TO: The Faculty of the College of Engineering

FROM: The Faculty of the School of Industrial Engineering

RE: Change in degree requirements for the Bachelor of Science in Industrial Engineering (B.S.I.E.) effective for students entering Purdue Fall 2018 and later.

The faculty of the School of Industrial Engineering has approved the following change in the B.S.I.E. degree requirements.

This action is now submitted to the Engineering Faculty with a recommendation for approval.

From: See pages 2
To: See pages 4-5

Reason: A change in degree requirements is necessary to accommodate the recent changes related to the University and Statewide Core-Curriculum, which necessitated the new General Education Program (EFD 43-13), as well as First Year Engineering (EFD 09-17). An updated sample plan of study is attached.

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Abhijit Deshmukh
Professor and Head
School of Industrial Engineering

BSIE Minimum Degree Requirements: Current

The Bachelor of Science in Industrial Engineering degree requires a total of 123 credit hours and a minimum Graduation Index of 2.0.

Students must qualify for admission into the School of Industrial Engineering by completion of the First Year Engineering Program, qualifying for Change-of-Curricula (CODO) to IE, or meeting IE transfer requirements.

IE Requirements

IE Core Courses (36 cr.): IE 20000, 23000, 33000, 33200, 33500, 33600, 34300, 37000, 38300, 38600, 43100, 47400, 48600

IE Technical Electives (6 cr.): Choose one of the following options:
IE 47000 and IE 48400, or
IE 47000 or IE 48400, and IE 50000-level course.

General Technical Electives (9 cr.): Students may choose courses from a preapproved list selected by the IE Undergraduate Committee. These courses are primarily culled from upper-level engineering courses, upper-level sciences (MA, STAT, PSY, PHYS, etc.), or selected upper-level MGMT courses.

Non-IE Engineering Courses (12 cr.): ME 27000, ME 20000, ECE 20100, NUCL 27300.

Mathematics and Physical Sciences (13 cr.): MA 26100, 26500, 26600, PHYS 24100

First Year Engineering

Introduction to Engineering (4 cr.): ENGR 10000 and 12600

Mathematics (8 cr.): 16500, and MA 16600

Science (11 cr.): PHYS 17200, CHM 11500, and CS 15900

General Education (6 cr.): ENGL 10600 or 10800, and COM 11400

General Education Program

General Education Program (18 cr.): Students must satisfy the requirements of the General Education Program (EFD 55-98).

BSIE Minimum Degree Requirements: Proposed

The Bachelor of Science in Industrial Engineering degree requires a total of 123 credit hours and a minimum Graduation Index of 2.0.

Students must qualify for admission into the School of Industrial Engineering by completion of the First Year Engineering Program, qualifying for Change-of-Curricula (CODO) to IE, or meeting IE transfer requirements.

IE Requirements

IE Core Courses (36 cr.): IE 20000, 23000, 33000, 33200, 33500, 33600, 34300, 37000, 38300, 38600, 43100, 47400, 48600

IE Technical Electives (6 cr.): Choose one of the following options:

IE 47000 and IE 48400, or
IE 47000 or IE 48400, and approved course offered within the School of Industrial Engineering (either at senior-undergraduate or 50000-level).

Complementary Technical Electives (9 cr.): Students may choose courses from a preapproved list selected by the IE Undergraduate Committee. These courses are primarily culled from upper-level engineering courses, upper-level sciences (MA, STAT, PSY, PHYS, etc.), or selected upper-level MGMT courses.

General Engineering

Introduction to Engineering (4 cr.):

ENGR 13100, 14100, 16100, or (EPCS 11100 and EPCS 12100); and
ENGR 13200, 14200, 16200, or ENGR 13300
* ENGR 13100, 13300, and 14100 satisfy the Information Literacy foundational outcome requirement

Engineering Computation (3 cr.): CS 15900

Engineering Science (12 cr.): ME 27000, ME 20000, ECE 20100, NUCL 27300

Mathematics and Physical Sciences

Mathematics (18 cr.): MA 16500, 16600, 26100, 26500, 26600

* All courses satisfy the Quantitative Reasoning foundational outcome requirement

Science (11 cr.): PHYS 17200 and 24100, CHM 11500 or 12300

* CHM 11500, and PHYS 17200 and 24100 can be used to satisfy the two courses needed for the Science foundational outcome requirement

** The excess credits earned by students who take ENGR 16100 and ENGR 16200 are used to satisfy the PHYS 17200 requirement.

College of Engineering General Education Program

Students must satisfy the requirements of the College of Engineering General Education Program, which consists of two components for a total of 24 credit hours:

1. Foundational learning outcomes: Courses must come from those approved by the Undergraduate Curriculum Council for each learning outcome.
2. Programmatic requirements: Courses are selected from those approved by the IE Undergraduate Committee (or designee)

Other Requirements

Foundational Outcome Courses: All courses taken to fulfill a Foundational Outcome require a grade of C- or higher in order to meet the outcome requirements.

Grade Options: All courses taken to meet a requirement for the BSIE degree have to be taken for a grade. However, excess courses can be taken on a Pass/Not Pass basis at the discretion of the student.

Exceptions: Deviations from the stated curriculum must be approved by the IE Undergraduate Committee or their designee. Petitions must be made in writing and submitted to the IE undergraduate office for distribution for review.

Sample Plan of Study for Industrial Engineering
Credit Hours Required for Graduation: 123

Freshman Year

First Semester

Course	Title	Cr.
MA 16500	Analytic Geometry and Calculus I	4
CHM 11500	General Chemistry	4
ENGR 13100	Transforming Ideas to Innovation I	2
General Education Elective (Written Communication Recommended)		3
		13

Second Semester

Course	Title	Cr.
MA 16600	Analytic Geometry and Calculus II	4
PHYS 17200	Modern Mechanics	4
ENGR 13200	Transforming Ideas to Innovation II	2
Science Selective (CS 15900 Recommended)		3
General Education Elective (Oral Communication Recommended)		3
		16

Sophomore Year

Third Semester

Course	Title	Cr.
MA 26100	Multivariate Calculus	4
ME 27000	Basic Mechanics I	3
IE 20000	Industrial Engineering Seminar	0
IE 23000	Probability and Statistics in Engineering I	3
IE 34300	Engineering Economics	3
General Education Elective (Humanities Recommended)		3
		16

Fourth Semester

Course	Title	Cr.
MA 26500	Linear Algebra	3
NUCL 27300	Mechanics of Materials	3
PHYS 24100	Electricity and Optics	3
IE 33000	Probability and Statistics in Engineering II	3
General Education Elective (Behavioral/Social Science Recommended)		3
		15

Junior Year

Fifth Semester

Course	Title	Cr.
MA 26600	Ordinary Differential Equations	3
ECE 20100	Linear Circuit Analysis I	3
IE 33200	Computing in Industrial Engineering	3
IE 33500	Operation Research- Optimization	3
IE 37000	Manufacturing Processes I	3
General Education Elective (Science, Technology, & Society Recommended)		3
		18

Sixth Semester

Course	Title	Cr.
ME 20000	Thermodynamics I	3
IE 33600	Operations Research- Stochastic Models	3
IE 38300	Integrated Production System I	3
IE 38600	Work Analysis and Design I	3
General Education Elective		3
		15

Senior Year

Seventh Semester

Course	Title	Cr.
IE 47400	Industrial Control Systems	3
IE 48600	Work Analysis and Design II	3
Technical Elective*		3
Technical Elective*		3
Genera Education Elective		3
		15

Eight Semester

Course	Title	Cr.
IE 43100	Industrial Engineering Design	3
IE Technical Elective*		3
IE Technical Elective*		3
Technical Elective*		3
General Education Elective		3
		15

* The 15 cr. of technical elective courses are chosen from a list of courses approved by the Industrial Engineering Undergraduate Committee; and must include either IE 47000 (Manufacturing Processes II) and IE 48400 (Integrated Production Systems II), or one of IE 47000 or 48400 and one additional 3-cr. approved technical elective offered within the School of Industrial Engineering.