

TO: The Engineering Faculty

FROM: The Faculty of the School of Engineering Education

RE: New Degree Requirements for BS degree in Interdisciplinary Engineering Studies (IDES)

The Faculty of the School of Engineering Education has approved the attached new degree requirements. This action is now submitted to the Engineering Faculty with a recommendation for approval.

SUMMARY OF PROPOSED CHANGES: The following changes in the current BS degree requirements are made: credit hours for the degree are reduced to 120 from 124 by reducing credit hours of elective courses by four. In addition, a probability/statistics selective, a communications selective, IDE 30100, IE 34300 and an engineering design selective are added.

DETAILED DEGREE REQUIREMENTS: See attachment.

CURRENT REQUIREMENTS: See attachment.

EFFECTIVE DATE: The reduction in credit hours will be effective immediately since students following the old plan of study also satisfy the new plan of study. Since the requirements for IDE 301, IE 343, a design selective, a statistics selective, and a communications selective have been included in all the specific plans of study for several years and followed by all students for four years, they will be effective immediately. The sophomore science selective change will be effective immediately since students have the option of following the old graduation rules.

REASONS: Based on the charges from the President and Dean Jamieson, the number of credit hours for graduation is reduced to 120 from the current 124. This was done by reducing the credit hours of electives by four credits. Because the College of Engineering has adopted ABET Outcomes 3a-3k as outcomes for North Central accreditation, IDES students must also be assessed for these outcomes even though the program is not ABET accredited. To meet this requirement IDES students will be required to take: (1) IDE 301, (2) 3 credits of a design selective, and (3) 3 credits of engineering economics. The students are assessed for the other ABET criteria in the other engineering courses they already take. Adding a one credit course to the schedules of IDES students is not a large decrease in flexibility. Adding an engineering economics course and a selective requirement to the engineering courses will result in a very small reduction in flexibility. The decrease in flexibility is partially offset by allowing additional courses for the sophomore science selective. Since statistics and speech are fundamental skills that will be useful in any field of endeavor, particularly professional fields, they were added as degree requirements. Adding the few IDES students (two to three per year) is not a burden on the instructors in these courses. All existing interdisciplinary engineering studies concentrations can be completed in 120 credit hours following the incorporation of these changes. Note: this program is not accredited by ABET and is specifically for students who do NOT plan to practice engineering. The most popular concentration is pre-medical engineering.



David Radcliffe, Professor and Kamyar Haghighi Head
School of Engineering Education

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE ENGINEERING
CURRICULUM COMMITTEE

ECC Minutes 5/8/12 #16

Date 5-25-2012

Chairman ECC R. Cipra

**Current Degree Requirements for Bachelor of Science (BS) Degree in
Interdisciplinary Engineering Studies (not ABET accredited)**

	Credits
First Year Engineering Program:	29-33
If the common first year program in engineering is changed, the BSE requirements will be changed to reflect these changes.	
 <u>General Education</u>	 18
Follow Engineering's General Education Program requirements. Individual plans of study may recommend particular courses.	
 <u>Math, Basic Science and Engineering (MBSE):</u>	
Required sophomore mathematics: Multivariate calculus (MA 261), and linear algebra & differential equations, MA 262 or (MA 265 & 266), or equivalent	8-10
Science selective: One of the following: Phys 241, Phys 261, Biol 121, Biol 295E, organic chemistry or equivalent. May be specified in individual plan of study.	3-4
Engineering: Minimum at 200+ levels	30
At least 15 credits of engineering courses must be at 300 + levels. Maximum number of credits in any one engineering discipline is 24. Individual plans of study may include required, selective and elective engineering courses.	
Additional mathematics or science courses as needed. Individual plans of study may include required, selective and elective mathematics and science courses.	
Minimum MBSE	44
 <u>Area:</u> Additional courses selected to satisfy the student's educational objectives. For each plan of study may include required, selective and/or elective courses. There is no minimum in the Area since more than 44 credits of MBSE courses may be taken.	
Maximum	30
Minimum credits required for graduation	124
 Other Graduation Requirements: All plans of study must be approved by the School of Engineering Education. Unique plans of study developed by students must be approved by ENE with the advice of the IDE Council. Standard, pre-approved plans of study require approval by the student's advisor. An overall Graduation Index of 2.0 or higher and a minimum GPA of 2.0 in the engineering courses at the 200 level and higher included in the plan of study are required. All other Purdue University graduation requirements must be satisfied.	

Proposed 120 credit Degree Requirements for Bachelor of Science (BS) Degree in Interdisciplinary Engineering Studies (not ABET accredited).

First year Engineering Program. If the common first year program in engineering is changed, the BSE requirements will be changed to reflect these changes. **Credits**
29-36

Communications. Com 11400 or equivalent. These courses can count towards the first year program, towards the general education program, or towards the Area requirements. Recommendation is to take Com 11400 as part of the FYE program. (3 – counted elsewhere)

General Education: Follow Engineering's General Education Program requirements. **18**
Note: Individual plans of study may recommend particular general education courses.

Math, Basic Science and Engineering (MBSE):

Required sophomore mathematics: Multivariate calculus (MA 26100), and linear algebra & differential equations, MA 26200 or (MA 26500 & 26600), or equivalent **8-10**

Sophomore Science selective. ENE approved selective. (May not be the same course used as FYE Science Selective.) **3-4**

Statistics selective. ENE approved statistics course from the Department of Statistics or approved engineering statistics course. The engineering courses count towards the required 30 credits in engineering. Statistics courses count towards the MBSE requirements. **3-counted elsewhere**

Engineering: Minimum 30 credits at 200+ level, of which at least 15 credits are at 300 + level. Maximum number of credits in any one engineering discipline is 24. *Note: It is the student's responsibility to see that all prerequisites are met.*

Required Engineering core: (Can substitute equivalent courses for IE 343)

IE 343 **3**
IDE 301 (no substitutions) **1**

Engineering Design Selective: Three credits of engineering design. Must be approved by School of Engineering Education. **3**

Elective Engineering Courses: Courses selected by the student with the aid of an adviser. Must be approved by School of Engineering Education. **23**

Minimum Engineering **30**
Additional engineering, CS, mathematics or science courses as needed.
Minimum MBSE **44**

Area: Additional courses selected to satisfy the student's educational objectives. There is no minimum in the Area since more than 44 credits of MBSE courses may be taken. A computer aided design (CAD) course is very highly recommended.

Maximum area credits **28**
Minimum credits required for graduation **120**

Other Graduation Requirements: All plans of study must be approved by the School of Engineering Education. An overall Graduation Index of 2.0 or higher and a minimum GPA of 2.0 in the engineering courses at the 200 level and higher included in the plan of study are required. All other Purdue University graduation requirements including "There must be at least 32 credits at the 300 level or higher for graduation," must be satisfied.