Student Outcomes Course Mapping for B.S. in Engineering Science, Picker Engineering Program

**Student Outcomes**

**Student Outcomes (1):** an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

- The student formulates and solves a complex engineering problem that requires mathematical skill and principles from solid mechanics, fluid mechanics, circuit theory and/or thermodynamics.
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- The student formulates and solves a complex engineering problem that requires mathematical skill and principles from solid mechanics, fluid mechanics, circuit theory and/or thermodynamics.

**Student Outcomes (2):** an ability to apply engineering design to produce solutions that meet specified needs and required compliance with relevant professional and engineering standards and codes.

- The student articulates stakeholder needs, realistic constraints, and relevant design requirements for engineering design.
- The student identifies stakeholders, needs, constraints, and relevant design requirements for engineering design.
- The student articulates stakeholder needs, realistic constraints, and relevant design requirements for engineering design.

**Student Outcomes (3):** an ability to communicate effectively with a range of audiences.

- The student demonstrates an awareness of professional ethics and is able to evaluate the ethical dimension of engineering problems.
- The student communicates effectively with a range of audiences.
- The student communicates effectively with a range of audiences.

**Student Outcomes (4):** an ability to apply professional ethics and is able to evaluate the ethical dimension of engineering problems.

- The student demonstrates an awareness of professional ethics and is able to evaluate the ethical dimension of engineering problems.
- The student communicates effectively with a range of audiences.
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**Student Outcomes (5):** an ability to function effectively as a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

- The student recognizes and utilizes the diverse skills and knowledge of team members.
- The student establishes goals, plans tasks, and meets objectives in a collaborative team setting.
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**Student Outcomes (6):** an ability to develop and conduct appropriate experimentation and analysis and interpret data, and use engineering judgment to draw conclusions.

- The student designs an experiment and conducts it accurately.
- The student analyzes and interprets data and draws conclusions based on those data.
- The student analyzes and interprets data and draws conclusions based on those data.

**Student Outcomes (7):** an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

- The student is able to articulate gaps in their knowledge and address those knowledge gaps.
- The student demonstrates resilience, adaptability, and iterative learning.
- The student is able to transfer an engineering concept from one context to another.