New Program Proposal

Date Submitted: 02/08/23 5:37 pm

Viewing: BS-BSEN : Bachelor of Science in Business and Engineering

Last edit: 02/08/23 5:37 pm

Changes proposed by: rcalia

Program Status	Active		
Requestor	Name	Roland Calia	E-mail rcalia@stuart.iit.edu
Origination Date	2023-2-8		
Is this an interdisciplinary program?	No		
Academic Unit	Business Administration		
College	Stuart School of Business		
Program Title	Bachelor of Science in Business and Engineering		
Effective Academic Year	2023 - 2024	Effective Term	Fall 2023
Academic Level	Undergraduate		
Program Type	Degree		
Degree Type	Bachelor of Science (BS)		
CIP Code			

In Workflow

1. SB Associate Dean
2. Academic Affairs
3. Undergraduate Academic Affairs
4. Director of Assessment
5. SB Dean
6. Marketing and Communications
7. Undergraduate Studies Committee Chair
8. Faculty Council Chair
9. Faculty Council Chair
10. Provost
11. President
12. Board of Trustees
13. Academic Affairs

Approval Path

1. 02/02/23 2:28 pm M Krishna Erramilli (krish): Approved for SB Associate Dean
2. 02/03/23 5:06 pm Patty Johnson Winston (winston): Rollback to Initiator
3. 02/04/23 1:25 pm M Krishna Erramilli (krish): Approved for SB Associate Dean
4. 02/06/23 3:38 pm Patty Johnson Winston (winston): Rollback to Initiator
5. 02/08/23 12:06 pm M Krishna Erramilli

(krish): Approved for SB Associate Dean
6. 02/08/23 12:42 pm Patty Johnson Winston (winston): Approved for Academic Affairs
7. 02/08/23 4:50 pm Patty Johnson Winston (winston): Rollback to Initiator
8. 02/08/23 5:59 pm M Krishna Erramilli (krish): Approved for SB Associate Dean
9. 02/09/23 4:14 pm Patty Johnson Winston (winston): Approved for Academic Affairs

14.0103 - Applied Engineering.

Is there more than one Academic Unit proposer?

No

Program Code	BS-BSEN
Program Attribute	
Total Program Credit Hours	126

Program Narrative and Justification

Narrative description of how the institution determined the need for the program. For example, describe what need this program will address and how the institution became aware of that need. If the program is replacing a current program(s), identify the current program(s) that is being replaced by the new program(s) and provide details describing the benefits of the new program(s). If the program will be offered in connection with, or in response to, an initative by a governmental entity, provide details of that initiative.

The Bachelor of Science in Business and Engineering degree is an innovative cross-disciplinary program that prepares graduates for careers at the intersection of business and technology. It provides them with critical thinking skills and knowledge that prepare them to adapt to changing technological environments, successfully lead teams, and make key strategic management decisions.

The Business and Engineering curriculum includes a solid foundation in both business fundamentals and core engineering principles. It combines coursework in engineering, management, science, and mathematics with training in functional business areas such as economics, finance, marketing, optimization, entrepreneurship, project management, operations, and leadership.

The program emphasizes STEM by combining relevant coursework in business and engineering, enabling graduates to work successfully in technologically-oriented positions across organizations. Graduates of this program will be well prepared lead frontier technological efforts in their organizations.

Narrative description of how the program was designed to meet local market needs, or for an online program, regional or national market needs. For example, indicate if Bureau of Labor Statistics data or State labor data systems information was used, and/or if State, regional, or local workforce agencies were consulted. Include how the course content, program length, academic level, admission requirements, and prerequisites were decided; including information received from potential employers about course content; and information regarding the target students and employers.

The Bachelor of Science in Business and Engineering was developed by the Stuart School of Business in consultation with the faculty of the the Department of Civil, Architectural, and Environmental Engineering (CAEE) at the Armour College of Engineering as well as industry experts and practitioners.

Narrative description of any wage analysis the institution may have performed, including any consideration of Bureau of Labor Statistics wage data related to the new program.

A Bachelor of Science in Business and Engineering degree can provide an excellent preparation for the private sector job markets, particular in the technology sector. Students with degree have a relatively high mean salary of between $88,000 and $95,000, according to the Bureau of Labor Statistics. The job outlook is good, with job growth projected to increase at a range of 7% to 9% annually. Graduates are well prepared to work successfully in technologically-oriented positions across organizations and to lead frontier technological efforts in their organizations. See https://www.bls.gov/ooh/business-and-financial/financial-analysts.htm and https://www.bls.gov/ooh/architecture-and-engineering/civil-engineers.htm

Narrative description of how the program was reviewed or approved by, or developed in conjunction with, one or more of the following: a) business advisory committees; b) program integrity boards; c) public or private oversight or regulatory agencies (not including the state licensing/authorization agency and accrediting agency); and d) businesses that would likely employ graduates of the program. For example, describe the steps taken to develop the program, identify when and with whom discussions were held, provide relevant details of any proposals or correspondence generated, and/or describe any process used to evaluate the program.

The Bachelor of Science in Business and Engineering was developed by the Stuart School of Business in consultation with the faculty of the the Department of Civil, Architectural, and Environmental Engineering (CAEE) at the Armour College of Engineering as well as industry experts and practitioners.

What are the enrollment estimates?

Year 1 5 Year 2 10 Year 3 15

Attach Additional Program Justification Document(s)

Academic Information

Advising

Since quality advising is a key component of good retention, graduation, and career placement, how will students be mentored? What student professional organizations will be formed? How will the department work with the Career Services office to develop industry connections?

Students will be advised by the Stuart Undergraduate Program Director.

Program Resources

Which program resources are necessary to offer this program?

Personnel
Facilities

Describe the personnel requirements necessary to offer the program. Describe how and when resources will be made available to hire any additional personnel that are required.

No new personnel are required.

Describe the facilities requirements necessary to offer the program. Describe how and when resources will be made available to obtain any additional facilities that are required.

No new facilities are required.

Proposed Bulletin Entry

Admission

Requirements

The Bachelor of Science in Business and Engineering degree is an innovative cross-disciplinary program that prepares graduates for careers at the intersection of business and technology. It provides them with critical thinking skills and knowledge that prepare them to adapt to changing technological environments, successfully lead teams, and make key strategic management decisions.

The Business and Engineering curriculum includes a solid foundation in both business fundamentals and core engineering principles. It combines coursework in engineering, management, science, and mathematics with training in functional business areas such as economics, finance, marketing, optimization, entrepreneurship, project management, operations, and leadership.

The program emphasizes STEM by combining relevant coursework in business and engineering, enabling graduates to work successfully in technologically-oriented positions across organizations. Graduates of this program will be well prepared lead frontier technological efforts in their organizations.

Course Requirements

Business Core Requirements		(36)
BUS 100	Introduction to Business	3
BUS 102	Computing Tools Bus Analysis	3
ECON 151	Microeconomics	3
ECON 152	Global Economics	3
BUS 211	Financial Accounting	3
BUS 212	Managerial Accounting	3
BUS 221	Business Statistics	3
BUS 301	Organizational Behavior	3
BUS 305	Operation and Supply Chain Des	3
BUS 341	Business Law	3
BUS 351	Financial Decision-Making	3
BUS 480	Strategic Management and Desig	3
Business Technical Electives		(6)
Choose 2 from the following courses		6
BUS 311	Strategic Cost Management	3
BUS 321	Optimization and Decision-Maki	3
BUS 361	Entrepreneurship I	3
BUS 371	Marketing Fundamentals	3
Engineering Requirements		(24)
Required Courses		9
MMAE 202	Mechanics of Solids [1]	3
MMAE 232	Design for Innovation	3
CAE 287	Mechanics Structural Materials	3
Electives - Choose 5 from the following courses (subject to prerequisites)		15
BME 200	BME Computer Applications	2

ECE 211	Circuit Analysis I	3
CAE 221	Engineering Geology	3
CAE 302	Fluid Mechanics	3
CAE 303	Steel Structures I	3
CAE 304	Structural Analysis I	3
CAE 315	Materials of Construction	3
MMAE 305	Dynamics	3
MMAE 320	Thermodynamics	3
ID 420	Fundamentals of Design	3
CAE 470	Constrctn Methods&Cost Estmg	3
CAE 471	Construction Plan & Scheduling	3
CAE 472	Construction Site Operation	3
CAE 473	Construction Contract Admin	3
CAE 474	Intro Building Info Modeling	3
INTM 322	Ind Project Management	3
INTM 415	Advncd Project Mgmt	3
Mathematics Requirement		(14)
MATH 151	Calculus I	5
MATH 152	Calculus II	5
MATH 252	Introduction to Diff Equations	4
Computer Science Requirement		(2)
CS 104	Intro to Comp Prgrm for Engrs	2
Interprofessional Projects (IPRO)		(6)
See Illinois Tech Core Curriculum, section E		6
Humanities and Social Science Requirements		(21)
See Illinois Tech Core Curriculum, section B and C		21
Select 3 courses from ECON 251, ECON 311, ECON 312, BUS 382		
Free Electives		(6)
Select 6 credit hours		6
Natural Science Requirements		(11)
See Illinois Tech Core Curriculum, section D		
PHYS 123	General Physics I: Mechanics	4
CHEM 124	Princ of Chemistry I with Lab	4
MS 201	Materials Science	3
Total Credit Hours		126

1 Substitutes for CAE 286 prerequisite

Sample Curriculum/Program Requirements

Specialization Requirements

Program Outcomes and Assessment Process

What are the learning goals for this program?

Learning goal	Courses/student work used to assess achievement of this goal
SSB Common Goal 1 a: Oral Communications Skills Students will prepare and deliver oral presentations that are well-structured, technically competent and make good use of aids to support evidence-driven conclusions. SSB Common Goal 1 b: Written Communications Skills Students will prepare documents in text-based media that are clear, accurate, and appropriate for the intended audience	BUS 305
SSB Common Goal 2: Critical Thinking Skills Students will analyze and critique presented arguments as well as develop well-reasoned arguments that are supported by arguments..	BUS 480
BSBA Analytical Skills - Graduates will possess the analytical skills to support business decision making.	BUS 455
BE Application of Business Principles	BUS 321, BUS 351

In what semesters will the data be collected to assess this learning goal, and by whom?

Each semester in which program courses are offered.

Provide the name of the rubric that will be used to assess the extent to which students are achieving this learning goal.

See above.

How often and by whom will the data be analyzed? What

benchmarks or targets will be used to interpret your results?

Each semester. The data will be analyzed by assigned faculty evaluators. Benchmarks are set by faculty.

Briefly describe the process that will be used to share the results with faculty and use these to motivate program improvement.

The Program Director meets with faculty on a regular basis to evaluate results of evaluations and to develop improvement programs. Students have access to IIT Career Center as well as Stuart Career Management Center services.

Attach Additional Assessment Document(s)

Application of Business Principles.xlsx
SSBCommonCriticalThinkingFinal.xls
SSBCommonCommunication Final.xls
BUS Analytical Skills.xlsx

Undergraduate Program Requirements

Undergraduate Degree Requirements

Minimum credit hours: 126

Specialization required?

No

Minor required?

No

Proposed General Curriculum

List Major Course Requirements

Business Core Requirements

BUS 100	Introduction to Business	3

BUS 102	Computing Tools Bus Analysis	3
ECON 151	Microeconomics	3
ECON 151	Microeconomics	3
BUS 211	Financial Accounting	3
BUS 212	Managerial Accounting	3
BUS 221	Business Statistics	3
BUS 301	Organizational Behavior	3
BUS 305	Operation and Supply Chain Des	3
BUS 341	Business Law	3
BUS 351	Financial Decision-Making	3
BUS 480	Strategic Management and Desig	3
Engineering Requirements		
MMAE 202	Mechanics of Solids	3
MMAE 232	Design for Innovation	3
CAE 287	Mechanics Structural Materials	3
Total Credit Hours		45

List Mathematics Requirements

Mathematics Requirements		
MATH 151	Calculus I	5
MATH 152	Calculus II	5
MATH 252	Introduction to Diff Equations	4
Total Credit Hours		14

List Science Requirements

Natural Science Requirements		
PHYS 123	General Physics I: Mechanics	4
CHEM 124	Princ of Chemistry I with Lab	4
MS 201	Materials Science	3
Total Credit Hours		11

List Computer Science Requirements

Computer Science Requirement		
CS 104	Intro to Comp Prgrm for Engrs	2
Total Credit Hours		2

List Humanities and Social Sciences Requirements

https://bulletinnext.iit.edu/undergraduate/undergraduate-education/core-curriculum/#core_b	21
Select 3 courses from ECON 251, ECON 311, ECON 312, BUS 382	
Total Credit Hours	21

List Interprofessional Project (IPRO) Requirements		
Interprofessional Projects (IPRO)		
https://bulletinnext.iit.edu/undergraduate/undergraduate-education/core-curriculum/#core_e		6
Total Credit Hours		6

List Technical Elective Course Options		
Business Technical Electives - choose 2 from the following courses		6
BUS 311	Strategic Cost Management	3
BUS 321	Optimization and Decision-Maki	3
BUS 361	Entrepreneurship I	3
BUS 371	Marketing Fundamentals	3
Engineering Electives - Choose 5 from the following courses		15
BME 200	BME Computer Applications	2
ECE 211	Circuit Analysis I	3
CAE 221	Engineering Geology	3
CAE 302	Fluid Mechanics	3
CAE 303	Steel Structures I	3
CAE 304	Structural Analysis I	3
CAE 315	Materials of Construction	3
MMAE 305	Dynamics	3
MMAE 320	Thermodynamics	3
ID 420	Fundamentals of Design	3
CAE 470	Constrctn Methods&Cost Estmg	3
CAE 471	Construction Plan & Scheduling	3
CAE 472	Construction Site Operation	3
CAE 473	Construction Contract Admin	3
CAE 474	Intro Building Info Modeling	3
INTM 322	Ind Project Management	3
INTM 415	Advncd Project Mgmt	3
Total Credit Hours		21

List Free Elective Credit Hours (if applicable)	6

Semester-by-semester plan of study for the degree program

Year 1

Semester 1	Credit Hours	Semester 2	Credit Hours

BUS 100	3	BUS 221	3
ECON 151	3	MATH 152	5
CHEM 124	4	PHYS 123	4
MATH 151	5	CS 104	2
		ECON 152	3
	15		17

Year 2

Semester 1	Credit Hours	Semester 2	Credit Hours
BUS 211	3	BUS 212	3
BUS 321	3	BUS 351	3
MS 201	3	BUS 371	3
MMAE 202 or ENGINEERING CORE COURSE	3	MMAE 232 or ENGINEERING CORE COURSE	3
Humanities Elective (200 Level)	3	CAE 287 or ENGINEERING CORE COURSE	3
		Humanities Elective (300+)	3
	15		18

Year 3

Semester 1	Credit Hours	Semester 2	Credit Hours
BUS 301	3	Business Technical Elective	3
BUS 305	3	Engineering Technical Elective	3
Social Science Elective (300+)	3	Engineering Technical Elective	3
Humanities Elective (300+)	3	Social Sciences Elective (300+)	3
Engineering Technical Elective	3	IPRO Elective I	3
	15		15

Year 4

Semester 1	Credit Hours	Semester 2	Credit Hours
Business Technical Elective	3	BUS 480	3
Engineering Technical Elective	3	Engineering Technical Elective	3
Social Sciences Elective (300+)	3	Humanities or Social Sciences Elective	3
Free Elective	3	Free Elective	3
IPRO Elective II	3	Free Elective	4
	15		16

Total Credit Hours: 126

Reviewer Comments

Patty Johnson Winston (winston) (02/03/23 5:06 pm): Rollback: Under the Proposed Bulletin Section of the form, the formatting for the "Course Requirements" table has been corrected--headers and Core Curriculum links. Please review it to make sure that all the entries are accurately reflected.

Patty Johnson Winston (winston) (02/06/23 3:38 pm): Rollback: Please review the Engineering Requirements section of the Course Requirements table to ensure that the formatting correctly captures the desired curricular rules.

Patty Johnson Winston (winston) (02/08/23 4:50 pm): Rollback: Rollback per Roland Calia's request.

Key: 604