



NSF Research Experience for Teachers in Dayton, Ohio

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We have had two NSF RET Grants

- Engineering Innovation and Design for STEM Teachers, University of Dayton (2011-2013)
- Collaborative Research Experience for Teachers: Inspiring the Next Generation of a Highly-Skilled Workforce in Advanced Manufacturing and Materials, Central State University, University of Dayton and Wright State University (2015-2017)





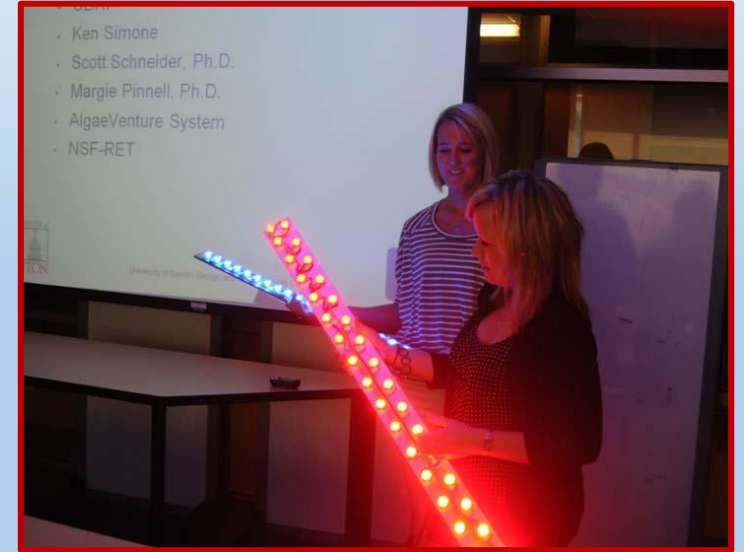
Key Elements in the Program Design

- Leverage regional strengths
 - Innovation, manufacturing, DRSC, WPAFB, numerous diverse colleges in the area, partnerships with industry....
- Intentional professional development beyond just the research experience
 - Curriculum design, innovative pedagogy, career awareness, technical communications, industry applications, networking, how to talk to students about engineering, library research....
- Hand pick faculty, research and/or industry mentors
- Involve undergraduate engineering students as much as possible
- Build community



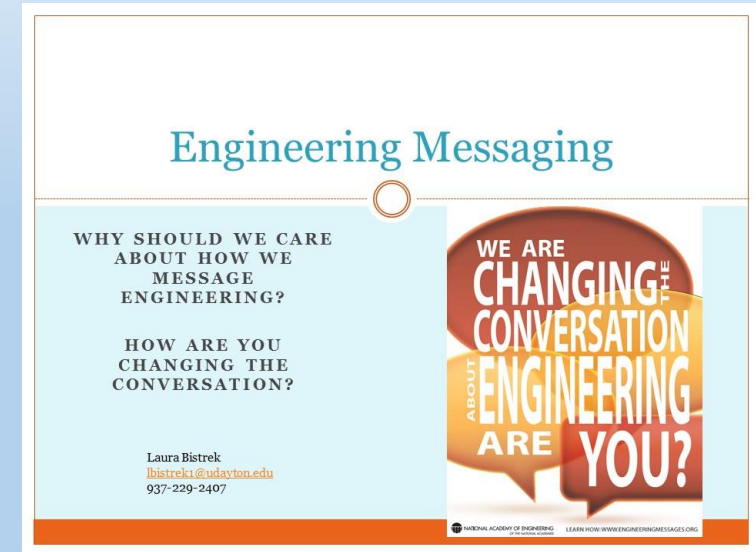
“Big Wins” or Conversation Starters

- STEM for all
 - The impact of RET experiences on K-8 teachers and special education teachers
- STEM for literacy, creative confidence, risk taking
- Community of STEM advocates
 - The role of the RET in networking and community building



“Big Wins” or Conversation Starters

- Changing the conversation – RET enhances teachers’ understanding of engineering and engineering careers and increases self efficacy;
- Not only the what, but the how – Teachers embrace innovative pedagogical techniques and try new things;
- Passion drives success – the success of the RET program is highly dependent on the passion of the PI’s, mentors, participating teachers and community stakeholders.



Engineering Messaging

WHY SHOULD WE CARE ABOUT HOW WE MESSAGE ENGINEERING?

HOW ARE YOU CHANGING THE CONVERSATION?

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WE ARE CHANGING THE CONVERSATION ABOUT ENGINEERING ARE YOU?

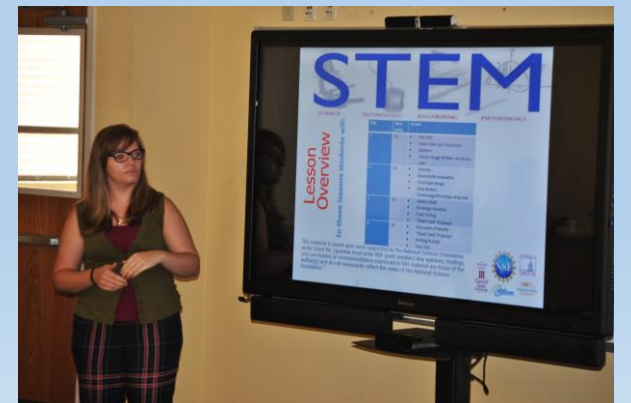
NATIONAL ACADEMY OF ENGINEERING LEARN HOW WWW.ENGINEERINGMESSAGES.ORG





A Teacher's Perspective

- Inquiry-based curriculum development:
 - For many of us, this was our first experience with developing curriculum;
 - Provided us with the opportunity to connect what we were doing in the lab with what we are teaching in the class
 - Was a significant component to our professional development;
- Industry tours and guest lectures:
 - Made STEM more real
 - Helped us to understand how important STEM is and our role in that!



A Teacher's Perspective

- Research and Symposium:
 - Provided us with the the opportunity to see what engineers do and understand the integration of science and math with engineering and non STEM disciplines
 - Helped us to feel more confident about our knowledge of engineering and some basic STEM skills

