

Incorporation of Standards in a New Ceramic Engineering Degree Program

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Goals of the Project

Curriculum Improvements



Project Mission

- Assess current state of standards knowledge for developing engineer
- Create Canvas plug-in modules for standards knowledge in undergraduate students pursuing materials science engineering
- Equip early-career materials science engineering graduates with foundation for standards use throughout their careers



Project Impact

Teaching the Engineers of Tomorrow



Reinforced Learning

- Concepts throughout courses in curricula
- Foundational building blocks



IHEs Involvement

Current & Moving Forward



Joint Ceramics Collaborations

- NSF S-STEM Summer Program
- 3 Ceramics Engineering Program in the Country Currently
- ASEE Conference Exposure



Final Deliverables

Dissemination



MS&T Fall Conference Exposure

- UG Student Competition – Fall 2026
 - Data collection
 - Awareness
 - Further Development



Canvas Modules

- 3 Distinct Modules
 - Introduction to Standards – Rising Sophomores
 - Types of Standards & Standards Organizations – Juniors
 - Standards Use & Development – Senior Design/Capstone



ASEE Conference – Summer 2027

- Poster Submission
 - Sharing Modules
 - Reviewing Data
 - Networking



Outcomes

Pending Analysis



Student to Engineer – Work in Progress

- Collecting data from students on a yearly basis
- Newly collecting data from recent graduates



Evaluation

Data Collection



Module Development Surveys

- University wide departments & students
- Interdepartmental active undergraduate students
- MS&T UG poster audience assessment



Module Development Interviews

- Active students in program
- Industry members at different stages of career
- ASTM board of directors committee member



Post Modules Data Collection

- Assessment of students actively in program
 - Rising sophomores vs graduating seniors
- Assessment of early career students in program
 - Before Modules vs After Modules



Lessons Learned

Takeaways



Debriefing & Review

- Challenges of data collections
- Universities not all equal
- Compilation & Processing



Summary

Project Highlights



Highlights

- Adds another level of development for undergraduates
- Connections gained with industry partners
- Awareness of inequality in standards education
- Opportunity to present work nationally



Q&A Wrap-up

Thank you!

