New Technology in the Engineering Educator’s Toolbox

STARBASE Louisiana 2.0
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Take a poll!

What’s your level of comfort with technology in the classroom? (select as many as apply) [availability, frequency, proficiency]

a) I don’t have technology available.
b) I do have technology available.
c) I’m not sure how to use the technology available.
d) I use technology in more than 50% of my lessons.
e) I use technology in less than 50% of my lessons.
f) Technology is central to every lesson.
g) I wish I knew better how to implement technology in the classroom.
Presenters’ Backgrounds

- What is STARBASE?
- Individual histories
  - Current role
  - Prior teaching experience
  - Area of study
Major Goals of Presentation

1) Discuss effectiveness of new technologies as tools in the engineering classroom.

2) Highlight strategies for designing project-based curricula around new technologies while ensuring that standards are addressed.
Major Goals of Presentation (continued)

3) Provide a case study of meaningful implementation of various technologies in the STARBASE Louisiana 2.0 STEM program.

4) Help attendees identify relevant technologies to implement in the classroom and develop an understanding of how to design a project around their use.
Effectiveness of Technology Implementation

- POLL:
  - Name one technology you want to implement in the classroom in the future.
  - Name one technology implemented in any classroom effectively.
Effectiveness of Technology Implementation

Three Types of Teachers

Type 1
Type 2
Type 3

- Move our instruction from understanding technology to application and analysis of technology.
Designing Curricula with Tech in Mind

- You don’t have to be a cyborg to do this!
- Backwards planning
  - Don’t start with the technology in mind… start with the results in mind!
Step 1: Brainstorm Big Goals

- Start by brainstorming BIG GOALS using ONLY your own experience and knowledge.

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills</th>
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<tbody>
<tr>
<td>Beliefs</td>
<td>Practices</td>
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Step 2: Do your Research - Consider the Tech

- Have you heard of teachers using this technology as an element of a larger project?
  - What do you like/dislike?
  - How can it be improved?
  - Can you build on this concept?
  - Do you need to start from scratch?
Step 3: Create a Framework

- Rough skeletal framework for incorporating new tech to convey KSBP
- Outline the major goals and milestones
Step 4: Assess the Standards

- **Analyze standards** thoroughly to determine how to incorporate technology while also ensuring standards are being met.
- Consider standards outside your content area.
Step 5: Craft your Project

- Duration of Project
- Modules
- Collaborative Student Groups
- Material Needs
- Challenges
- Timing
STARBASE 2.0 Technology Case Study

Rocketry
STARBASE 2.0 Technology Case Study

Drones
STARBASE 2.0 Technology Case Study

Digital Workbooks
Developing your Own Project

Think of an old-school project you remember from your own schooling.

- How could this project benefit from the use of new technology?
Developing your Own Project

What projects in your classroom could benefit from the use of new technology?
Recap

- Be the third type of teacher...
  - Meaningful use of tech

- Design your own project
  - Brainstorm goals
  - Consider tech
  - Create a framework
  - Assess the standards
  - Craft your project
Questions?
Thanks for coming!