

# Advancing AI in Engineering Technology

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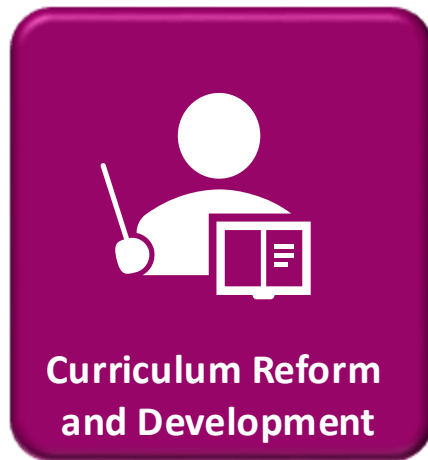
Joe Veranese, Vice President and Chief Information Officer of the NCDMM (National Center for Defense Manufacturing and Machining)

# FLATE'S Work

GOAL 1. Provide state-of-the-art workforce curriculum

GOAL 2. Inform and recruit students

GOAL 3. Support world-class educators and faculty



NSF ATE PI Meeting  
October 2024  
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# St. Petersburg College, Sidney Martin



Worked in industry for 30 years  
prior to moving into education



Electrical Engineer with an  
interest in AI and ML



Queried faculty how they use AI



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INTERNATIONAL, INC.

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# How can I use AI?



***YOU ALREADY ARE USING AI.....***

***Google***

***ChatGPT***

***Amazon***

***Travel***

***Customer Call Centers***

***Cybersecurity Tools***

***Navigation***

***Manufacturing Data Collection***

# ET Degree & Community



## I. General Education – 15 - 18 credit hours

English                      Science  
Math                         Social Science  
Humanities

## II. ET Core - 18 credit hours

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



## III. 11 Specialization Tracks: 24 - 27 credit hours

<b>Advanced Manufacturing</b>	Mechanical Design & Fabrication
Alternative Energy Systems	Electronics
Biomedical Systems	Digital Design & Modeling
Digital Manufacturing	Supply Chain Automation
Advanced Technology	Quality
Power Relay Substation	

**60 semester hours**



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**SPC** St. Petersburg  
College

# Florida Advanced Technological Education Center (FLATE) – Curriculum focus

- Increase enrollment in college programs
- Eliminate duplication
- Provide multiple entry and exit options in the pathway
- Unify marketing and recruitment efforts
- Meet industries' workforce needs for skilled technicians
- Align with national certification(s)
- Offer consistent programs statewide
- Develop statewide articulations
- Integrate industry into the education process
- Define pathways from secondary through college
- **Integrating emerging technologies**



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# **DISCUSSION QUESTIONS**

## **Regarding Artificial Intelligence (AI) and Machine Learning (ML)**



# How are you using AI and/or ML in your teaching?

# Thoughts on AI

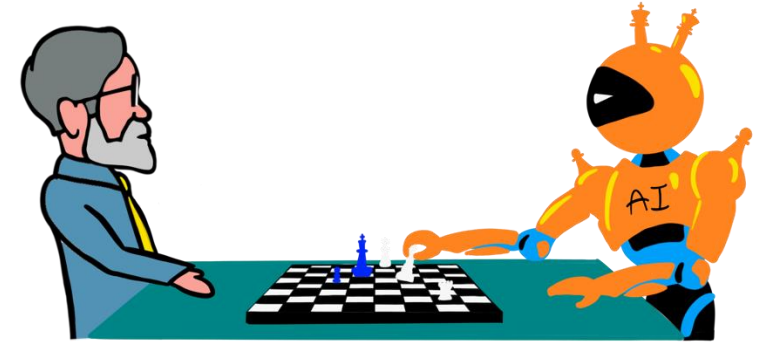
- Worked in industry for 30 years prior to moving into education
- Feedback on available materials to control a system
- Cybersecurity
- FFT analysis
- Op Amp Design
- Architecture design class
- Group report output from ChatGPT, they build the circuit and show actual output



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# Thoughts on AI



- Querying to find good assessment
- Students are using it more than faculty
- Helping to schedule what should be taught to meet learning objectives.
- Acquiring data and doing background analysis



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# How are you using AI and/or ML in your teaching?



What are some examples of AI/ML in manufacturing and production industries?

How do your industry partners help with this process?  
(what are they doing?)

# What are the technical skills needed to implement AI and ML in industrial environments?





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AI in manufacturing is not just about automating tasks; it's about unlocking a new level of intelligence that can optimize production, predict failures, and drive innovation, allowing companies to create products faster and more efficiently than ever before.



# THANK YOU ALL!



## Advancing AI in Engineering Technology

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## OUTCOMES

- Attendees will learn how the industry is using (and thinking about using) artificial intelligence (AI) and machine learning (ML)
- Attendees will learn some applications of AI in teaching engineering technologies.
- Attendees will learn about a low-cost option for demonstrating an industry application of AI and its companion technology, machine learning (ML).

Artificial Intelligence (AI) and Machine Learning (ML) affect engineering technology education in at least 2 important ways. It is rapidly being implemented in industry and how educators use it. This session will explore real-world examples of how AI and machine learning (ML) are being used in manufacturing and how educators use AI to enhance their teaching. The attendees will be encouraged to share examples and experiences and ask questions. A summary of best practices for bringing AI and ML into the classrooms will be developed from the discussions.

