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PURDUE UNIVERSITY | College of Engineering

Engineering Faculty Document No.: 125-25
November 3, 2025

TO: The Engineering Faculty

FROM: The Faculty of the Edwardson School of Industrial Engineering

RE: New Engineering Combined Degree Program

The Faculty of the Edwardson School of Industrial Engineering has approved the following new Combined Degree Program (4+1) from the College of Engineering. This action is now submitted to the Engineering Faculty with a recommendation for approval.

TITLE:

Combined BS/MS Program in Industrial Engineering

DESCRIPTION:

The combined degree program is intended to provide outstanding IE students with an accelerated pathway to leadership positions in industry, and/or contribute to advancing knowledge through research (in academia or industry). The program allows for completion of both degrees in an expedited manner.

The program would allow up to 12 credit hours of 50000 and/or 60000 level coursework taken as electives for the BSIE degree to count toward both degrees, as outlined in the Section I-G-4 of the Policies and Procedures Manual for Administering Graduate Student Programs. Students with a 3.2/4.0 GPA may apply internally following completion of sophomore year. Students in the combined degree program will follow the normal application process for admission into the MSIE program.

Degrees Involved:

Master of Science in Industrial Engineering (MSIE, MSIE-PMP)
Bachelor of Science in Industrial Engineering (IE-BSE)

Sample plans of study are attached to this document.

RATIONALE:

There is significant interest among undergraduate IE students to have a clearer to, and an accelerated path through the Master of Science program in IE. Formally establishing the combined degree program would accomplish this, while also serving to increase enrollment from our own program.

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DocuSigned by:
Young-Jun Son
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Head of the Edwardson School of Industrial Engineering

Link to Curriculog entry:

https://purdue.curriculog.com/proposal:34837

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Industrial Engineering BSIE Plan of Study (post completion of the First Year program)

Fall 2nd Year

- MA 26100 - Multivariate Calculus **Credits:** 4.00
- ME 27000 - Basic Mechanics I **Credits:** 3.00
- IE 20000 - Industrial Engineering Seminar **Credits:** 0.00
- IE 23000 - Probability And Statistics In Engineering I **Credits:** 3.00
- IE 34300 - Engineering Economics **Credits:** 3.00
- General Education Selective - Credit Hours: 3.00

16 Credits

Spring 2nd Year

- IE 33000 - Probability And Statistics In Engineering II **Credits:** 3.00
- MA 26500 - Linear Algebra **Credits:** 3.00
- ME 20000 - Thermodynamics I **Credits:** 3.00
- NUCL 27300 - Mechanics Of Materials **Credits:** 3.00
- PHYS 24100 - Electricity And Optics **Credits:** 3.00
- General Education Selective - Credit Hours: 3.00

18 Credits

Fall 3rd Year

- CS 15900 - C Programming **Credits:** 3.00 (if not taken in FYE)
- IE 33500 - Operations Research - Optimization **Credits:** 3.00
- IE 33600 - Operations Research - Stochastic Models **Credits:** 3.00
- MA 26600 - Ordinary Differential Equations **Credits:** 3.00
- General Education Selective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

- ECE 20001 - Electrical Engineering Fundamentals I **Credits:** 3.00
- IE 33200 - Computing In Industrial Engineering **Credits:** 3.00
- IE 37000 - Manufacturing Processes I **Credits:** 3.00
- IE 38300 - Integrated Production Systems I **Credits:** 3.00
- IE 38600 - Work Analysis And Design I **Credits:** 3.00

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- General Education Selective - Credit Hours: 3.00

18 Credits

Fall 4th Year

- IE 47400 - Industrial Control Systems **Credits:** 3.00
- IE 48600 - Work Analysis And Design II **Credits:** 3.00
- ***IE 5XX00*** **Credits:** 3.00 (to satisfy Technical Elective I)
- ***IE 5XX00*** **Credits:** 3.00(to satisfy Technical Elective II)
- General Education Selective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- IE 43100 - Industrial Engineering Design **Credits:** 3.00
- ***IE 5XX00*** **Credits**: 3.00(to satisfy Technical Elective III)
- General Education Selective - Credit Hours: 3.00
- **Required IE Technical Requirement I** (3 credits)
  - IE 47000 - Manufacturing Processes II **Credits:** 3.00 or
  - IE 48400 - Integrated Production Systems II **Credits:** 3.00
- **Required IE Technical Requirement II** (3 credits)
  - ***IE 5XX00*** **Credits**: 3.00(to satisfy Technical Elective IV)

15 Credits

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Industrial Engineering MSIE (Thesis Option) Plan of Study

12 Credits from BSIE Program, above.

- ***IE 5XX00*** **Credits**: 3.00
- ***IE 5XX00*** **Credits:** 3.00
- ***IE 5XX00*** **Credits:** 3.00
- ***IE 5XX00*** **Credits:** 3.00

Fall 1st Year

- ***IE 5XX00/6XX00*** **Credits:** 3.00
- ***IE 5XX00/6XX00*** **Credits:** 3.00
- ***IE 69800*** **Credits:** 3.00

9 Credits

Spring 2nd Year

- ***IE 5XX00/6XX00*** **Credits:** 3.00
- ***IE 69800*** **Credits:** 6.00

9 Credits

Notes:

- MSIE (Thesis Option) requires: 30 credit hours; with, 21 credit hours of coursework (12 credit hours must come from IE coursework), and 9 credit hours of IE 69800 – Research MS Thesis.

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Industrial Engineering MSIE (Non-Thesis Option) Plan of Study

12 Credits from BSIE Program, above.

- ***IE 5XX00*** **Credits**: 3.00
- ***IE 5XX00*** **Credits:** 3.00
- ***IE 5XX00*** **Credits:** 3.00
- ***IE 5XX00*** **Credits:** 3.00

Fall 1st Year

- ***IE 5XX00/6XX00*** **Credits:** 3.00
- ***IE 5XX00/6XX00*** **Credits:** 3.00
- ***XX 5XX00/6XX00*** **Credits:** 3.00

9 Credits

Spring 2nd Year

- ***IE 5XX00/6XX00*** **Credits:** 3.00
- ***XX 5XX00/6XX00*** **Credits:** 3.00
- ***XX 5XX00/6XX00*** **Credits:** 3.00

9 Credits

Notes:

- MSIE (Thesis Option) requires: 30 credit hours; with, 21 credit hours of IE coursework, and 9 credit hours of approved graduate-level coursework (including, but not limited to, IE-listed courses)

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Industrial Engineering MSIE (Non-Thesis, Professional Program in IE (PMP) Concentration Option) Plan of Study

12 Credits from BSIE Program, above.

- ***IE 5XX00*** **Credits**: 3.00
- ***IE 5XX00*** Credits: 3.00
- ***IE 5XX00*** Credits: 3.00
- ***IE 5XX00*** Credits: 3.00

Fall 1st Year

- ***IE 5XX00/6XX00*** **Credits:** 3.00
- ***IE 5XX00/6XX00*** **Credits:** 3.00
- ***IE 59000 – PMP Capstone Project Preparation*** **Credits:** 3.00

9 Credits

Spring 2nd Year

- ***IE 5XX00/6XX00*** **Credits:** 3.00
- ***IE 5XX00/6XX00*** **Credits:** 3.00
- ***IE 59000 – PMP Capstone Project*** **Credits:** 6.00

9 Credits

Notes:

- MSIE (Thesis Option) requires: 30 credit hours; with, 21 credit hours of coursework, and 9 credit hours dedicated to the Capstone Project requirement (currently listed under IE 59000).