Master of Science (MS) in Industrial & Systems Engineering

Presentation to Academic & Student Affairs Committee
Board of Trustees

September 25, 2025

Need for the Program

- Industrial and Systems Engineers (ISE) are highly demanded in the state and in the nation, as indicated by industry surveys (9 out of 9 industry sectors listed ISE as an in-demand occupation):

    1. Food and agriculture
    2. Healthcare and life sciences
    3. Rubber, ceramics, and glass
    4. Automotive
    5. Electrical equipment and appliances
    6. Headquarters, finance, and tech
    7. Distribution and logistics
    8. Aerospace and defense
    9. Chemicals

- Demand for ISE talent is much greater than academic supply in Tennessee, according to the US Bureau of Labor Statistics.

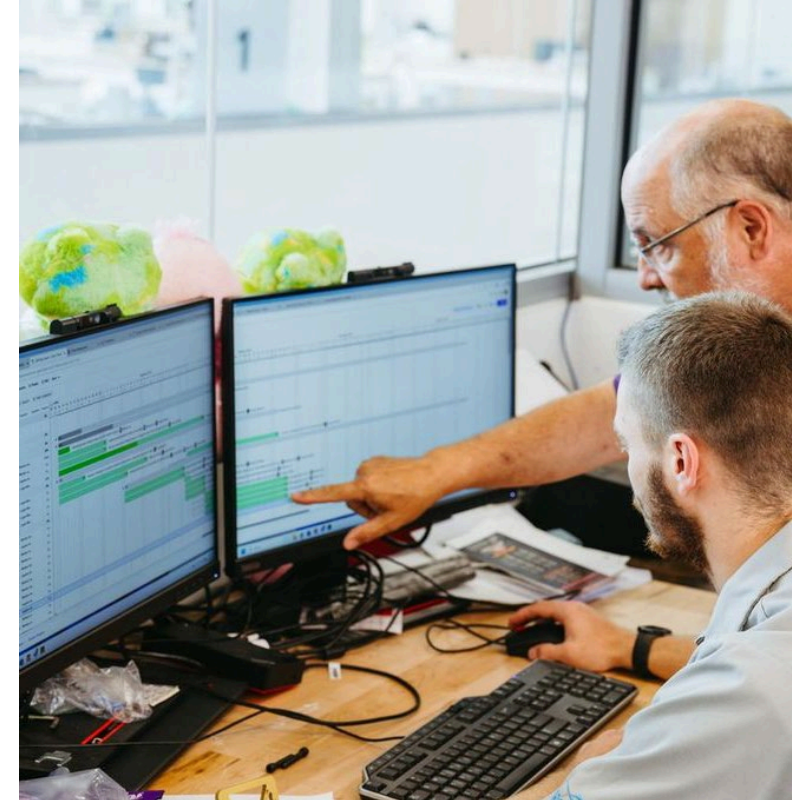- No other MS program in the state requires a focus in Systems Engineering.

Overview & Features of the Program

- Provides breadth in both traditional industrial engineering and systems engineering, with depth in analytical methods to address Tennessee industry needs.

- Offers an efficient program without extensive prerequisites for engineering or related STEM students (31 credit hours), with:

  - Practitioner or research-focused

  - On campus, online, or mixed

  - Full-time or part-time

- Provides flexibility to attract a broad student population in various engineering and STEM fields.

- Synergistic with other graduate programs in the College of Engineering through coursework, laboratory, and collaborations.

Targeted Student Population

- Traditional BS graduates of engineering or related STEM disciplines

  - Minimal prerequisites

  - Working engineers who have discovered the value of ISE who are not interested in MS programs in their BS field of study

- Students in other degree-granting programs who want graduate coursework in ISE (individual courses or certificates).

Enrollment Projections

	Year 1	Year 2	Year 3	Year 4	Year 5
Enrollment (# of FTE Students)	9	17	25	28	31
Student Attrition	2	2	3	3	3
# of Graduates	-	2	6	8	10

Instructional Cost & Revenue Projections

- Two faculty members will be hired. One will serve as program coordinator to guide, recruit, and promote the program.
- 8 new courses will be developed for this program.
- Expenses shown below include faculty salary, benefits, instructional support, equipment, travel, etc.

	Year 1	Year 2	Year 3	Year 4	Year 5
Total Expenses	$441,015	$469,568	$472,561	$485,944	$502,728
Total Revenues	$268,786	$456,548	$512,803	$537,650	$570,099

1) If 5% of 600 Tech Engineering graduates are interested, we will achieve 30 enrollment
2) Interests from students in other universities or industries