9 billion to the state's gross domestic product, and represents 93 percent of all its exports.
- Florida exports to 222 countries, with Brazil, Canada, Venezuela, Mexico and Columbia being the top five countries importing Florida-made products.
- The average annual salary for a Florida manufacturing employee is \$46,540, compared to \$37,260 state average salary for all industries.
- In regional, statewide, and national surveys, manufacturers consistently cite a lack of qualified workers as a chief concern and business setback. In the National Association of Manufacturers' 2005 Skills Gap Report, 90 percent of the companies participating in the survey said they are experiencing "a moderate to severe shortage of qualified skilled production employees."
- In Florida, small businesses dominate the industry with about 72 percent of manufacturers employing fewer than 10 people each. Five percent of companies employ at least 100 workers.
- The five Florida counties with the most manufacturing employees are Miami-Dade (48,676), Pinellas (37,981), Hillsborough (31,740), Broward (31,352), and Orange (30,258).
- The top five Florida counties based on the number of manufacturing businesses are Miami-Dade (2,654), Broward (1,836), Pinellas, (1,248), Palm Beach (1,116), and Hillsborough (1,034).
- The Agency for Workforce Innovation predicts that the change in manufacturing employment from 2005 to 2013 in the durable and nondurable goods sectors will be gains of 2.4% and 1.8%, respectively, with the combined change predicted to be 2.2% growth.







# Great Careers in Manufacturing

What do Tropicana juice, industrial valves and advanced electro-optical targeting systems have in common? They're all **MADE IN FLORIDA**.

Florida manufacturers — such as Tropicana, Hoerbiger and Lockheed Martin — design, produce, test, market and distribute products that make the world a better place. Almost 17,000 manufacturing companies in Florida employ about 400,000 people.

With an average annual wage of \$46,540, careers in modern manufacturing can provide you with the salary you want so that you can have the lifestyle you want.

If you get satisfaction from making something, get excited about using new technology or like to know how things work, a manufacturing career may be perfect for you. There are unlimited opportunities in Florida manufacturing to help you build a challenging and rewarding career.

**MadeInFlorida.org** is a website dedicated to helping you learn about career choices and education options for modern manufacturing.

Advanced manufacturing has some of the highest-paying skilled careers in the workforce.

## Electro-mechanical Technician: \$39,125

Operate, test and maintain unmanned, automated equipment. May assist engineers in testing and designing robots or robotics equipment.

## Industrial Machinery Mechanics: \$42,723

Repair, install, adjust and maintain industrial production and process machinery, deciding when and what type of maintenance is needed.

## Machine Operator: \$28,850

Set up and operate production equipment in support of automated processes for metals and plastics.

## Industrial Engineering Technician: \$44,947

Apply engineering principles to modify, develop and test manufacturing processes, machinery and equipment.

## Manufacturing Drafter: \$44,866

Prepare detailed working diagrams of machinery utilizing computer-aided design and manufacturing programs.

## Numerical Tool and Process Control Programmers: \$39,686

Develop programs to control machining or the processing of parts by automated machine tools, equipment or systems.

## Production Managers: \$81,587

Direct the work activities and resources necessary for manufacturing products in accordance with cost, quality and quantity specifications.

## Logistician: \$63,523

Analyze and coordinate the logistical functions of a manufacturer. Responsible for the entire life cycle of a product.

These figures are based on the 2007 "average hourly wage," which falls somewhere between entry-level and experienced. Source: [floridawages.com](http://floridawages.com)

**RESOURCES:** Explore these websites to learn more about Florida manufacturing careers, companies and educational opportunities



[madeinflorida.org](http://madeinflorida.org)



[fl-ate.org](http://fl-ate.org)



[mafmfg.com](http://mafmfg.com)



[hoerbiger.com](http://hoerbiger.com)



[floridamep.org](http://floridamep.org)



[tropicana.com](http://tropicana.com)



[nam.org](http://nam.org)



[dreamit-doit.com](http://dreamit-doit.com)



[atlanticmarine.com](http://atlanticmarine.com)



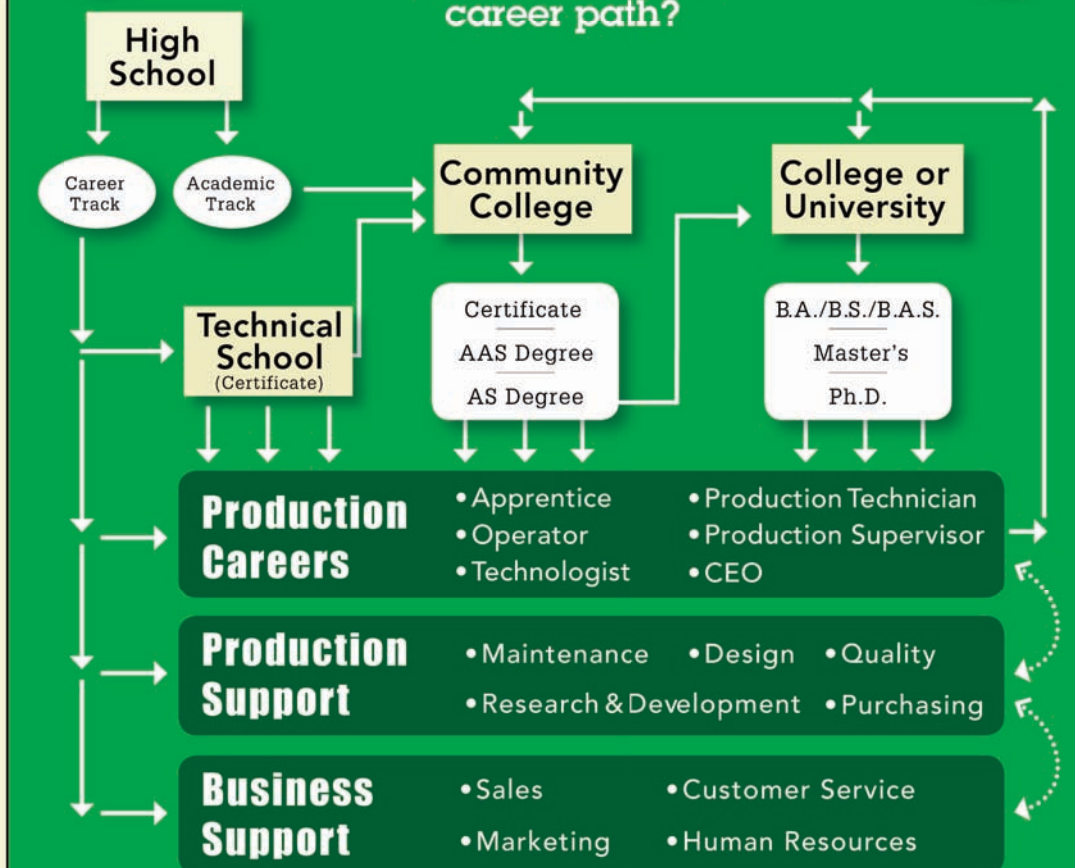
[banner-mfg.org](http://banner-mfg.org)



[lockheedmartin.com](http://lockheedmartin.com)



[basf.com](http://basf.com)



## Mapping Out Manufacturing Careers

Behind the products and technology you use every day is a world of manufacturing. This career path diagram shows the many options you have for getting a career in manufacturing. Whether you decide to go to a career-technical school, community college or university, there is a path for you.

## Do What You Love

The manufacturing industry offers not just jobs, but high-wage, high-skill careers that are "Made in Florida." And because Florida manufacturing is so diverse, careers in manufacturing suit people of all personalities and educational levels.

To get the skills needed in today's modern manufacturing environment, look for academic programs that offer industry certification, like the community college Engineering Technology degree.

The Manufacturing Skills Standards Council's (MSSC) Certification Production Technician is the national certification that can prove that you have the skills and knowledge to step into the high-tech workforce.



This certification covers four areas that all manufacturers are looking for: safety, maintenance awareness, quality and production processes.

## FLORIDA HAS

16,911 manufacturing companies

390,200 Florida employees

\$46,540 average annual wage



# Learn about Modern Manufacturing Careers and Pathways in Florida



[www.madeinflorida.org](http://www.madeinflorida.org)

*Check out Flater...*

[www.myspace.com/floridaflater](http://www.myspace.com/floridaflater)

*Watch our videos...*

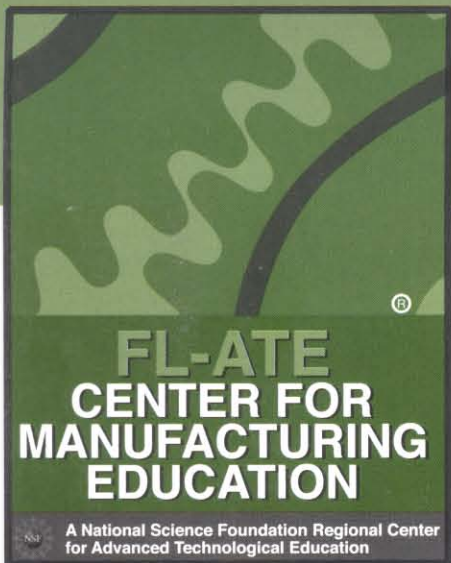
[www.madeinflorida.org](http://www.madeinflorida.org)

[www.youtube.com/user/madeinflorida](http://www.youtube.com/user/madeinflorida)

[www.tinyurl.com/madeinflorida](http://www.tinyurl.com/madeinflorida)



[www.fl-ate.org](http://www.fl-ate.org)



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**USF**  
UNIVERSITY OF  
SOUTH FLORIDA

St. Petersburg College

**SPC**

**HILLSBOROUGH**  
Community College

[www.](http://www.fl-ate.org)

