

10KP0127BS: INDUSTRIAL ENGINEERING, BS

Completed Workflow

1. U Program Review (dforgacs@illinois.edu; eastuby@illinois.edu; aledward@illinois.edu)
2. Provost (kmartens@illinois.edu)

Approval Path

1. Fri, 09 Aug 2019 21:14:02 GMT
Deb Forgacs (dforgacs): Approved for U Program Review
2. Mon, 12 Aug 2019 13:34:32 GMT
Kathy Martensen (kmartens): Approved for Provost

History

1. Dec 13, 2018 by Deb Forgacs (dforgacs)
2. Apr 23, 2019 by Deb Forgacs (dforgacs)
3. Aug 9, 2019 by Deb Forgacs (dforgacs)
4. Aug 12, 2019 by Deb Forgacs (dforgacs)

Date Submitted: Fri, 10 Jan 2020 14:04:34 GMT

Viewing: 10KP0127BS : Industrial Engineering, BS

Changes proposed by: Deb Forgacs

Proposal Type

Proposal Type:

Major (ex. Special Education)

This proposal is for a:

Revision

Proposal Title:

if this proposal is one piece of a multi-element change please include the other impacted programs here. *example: A BS revision with multiple concentration revisions*

Removed deactivated course from list; addition to track options - Human Factors due to faculty now being available to teach courses in it; revised gen ed and electives tables;

EP Control Number

EP.20.105

Official Program Name

Industrial Engineering, BS

Effective Catalog Term

Fall 2020

Sponsor College

Grainger College of Engineering

Sponsor Department

Industrial and Enterprise Systems Engineering

Program Description and Justification**Justification for proposal change:**

Updates for Academic Catalog 2020-21

Corresponding Degree

BS Bachelor of Science

Is this program interdisciplinary?

No

Academic Level

Undergraduate

CIP Code

143501 - Industrial Engineering.

Is This a Teacher Certification Program?

No

Will specialized accreditation be sought for this program?

No

Enrollment

Describe how this revision will impact enrollment and degrees awarded.

None.

Estimated Annual Number of Degrees Awarded

What is the matriculation term for this program?

Fall

Delivery Method

Is this program available on campus and online?

No

This program is available:

On Campus

Budget

Are there budgetary implications for this revision?

No

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

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

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.

None

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.

None

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 this new program/proposed change result in the replacement of another program?

No

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

No

Financial Resources

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

No

Will an existing tuition rate be used or continue to be used for this program?

Yes

Program Regulation and Assessment

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.

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

Statement for Programs of Study Catalog

Graduation Requirements

Minimum Technical GPA (<https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-TechnicalGPAREquirement>):**2.0**

TGPA is required for required Engineering and Technical Elective courses, as well as 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 (<https://courses.illinois.edu/gened/DEFAULT/DEFAULT>)**requirements including the campus general education language requirement. One of the SBS courses must be an introductory economics course (ECON 102 or ECON 103).**

Orientation and Professional Development

Code	Title	Hours
ENG 100	Engineering Orientation ¹	0
SE 100	Introduction to ISE	1
SE 290	ISE Undergraduate Seminar	0
Total Hours		1

Foundational Mathematics and Science

Code	Title	Hours
CHEM 102	General Chemistry I	3
CHEM 103	General Chemistry Lab I	1
MATH 221	Calculus I ²	4
MATH 231	Calculus II	3
MATH 241	Calculus III	4
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

Industrial Engineering Technical Core

Code	Title	Hours
CS 101	Intro Computing: Engrg & Sci	3
ECE 110	Introduction to Electronics	3
IE 300	Analysis of Data	3
IE 310	Deterministic Models in Optimization	3
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 413	Simulation	3
ME 330	Engineering Materials	4
SE 101	Engineering Graphics & Design	3
SE 261	Business Side of Engineering	1
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
Total Hours		49

Track Option Electives

Code	Title	Hours
Track option electives. Courses selected from departmentally approved lists of Track Option Electives or by petition to the department. The current Track options include:		12

Economics and Finance (E&F)

Track Core - Complete at least 2 of the following 3 courses:

ACE 427	Commodity Price Analysis	3
IE 420	Financial Engineering	3 or 4
SE 450	Decision Analysis I	3 or 4

Track Electives - Complete 2 of the following courses:

ACCY 200	Fundamentals of Accounting	3
ACE 410	Energy Economics	3 or 4
ACE 427	Commodity Price Analysis	3
ACE 428	Commodity Futures and Options	3
ECON 302	Inter Microeconomic Theory	3
ECON 303	Inter Macroeconomic Theory	3
ECON 420	International Economics	2 to 4
ECON 471	Intro to Applied Econometrics	2 to 4
FIN 221	Corporate Finance	3
FIN 300	Financial Markets	3
FIN 411	Investment & Portfolio Mngt	3
FIN 412	Options and Futures Markets	3
FIN 415	Fixed Income Portfolios	3
FIN 461	Financial Intermediation	3
IE 430	Economic Found of Quality Syst	3 or 4

Human Factors

Track Core - Complete the following course:

IE 340	Human Factors	4
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Track Electives - Complete at least 3 of the following courses:

Physical Ergonomics Focus

BIOE 461	Cellular Biomechanics	4
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or TAM 461	Cellular Biomechanics	
KIN 355	Biomechanics of Human Movement	3
KIN 401	Measure & Eval in Kinesiology	3 or 4
ME 481	Whole-Body Musculoskel Biomech	3 or 4
ME 482	Musculoskel Tissue Mechanics	3 or 4
TSM 421	Ag Safety-Injury Prevention	3
TSM 422	Ag Health-Illnesses Prevention	3
TSM 425	Managing Ag Safety Risk	3
Cognitive Ergonomics Focus		
SE 450	Decision Analysis I	3 or 4
IE 445	Human Performance and Cognition in Context	3 or 4
Organizational Ergonomics Focus		
ANTH 411	Research Methods in Socio-Cultural Anthropology	3 or 4
ARCH 423	Soc/Beh Factors for Design	3
BADM 310	Mgmt and Organizational Beh	3
BADM 312	Designing and Managing Orgs	3
BADM 357	Digital Making Seminar	3
PSYC 245	Industrial Org Psych	3
Optional Health Focus		
CHLH 470	Technology, Health, and Aging	3 or 4
Industrial Engineering Fundamentals (IEF)		
Track Core - Complete the following 4 courses:		
IE 330	Industrial Quality Control	3
IE 411	Optimization of Large Systems	3 or 4
IE 412	OR Models for Mfg Systems	3 or 4
IE 340	Human Factors	4
Operations Research (OR)		
Track Core - Complete the following 2 courses:		
IE 410	Advanced Topics in Stochastic Processes & Applications	3 or 4
IE 411	Optimization of Large Systems	3 or 4
Track Electives - Complete 2 of the following courses:		
ECE 490	Introduction to Optimization	3 or 4
IE 420	Financial Engineering	3 or 4
MATH 444	Elementary Real Analysis	3-4
or MATH 447	Real Variables	
MATH 484	Nonlinear Programming	3 or 4
SE 411	Reliability Engineering	3 or 4
STAT 410	Statistics and Probability II	3-4
or MATH 464	Statistics and Probability II	
STAT 420/ASRM 450	Methods of Applied Statistics	3 or 4
STAT 424	Analysis of Variance	3 or 4
STAT 425	Applied Regression and Design	3 or 4
Quality Engineering (QE)		
Track Core - Complete the following course:		
IE 330	Industrial Quality Control	3
Track Core - Complete 1 of the following courses:		
IE 431	Design for Six Sigma	3
SE 411	Reliability Engineering	3 or 4
Track Elective- Complete 1 of the following courses:		
STAT 410	Statistics and Probability II	3-4
or MATH 464	Statistics and Probability II	
STAT 420/ASRM 450	Methods of Applied Statistics	3 or 4

STAT 424	Analysis of Variance	3 or 4
STAT 426	Sampling and Categorical Data	3 or 4

Supply Chain, Manufacturing and Logistics (SC&L)

Track Core - Complete the following course:		
IE 412	OR Models for Mfg Systems	3 or 4
Track Electives - Complete 3 of the following courses:		
ECE 470	Introduction to Robotics	4
IE 330	Industrial Quality Control	3
ME 451	Computer-Aided Mfg Systems	3 or 4
ME 452	Num Control of Mfg Processes	3 or 4

Technical Electives

Code	Title	Hours
Computer science elective selected from the departmentally approved list of Computer Science Electives below:		3
CS 225	Data Structures	4
CS 357	Numerical Methods I	3
CS 411	Database Systems	3 or 4
CS 450	Numerical Analysis	3 or 4
IE 405	Computing for ISE	3 or 4
IE technical electives selected from the departmentally approved list of IE Technical Electives below:		3
IE 330	Industrial Quality Control	3
IE 340	Human Factors	4
IE 411	Optimization of Large Systems	3 or 4
IE 412	OR Models for Mfg Systems	3 or 4
IE 420	Financial Engineering	3 or 4
IE 431	Design for Six Sigma	3
IE 445	Human Performance and Cognition in Context	3 or 4
SE 310	Design of Structures and Mechanisms	3
SE 320	Control Systems	4
SE 424	State Space Design for Control	3

Electives

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 ³	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. ⁴	7
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 The Grainger College of Engineering approved liberal education course list can be found here (<https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-GeneralEducationElectives>). Note that these credit hours could carry the required cultural studies designation required for campus general education requirements.

⁴ The Grainger College of Engineering restrictions to free electives can be found here (<https://wiki.illinois.edu/wiki/display/ugadvise/Degree+Requirements/#DegreeRequirements-FreeElectives>).

EP Documentation

DMI Documentation

Banner/Codebook Name

BS:Industrial Engineerng -UIUC

Program Code:

10KP0127BS

Degree Code

BS

Major Code

0127

Program Reviewer Comments

Deb Forgacs (dforgacs) (Thu, 09 Jan 2020 19:42:38 GMT):Rollback: .

Key: 119