ASSESSMENT PLAN
NJ Center for Science, Technology & Mathematics (NJCSTM)

B.S. Science & Technology / Engineering Science Program Statements

The vision of the B.S. Science & Technology / Engineering Science program offered by the NJ Center for Science, Technology & Mathematics (NJCSTM) is to prepare students to pursue a career in one of several areas of engineering, including mechanical, electrical, chemical, biomedical, pharmaceutical, transportation, construction, structural and industrial engineering. The mission of this program is to provide a strong foundation for the pursuit of an accelerated master’s degree at The College of Engineering at The NJ Institute of Technology, which is the partner to Kean & NJCSTM. NJCSTM has two initial goals for this new program during its first recruitment period that is Fall 2011. First, to recruit women and minorities in order to increase the availability of undergraduates underrepresented in STEM disciplines to be trained in engineering science and equipped to work with culturally-diverse populations. And second, pursue opportunities for professional engineering experience for students through grant writing and partnership with industry and with other academic institutions.

B.S. Sci & Tech / Engineering Science Student Learning Outcomes (SLOs)

NOTES:
SWR = scored with rubric
2011-12 SLO#1 was split into applied and holistic knowledge for consistency with other NJCSTM academic programs/program options.
2011-12 SLO#4 was merged with 2012-13 SLO#2 as both are aspects of holistic knowledge.

For the Student Earning a B.S. Degree in the Engineering Science Option
It is our expectation that graduates from the NJCSTM will have these characteristics:

• SLO1 (Applied Knowledge): Graduates will possess comprehensive theoretical and practical knowledge of engineering science and design principles necessary for admission into graduate study in engineering. (KU 1, KU 2, KU 3, KU 4) (GE S3, S5, V5)
  • 3 Direct Measures: lab practicum scored with rubric SWR (STME 1603); Poster presentation SWR (STME 3610); Oral presentation SWR (STME 4610)
  • 1 Indirect Measure: Graduating Student Survey

• SLO 2 (Holistic Knowledge): Graduates will possess the ability to integrate mathematical modeling and computational tools to solve problems in a variety of engineering fields, and know the origins and importance of engineering in society. (KU1, KU2, KU3, KU4) (GE S3, S5, V2, V4)
  • 3 Direct Measures: lab practical SWR (STME 1603); Poster presentation SWR (STME 3610); Oral presentation SWR (STME 4610)
  • 1 Indirect Measure: Graduating Student Survey
• SLO3 (Critical Thinking): Graduates will be able to combine critical thinking skills and practical knowledge to design, perform, and analyze engineering problems both as an individual and as effective and productive project team members. (KU1) (GE S3, S4)
  o **3 Direct Measures:** lab practical SWR (STME 1603); Poster presentation SWR (STME 3610); Oral presentation SWR (STME 4610)
  o **1 Indirect Measure:** Graduating Student Survey

• SLO4 (Communication): Graduates will be able to verbally express themselves and communicate scientific comprehension and knowledge both in formal oral presentation and in written format clearly, concisely and accurately. (GE S1, S2, S3, V4)
  o **4 Direct Measures:** lab practical SWR (STME 1603); paper and presentation SWR (GE 2024); Poster presentation SWR (STME 3610); Oral presentation SWR (STME 4610)
  o **1 Indirect Measure:** Graduating Student Survey

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**General Education Student Learning Outcomes**

**Knowledge:** Students will demonstrate proficiency in knowledge and content by:
- (GE K1) applying the scientific method to comprehend natural concepts and processes;
- (GE K2) evaluating major theories and concepts in social sciences;
- (GE K3) relating historical references to literature; and
- (GE K4) evaluating major theories and concepts in the fine arts.

**Skills:** Students will demonstrate the skills necessary to:
- (GE S1) write to communicate and clarify learning;
- (GE S2) communicate effectively through speech;
- (GE S3) solve problems using quantitative reasoning;
- (GE S4) think critically about concepts in multiple disciplines; and
- (GE S5) show information literacy.

**Values:** Students will exhibit a set of values that demonstrates:
- (GE V1) personal responsibility
- (GE V2) ethical and social responsibility
- (GE V3) social and civic engagement
(GE V4) respect for diverse cultures and perspectives

(GE V5) life-long learning