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Viewing: **10KP5532BS : Systems Engineering & Design, BS**

Last approved: 10/08/21 12:49 pm

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Changes proposed by: Heidi Craddock

Catalog Pages Using this Program	Systems Engineering & Design, BS

Proposal Type:

In Workflow

1. **U Program Review**
2. **1422 Head**
3. **KP Committee Chair**
4. **KP Dean**
5. **University Librarian**
6. **Provost**
7. **Senate EPC**
8. Senate
9. U Senate Conf
10. Board of Trustees
11. IBHE
12. HLC
13. DMI

Approval Path

1. 01/05/22 4:25 pm
   Deb Forgacs (dforgacs):
   Approved for U Program Review
2. 01/06/22 7:54 am
   Jeff Shamma (jshamma):
   Approved for 1422 Head
3. 02/03/22 11:40 am
   Brooke Newell (bsnewell):
   Approved for KP Committee Chair
4. 02/03/22 11:47 am
   Candy Deaville (candyd):
   Approved for KP Dean
5. 02/03/22 11:56 am

John Wilkin (jpwilkin): Approved for University Librarian
6. 02/03/22 4:16 pm Kathy Martensen (kmartens): Approved for Provost

History

1. Dec 13, 2018 by Deb Forgacs (dforgacs)
2. Dec 13, 2018 by Deb Forgacs (dforgacs)
3. Apr 23, 2019 by Deb Forgacs (dforgacs)
4. Aug 12, 2019 by Deb Forgacs (dforgacs)
5. Feb 26, 2020 by Brooke Newell (bsnewell)
6. Mar 31, 2020 by Deb Forgacs (dforgacs)
7. Apr 14, 2020 by Deb Forgacs (dforgacs)
8. Oct 8, 2021 by Brooke Newell (bsnewell)

Major (ex. Special Education)

This proposal is for a:
Revision

Administration Details

Official Program Name	Systems Engineering & Design, BS

Sponsor College	Grainger College of Engineering
Sponsor Department	Industrial and Enterprise Systems Engineering
Sponsor Name	Carolyn Beck
Sponsor Email	beck3@illinois.edu
College Contact	Jonathan Makela ~~Brooke Newell~~
College Contact Email	jmakela@illinois.edu ~~bsnewell@illinois.edu~~
College Budget Officer	Tessa Hile
College Budget Officer Email	tmhile@illinois.edu

List the role for rollbacks (which role will edit the proposal on questions from EPC, e.g., Dept Head or Initiator) and/or any additional stakeholders. *Purpose: List here who will do the editing work if proposal needs rolled back. And any other stakeholders.*

Brooke Newell, bsnewell@illinois.edu, GCOE; Heidi Craddock, hcraddoc@illinois.edu; ISE Department

Does this program have inter-departmental administration?

No

Proposal Title

Effective Catalog Term	Fall 2022

Provide a brief, concise description (not justification) of your proposal.

Removed Liberal Education Electives, updated number of free elective hours, and moved footnotes (when possible) into the Program of Study Table (to improve accessibility).

SE 261 changing from 1 credit hour to 2 credit hours.

Replaced MATH 415 with MATH 257.

Arranged for students to take CS 124 in place of CS 101.

Revised the Secondary Field Options (SFO):
a. Revised the SFO hours to reflect only undergraduate course hours.
b. Clarified the requirements for the Automotive Engineering SFO.
c. Revised the Autonomous Systems and Robotics SFO and the Nondestructive Testing and Evaluation to include ME 270.
d. Revised Business Systems Integration & Consulting, Engineering Administration, and Engineering Marketing to only allow 1 course below the 300-level.
e. Revised the Digital Prototyping SFO to include TAM 470.
f. Removed Internet of Things as an SFO option.
g. Revised the following SFOs: Autonomous Systems and Robotics, Business Systems Integration & Consulting, Computer Science, Control Systems, and Nondestructive Testing and Evaluation to incorporate more or different CS courses within the requirements and electives.

List here any related proposals/revisions and their keys. *Example: This BS proposal (key 567) is related to the Concentration A proposal (key 145) and the Concentration B proposal (key 203).*

Program Justification

Why are these changes necessary?

After careful analysis of programs of studies, various requirements, and course selection for students in The Grainger College of Engineering, we have decided to provide additional flexibility to all engineering undergraduate students by increasing the number of free elective hours in all engineering programs. While the actual number of credit hours for free electives varies by program, within the college - 8 programs currently provide only 6 credit hours for free electives while an additional 2 have less than 10 - only 4 programs have more than 10 free elective credits. This lack of free elective credit hours limits students' abilities to efficiently pursue minors, certificates, and other educational opportunities and potentially limits those opportunities only to students coming in with significant AP credit or similar.

The additional free elective credit hours added to the program of study are obtained through the removal of The Grainger College of Engineering's Liberal Education requirement, which required engineering students to take an additional 6 credit hours above-and-beyond the campus' General Education requirement from the Humanities & the Arts, Social & Behavioral Sciences, or a college-curated list of courses. Over time, the Liberal Education requirement has been revised within the college, successively relaxing restrictions and providing additional choice to students (i.e., removal of a sequencing requirement in 1999; addition of the college-curated course list in 2010). Simultaneously, the college-curated list of courses continued to expand to include courses from approximately 120 rubrics across campus (including within The Grainger College of Engineering), gradually removing constraints to allow greater flexibility of choice for students to take advantage of the many opportunities the campus has to offer. Still, in its current form, this additional college-level requirement constrains student choice and interferes with their ability to efficiently pursue minors, certificates, and other educational opportunities across campus unless those opportunities intersect with coursework in the Liberal Education requirement.

Simultaneously, the required engineering orientation course, ENG 100, will be granted 1-credit hour. Previously, this course was a 0-credit course. The allocation of 1-credit appropriately recognizes the time and commitment expected of all students who take this course. In the 1-credit version of ENG 100, content will be added to improve teamwork and interpersonal skills, including topics related to diversity, equity, and inclusion (DEI). The engineering accrediting agency, ABET, will soon be adding DEI requirements for accredited programs. This component of ENG 100 is therefore beneficial to all Grainger Engineering programs and students by providing a common framework on which additional DEI topics can build throughout a student's program of study.

The SE 261 course was originally approved for 1 or 2 credit hours. This course was originally taught as a 1 credit hour course for the Systems Engineering and Design (SED) students (due to credit hour constraints in the curriculum) and a 2 credit hour course for the Industrial Engineering (IE) students. The IE students received more engineering economy content as is expected by industry partners. Many SED students chose to take the 2 hour version of the course to receive all the material. With the removal of the liberal education requirement for the Grainger College of Engineering, we used 1 credit hour freed up to require SED students to also take the 2 credit hour version of SE 261. As such, we are now removing the 1 credit hour option for SE 261.

The added credit hour of SE 261 for Systems Engineering and Design students would allow for a more in-depth study of engineering economics topics, including the addition of case studies, giving the students in the systems engineering and design curriculum practical experience in implementing the theory behind engineering economics. With the added hour, emphasis will be given to a more in-depth use of spreadsheet packages such as MS Excel, and other tools of professional engineering practice.

Replaced MATH 415 with MATH 257 due to the Math Department no longer offering MATH 415 as of Fall 2022.

Allowed for students to take CS 124 in place of CS 101 for students that will be pursuing the CS Minor. As the CS Department changed their curricular requirements and prerequisites, it was necessary for ISE to reflect those changes the SED curriculum.

Revised the Secondary Field Options:
a. Revised the SFO hours to reflect only undergraduate course hours rather than listing both undergraduate and graduate hours.
b. Clarified the requirements for the Automotive Engineering SFO. The list of courses were previously listed twice.
c. Revised the Autonomous Systems and Robotics SFO and the Nondestructive Testing and Evaluation to include ME 270. The addition of this course gives students the option and a more in-depth study of design process as it applies in these concentrations.
d. Revised Business Systems Integration & Consulting, Engineering Administration, and Engineering Marketing because these courses are meant to be taken at the junior or senior level.
e. Revised the Digital Prototyping SFO to include TAM 470.The addition of this course allows the students incorporate a deeper knowledge of mechanics into their design-focused concentration.
f. Removed Internet of Things as an SFO option. This SFO overlapped with other SFO options and few students were selecting this SFO.
g. Revised the following SFOs: Autonomous Systems and Robotics, Business Systems Integration & Consulting, Computer Science, Control Systems, and Nondestructive Testing and Evaluation to incorporate more or different CS courses within the requirements and electives. Making these changes was to increase the opportunities for students to pursue appropriate courses in computer science subjects to complement their curricular requirements.

Instructional Resources

Will there be any reduction in other course offerings, programs or concentrations by your department as a result of this new program/proposed change?

No

Does the program include other courses/subjects impacted by the creation/revision of this program?

Yes

Required courses

CS 173 - Discrete Structures
CS 225 - Data Structures
MATH 257 - Linear Algebra w Computat Appl
ME 270 - Design for Manufacturability
TAM 470 - Computational Mechanics

Explain how the inclusion or removal of the courses/subjects listed above impacts the offering departments.

The current Liberal Education requirement is satisfied by a student completing 6 credit hours beyond those required by campus' General Education requirement from Humanities & the Arts, Social & Behavioral Sciences, or a college-curated list of courses (containing courses from over 120 rubrics across campus). An analysis of student course selection in the Liberal Education category indicates 25% of courses are taken in the College of Liberal Arts & Sciences, 20% from the College of Applied Health Sciences, 18% from Gies College of Business, 11% from the College of Agricultural, Consumer and Environmental Sciences, 11% from the College of Fine and Applied Arts, and 9% from The Grainger College of Engineering. Less than 2% of credits are taken in each of the remaining colleges and units across campus.

Although it might stand to reason that removal of the Liberal Education requirement would reduce the amount of credits Grainger Engineering students take outside of their home college, the data do not support that assertion. Specifically, despite the current Liberal Education requirement being set at 6 credit hours, the average number of credit hours completed from the Liberal Education course list upon graduation is 11.9. Through discussions with departmental and college advisors as well as students, students are making course selections not because the course satisfies the Liberal Education requirement, but because they are interested in the coursework offered outside of their home college, are pursing minors and other educational opportunities, and are looking to balance course loads between technical and non-technical courses. Taken together, the data and evidence from advisors and students suggest that students will continue to take the types of courses represented on the Liberal Education course list, even if not specifically required to do so.

A subset of SED students will pursue the CS coursework and a CS minor in addition to their degree program. This will not be all students. The ISE Department has the approval from the CS Department for this.

All SED students will be required to complete MATH 257.

The addition of ME and TAM courses to several Secondary Field Options allows more in-

depth student in those areas. These courses are approved by the Mechanical Science and Engineering Department.

Attach letters of support or acknowledgement from other departments.	ISE_letter_Math_257.pdf Support_Letter_ISE.pdf CS courses taken by ISE students, Beck signed tp.pdf Letters of Acknowledgement - Liberal Education Electives.pdf

Program Regulation and Assessment

Briefly describe the plan to assess and improve student learning, including the program's learning objectives; when, how, and where these learning objectives will be assessed; what metrics will be used to signify student's achievement of the stated learning objectives; and the process to ensure assessment results are used to improve student learning. (Describe how the program is aligned with or meets licensure, certification, and/or entitlement requirements, if applicable).

Graduates should have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

3. an ability to communicate effectively with a range of audiences.

4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. ~~NA~~

Is the career/profession for graduates of this program regulated by the State of Illinois?

No

Program of Study

"Baccalaureate degree requires at least 120 semester credit hours or 180 quarter credit hours and at least 40 semester credit hours (60 quarter credit hours) in upper division courses" (source: https://www.ibhe.org/assets/files/PrivateAdminRules2017.pdf). For proposals for new bachelor's degrees, if this minimum is not explicitly met by specifically-required 300- and/or 400-level courses, please provide information on how the upper-division hours requirement will be satisfied.

All proposals must attach the new or revised version of the Academic Catalog program of study entry. Contact your college office if you have questions.

Revised programs Systems Engineering and Design BS Side by Side.xlsx

Attach a side-by-side comparison with the existing program AND, if the revision references or adds "chose-from" lists of courses students can select from to fulfill requirements, a listing of these courses, including the course rubric, number, title, and number of credit hours.

Catalog Page Text - Overview Tab

Text for Overview tab on the Catalog Page. This is not official content, it is used to help build the new catalog page for the program. Can be edited in the catalog by the college or department.

Statement for Programs of Study Catalog

Graduation Requirements

Minimum Technical GPA: 2.0

TGPA is required for Engineering and Technical Elective courses and MATH 257. ~~MATH 415.~~ See **Technical GPA** to clarify requirements.

Minimum Overall GPA: 2.0

Minimum hours required for graduation: 128 hours

General education: Students must complete the Campus General Education requirements including the campus general education language requirement. One of the SBS courses must be an introductory economics course (ECON 102 ~~(ECON 102~~ or ECON 103). ~~ECON 103).~~ SE 494 and SE 495 will satisfy a core course requirement and the Campus General Education Advanced Composition requirement.

~~**Specific Advanced Composition courses required for this degree are listedbelow.**~~**Orientation and Professional Development**

Course List

Code	Title	Hours
ENG 100	Grainger Engineering Orientation Seminar (External transfer students take ENG 300.)	1
SE 100	Introduction to ISE	1
SE 290	ISE Undergraduate Seminar	0
Total Hours		2

Foundational Mathematics and Science

Course List

Code	Title	Hours
CHEM 102	General Chemistry I	3
CHEM 103	General Chemistry Lab I	1
MATH 221	Calculus I (MATH 220 is appropriate for students with no background in calculus. 4 of 5 credit hours count towards degree.)	4
MATH 231	Calculus II	3
MATH 241	Calculus III	4
MATH 257	Linear Algebra with Computational Applications	3
MATH 285	Intro Differential Equations	3
~~MATH 415~~	~~Applied Linear Algebra~~	~~3~~
PHYS 211	University Physics: Mechanics	4
PHYS 212	University Physics: Elec & Mag	4
PHYS 213	Univ Physics: Thermal Physics	2
Total Hours		31

Systems Engineering and Design Technical Core

Course List

Code	Title	Hours
CS 101	Intro Computing: Engrg & Sci (CS 124 may be substituted.)	3
ECE 110	Introduction to Electronics	3
ECE 211	Analog Circuits & Systems	2
IE 300	Analysis of Data	3
IE 310	Deterministic Models in Optimization	3
SE 101	Engineering Graphics & Design	3
SE 261	Business Side of Engineering	2
SE 310	Design of Structures and Mechanisms	3
SE 311	Engineering Design Analysis	3
SE 312	Instrumentation and Test Lab	1
SE 320	Control Systems	4
SE 424	State Space Design for Control	3
SE 494	Senior Engineering Project I	3
SE 495	Senior Engineering Project II	2
TAM 211	Statics	3
TAM 212	Introductory Dynamics	3
TAM 251	Introductory Solid Mechanics	3
TAM 335	Introductory Fluid Mechanics	4
Total Hours		51

Secondary Field Option Electives

Course List

Code	Title	Hours
~~Secondary field option electives selected from departmentally approved list below or by petition to the department. 4~~		~~12~~
Students must select one Secondary Field Option from the list below or they may petition to create their own Secondary Field Option (SFO). Courses from these lists may only be used to fulfill one curricular requirement.		12
Automotive Engineering		

Code	Title	Hours
Dynamics/Controls Focus - complete at least 1 course from this list:		
ECE 470/AE 482/ME 445	Introduction to Robotics	4
ECE 486	Control Systems	4
ME 460	Industrial Control Systems	4
TAM 412	Intermediate Dynamics	4
TAM 416	Introduction to Nonlinear Dynamics and Vibrations	4
Automotive Power Systems Focus - complete at least 1 course from this list:		
ECE 431	Electric Machinery	4
ECE 464	Power Electronics	3
ME 400	Energy Conversion Systems	3
ME 403	Internal Combustion Engines	3
Other Elective Options - complete remaining courses from this list:		
CS 173	Discrete Structures	3
CS 440	Artificial Intelligence	3
CS 446	Machine Learning	3
ME 320	Heat Transfer	4
ME 360	Signal Processing	3.5
ME 461	Computer Cntrl of Mech Systems	3
SE 400	Engineering Law	3
SE 422	Robot Dynamics and Control	4
SE 497	Independent Study (May be taken for up to 3 credit hours, based on automotive Engineering project approved by SFO faculty mentor)	1-4
Autonomous Systems and Robotics		
CS 173	Discrete Structures	3
~~CS 225~~	~~Data Structures~~	~~4~~
~~CS 233~~	~~Computer Architecture~~	~~4~~
~~CS 241~~	~~Course CS 241 Not Found~~	
~~ECE 120~~	~~Introduction to Computing~~	~~4~~
CS 225	Data Structures	4
CS 440	Artificial Intelligence	3
CS 446	Machine Learning	3
ECE 470	Introduction to Robotics	4
ECE 486	Control Systems	4
ECE 490	Introduction to Optimization	3
~~ME 351~~	~~Course ME 351 Not Found~~	
ME 270	Design for Manufacturability	3
ME 461	Computer Cntrl of Mech Systems	3
SE 400	Engineering Law	3
SE 411	Reliability Engineering	3
SE 420	Digital Control Systems	4
SE 422	Robot Dynamics and Control	4
SE 423	Mechatronics	3
Bioengineering		
BIOE 120	Introduction to Bioengineering	1
BIOE/ECE 414	Biomedical Instrumentation	3
BIOE/ECE 415	Biomedical Instrumentation Lab	2
BIOE 498	Special Topics	3

Code	Title	Hours
BIOP 401	Introduction to Biophysics	3
CHEM 232	Elementary Organic Chemistry I	3 or 4
CHEM 233	Elementary Organic Chem Lab I	2
IE 340/PSYC 358	Human Factors	4
KIN 355	Biomechanics of Human Movement	3
MCB 150	Molec & Cellular Basis of Life (recommended only if a prerequisite to another listed course)	4
MCB 250	Molecular Genetics (recommended only if a prerequisite to another listed course)	3
MCB 251	Exp Techniqs in Molecular Biol (recommended only if a prerequisite to another listed course)	2
MCB 401	Cellular Physiology	3
MCB 402	Sys & Integrative Physiology	3
MCB 403	Cell & Membrane Physiology Lab	2
MCB 404	Sys & Integrative Physiol Lab	2
MCB 450	Introductory Biochemistry	3
SE 400	Engineering Law	3
Business Systems Integration & Consulting		
Core Requirement:		
SE 400	Engineering Law	3
~~Group I (At least one course):~~		
Group I Requirement - complete at least 1 course from this list:		
BADM 352	Database Design and Management	3
BADM 353	Info Sys Analysis and Design	3
IE 405	Computing for ISE	3
Group II - select remaining courses from this list. Of these courses, only 1 selected may be at the 100 or 200 level.		
ACCY 200	Fundamentals of Accounting (A basic accounting course is highly recommended)	3
ACCY 201	Accounting and Accountancy I (A basic accounting course is highly recommended)	3
ACCY 202	Accounting and Accountancy II (A basic accounting course is highly recommended)	3
ADV 150	Introduction to Advertising	3
BADM 310	Mgmt and Organizational Beh	3
BADM 311	Leading Individuals and Teams	3
BADM 312	Designing and Managing Orgs	3
BADM 320	Principles of Marketing	3
BADM 445	Small Business Consulting	4
BADM 446	Entrepreneurship: New Venture Creation	4
BTW 250	Principles Bus Comm	3
BTW 261	Principles Tech Comm	3
FIN 221	Corporate Finance	3
FIN 300	Financial Markets	3
IE 420	Financial Engineering	3
~~Group II (At least one course)~~		

Code	Title	Hours
Civil Engineering Structures		
CEE 380	Geotechnical Engineering	3
CEE 460	Steel Structures I	3
CEE 461	Reinforced Concrete I	3
CEE 462	Steel Structures II	3
CEE 463	Reinforced Concrete II	3
CEE 465	Design of Structural Systems	3
SE 400	Engineering Law	3
Computer Science		
Core Courses:		
CS 173	Discrete Structures	3
CS 225	Data Structures	4
~~All other 200-, 300-, 400-level CS courses~~		
Elective Options - complete 2 of the following courses:		
CS 410	Text Information Systems	3
CS 411	Database Systems	3 or 4
CS 425	Distributed Systems	3 or 4
CS 438	Communication Networks	3 or 4
~~All other 200-,300-,400-level CS courses~~		
All 200-, 300-, and 400-level CS courses excluding CS 210, CS 211, CS 397, CS 398, and CS seminar and senior project courses.		
SE 400	Engineering Law	3
Construction		
CEE 300	Behavior of Materials (Credit will not be given for CEE 300, ME 330 and MSE 280; select only 1 of these courses.)	4
CEE 310	Transportation Engineering	3
CEE 320	Construction Engineering	3
CEE 380	Geotechnical Engineering	3
CEE 420	Construction Productivity	3
CEE 421	Construction Planning	3
CEE 422	Construction Cost Analysis	3
CEE 460	Steel Structures I	3
CEE 461	Reinforced Concrete I	3
CEE 465	Design of Structural Systems	3
ME 330	Engineering Materials (Credit will not be given for CEE 300, ME 330 and MSE 280; select only 1 of these courses.)	4
SE 400	Engineering Law	3
Control Systems		
~~CS 225~~	~~Data Structures~~	~~4~~
~~ECE 470/AE 482/ME 445~~	~~Introduction to Robotics~~	~~4~~
~~ECE 486~~	~~Control Systems~~	~~4~~
CS 173	Discrete Structures	3
ECE 470/AE 482/ME 445	Introduction to Robotics	4
ECE 486	Control Systems	4

Code	Title	Hours
ECE 490	Introduction to Optimization	3
IE 410	Advanced Topics in Stochastic Processes & Applications	3
MATH 444	Elementary Real Analysis	3
MATH 461	Probability Theory	3
MATH 464	Statistics and Probability II	3
~~ME 351~~	~~Course ME 351 Not Found~~	
ME 360	Signal Processing	3.5
~~ME 460~~	~~Industrial Control Systems~~	~~4~~
ME 460	Industrial Control Systems	4
ME 461	Computer Cntrl of Mech Systems	3
SE 400	Engineering Law	3
SE 420	Digital Control Systems	4
SE 422	Robot Dynamics and Control	4
SE 423	Mechatronics	3
Digital Prototyping		
ME 270	Design for Manufacturability	3
ME 451	Computer-Aided Mfg Systems	3
ME 452	Num Control of Mfg Processes	3
ME 471/AE 420/CSE 451	Finite Element Analysis	3
SE 400	Engineering Law	3
SE 402	Comp-Aided Product Realization	3
SE 410	Component Design (This course cannot count as an SFO elective and an SED Design Elective.)	3
SE 413	Engineering Design Optimization (This course cannot count as an SFO elective and an SED Design Elective.)	3
SE 423	Mechatronics (This course cannot count as an SFO elective and an SED Design Elective.)	3
TAM 302	Engineering Design Principles	3
TAM 470	Computational Mechanics	3
Engineering Administration		
Core Requirement:		
SE 400	Engineering Law	3
~~Elective Options:~~		
Elective Options - select remaining courses from this list. Of these courses, only 1 selected may be at the 100 or 200 level.		
ACCY 200	Fundamentals of Accounting	3
ACCY 201	Accounting and Accountancy I	3
ACCY 202	Accounting and Accountancy II	3
ADV 150	Introduction to Advertising	3
BADM 310	Mgmt and Organizational Beh	3
BADM 311	Leading Individuals and Teams	3
BADM 312	Designing and Managing Orgs	3
BADM 313	Strategic Human Resource Management	3
BADM 375	Operations Strategy	3
BADM 380	International Business	3
BADM 381	Multinational Management	3
BTW 250	Principles Bus Comm	3

Code	Title	Hours
BTW 261	Principles Tech Comm	3
ECON 302	Inter Microeconomic Theory	3
FIN 221	Corporate Finance	3
~~GEOG 205~~	~~Course GEOG 205 Not Found~~	
IE 330	Industrial Quality Control	3
IE 340/PSYC 358	Human Factors	4
IE 361	Production Planning & Control	3
IE 420	Financial Engineering	3
IE 445	Human Performance and Cognition in Context	3
PS 321	Principles of Public Policy	3
SE 411	Reliability Engineering	3
Engineering Marketing Core Requirement:		
SE 400	Engineering Law	3

~~Elective Options:~~

Elective Options - select remaining courses from this list. Of these courses, only 1 selected may be at the 100 or 200 level.

ACCY 200	Fundamentals of Accounting	3
ACCY 201	Accounting and Accountancy I	3
ACCY 202	Accounting and Accountancy II	3
ADV 150	Introduction to Advertising	3
BADM 310	Mgmt and Organizational Beh	3
BADM 320	Principles of Marketing	3
BADM 322	Marketing Research	3
BADM 323	Marketing Communications	3
BADM 325	Consumer Behavior	3
BADM 327	Marketing to Business and Govt	3
BADM 380	International Business	3
BADM 382	International Marketing	3
BADM 420	Advanced Marketing Management	3
BTW 250	Principles Bus Comm	3
BTW 261	Principles Tech Comm	3
PSYC 245	Industrial Org Psych	3
Environmental Quality		
ACE 310	Natural Resource Economics	3
CEE 330	Environmental Engineering	3
CEE 437	Water Quality Engineering	3
CEE 440	Fate Cleanup Environ Pollutant	4
CEE 442	Environmental Engineering Principles, Physical	4
CEE 443	Env Eng Principles, Chemical	4
CEE 444	Env Eng Principles, Biological	4
~~CEE 445~~	~~Course CEE 445 Not Found~~	
CEE 446	Air Quality Engineering	4
ENVS 336	Tomorrow's Environment	3
ENVS 431	Environ Toxicology & Health	3
IB 105	Environmental Biology	3
~~NPRE 241~~	~~Intro to Radiation Protection~~	~~2~~

Code	Title	Hours
NRES 419	Env and Plant Ecosystems	3
NRES 472	Environmental Psychology	4
SE 400	Engineering Law	3
~~Internet of Things~~		
~~Core Requirements:~~		
~~ECE 385~~	~~Digital Systems Laboratory~~	~~3~~
Manufacturing Engineering		
IE 370	Stochastic Processes and Applications	3
ME 330	Engineering Materials (Credit will not be given for CEE 300, ME 330 and MSE 280; select only 1 of these courses.)	4
SE 400	Engineering Law	3
~~SE 423~~	~~Mechatronics~~	~~3~~
~~Other courses from Digital Protoyping and Control Systems SFO~~		
SE 402	Comp-Aided Product Realization	3
SE 420	Digital Control Systems	4
SE 422	Robot Dynamics and Control	4
SE 423	Mechatronics	3
~~Elective Options:~~		
~~CS 125~~	~~Introduction to Computer Science~~	~~4~~
Any courses from Digital Prototyping and Control Systems Secondary Field Option.		
Nondestructive Testing and Evaluation		
Core Requirement:		
SE 412	Nondestructive Evaluation	3
~~Elective Options:~~		
Elective Options - complete remaining courses from this list:		
CEE 300	Behavior of Materials (Credit will not be given for CEE 300, ME 330 and MSE 280; select only 1 of these courses.)	4
~~CS 225~~	~~Data Structures~~	~~4~~
CS 173	Discrete Structures	3
CS 225	Data Structures	4
CS 440	Artificial Intelligence	3
CS 446	Machine Learning	3
ECE 470	Introduction to Robotics	4
ECE 473	Fund of Engrg Acoustics	3
~~ME 351~~	~~Course ME 351 Not Found~~	
ME 270	Design for Manufacturability	3
ME 471	Finite Element Analysis	3
SE 400	Engineering Law	3
TAM 412	Intermediate Dynamics	4
~~TAM 416~~	~~Introduction to Nonlinear Dynamics and Vibrations~~	~~4~~
~~Automotive Power Systems (select at least one course):~~		
~~ME 400~~	~~Energy Conversion Systems~~	~~3 or 4~~
~~ME 403~~	~~Internal Combustion Engines~~	~~3 or 4~~
~~ECE 431~~	~~Electric Machinery~~	~~4~~
~~ECE 464~~	~~Power Electronics~~	~~3~~

Code	Title	Hours
TAM 456	Experimental Stress Analysis	3
Operations Research		
IE 360	Facilities Planning and Design	3
IE 361	Production Planning & Control	3
IE 370	Stochastic Processes and Applications	3
IE 400	Design & Anlys of Experiments	3
IE 410	Advanced Topics in Stochastic Processes & Applications	3
IE 411	Optimization of Large Systems	3
MATH 461	Probability Theory	3
MATH 464	Statistics and Probability II	3 or 4
ME 451	Computer-Aided Mfg Systems	3
SE 400	Engineering Law	3
SE 411	Reliability Engineering	3
Rehabilitation Engineering		
CHEM 232	Elementary Organic Chemistry I	3 or 4
ECE 414	Biomedical Instrumentation	3
ECE 415	Biomedical Instrumentation Lab	2
MCB 150	Molec & Cellular Basis of Life	4
MCB 250	Molecular Genetics	3
MCB 251	Exp Techniqs in Molecular Biol	2
REHB 401	Introduction to Rehabilitation	4
REHB 402	Medical Aspects of Disability	4
SE 400	Engineering Law	3
Theoretical and Applied Mechanics		
CEE 300	Behavior of Materials (Credit will not be given for CEE 300, ME 330 and MSE 280; select only 1 of these courses.)	4
ME 471	Finite Element Analysis	3 or 4
SE 400	Engineering Law	3
~~TAM 412~~	~~Intermediate Dynamics~~	~~4~~
TAM 412	Intermediate Dynamics	4
TAM 424	Mechanics of Structural Metals	3
TAM 428	Mechanics of Composites	3
TAM 435	Intermediate Fluid Mechanics	4
TAM 445	Continuum Mechanics	4
TAM 451	Intermediate Solid Mechanics	4
TAM 456	Experimental Stress Analysis	3

Technical Electives

Course List

Code	Title	Hours
Design elective selected from the departmentally approved list of Design Electives below:		3
SE 410	Component Design	3
SE 420	Digital Control Systems	4
SE 423	Mechatronics	3

Code	Title	Hours
SE 413	Engineering Design Optimization	3 or 4
Engineering science elective selected from the departmentally approved list of Engineering Science Electives below:		3
ME 200	Thermodynamics	3
MSE 280	Engineering Materials	3

Free Electives

Course List

Code	Title	Hours
~~The Grainger College of Engineering Liberal Education course list, or additional courses from the campus General Education lists for Social and Behavioral Sciences or Humanities and the Arts 5~~		~~6~~
~~Free electives. Additional unrestricted course work, subject to certain exceptions as noted by the College, so that there are at least 128 credit hours earned toward the degree. 6~~		~~6~~
Additional course work, subject to the Grainger College of Engineering restrictions to Free Electives, so that there are at least 128 credit hours earned toward the degree.		10
Total Hours of Curriculum to Graduate		128

~~**12**~~

~~MATH 220%7C *may be substituted, with four of the five credit hours applying toward the degree.* MATH 220%7C *is appropriate for students with no background in calculus.*~~

~~**3***Advanced Composition satisfied by completing the combination of* SE 494%7C *and* SE 495%7C.**4***~~

~~The following course substitutions may be used interchangeably to comply with prerequisites of specified courses in some of the secondary fields:~~

~~CEE 202, IE 300, STAT 400~~

~~CEE 201, IE 310~~

~~MSE 406, CEE 300~~

~~ECE 486, SE 320, ME 340~~

~~**5***~~

~~*The Grainger College of Engineering approved liberal education course list can be found here. Note that these credit hours could carry the required cultural studies designation required for campus general education requirements.*~~

~~**6***The Grainger College of Engineering restrictions to free electives can be found here.*~~

Corresponding Degree	BS Bachelor of Science

Program Features

Academic Level	Undergraduate
Does this major have transcripted concentrations?	No

What is the typical time to completion of this program?

4 years

What are the minimum Total Credit Hours required for this program?

128

CIP Code 142701 - Systems Engineering.

Is This a Teacher Certification Program?
No

Will specialized accreditation be sought for this program?

No

Delivery Method

This program is available:
On Campus - Students are required to be on campus, they may take some online courses.

Admission Requirements

Desired Effective Admissions Term

Provide a brief narrative description of the admission requirements for this program. Where relevant, include information about licensure requirements, student background checks, GRE and TOEFL scores, and admission requirements for transfer students.

Describe how critical academic functions such as admissions and student advising are managed.

Enrollment

Describe how this revision will impact enrollment and degrees awarded.

These changes will not impact enrollment.

Estimated Annual Number of Degrees Awarded

Year One Estimate	5th Year Estimate (or when fully implemented)

What is the matriculation term for this program?
Fall

Budget

Are there budgetary
No

implications for this revision?

Will the program or revision require staffing (faculty, advisors, etc.) beyond what is currently available?

No

Additional Budget Information

Attach File(s)

Financial Resources

How does the unit intend to financially support this proposal?

Will the unit need to seek campus or other external resources?

No

Attach letters of support

What tuition rate do you expect to charge for this program? e.g, Undergraduate Base Tuition, or Engineering Differential, or Social Work Online (no dollar amounts necessary)

Are you seeking a change in the tuition rate or differential for this program?

No

Resource Implications

Facilities

Will the program require new or additional facilities or significant improvements to already existing facilities?

No

Technology

Will the program need additional technology beyond what is currently available for the unit?

No

Non-Technical Resources

Will the program require additional supplies, services or equipment (non-technical)?

No

Resources

For each of these items, be sure to include in the response if the proposed new program or change will result in replacement of another program(s). If so, which program(s), what is the anticipated impact on faculty, students, and instructional resources? Please attach any letters of support/acknowledgement from faculty, students, and/or other impacted units as appropriate.

Attach File(s)

Faculty Resources

Please address the impact on faculty resources including any changes in numbers of faculty, class size, teaching loads, student-faculty ratios, etc. Describe how the unit will support student advising, including job placement and/or admission to advanced studies.

These changes will not impact our faculty resources.

Library Resources

Describe your proposal's impact on the University Library's resources, collections, and services. If necessary please consult with the appropriate disciplinary specialist within the University Library.

There is no impact to the use of the Library collections, resources, and services.

EP Documentation

EP Control Number	EP.22.097
Attach Rollback/Approval Notices	ep22097_response from sponsor_20220214.pdf
This proposal requires HLC inquiry	No

DMI Documentation

Attach Final Approval Notices	
Banner/Codebook Name	BS:Systems Engr & Design -UIUC
Program Code:	10KP5532BS

Minor Code	Conc Code	Degree Code	BS	Major Code
5532				

Senate Approval Date	
Senate Conference Approval Date	
BOT Approval	

Date	
IBHE Approval Date	
HLC Approval Date	
Effective Date:	
Attached Document	
Justification for this request	
Program Reviewer Comments	**Deb Forgacs (dforgacs) (01/05/22 10:27 am):** Rollback: requested.

Key: 118

Key				
GREEN HIGHLIGHT = Course addition or requirement replacement				
RED HIGHLIGHT = Course to be removed from listed requirements.				
Yellow Highlight - Revision to requirement				
Current Programs of Study			**Proposed Programs of Study**	
Graduation Requirements			**Graduation Requirements**	
Minimum Technical GPA: 2.0 TGPA is required for Engineering and Technical Elective courses and MATH 415. See Technical GPA to clarify requirements.			Minimum Technical GPA: 2.0 TGPA is required for Engineering and Technical Elective courses and MATH 257. See Technical GPA to clarify requirements.	
Minimum Overall GPA: 2.0			**Minimum Overall GPA:** 2.0	
Minimum hours required for graduation: 128 hours			**Minimum hours required for graduation:** 128 hours	
General education: Students must complete the Campus General Education requirements including the campus general education language requirement. One of the SBS courses must be an introductory economics course (ECON 102 or ECON 103). Specific Advanced Composition courses required for this degree are listed below.			General education: Students must complete the Campus General Education requirements including the campus general education language requirement. One of the SBS courses must be an introductory economics course (ECON 102 or ECON 103). SE 494 and SE 495 will satisfy a core course requirement and the Campus General Education Advanced Composition requirement.	
Current Requirement	**Current Hours**		**Revised Requirement**	**Revised Hours**
Orientation and Professional Development	**1**		**Orientation and Professional Development**	**2**
ENG 100: Engineering Orientation (External transfer students take ENG 300 instead)[1]	0		ENG 100: Engineering Orientation (External transfer students take ENG 300 instead)	1
SE 100: Introduction to ISE	1		SE 100: Introduction to ISE	1
SE 290: ISE Undergraduate Seminar	0		SE 290: ISE Undergraduate Seminar	0
Foundational Mathematics and Science	**31**		**Foundational Mathematics and Science**	**31**
CHEM 102: General Chemistry I	3		CHEM 102: General Chemistry I	3
CHEM 103: General Chemistry Lab I	1		CHEM 103: General Chemistry Lab I	1
MATH 221: Calculus I[2]	4		MATH 221: Calculus I (MATH 220 may be substituted. MATH 220 is appropriate for students with no backgrou	4
MATH 231: Calculus II	3		MATH 231: Calculus II	3
MATH 241: Calculus III	4		MATH 241: Calculus III	4
			MATH 257: Linear Algebra with Computational Applications	3
MATH 285: Intro Differential Equations	3		MATH 285: Intro Differential Equations	3
MATH 415: Applied Linear Algebra	3			
PHYS 211: University Physics: Mechanics	4		PHYS 211: University Physics: Mechanics	4
PHYS 212: University Physics: Elec & Mag	4		PHYS 212: University Physics: Elec & Mag	4
PHYS 213: Univ Physics: Thermal Physics	2		PHYS 213: Univ Physics: Thermal Physics	2
Systems Engineering and Design Technical Core	**50**		**Systems Engineering and Design Technical Core**	**51**
CS 101: Intro Computing: Engrg & Sci	3		CS 101: Intro Computing: Engrg & Sci (CS 124 may be substituted.)	3
ECE 110: Introduction to Electronics	3		ECE 110: Introduction to Electronics	3
ECE 211: Analog Circuits & Systems	2		ECE 211: Analog Circuits & Systems	2
IE 300: Analysis of Data	3		IE 300: Analysis of Data	3
IE 310: Deterministic Models in Optimization	3		IE 310: Deterministic Models in Optimization	3
SE 101: Engineering Graphics & Design	3		SE 101: Engineering Graphics & Design	3
SE 261: Business Side of Engineering	1		SE 261: Business Side of Engineering	2
SE 310: Design of Structures and Mechanics	3		SE 310: Design of Structures and Mechanics	3
SE 311: Engineering Design Analysis	3		SE 311: Engineering Design Analysis	3
SE 312: Instrumentation and Test Lab	1		SE 312: Instrumentation and Test Lab	1
SE 320: Control Systems	4		SE 320: Control Systems	4
SE 424: State Space Design for Control	3		SE 424: State Space Design for Control	3
SE 494: Senior Engineering Project I3	3		SE 494: Senior Engineering Project I	3
SE 495: Senior Engineering Project II3	2		SE 495: Senior Engineering Project II	2
TAM 211: Statics	3		TAM 211: Statics	3
TAM 212: Introductory Dynamics	3		TAM 212: Introductory Dynamics	3
TAM 251: Introductory Solid Mchanics	3		TAM 251: Introductory Solid Mchanics	3
TAM 335: Introductory Fluid Mechanics	4		TAM 335: Introductory Fluid Mechanics	4
Secondary Field Option Electives			**Secondary Field Option Electives**	
Secondary field option electives from departmentally approved list below or by petition to the department4	12		Students must select one Secondary Field Option from the list below or they may petition to create their own Secondary Field Option (SFO). Courses from these lists may only be used to fulfill one curricular requirement.	12
Automotive Engineering	**12**			
CS 440: Artificial Intelligence	3 or 4			
CS 446: Machine Learning	3 or 4			
ECE 431: Electric Machinery	4			
ECE 464: Power Electronics	3			
ECE 470/AE 482/ME 445: Introduction to Robotics	4			
ECE 486: Control Systems	4			
ME 320: Heat Transfer	4			
ME 360: Signal Processing	3.5			
ME 400: Energy Conversion Systems	3 or 4			
ME 403: Internal Combustion Engines	3 or 4			
ME 460: Industrial Control Systems	4			
ME 461: Computer Control of Mech Systems	3 or 4			
SE 400: Engineering Law	3 or 4			
SE 497: Independent Study (May be taken for up to 3 credit hours, based on automotive Engineering project approve by SFO faculty mentor)	1 to 4			
TAM 412: Intermediate Dynamics	4			
TAM 416: Intro to Nonlinear Dyn & Vib	4			
In addition to completing 12 credit hours from the list of approved courses above, students must complete:				
Dynamics/Controls (select at least one course):				
ECE 470/AE 482/ME 445: Introduction to Robotics	4			
ECE 486: Control Systems	4			
ME 460: Industrial Control Systems	4			
TAM 412: Intermediate Dynamics	4			
TAM 416: Intro to Nonlinear Dyn & Vib	4			
Automotive Power Systems (select at least one course):				
ECE 431: Electric Machinery	4			
ECE 464: Power Electronics	3			
ME 400: Energy Conversion Systems	3 or 4			
ME 403: Internal Combustion Engines	3 or 4			
			Automotive Engineering	
			Dynamics/Controls Focus - complete at least 1 course from this list:	
			ECE 470/AE 482/ME 445: Introduction to Robotics	4
			ECE 486: Control Systems	4
			ME 460: Industrial Control Systems	4
			TAM 412: Intermediate Dynamics	4
			TAM 416: Intro to Nonlinear Dyn & Vib	4
			Automotive Power Systems Focus - complete at least 1 course from this list:	
			ECE 431: Electric Machinery	4
			ECE 464: Power Electronics	3
			ME 400: Energy Conversion Systems	3
			ME 403: Internal Combustion Engines	3
			Other Elective Options - complete remaining courses from this list:	
			CS 173: Discrete Structures	3
			CS 440: Artificial Intelligence	3
			CS 446: Machine Learning	3
			ME 320: Heat Transfer	4
			ME 360: Signal Processing	3.5
			ME 461: Computer Control of Mech Systems	3
			SE 400: Engineering Law	3
			SE 422: Robot Dynamics and Control	4
			SE 497: Independent Study (May be taken for up to 3 credit hours, based on automotive Engineering project approve by SFO faculty mentor)	1 to 4
Autonomous Systems and Robotics			**Autonomous Systems and Robotics**	
			CS 173 Discrete Structures	3
CS 225: Data Structures	4		CS 225 Data Structures	4
CS 440: Artificial Intelligence	3 or 4		CS 440 Artificial Intelligence	3
CS 446: Machine Learning	3 or 4		CS 446 Machine Learning	3
ECE 470: Introduction to Robotics	4		ECE 470 Introduction to Robotics	4
ECE 486: Control Systems	4		ECE 486 Control Systems	4
ECE 490: Introduction to Optimization	3 or 4		ECE 490 Introduction to Optimization	3
ME 351: Course ME 351 Not Found				
			ME 270 Design for Manufacturability	3

ME 461: Computer Control of Mech Systems	3 or 4	ME 461 Computer Control of Mech Systems	3
SE 400: Engineering Law	3 or 4	SE 400 Engineering Law	3
SE 411: Reliability Engineering	3	SE 411 Reliability Engineering	3
		SE 420 Digital Control Systems	4
		SE 422 Robot Dynamics and Control	4
SE 423: Mechatronics		SE 423 Mechatronics	3
Bioengineering		**Bioengineering**	
BIOE 120: Introduction to Bioengineering	1	BIOE 120: Introduction to Bioengineering	1
BIOE 414: Biomedical Instrumentation ECE 414: Biomedical Instrumentation	3	BIOE/ECE 414: Biomedical Instrumentation	3
BIOE 415: Biomedical Instrumentation Lab ECE 415: Biomedical Instrumentation Lab	2	BIOE/ECE 415: Biomedical Instrumentation Lab	2
BIOE 498: Special Topics	3	BIOE 498: Special Topics	3
BIOP 401: Introduction to Biophysics	3	BIOP 401: Introduction to Biophysics	3
CHEM 232: Elementary Organic Chemistry I	3 or 4	CHEM 232: Elementary Organic Chemistry I	3 or 4
CHEM 233: Elementary Organic Chem Lab I	2	CHEM 233: Elementary Organic Chem Lab I	2
IE 340/PSYC 358: Human Factors	4	IE 340/PSYC 358: Human Factors	4
KIN 355: Biomechanics of Human Movement	3	KIN 355: Biomechanics of Human Movement	3
MCB 150: Molec & Cellular Basis of Life (recommended only if a prerequisite to another listed course)	4	MCB 150: Molec & Cellular Basis of Life (recommended only if a prerequisite to another listed course)	4
MCB 250: Molecular Genetics (recommended only if a prerequisite to another listed course)	3	MCB 250: Molecular Genetics (recommended only if a prerequisite to another listed course)	3
MCB 251: Exp Techniqs in Cellular Biol (recommended only if a prerequisite to another listed course)	2	MCB 251: Exp Techniqs in Cellular Biol (recommended only if a prerequisite to another listed course)	2
MCB 401: Cell & Membrane Physiology	3	MCB 401: Cell & Membrane Physiology	3
MCB 402: Sys & Integrative Physiology	3	MCB 402: Sys & Integrative Physiology	3
MCB 403: Cell & Membrane Physiology Lab	1 or 2	MCB 403: Cell & Membrane Physiology Lab	2
MCB 404: Sys & Integrative Physiol Lab	1 to 2	MCB 404: Sys & Integrative Physiol Lab	2
MCB 450: Introductory Biochemistry	3	MCB 450: Introductory Biochemistry	3
SE 400: Engineering Law	3 or 4	SE 400: Engineering Law	3
Business Systems Integration & Consulting			
SE 400: Engineering Law	3 OR 4		
Group I	3		
ACCY 200: Fundamentals of Accounting (A basic accounting course is highly recommended)	3		
ACCY 201: Accounting and Accountancy I (A basic accounting course is highly recommended)	3		
ACCY 202: Accounting and Accountancy II (A basic accounting course is highly recommended)	3		
ADV 150: Introduction to Advertising	3		
BADM 310: Mgmt and Organizational Beh	3		
BADM 311: Leading Individuals and Teams	3		
BADM 312: Designing and Managing Orgs	3		
BADM 320: Principles of Marketing	4		
BADM 445: Small Business Consulting	4		
BADM 446: Entrepreneurship: New Venture Creation	3		
BTW 250: Principles Bus Comm	3		
BTW 261: Principles Tech Comm	3		
FIN 221: Corporate Finance	3		
FIN 300: Financial Markets	3 or 4		
IE 420: Financial Engineering			
Group II (At least one course)			
BADM 352: Database Design and Management	3		
BADM 353: Info Sys Analysis and Design	3		
CS 225: Data Structures	4		
		Business Systems Integration & Consulting	
		Core Requirement:	
		SE 400: Engineering Law	3
		Group I - complete at least one course from this list:	
		BADM 352: Database Design and Management	3
		BADM 353: Info Sys Analysis and Design	3
		IE 405: Computing for ISE	3
		Group II - select remaining courses from this list. Of these courses, only 1 selected may be at the 100 or 200 level.	
		ACCY 200: Fundamentals of Accounting (A basic accounting course is highly recommended.)	3
		ACCY 201: Accounting and Accountancy I (A basic accounting course is highly recommended.)	3
		ACCY 202: Accounting and Accountancy II (A basic accounting course is highly recommended.)	3
		ADV 150: Introduction to Advertising	3
		BADM 310: Mgmt and Organizational Beh	3
		BADM 311: Individual Behavior in Orgs	3
		BADM 312: Org Design and Environment	3
		BADM 320: Principle of Marketing	3
		BADM 445: Small Business Consulting	4
		BADM 446: Entrepreneurship Sm Bus Form	4
		BTW 250: Principles Bus Comm	3
		BTW 261: Principles Tech Comm	3
		FIN 221: Corporate Finance	3
		FIN 300: Financial Markets	3
		IE 361: Production Planning and Control	3
		IE 420: Financial Engineering	3
Civil Engineering Structures		**Civil Engineering Structures**	
CEE 380: Geotechnical Engineering	3	CEE 380: Geotechnical Engineering	3
CEE 460: Steel Structures I	3	CEE 460: Steel Structures I	3
CEE 461: Reinforced Concrete I	3	CEE 461: Reinforced Concrete I	3
CEE 462: Steel Structures II	3 or 4	CEE 462: Steel Structures II	3
CEE 463: Reinforced Concrete II	3 or 4	CEE 463: Reinforced Concrete II	3
CEE 465: Design of Structural Systems	3	CEE 465: Design of Structural Systems	3
SE 400: Engineering Law	3 or 4	SE 400: Engineering Law	3
Computer Science		**Computer Science**	
		Core Courses:	
CS 173: Discrete Structures	3	CS 173 Discrete Structures	3
CS 225: Data Structures	4	CS 225 Data Structures	4
		Elective Options - complete 2 of the following courses:	
CS 410: Text Information Systems	3 or 4	CS 410: Text Information Systems	3
CS 411: Database Systems	3 or 4	CS 411: Database Systems	3
CS 425: Distributed Systems	3 or 4	CS 425: Distributed Systems	3 or 4
CS 438: Communication Networks	3 or 4	CS 438: Communication Networks	3
All other 200-,300-,400-level CS courses		All 200-, 300-, and 400-level CS courses excluding CS 210, CS 211, CS 397, CS 398, and CS seminar and senior project courses.	
SE 400: Engineering Law	3 or 4	SE 400 Engineering Law	3
Construction		**Construction**	
CEE 300: Behavior of Materials (Credit will not be given for CEE 300, ME 330 and MSE 280 (only one course may be taken out of these three))	4	CEE 300: Behavior of Materials (Credit will not be given for CEE 300, ME 330 and MSE 280; select only 1 of these course courses.)	4
CEE 310: Transportation Engineering	3	CEE 310: Transportation Engineering	3
CEE 320: Construction Engineering	3	CEE 320: Construction Engineering	3
CEE 380: Geotechnical Engineering	3	CEE 380: Geotechnical Engineering	3
CEE 420: Construction Productivity	3 or 4	CEE 420: Construction Productivity	3
CEE 421: Construction Planning	3 or 4	CEE 421: Construction Planning	3
CEE 422: Construction Cost Analysis	3 or 4	CEE 422: Construction Cost Analysis	3
CEE 460: Steel Structures I	3	CEE 460: Steel Structures I	3
CEE 461: Reinforced Concrete I	3	CEE 461: Reinforced Concrete I	3
CEE 465: Design of Structural Systems	3	CEE 465: Design of Structural Systems	3
ME 330: Engineering Materials (Credit will not be given for CEE 300, ME 330 and MSE 280 (only one course may be taken out of these three)	4	ME 330: Engineering Materials (Credit will not be given for CEE 300, ME 330 and MSE 280 (only one course may be taken out of these three)	4
SE 400: Engineering Law	3 or 4	SE 400: Engineering Law	3
Control Systems		**Control Systems**	
CS 225: Data Structures	4		
		CS 173: Discrete Structures	3
ECE 470/AE 482/ME 445: Introduction to Robotics	4	ECE 470/AE 482/ME 445: Introduction to Robotics	4
ECE 486: Control Systems	4	ECE 486: Control Systems	4
ECE 490: Introduction to Optimization	3 or 4	ECE 490: Introduction to Optimization	3
IE 410: Advanced Topics in Stochastic Processes & Applications	3 or 4	IE 410: Stochastic Processes & Applic	3
MATH 444: Elementary Real Analysis	3 or 4	MATH 444: Elementary Real Analysis	3
MATH 461: Probability Theory	3 or 4	MATH 461: Probability Theory	3
MATH 464: Statistics and Probability II	3 or 4	MATH 464: Statistics and Probability II	3
ME 360: Signal Processing	3.5	ME 360: Signal Processing	3.5
ME 460: Industrial Control Systems	4	ME 460: Industrial Control Systems	4
ME 461: Computer Cntrl of Mech Systems	3 or 4	ME 461: Computer Cntrl of Mech Systems	3

SE 400: Engineering Law	3 or 4		SE 400: Engineering Law	3
SE 420: Digital Control Systems	4		SE 420: Digital Control Systems	3
SE 422: Robot Dynamics and Control	4		SE 422: Robot Dynamics and Control	3
SE 423: Mechatronics	3		SE 423: Mechatronics	3
Digital Prototyping			**Digital Prototyping**	
ME 270: Design for Manufacturability	3		ME 270: Design for Manufacturability	3
ME 451: Computer-Aided Mfg Systems	3 or 4		ME 451: Computer-Aided Mfg Systems	3
ME 452: Num Control of Mfg Processes	3 or 4		ME 452: Num Control of Mfg Processes	3
ME 471/AE 420/CSE 451: Finite Element Analysis	3 or 4		ME 471/AE 420/CSE 451: Finite Element Analysis	3
SE 400: Engineering Law	3 or 4		SE 400: Engineering Law	3
SE 402: Comp-Aided Product Realization	3 or 4		SE 402: Comp-Aided Product Realization	3
SE 410: Component Design (SE Design Electives - one course must be taken to fulfill the design elective require	3		SE 410: Component Design (This course cannot count as an SFO elective and an SED Design Elective.)	3
SE 413: Engineering Design Optimization (SE Design Electives - one course must be taken to fulfill the design el	3 or 4		SE 413: Engineering Design Optimization (This course cannot count as an SFO elective and an SED Design Elect	3
SE 423: Mechatronics (SE Design Electives - one course must be taken to fulfill the design elective requirement	3		SE 423: Mechatronics (This course cannot count as an SFO elective and an SED Design Elective.)	3
TAM 302: Engineering Design Principles	3		TAM 302: Engineering Design Principles	3
			TAM 470: Computation Mechanics	3
Engineering Administration			**Engineering Administration**	
Core Requirement:			Core Requirement:	
SE 400: Engineering Law	3 or 4		SE 400 Engineering Law	3
Elective Options:			Elective Options - select remaining courses from this list. Of these courses, only 1 selected may be at the 100 or 200 level.	
ACCY 200: Fundamentals of Accounting	3		ACCY 200 Fundamentals of Accounting	3
ACCY 201: Accounting and Accountancy I	3		ACCY 201 Accounting and Accountancy I	3
ACCY 202: Accounting and Accountancy II	3		ACCY 202 Accounting and Accountancy II	3
ADV 150: Introduction to Advertising	3		ADV 150 Introduction to Advertising	3
BADM 310: Mgmt and Organizational Beh	3		BADM 310 Mgmt and Organizational Beh	3
BADM 311: Leading Individuals and Teams	3		BADM 311 Individual Behavior Orgs	3
BADM 312: Designing and Managing Orgs	3		BADM 312 Org Design and Environment	3
BADM 313: Strategic Human Resource Management	3		BADM 313 Human Resource Management	3
BADM 375: Operations Strategy	3		BADM 375 Business Process management	3
BADM 380: International Business	3		BADM 380 International Business	3
BADM 381: Multinational Management	3		BADM 381 Multinational Management	3
BTW 250: Principles Bus Comm	3		BTW 250 Principles Bus Comm	3
BTW 261: Principles Tech Comm	3		BTW 261 Principles Tech Comm	3
ECON 302: Inter Microeconomic Theory	3		ECON 302 Inter Microeconomic Theory	3
FIN 221: Corporate Finance	3		FIN 221 Corporate Finance	3
GEOG 205: Course GEOG 205 Not Found				
IE 330: Industrial Quality Control	3		IE 330 Industrial Quality Control	3
IE 340: Human Factors	4		IE 340 Human Factors	3
IE 361: Production Planning & Control	3		IE 361 Production Planning & Control	3
IE 420: Financial Engineering	3 or 4		IE 420 Financial Engineering	3
IE 445: Human Performance and Cognition in Context	3 or 4		IE 445 Human Perform & Engrg Psych	3
PS 321: Principles of Public Policy	3		PS 321 Principles of Public Policy	3
SE 411: Reliability Engineering	3 or 4		SE 411 Reliability Engineering	3
Engineering Marketing			**Engineering Marketing**	
Core Requirement:			Core Requirement:	
SE 400: Engineering Law	3 or 4		SE 400: Engineering Law	3
Elective Options:			Elective Options - select remaining courses from this list. Of these courses, only 1 may be select at the 100 or 200 level.	
ACCY 200: Fundamentals of Accounting	3		ACCY 200: Fundamentals of Accounting	3
ACCY 201: Accounting and Accountancy I	3		ACCY 201: Accounting and Accountancy I	3
ACCY 202: Accounting and Accountancy II	3		ACCY 202: Accounting and Accountancy II	3
ADV 150: Introduction to Advertising	3		ADV 150: Introduction to Advertising	3
BADM 310: Mgmt and Organizational Beh	3		BADM 310: Mgmt and Organizational Behavior	3
BADM 320: Principles of Marketing	3		BADM 320: Principles of Marketing	3
BADM 322: Marketing Research	3		BADM 322: Marketing Research	3
BADM 323: Marketing Communications	3		BAM 323: Marketing Communications	3
BADM 325: Consumer Behavior	3		BADM 325: Consumer Behavior	3
BADM 327: Marketing to Business and Govt	3		BADM 327: Marketing to Business and Govt	3
BADM 380: International Business	3		BADM 380: International Business	3
BADM 382: International Marketing	3		BADM 382: International Marketing	3
BADM 420: Advanced Marketing Management	3		BADM 420: Advanced Marketing Management	3
BTW 250: Principles Bus Comm	3		BTW 250: Principles Bus Comm	3
BTW 261: Principles Tech Comm	3		BTW 261: Principles Tech Comm	3
PSYC 245: Industrial Org Psych	3		PSYC 245: Industrial Org Psych	3
Environmental Quality			**Environmental Quality**	
ACE 310: Natural Resource Economics	3		ACE 310: Natural Resource Economics	3
CEE 330: Environmental Engineering	3		CEE 330: Environmental Engineering	3
CEE 437: Water Quality Engineering	3		CEE 437: Water Quality Engineering	3
CEE 440: Fate Cleanup Environ Pollutant	4		CEE 440: Fate Cleanup Environ Pollutant	4
CEE 442: Environmental Engineering Principles, Physical	4		CEE 442: Environmental Engineering Principles, Physical	4
CEE 443: Env Eng Principles, Chemical	4		CEE 443: Env Eng Principles, Chemical	4
CEE 444: Env Eng Principles, Biological	4		CEE 444: Env Eng Principles, Biological	4
Course CEE 445 Not Found				
CEE 446: Air Quality Engineering	4		CEE 446: Air Quality Engineering	4
ENVS 336: Tomorrow's Environment	3		ENVS 336: Tomorrow's Environment	3
IE 105: Environ Toxicology & Health	3		IE 105: Environ Toxicology & Health	3
IB 105: Environmental Biology	3		IB 105: Environmental Biology	3
NPRE 241: Intro to Radiation Protection	2			
NRES 419: Env and Plant Ecosystems	3		NRES 419: Env and Plant Ecosystems	3
NRES 472: Environmental Psychology	4		NRES 472: Environmental Psychology	4
SE 400: Engineering Law	3 or 4		SE 400: Engineering Law	3
Internet of Things	12			
ECE 385: Digital Systems Laboratory	3			
SE 423: Mechatronics	3			
Elective Options:				
CS 125: Introduction to Computer Science	4			
CS 173: Discrete Structures	3			
CS 225: Data Structures	4			
CS 233: Computer Architecture	4			
CS 241: System Programming	4			
ECE 120: Introduction to Computing	4			
Manufacturing Engineering			**Manufacturing Engineering**	12
			IE 370 Stochastic Processes and Applications	3
ME 330: Engineering Materials (Credit will not be given for CEE 300, ME 330 and MSE 280 (only one course ma	4		ME 330 Engineering Materials (Credit will not be given for CEE 300, ME 330 and MSE 280; select only 1 of the	4
SE 400: Engineering Law	3 or 4		SE 400 Engineering Law	3
			SE 402 Comp-Aided Product Realization	3
			SE 420 Digital Control Systems	4
			SE 422 Robot Dynamics and Control	4
SE 423: Mechatronics	3		SE 423 Mechatronics	3
Other courses from Digital Protoyping and Control Systems SFO			Any courses from Digital Prototyping and Control Systems Secondary Field Option.	
Nondestructive Testing and Evaluation			**Nondestructive Testing and Evaluation**	
Core Requirement:			Core Requirement:	
SE 412: Nondestructive Evaluation	3 or 4		SE 412: Fundamentals of Nondestructive Evaluation	3
Elective Options:			Elective Options - complete remaining courses from this list of courses:	
CEE 300: Behavior of Materials (Credit is not give for CEE 300 and MSE 280)	4		CEE 300: Behavior of Materials (Credit will not be given for CEE 300, ME 330 and MSE 280; select only 1 of the	3
			CS 173: Discrete Structures	3
CS 225: Data Structures	4		CS 225: Data Structures	4
CS 440: Artificial Intelligence	3 or 4		CS 440: Artificial Intelligence	3
CS 446: Machine Learning	3 or 4		CS 446: Machine Learning	3
ECE 470: Introduction to Robotics	4		ECE 470: Introduction to Robotics	4
ECE 473: Fund of Engrg Acoustics	3 or 4		ECE 473: Fund of Engrg Acoustics	3
Course ME 351 Not Found				
			ME 270: Design for Manufacturability	3
ME 471: Finite Element Analysis	3 or 4		ME 471: Finite Element Analysis	3
SE 400: Engineering Law	3 or 4		SE 400: Engineering Law	3
TAM 412: Intermediate Dynamics	4		TAM 412: Intermediate Dynamics	4
TAM 456: Experimental Stress Analysis	3		TAM 456: Experimental Stress Analysis	3
Operations Research			**Operations Research**	
IE 360: Facilities Planning and Design	3		IE 360: Facilities Planning and Design	3
IE 361: Production Planning & Control	3		IE 361: Production Planning & Control	3
			IE 370: Stochastic Processes and Applications	3
			IE 400: Design & Anlys of Experiments	3
			IE 410: Advanced Topics in Stochastic Processes & Applications	3

			IE 411: Optimization of Large Systems	3
MATH 461: Probability Theory	3 or 4		MATH 461: Probability Theory	3
MATH 464: Statistics and Probability II	3 or 4		MATH 464: Statistics and Probability II	3
Course ME 351 Not Found				
ME 451: Computer-Aided Mfg Systems	3 or 4		ME 451: Computer-Aided Mfg Systems	3
SE 400: Engineering Law	3 or 4		SE 400: Engineering Law	3
SE 411: Reliability Engineering	3 or 4		SE 411: Reliability Engineering	3
Rehabilitation Engineering			**Rehabilitation Engineering**	
CHEM 232: Elementary Organic Chemistry I	3 or 4		CHEM 232: Elementary Oganic Chemistry I	3 or 4
ECE 414: Biomedical Instrumentation	3		ECE 414: Biomedical Instrumentation	3
ECE 415: Biomedical Instrumentation Lab	2		ECE 415: Biomedical Instrumentation Lab	2
MCB 150: Molec & Cellular Basis of Life	4		MCB 150: Molec & Cellular Basis of Life	4
MCB 250: Molecular Genetics	3		MCB 250: Molecular Genetics	4
MCB 251: Exp Techniqs in Molecular Biol	2		MCB 251: Exp Techniqs in Molecular Biol	2
REHB 401: Introduction to Rehabilitation	4		REHB 401: Introduction to Rehabilitation	4
REHB 402: Medical Aspects of Disability	4		REHB 402: Medical Aspects of Disability	4
SE 400: Engineering Law	3 or 4		SE 400: Engineering Law	3
Theoretical and Applied Mechanics			**Theoretical and Applied Mechanics**	
CEE 300: Behavior of Materials (Credit will not be given for CEE 300, ME 330 and MSE 280 (only one course m	4		CEE 300: Behavior of Materials (Credit will not be given for CEE 300, ME 330 and MSE 280; select only 1 of the	4
ME 471: Finite Element Analysis	3 or 4		ME 471: Finite Element Analysis	3 or 4
SE 400: Engineering Law	3 or 4		SE 400: Engineering Law	3
TAM 412: Intermediate Dynamics	4		TAM 412: Intermediate Dynamics	4
TAM 424: Mechanics of Structural Metals	3 or 4		TAM 424: Mechanics of Structural Metals	3
TAM 428: Mechanics of Composites	3		TAM 428: Mechanics of Composites	3
TAM 435: Intermediate Fluid Mechanics	4		TAM 435: Intermediate Fluid Mechanics	4
TAM 445: Continuum Mechanics	4		TAM 445: Continuum Mechanics	4
TAM 451: Intermediate Solid Mechanics	4		TAM 451: Intermediate Solid Mechanics	4
TAM 456: Experimental Stress Analysis	3		TAM 456: Experimental Stress Analysis	3
Technical Electives			**Technical Electives**	
Design elective selected from the departmentally approved list of Design Electives below:	3		Design elective selected from the departmentally approved list of Design Electives below:	3
SE 410: Component Design	3		SE 410: Component Design	3
SE 420: Digital Control Systems	4		SE 420: Digital Control Systems	4
SE 423: Mechatronics	3		SE 423: Mechatronics	3
SE 413: Engineering Design Optimization	3 or 4		SE 413: Engineering Design Optimization	3 or 4
Engineering science elective selected from the departmentally approved list of Engineering Science Electives b	3		Engineering science elective selected from the departmentally approved list of Engineering Science Electives b	3
ME 200: Thermodynamics	3		ME 200: Thermodynamics	3
MSE 280: Engineering Materials	3		MSE 280: Engineering Materials	3
Electives			Free Electives	
The Grainger College of Engineering Liberal Education course list, or additional courses from the campus General Education lists for Social and Behavioral Sciences or Humanities and the Arts [13]	6			
Free electives. Additional unrestricted course work, subject to certain exceptions as noted by the College, so that there are at least 128 credit hours earned toward the degree. [14]	6		Additional course work subject to the Grainger College of Engineering restrictions to Free Electives so that there are at least 128 credit hours earned toward the degree. (https://go.grainger.illinois.edu/FreeElectives)	10
Total Hours of Curriculum to Graduate	**128**		**Total Hours of Curriculum to Graduate**	**128**
1 External transfer students take ENG 300 instead.				
2 MATH 220 may be substituted, with four of the five credit hours applying toward the degree. MATH 220 is appropriate for students with no background in calculus.				
3 Advanced Composition satisfied by completing the combination of SE 494 and SE 495.				
4 The Grainger College of Engineering approved liberal education course list can be found here. Note that these credit hours could carry the required cultural studies designation required for campus general education requirements.				
5 The Grainger College of Engineering restrictions to free electives can be found here.				

ILLINOIS

COLLEGE OF AGRICULTURAL, CONSUMER
& ENVIRONMENTAL SCIENCES

Office of the Dean
227 Mumford Hall, MC-710
1301 W. Gregory Drive
Urbana, IL 61801

January 13, 2022

Dear Dean Bashir,

Thank you for informing us of the proposed removal of the Liberal Education requirements in all undergraduate programs in The Grainger College of Engineering. I understand that this requirement included an extensive list of courses Grainger Engineering students could choose from, including some from our college. Grainger Engineering students will continue to be welcome to enroll in the courses formerly on your Liberal Education list as Free Electives after the removal of this requirement.

Sincerely,

Germán Bollero, Interim Dean

ILLINOIS

COLLEGE OF APPLIED HEALTH SCIENCES

Office of the Dean
110 Huff Hall, MC-586
1206 S. Fourth St.
Champaign, IL 61820

January 25, 2022

Dear Dean Bashir,

Thank you for informing us of the proposed removal of the Liberal Education requirements in all undergraduate programs in The Grainger College of Engineering. I understand that this requirement included an extensive list of courses Grainger Engineering students could choose from, including some from our college. Grainger Engineering students will continue to be welcome to enroll in the courses formerly on your Liberal Education list as Free Electives after the removal of this requirement.

While I support the move the give your students more freedom in course selection, it is important to express my concern that discontinuing your Liberal Education requirement may negatively impact my college's finances by reducing the IUs generated from lower enrollments in AHS courses. As you know, the current budget model rewards colleges financially based on the number of registrants in courses. I am hopeful that your students and advisors will continue to view AHS courses as relevant and valuable when they are selecting electives.

Sincerely,

Cheryl Hanley-Maxwell

Dean

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

College of Education
Undergraduate Student Academic Affairs Office
110 Education Building, MC-708
1310 S. Sixth St.
Champaign, IL 61820

Dear Dean Bashir,

Thank you for informing us of the proposed removal of the Liberal Education requirements in all undergraduate programs in The Grainger College of Engineering. I understand that this requirement included an extensive list of courses Grainger Engineering students could choose from, including some from our college. Grainger Engineering students will continue to be welcome to enroll in the courses formerly on your Liberal Education list as Free Electives after the removal of this requirement.

Sincerely,

Assistant Dean for Academic Affairs
College of Education | University of Illinois at Urbana-Champaign

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

College of Fine & Applied Arts

Office of the Dean
100 Architecture Building, MC-622
608 E. Lorado Taft Dr.
Champaign, IL 61820

21 December 2021

Rashid Bashir, Dean
306 Engineering Hall
1308 W. Green St.
M/C 266
Urbana, IL 61801

Dear Dean Bashir,

Thank you for informing us of the proposed removal of the Liberal Education requirements in all undergraduate programs in The Grainger College of Engineering. I understand that this requirement included an extensive list of courses Grainger Engineering students could choose from, including some from the College of Fine & Applied Arts. Grainger Engineering students will continue to be welcome to enroll in the courses formerly on your Liberal Education list as Free Electives after the removal of this requirement.

Sincerely,

Kevin Hamilton
Dean and Professor

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

College of Liberal Arts & Sciences
2090 Lincoln Hall, MC-448
702 S. Wright St.
Urbana, IL 61801

December 20, 2021

Dear Dean Bashir,

Thank you for informing the College of LAS of the proposed removal of the Liberal Education requirement in all undergraduate programs in the Grainger College of Engineering. I understand that this requirement includes an extensive list of courses from which your students could choose some, many of which are from our college. Grainger Engineering students will continue to be welcome to take our courses formerly on your Liberal Education list as free electives after the removal of this requirement from their programs of study.

Sincerely,

Venetria K. Patton
Harry E. Preble Dean

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

College of Media
Office of the Dean
119 Gregory Hall, MC-462
810 S. Wright St.
Urbana, IL 61801

January 13, 2022

Rashid Bashir, Dean
The Grainger College of Engineering
306 Engineering Hall
1308 W. Green Street
Urbana, IL 61801

Dear Dean Bashir,

Thank you for informing us of the proposed removal of the Liberal Education requirements in all undergraduate programs in The Grainger College of Engineering. I understand that this requirement included an extensive list of courses Grainger Engineering students could choose from, including some from our college. Grainger Engineering students will continue to be welcome to enroll in the courses formerly on your Liberal Education list as Free Electives after the removal of this requirement.

Sincerely,

Tracy Sulkin
Dean, College of Media

Gies College of Business
UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

Office of the Dean
260 Wohlers Hall, 1206 S. 6th Street
Champaign, IL 61820
217.333.2747

December 13th, 2021

Dean Bashir,

Thank you for informing us of the proposed removal of the Liberal Education requirements in all undergraduate programs in The Grainger College of Engineering. I understand that this requirement included an extensive list of courses Grainger Engineering students could choose from, including some from Gies College of Business. Students from Grainger will continue to be welcome to enroll in the courses formerly on your Liberal Education list as Free Electives after the removal of this requirement.

Sincerely,

Jeffrey R. Brown
Dean, Gies College of Business

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

School of Information Sciences
501 E. Daniel St., MC-493
Champaign, IL 61820-6211

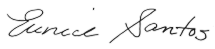
February 3, 2022

Dean Rashid Bashir
306 Engineering Hall
1308 West Green Street
Urbana, IL 61801

Dear Rashid,

Thank you for informing us of the proposed removal of the Liberal Education requirements in all undergraduate programs in the Grainger College of Engineering. I understand that this requirement included an extensive list of courses that Grainger Engineering students could choose from, including some from the iSchool. This letter acknowledges that Grainger Engineering students will continue to be able to enroll in courses as articulated and constrained in Course Explorer and formerly on your Liberal Education list as Free Electives, after the removal of this requirement.

Sincerely,



Eunice Santos
Professor and Dean

ILLINOIS

DEPARTMENT OF COMPUTER SCIENCE
Thomas M. Siebel Center for Computer Science
201 N. Goodwin Ave.
Urbana, IL 61801-2302 USA

NANCY M. AMATO
Abel Bliss Professor and Head
2248 Siebel Center
namato@illinois.edu

November 15, 2021

Dear Prof. Carolyn Beck,

Computer Science is fully supportive of the Department of Industrial and Enterprise Systems Engineering using CS 173, CS 225, and other 200, 300, and 400 level CS courses in subject area concentrations in both their 10KP0127BS: Industrial Engineering, BS and 10KP5532BS: Systems Engineering & Design, BS undergraduate degree programs.

Sincerely,

Nancy M. Amato
Abel Bliss Professor and Head
Department of Computer Science

ILLINOIS

THE GRAINGER COLLEGE OF ENGINEERING
Department of Mechanical Science & Engineering
144 Sidney Lu Mechanical Engineering Building, MC-244
1206 W. Green St.
Urbana, IL 61801

15 November, 2021

Carolyn Beck
Associate Head of Undergraduate Studies
Industrial and Systems Engineering

Dear Prof. Beck,

The Department of Mechanical Science and Engineering will support your request to allow B.S. degree students in the ISE program to take ME 270, ME 360, ME 451, ME 452, ME 460, ME 461, ME 471 and TAM 470 courses as part of their subject area concentrations. The proposed curriculum will not place an unacceptable burden on our department. However, MechSE will continue to provide priority registration in these courses to its own degree program students, consistent with current policies.

Best regards,

Sanjiv Sinha
Associate Head for Undergraduate Programs
Mechanical Science and Engineering

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Department of Mathematics

273 Altgeld Hall, MC-382
1409 West Green Street
Urbana, IL 61801

Re: Use of Math 257 in Industrial and Systems Engineering

The Mathematics Department, working with the Grainger College of Engineering, has recently created the course MATH 257, *Linear Algebra with Computational Applications*. Quoting from the justification of the approved proposal, "In the future, MATH 257 will replace the MATH 415 requirement in many science and engineering curricula." With this in mind, the department would be pleased to have Industrial and Systems Engineering add MATH 257 as an option to MATH 415 in their curricula. As the Mathematics department is reallocating instructional resources from Math 415 to Math 257 as the need shifts, this will not cause any undue difficulties for Mathematics resources.

Sincerely

Randy McCarthy

Randy McCarthy
Professor of Mathematics
Dir of Undergraduate Studies in Math
rmccrthy@illinois.edu

telephone 217-333-3350 • *fax* 217-333-9576
email office@math.uiuc.edu • *url* http://www.math.uiuc.edu/

From: Hanley-Maxwell, Cheryl D <cherylhm@illinois.edu>
Sent: Monday, February 14, 2022 3:57 PM
To: Miller, Nolan H <nmiller@illinois.edu>
Subject: RE: Senate Ed Pol - Re: change to Grainger Liberal Education requirement

That's fine. Thanks for asking

CHERYL D HANLEY-MAXWELL
Dean

University of Illinois at Urbana-Champaign
College of Applied Health Sciences
108 Huff Hall
1206 S Fourth | M/C 586
Champaign, IL 61820
217.333.2131 | cherylhm@illinois.edu
www.ahs.illinois.edu
(217) 333-0404 (FAX)

Human kindness has never weakened the stamina or softened the fiber of a free people. A nation does not have to be cruel to be tough. -- President Franklin D. Roosevelt

From: Miller, Nolan H <nmiller@illinois.edu>
Sent: Monday, February 14, 2022 1:49 PM
To: Hanley-Maxwell, Cheryl D <cherylhm@illinois.edu>
Subject: RE: Senate Ed Pol - Re: change to Grainger Liberal Education requirement

Dear Cheryl,

Thanks again for talking with me about the changes to the Grainger BS programs. I read the statement you sent to the committee today. The Chair would like to include it in the record that is forwarded to the Senate. Is it ok to include the email you sent below?

Thanks,

Nolan

_____

NOLAN H MILLER
Daniel and Cynthia Mah Helle Professor in Finance | Department of Finance
Director, Center for Business and Public Policy
Gies College of Business | University of Illinois at Urbana-Champaign
217.244.2847 | nmiller@illinois.edu | http://www.business.illinois.edu/nmiller

From: Hanley-Maxwell, Cheryl D <cherylhm@illinois.edu>
Sent: Thursday, February 10, 2022 1:49 PM
To: Miller, Nolan H <nmiller@illinois.edu>
Subject: RE: Senate Ed Pol - Re: change to Grainger Liberal Education requirement

Hi Nolan –

I appreciate what Ed Pol does in juggling the interests and concerns of the various programs across the campus, while keeping the students in mind. I served on a committee like this at my previous institution and know that it all boils down to what is best for the students' learning. Thanks for reminding me of that.

Here is a statement: While the Grainger proposal has the potential to financially affect AHS, we want to affirm another college's right to control their program requirements and student experiences, ensuring the best possible outcomes for their students. As a result, AHS supports this proposal and hopes that Grainger advisors will recognize the valuable contribution AHS classes make to the education of their students and continue to encourage them to consider relevant and/or high interest classes in AHS.

Hope this works!

Cheryl

CHERYL D HANLEY-MAXWELL, PHD
Dean

University of Illinois at Urbana-Champaign
College of Applied Health Sciences
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Human kindness has never weakened the stamina or softened the fiber of a free people. A nation does not have to be cruel to be tough. -- President Franklin D. Roosevelt