

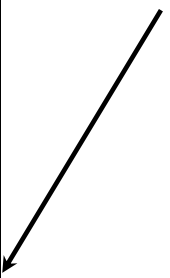
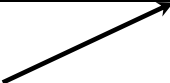
A Proposal for Concurrent Degree Program: **BS IE – MEng SE**

1. Name of the programs or majors	Industrial Engineering (UGrad)	Systems Engineering (Grad)
2. Name of the degrees	Bachelor of Science in Industrial Engineering (BS IE)	Master of Engineering in Systems Engineering (MEng SE)
3. Name of the department(s) which administer(s) the program	Industrial and Manufacturing Systems Engineering (IMSE)	Industrial and Manufacturing Systems Engineering (IMSE)
4. Rationale for the concurrent degree program	<p>There is an increasing demand in industry for engineers that have an appreciation for systems-level thinking and design skills. The ideal student is one that has a content area expertise in an undergraduate degree program (e.g. industrial engineering or mechanical engineering or electrical engineering) and then an advanced degree in systems engineering to supplement that strong disciplinary expertise. A concurrent BS IE - MEng SE program will produce such an engineer in a nominal 5-year period. Our departmental industrial advisory board has repeatedly encouraged us to explore various ways to produce “systems engineers” through an undergraduate degree program (or other), and this proposed concurrent program would provide some of this training without spinning up a new, full undergraduate degree program.</p> <p>This proposal for a concurrent program simply takes the existing MEng Systems Engineering graduate degree program and provides the opportunity to obtain this training in an efficient, five-year bachelors-master’s concurrent degree program.</p>	
5. Admission procedures and requirements	<p>Admission procedure would begin with the undergraduate advisor completing necessary paperwork and graduate committee reviewing credentials and confirming admissibility.</p> <p>Admission requirements would be a cumulative GPA in the BS IE program of 3.0 or greater.</p>	
6. Requirements of the program	<p>30 credits of coursework (coursework-only degree). Page 8 of https://www.imse.iastate.edu/files/2022/08/SEEM-Graduate-Student-Handbook-2022-2023.pdf provides the details of the requirements of the MEng SE program. The concurrent program would simply require that the BS IE student identify up to four, three-credit courses that they could apply to both programs. To meet the requirements of the ISU Graduate College, up to two of these “double-counted” courses would be taken during the undergraduate degree program prior to concurrency and up to two of the “double-counted” courses would be taken in the time of the concurrency.</p>	
7. Expected enrollment	Eight new students per year.	
8. If not already addressed, answer the following:		
a. How will the undergraduate degree plan and graduate program of study be developed?	Both degree programs are already fully developed and active, and there are (and have been for many years) graduate courses that are listed as approved electives for the BS IE degree program. Examples include (IE 570, IE 560, IE 561, IE 563, and IE 564). Coordination of the courses to be double counted will be accomplished by the undergraduate advisor	

	and the graduate support staff – under the supervision of the IMSE director of graduate education (DOGE).
b. When will the student have a major professor?	Upon admission into the concurrent program, the student will be assigned a major professor and that major professor will be the IMSE DOGE.
c. Will graduate assistantships be provided?	This will be considered on a case-by-case basis.
d. Will a thesis be required?	No.
e. Who will be responsible for the administration of the program?	The IMSE DOGE will administer this concurrent program.
f. How much time is required to complete the program? Show a sample semester-by-semester plan.	Can be completed in five years. See attached for semester-by-semester plan.
g. Will students be allowed to double count credits? If so, how many?	Yes. Up to twelve credits.
9. Attach memos showing approval by appropriate department and college committees, faculty, and administrators.	See attached
10. Proposal Contact	Dr. Gary Mirka (mirka@iastate.edu)

Concurrent BS IE/MEng in Systems Engineering

Sample Course Sequence

Degree	Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6	Semester 7	Semester 8	Semester 9	Semester 10
BS in IE 122 credits	MATH 165 Calc I 4 cr	MATH 166 Calc II 4 cr	MATH 265 Calc III 4 cr	MATH 267 Diff Eq/Lap 4 cr	I E 305 Engr Econ Analysis 3 cr	I E 348 Solidification Processes 3 cr	I E 413 Stoch Modeling 4 cr	I E 448 Manuf Sys Engr 3 cr	BS IE Graduation 	
	SSH Elective 3 cr	PHYS 231 & 231L Classical Phys I 5 cr	I E 248 Intro Mfg Processes 3 cr	STAT 231 Prob & Stat 4 cr	I E 341 Production Systems 3 cr	I E 361 Quality Assurance 3 cr	ENGL 314 Tech Comm 3 cr	I E 441 IE Design 3 cr		
	CHEM 167 Engr Chem 4 cr	SSH Elective 3 cr	MAT E 273 Prin of Mat Science 3 cr	I E 271 Applied Ergo 3 cr	I E 312 Optimization 3 cr	Engr Topic Elective IE 572 3 cr	M E 231 Engineering Thermo 3 cr	Engr Topic Elective IE 564 3 cr		
	IE 148 Information Engr 3 cr	ENGL 150 Comp I 3 cr	PHYS 232 & 232L Classical Phys II 5 cr	IE 222 Des & An Sys Improvements 3 cr	E E 442 Intro Circuits 2 cr	SSH Elective 3 cr	Focus Elective IE 563 3 cr	Mgmt Elective 3 cr		
	ENGR 101 Orientation R cr	LIB 160 Library 1 cr	ENGL 250 Comp II 3 cr	SSH Elective 3 cr	Focus Elective IE 577 3 cr	CE 274 Statics 3 cr		IE 565 3 cr		
		IE 101 IE Orientation R cr			SP CM 212 Fund of Public Speaking 3 cr					
MEng SE 30 credits (18 credits +12 shared credits)	Declare Concurrency 								IE 560 3 cr	IE 570 3 cr
									IE 561 3 cr	IE 585 3 cr
									IE 581 3 cr	
140 Total Credits	14 cr	16 cr	18 cr	17 cr	17 cr	15 cr	13 cr	15 cr	9 cr	6 cr
12 credits (500-level courses) may be applied to both the BS IE and MEng SE.										

Semesters of concurrent enrollment
 12 credits of shared between the BS IE and MEng SE programs
 Graduate-only courses

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Date: October 28, 2022
To: Dr. Christian Schwartz, Chair of the Engineering College Curriculum Committee
From: Gary Mirka, Director of Graduate Education, Department of Industrial and Manufacturing Systems Engineering
Subject: Proposed Concurrent BSIE-MEng Systems Engineering Degree Program

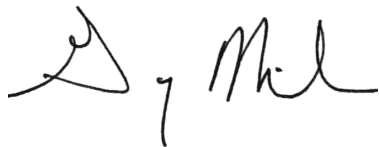
Dr. Schwartz,

The graduate committee of the IMSE department has reviewed and is supportive of a new concurrent BSIE-MEng Systems Engineering graduate degree program. This program will seek to leverage our existing coursework-only MEng SE program to provide master's-level training in systems engineering that will supplement our students' disciplinary knowledge in industrial engineering. We respectfully submit this proposal to the Engineering College Curriculum Committee and the faculty of the ISU College of Engineering for their review.

The departmental vote for this proposed program was:

BS Industrial Engineering – MEng Systems Engineering 4 (yes) – 0 (no)

Thank you,



Dr. Gary Mirka
Director of Graduate Education
Department of Industrial and Manufacturing
Systems Engineering

Academic Program Approval Voting Record

This document is to be appended as the last page of the proposal for any new or revised academic program to record the successive votes of approval as the proposal moves through its required review and approval steps. Consult Faculty Handbook Section 10.8 or the Faculty Senate Curriculum Committee website for information regarding Committee review and voting requirements for each action.

Curricular Action: (check appropriate boxes below)

1. New Program Name Change Discontinuation Concurrent Degree for: **BSIE-MEngSE**
2. Undergraduate Major Graduate Major Undergraduate Minor Graduate Minor
 Undergraduate Certificate Graduate Certificate Other: _____
3. Name of Proposed Change: **Concurrent: BS Industrial Engineering–MEng Systems Engineering**
4. Name of Contact Person: **Gary Allen Mirka** e-mail address: **mirka@iastate.edu**
5. Primary College: **Engineering** Secondary College: **None**
6. Involved Department(s): **Industrial and Manufacturing Systems Engineering**

Voting record for this curricular action:

Voting Body	Votes			Date of Vote
	For	Against	Abstain	
Dept. or Program Committee				
IMSE Graduate Committee	4	0	0	10/28/2022
College Curriculum Committee	8	0	0	10/31/2022
College Approval Vote	106	8	11	11/18/2022
Graduate Council				
Faculty Senate Curriculum Committee				
Faculty Senate Academic Affairs Council				
Faculty Senate				