U-CAAC Review of New Program Proposal

This form provides committee-wide feedback on the following proposed program.

Undergraduate ☑ Graduate ☐ College: Eller

Proposal Name: Major in Integrated Business and Engineering

Proposer's Name and Email: Mike Kwinn < kwinnm@arizona.edu >

Reviewers: Iliana Reyes < ireyes@arizona.edu > Kelly Potter < kspotter@arizona.edu > Rebecca Gomez < rgomez@arizona.edu >

1. **Rationale.**
   Is the mission of the program well justified?
   Yes. The BS in IBE provides an interdisciplinary curriculum to bridge the gap between business and engineering that prepares graduates to make business decisions grounded in technology, engineering and math.

2. **Academic Standards/Compliance.**
   Do the curriculum and student support provisions meet the academic and policy standards of the university?
   The curriculum meets the academic and policy standards at the university in both colleges and engages students in extensive experiential learning that will prepare them with knowledge for taking on and innovatively leading projects in technologically based organizations.

3. **Overlaps.**
   Are there perceived duplications with other UArizona programs? Conversely, could shared interests and emphases lead to collaborative or synergistic programs with other parts of the university? (These could take the form of co-ownership, co-delivered courses, shared faculty, shared facilities, etc.)
   One similar program, the BS in engineering management, is being sunsetted.

4. **Viability.**
   Is the program likely to enroll enough students to meet UArizona benchmarks for productive programs? Is there plausible evidence to back up enrollment predictions and budget projections?
   Yes, with faster job growth than in the nation graduates at the nexus of management and technology show strong current and projected demand.

5. **Other feedback/comments.**
   The committee agreed that only one program comparison within the state is necessary for consideration.

6. **Approval or Revisions Requested.**
   None.

THE UNIVERSITY OF ARIZONA

New Academic Program Workflow Form

General

Proposed Name: Integr Business & Engineering

Transaction Nbr: 00000000000234

Plan Type: Major

Academic Career: Undergraduate

Degree Offered: Bachelor of Science

Do you want to offer a minor? N

Anticipated 1st Admission Term: Fall 2025

Details

Department(s):

BUSN

DEPTMNT ID	DEPARTMENT NAME	HOST
MCGUIRE	McGuire Center for Entrepreneurship	Y

Campus(es):

MAIN

LOCATION	DESCRIPTION
TUCSON	Tucson

Admission application terms for this plan: Spring: Y Summer: Y Fall: Y

Plan admission types:

Freshman: Y Transfer: N Readmit: N Graduate: N

Non Degree Certificate (UCRT only): N

Other (For Community Campus specifics): N

Plan Taxonomy: 52.1301, Management Science.

Program Length Type: Program Length Value: 0.00

Report as NSC Program:

SULA Special Program:

Print Option:

Diploma: Y Integrated Business and Engineering

Transcript: Y Integrated Business and Engineering

Conditions for Admission/Declaration for this Major:

The new student admission process will be modeled after UA's College of Engineering new student admission process. The University of Arizona and the Eller College of Management will perform a comprehensive review of students applying for admission. In particular, the following will be considered:

Core GPA as defined by the Arizona Board of Regents

Math and science completion/grades

Senior year coursework

Rigor of high school classes (AP, IB, honors, etc.)

Optional standardized test score (ACT or SAT)

Optional personal statement

The Eller College of Management is "test-optional". Standardized test scores are not required but may be submitted if desired to supplement or enhance a student's application. Applicants who do not present a standardized test score will not be penalized in the review process. If submitted, however, ACT/SAT scores may also be used to fulfill the university's High School Competency Requirements or to support course placement prior to enrollment. Please note: to be considered, official test scores must be sent directly from the testing agency.

Requirements for Accreditation:

All Eller majors fall under the college's AACSB accreditation

Program Comparisons

University Appropriateness

This program will be a collaboration between the College of Engineering and the Eller College of Management and fully supports the stated mission of each of the colleges which are:

Eller College of Management: To discover and share new knowledge that shapes the future of business and to educate the next generation of responsible, global leaders who embody the changing business world and possess the knowledge and drive to impact it.

College of Engineering: To improve quality of life through research, service and educational excellence that fosters the next generation of adaptive leaders.

Each of these mission statements highlight the desire to produce the next generation of leaders who can excel in a changing environment. We are seeing a demand for a convergence of these disciplines to lead in industry and in government. As the world becomes more integrated and involved, these two disciplines must come together to create the innovation that will drive our future success. The new Integrated Business and Engineering degree will not only help achieve the missions of the individual colleges, but it will create graduates who will become the drivers of innovation and entrepreneurship at the nexus of these two disciplines.

By offering a competitive, relevant, and project-based learning approach to prospective students, the proposed program has the potential to build cohort of graduates prepared to take on projects and innovatively lead technologically based organizations to great successes. Similar programs at representative colleges across the country have shown great success in recruiting outstanding students and in job placement. Industry likes these graduates, and the prospective students appreciate the ability to not just understand technology or business but to be able to excel and lead in both areas. We plan on creating the best of these programs in the country given our current classes and our outstanding faculty.

The University of Arizona is the most appropriate university to host this degree because it aligns with two of our strategic pillars of taking on Grand Challenges and Arizona Advantage by increasing the coordination between the two colleges to take on interdisciplinary projects working with local organizations here in Southern Arizona. Through our project-based curriculum, our students will work projects for local groups impacting Southern Arizona in the program. We believe that such opportunities will then increase our appeal to underrepresented populations from the Southern Arizona area and greatly expand our enrollments from these groups, especially from the first-time college students.

Based on the success of similar programs throughout the country (mostly on the east coast), we believe that this new major, which brings together important engineering understanding and business acumen will not only be of great interest to students, but also to employers. As industry becomes more integrated, it requires multidisciplinary expertise and insights. This program will provide that for employers, especially for those seeking leadership in an engineering environment.

We have opted to stand up this major as we will close down the legacy Engineering Management undergraduate major. The engineering management undergraduate major was an ABET-accredited engineering degree which included some management outcomes. We feel that this new major which has more focus on management skills while keeping the engineering understanding will must more closely align with our students' needs and interests.

Arizona University System

NBR	PROGRAM	DEGREE	#STDNTS	LOCATION	ACCRDT
2	Tech Entre & Mgmt	BS	357	ASU-Polytech/Online	Y
3	Engr Science-Business Concen	BS	200	ASU-West Valley	Y

Peer Comparison

See attached comparison chart

Resources

Library

Acquisitions Needed:

Physical Facilities & Equipment

Existing Physical Facilities:

NA

Additional Facilities Required & Anticipated:

NA

Other Support

Other Support Currently Available:

Engr Mgmt program sunsetting so those resources (Director, faculty) will be used to support the IBE.

Other Support Needed over the Next Three Years:

Student support staff as program grows

Comments During Approval Process

10/17/2024 9:41 AM

MELANIECMADDEN

Comments
corrected planned start date (Fall 2025) on Engineering's Course Use form with consent of Associate Dean Kelly Potter

10/18/2024 9:37 AM

MELANIECMADDEN

Comments
Uploaded updated Additional Information form

THE UNIVERSITY OF ARIZONA

NEW ACADEMIC PROGRAM – MAJOR
Preliminary Proposal Form

I. Program Details

a. Name (Degree Type) of Proposed Academic Program: BS Integrated Business and Engineering (IBE)

b. Emphases (if applicable): N/A

c. Academic Unit(s)/College(s): McGuire Center for Entrepreneurship/Eller College of Management

d. Campus/Location(s): Main Campus

e. First Admission Term: Fall 2025

f. Primary Contact and Email: Mike Kwinn kwinnm@arizona.edu

II. Executive Summary:

Develop a 120-unit Integrated Business and Engineering (IBE) program with a planned Fall 2025 start date.

- Provides an interdisciplinary curriculum to bridge the gap between business and engineering while preparing graduates to make business decisions grounded in technology, engineering and math.
- Serve local, state, and national increasing needs in understanding business and entrepreneurship in support of engineering projects and new ventures related to economic development and national security.
    a. Aligned with Arizona's New Economic Initiative
    b. Aligned with supply chain and entrepreneurship demands
- Support and enable the University of Arizona's growth goals / initiatives.
    a. Increase student enrollments
    b. Increase research opportunities and collaborations

III. Brief Program Description:

The BS in Integrated Business and Engineering provides a unique opportunity for students to gain technical engineering skills while increasing their business acumen. These students will be able to excel in the fast-paced and exciting world of technologyfocused business opportunities. By applying their business capabilities to engineering issues, these graduates will be able to meet the challenges of leading companies in an ever-increasing technical environment.

The BS in Integrated Business and Engineering will focus on learning the fundamentals of business and engineering and then applying those fundamentals to interesting and significant projects from real-world clients in order to make a real difference prior to graduation. We will initially offer an entrepreneurship focus to the major to support the university initiative in this area. This focus will prepare our graduates to jump into leadership roles in new venture developments in support of Southern Arizona and the Nation. Emphasis areas may be created in the future as other focus areas are explored.

A significant aspect of the program is the students' focus on project design and development. Each semester, every student in the program will learn project design or work on a project which aligns their business background with technical skills. They will learn to work with real clients to understand project requirements, new venture development and employ the skills that they are learning along the way in a real-world setting. This active, experiential learning will reinforce the classroom techniques they will be taught throughout the program.

IV. Program Rationale:

This program will be a collaboration between the College of Engineering and the Eller College of Management and fully supports the stated mission of each of the colleges which are:

Eller College of Management: To discover and share new knowledge that shapes the future of business and to educate the next generation of responsible, global leaders who embody the changing business world and possess the knowledge and drive to impact it.

College of Engineering: To improve quality of life through research, service and educational excellence that fosters the next generation of adaptive leaders.

Each of these mission statements highlight the desire to produce the next generation of leaders who can excel in a changing environment. We are seeing a demand for a convergence of these disciplines to lead in industry and in government. As the world becomes more integrated and involved, these two disciplines must come together to create the innovation that will drive our future success. The new Integrated Business and Engineering degree will not only help achieve the missions of the individual colleges, but it will create graduates who will become the drivers of innovation and entrepreneurship at the nexus of these two disciplines.

By offering a competitive, relevant, and project-based learning approach to prospective students, the proposed program has the potential to build a cohort of graduates prepared to take on projects and innovatively lead technologically based organizations to great successes. Similar programs at representative colleges across the country have shown great success in recruiting outstanding students and in job placement. Industry likes these graduates, and the prospective students appreciate the ability to not just understand technology or business but to be able to excel and lead in both areas. We plan on creating the best of these programs in the country given our current classes and our outstanding faculty.

Another goal of offering the BS in Integrated Business and Engineering degree is to increase the coordination between the two colleges and the local organizations here in Southern Arizona. Through our project-based curriculum for our students, they will work projects for local groups each year of the program. We believe that such opportunities will then increase our appeal to underrepresented populations from the Southern Arizona area and greatly expand our enrollments from these groups, especially from the first-time college students.

V. Projected Enrollment for the First Five Years: The projected enrollment in the BS in Integrated Business and Engineering degree program is shown in the table below *(note that the projections are extended to a 5-year period to be consistent with the extended financial analysis timeframe)*. The basis for these projections was derived by comparing enrollments at universities which have a similar degree program.

Degree	Year 1 (2025 / 2026)	Year 2 (2026 / 2027)	Year 3 (2027 / 2028)	Year 4 (2028 / 2029)	Year 5 (2029 / 2030)

BS	30	50	75	150	200

VI. Evidence of Market Demand: The demand for our IBE graduates will be strong in the future. There are many areas in which our graduates can be employed. One of the many potential employment opportunities for our IBE graduates is in the field of Management Science. The potential for employment moving forward in this area nationally and for the state of Arizona are shown below:

8.89M	+14.1%	$35.83/hr $74.5K/yr	949,479
*Jobs (2022)**	*% Change (2022-2032)**	Median Earnings	*Annual Openings**

Occupation	2022 Jobs*	Annual Openings*	Median Earnings	Growth (2022 - 2032)*
General and Operations Managers	1,181,080	117,980	$48.52/hr	+13.68%
Accountants and Auditors	924,652	86,550	$38.42/hr	+11.49%
Customer Service Representatives	676,648	95,865	$19.06/hr	+1.50%
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	556,414	56,166	$31.38/hr	+6.45%
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	507,457	60,633	$30.96/hr	+16.14%
Business Operations Specialists, All Other	490,624	51,482	$38.12/hr	+12.14%
Market Research Analysts and Marketing Specialists	483,592	61,574	$35.62/hr	+24.69%
Management Analysts	451,836	48,645	$47.75/hr	+17.88%
First-Line Supervisors of Office and Administrative Support Workers	427,299	43,969	$30.44/hr	+2.82%
Human Resources Specialists	420,781	46,334	$32.53/hr	+18.41%
Project Management Specialists	417,914	44,117	$47.31/hr	+24.90%
Managers, All Other	375,924	35,746	$49.46/hr	+15.72%
Financial Managers	333,610	34,053	$74.52/hr	+25.35%
First-Line Supervisors of Retail Sales Workers	301,968	31,363	$21.80/hr	+1.72%
Computer User Support Specialists	281,738	23,302	$28.47/hr	+9.78%
Sales Managers	265,928	25,932	$64.56/hr	+16.77%
Computer and Information Systems Managers	254,640	27,535	$81.24/hr	+31.82%
Marketing Managers	206,475	24,121	$73.47/hr	+25.30%
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	125,015	15,154	$47.75/hr	+18.49%

Statistics for Growth Nationally in the Field of Management Science

Revised June 2024

34,167	+14.5%	$41.26/hr $85.8K/yr	3,377
*Jobs (2022)**	*% Change (2022-2032)**	Median Earnings	*Annual Openings**
*23% above National average**	*Nation: +13.9%**	Nation: $49.55/hr; $103.1K/yr	

Occupation	*2022 Jobs**	*Annual Openings**	Median Earnings	*Growth (2022 - 2032)**	*Employment Concentration (2022)**
General and Operations Managers	*31,264*	*3,084*	$40.83/hr	*+13.55%*	*1.28*
Chief Executives	*1,955*	*180*	$62.94/hr	*+15.40%*	*0.80*
Operations Research Analysts	*949*	*114*	$36.55/hr	*+43.10%*	*1.02*

Statistics for Growth in Arizona in the Field of Management Science

Note that job growth in the field of management science within our region is projected to grow at a faster pace than the nation as a whole. Thus, this new degree program will serve both local, state, and national needs related to employment, economic development, and national security. Indeed, these degree programs are among the most important in support of the ongoing fourth industrial revolution and in close alignment with Arizona's New Economy Initiative[1].

The full marketing and analysis reports for the state of Arizona in related fields can be found at the following link: https://arizona.box.com/s/63avxlhcnowoauac3pqo6ijk5k6ntzr6

The full marketing and analysis reports for the nation in related fields can be found at the following link:

[1] World Economic Forum. https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/

https://arizona.box.com/s/ekj31aqjcjlyps1aw31yutxnf4ybksio

VII. Similar Programs Offered at Arizona Public Universities:

University	Program	College
Arizona State University	Applied Business and Technology	W. P. Carey School of Business
Arizona State University	Technological Entrepreneurship and Management	Ira A. Fulton Schools of Engineering
Arizona State University	Engineering Science (Business)	Ira A. Fulton Schools of Engineering
Northern Arizona University	Applied Science – Applied Business Management	NAU Yuma

VIII. Resources

a. Summarize new resources required to offer the program time phased over the next 5 years:

Resources	Quantity
Faculty	1 Faculty as Program Director; various overload teaching payments based on additional sections needed
Staff	2 (Program Coordinator/Career Coach and Program Advisor)
Other (TAs, Graders, LAs)	NA (no additional courses)
Equipment	NA
Facilities	Office and lab space *(for program coordinator and for project teams)*

b. Estimate total expected cost over 5 years at the college: $2,979,976

c. Estimate total expected revenue of the program over 5 years to the university: $17,002,150

IX. **Required Signatures**

a. **Program Director/Main Proposer:**

i. **Signature:** 

ii. **Name and Title:** Dr. Michael J. Kwinn, Jr, Director Integrated Business and Engineering program

iii. **Date:** 10 June 2024

b. **Managing Unit/Department Head:**

i. **Signature:** 
Jeffrey Schatzberg (Jun 28, 2024 13:36 PDT)

ii. **Name and Title:** Jeff Schatzberg, Vice Dean, Eller College of Management and Interim Head, McGuire Center for Entrepreneurship iii. **Date:** __June 27, 2024_____

c. **College Dean/Associate Dean:**

i. **Signature:** 
Karthik Kannan (Jun 28, 2024 14:11 PDT)

ii. **Name and Title:** Karthik Kannan, Dean, Eller College of Management

iii. **Date:** _____June 27, 2024_____

d. **College Dean/Associate Dean:**

i. **Signature:** _____

ii. **Name and Title:**

iii. **Date:** _____

Revised June 2024

Preliminary_Proposal_Majors IBE

Final Audit Report 2024-06-28

Created:	2024-06-28
By:	Anne Pagel (pagela@arizona.edu)
Status:	Signed
Transaction ID:	CBJCHBCAABAAwv0YU_UXe8dj6flZ_EkJqLYdUdsavVV8

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Agreement completed.

2024-06-28 - 9:11:27 PM GMT

THE UNIVERSITY OF ARIZONA

ADDITIONAL INFORMATION FORM

To be used once preliminary proposal has been approved.

I. MAJOR REQUIREMENTS–

UNDERGRADUATE

Total units required to complete the degree	120
Upper-division units required to complete the degree	45
Foundation courses	First Year Composition: • ENGL 101/101A/107 (3 units) • ENGL 102/108 (3 units) OR • ENGL 109H
Second language	2nd Semester Proficiency
Math	S-Strand (*R17125)* MATH 125 or 122B
General education requirements	Entry Course (1 unit) Exploring Perspectives (4 courses) (one course from each domain required) -Artist (3 units) -Humanist (3 units) -Natural Scientist (satisfied by PHYS 141) -Social Scientist (satisfied by ECON 200) Building Connections (3 courses total, 1 satisfied by CE 301 – 6 unique units) Exit Course (1 unit)
Pre-major? (Yes/No).	No pre-major
List any special requirements to declare or gain admission to this major (completion of specific coursework, minimum GPA, interview, application, etc.)	The new student admission process will be modeled after UA's College of Engineering new student admission process. The University of Arizona and the Eller College of Management will perform a comprehensive review of students applying for admission. In particular, the following will be considered:

	Core GPA as defined by the Arizona Board of Regents Math and science completion/grades Senior year coursework Rigor of high school classes (AP, IB, honors, etc.) Optional standardized test score (ACT or SAT) Optional personal statement The Eller College of Management is "test-optional". Standardized test scores are not required but may be submitted if desired to supplement or enhance a student's application. Applicants who do not present a standardized test score will not be penalized in the review process. If submitted, however, ACT/SAT scores may also be used to fulfill the university's High School Competency Requirements or to support course placement prior to enrollment. Please note: to be considered, official test scores must be sent directly from the testing agency.
Major requirements	
Minimum # of units required in the major (units counting towards major units and major GPA)	69
Minimum # of upper-division units required in the major (upper division units counting towards major GPA)	42
Minimum # of residency units to be completed in the major	12
Required supporting coursework (courses that do not count towards major units and major GPA, but are required for the major). Courses listed must include prefix, number, units, and title. Include any limits/restrictions needed (house number limit, etc.). Provide email(s)/letter(s) of support from	Engineering Foundation (10 units): • MATH 125 or 122A/B Calculus I with Applications with Applications (3 -5 units) •SFWE 101 Intro to Software Engineering (3 units) •PHYS 141 Intro Mechanics (4 units)

home department head(s) for courses not owned by your department.	**Business Foundation (13 units):** •MIS 111 Computers & Internetworked Society (3 units) •MIS 112 Computers & Internetworked Society Lab (1 unit) •ECON 200 Basic Economics Issues (3 units) •ACCT 250 Information for Business Decisions (3 units) •BNAN 276 Statistical Inference in Management (3 units)
Major requirements. List all major requirements including core and electives. If applicable, list the emphasis requirements for each proposed emphasis*. Courses listed count towards major units and major GPA.	**Required (NEW) IBE Courses (17 units):** • IBE 102C: Intro to Integrated Business & Engineering Lecture I (1 unit) • IBE 102D: Intro to Integrated Business & Engineering Lecture II (2 units) •IBE 2XX Intro to Engineering Entrepreneurship (3 units) •IBE 2XX IBE Projects in the Community (3 units) •IBE 300A Junior Seminar I (1 unit) •IBE 300B Junior Seminar II (1 unit) •IBE 498C: Innovation and New Venture Development Capstone I (3 units) •IBE 498D: Innovation and New Venture Development Capstone II (3 units) **IBE Core Existing Courses (52 units):** •CE 214 Statics (3 units) •AME 230 Thermodynamics (3 units) •SIE 265 Engineering Management (3 units) •ECE 207 Elements of Electrical Engineering (3 units) •SIE 457 Project Management (3 units) •SIE 414 Technical Sales & Marketing (3 units) •CE 301 Technical Communications (3 units) •Select 1 Upper Division Engineering elective (3 units) • AME 3XX/4XX • BE 3XX/4XX • BME 3XX/4XX • CHEE 3XX/4XX • ARCE 3XX/4XX • ECE 3XX/4XX • MSE 3XX/4XX • MNE 3XX/4XX • OPTI 3XX/4XX

	• SIE 3XX/4XX • SFWE 3XX/4XX •Select 2 General Engineering Elective (6 units) • AME 1XX/2XX/3XX/4XX • BE 1XX/2XX/3XX/4XX • BME 1XX/2XX/3XX/4XX • CHEE 1XX/2XX/3XX/4XX • ARCE 1XX/2XX/3XX/4XX • ECE 1XX/2XX/3XX/4XX • MSE 1XX/2XX/3XX/4XX • MNE 1XX/2XX/3XX/4XX • OPTI 1XX/2XX/3XX/4XX • SIE 1XX/2XX/3XX/4XX • SFWE 1XX/2XX/3XX/4XX •BNAD 301 Global and Financial Economics & Strategies (3 units) or BNAD 304 Survey of Finance (3 units) •BNAD 302 Human Side of Organizations (3 units) •BNAD 303 Marketing Principles, Concepts and Tools (3 units) •ENTR 400 Tech Ventures (3 units) •ENTR 465 Global Social Entrepreneurship (3 units) •FIN 480 Finance for New Ventures (4 units) •MKTG 480 Marketing Research for Entrepreneurs (3 units)
Internship, practicum, applied course requirements (Yes/No). If yes, provide description.	No
Senior thesis or senior project required (Yes/No). If yes, provide description.	Yes, senior design project required (IBE 498C and 498D)
Additional requirements (provide description)	No
Minor (specify if optional or required)	Optional
Any double-dipping restrictions (Yes/No)? If yes, provide description.	Business courses cannot double dip into the business minor

THE UNIVERSITY OF ARIZONA

ADDITIONAL INFORMATION FORM

To be used once preliminary proposal has been approved.

II. CURRENT COURSES–

Course prefix and number (include cross-listings)	Units	Title	Pre-requisites	Modes of delivery (online, in-person, hybrid)	Typically Offered (F, W, Sp, Su)	Dept signed party to proposal? (Yes/No)
SIE 457	3	Project Management	ENGR Advanced Standing***	In-Person	F, Sp	Yes
SIE 414	3	Technical Sales & Marketing	ENGR Advanced Standing***	In-Person	Sp	Yes
CE 301	3	Technical Communications	(ENGL 102 OR ENGL 108 OR ENGL 109H) AND (MATH 122B OR MATH 125 OR Milestone Level 6).	In-Person	F	Yes
BNAD 301	3	Global and Financial Economics & Strategies	ECON 200 or (ECON 201A and ECON 201B).	In-Person	Contact Dept.	Yes
BNAD 302	3	Human Side of Organizations	N/A	In-Person	Contact Dept.	Yes
BNAD 303	3	Marketing Principles, Concepts and Tools	N/A	In-Person	Contact Dept.	Yes
ENTR 400	3	Tech Ventures	N/A	In-Person	Sp	Yes
ENTR 465	3	Global Social Entrepreneurship	Students should have at least a sophomore status in their programs	In-Person	F, Sp, Su	Yes
FIN 480	4	Finance for New Ventures	ECON 300, FIN 311, and MKTG 361.***	In-Person	F	Yes
MKTG 480	3	Marketing Research for Entrepreneurs	FIN 311, MKTG 361, ECON 300. Credit allowed for only one of MKTG 440 or MKTG 480.***	In-Person	F	Yes
AME 230	3	Thermodynamics	PHYS 141 or PHYS 161H	In-Person	F, Sp	Yes
CE 214	3	Statics	(PHYS 141 or PHYS161H) and (MATH 129 or MATH 250B or concurrently	In-Person	F, Sp, Su	Yes

			enrolled in MATH 250B.)***			
SIE 265	3	Engineering Management	MATH 122B or MATH 124 or MATH 125	In-Person	F, Sp	Yes
ECE 207	3	Intro to Electrical Engineering	PHYS 241 or PHYS 261H.***	In-Person	F, Sp	Yes

***Note that these prerequisites will be waived by the faculty for IBE students as they will not take the follow-on courses

III. **NEW COURSES NEEDED** – using the table below, list any new courses that must be created for the proposed program. If the specific course number is undetermined, please provide level (i.e., CHEM 4XX). Add rows as needed.

Course prefix and number (include cross-listings)	Units	Title	Pre-requisites	Modes of delivery (online, in-person, hybrid)	Status*	Anticipated first term offered	Typically Offered (F, W, Sp, Su)	Dept signed party to proposal? (Yes/No)	Faculty members available to teach the courses
IBE 102C	1	Introduction to Integrated Business Engineering Lecture	None	In-person	D	Fall 2025	F	NA	Larry Head
IBE 102D	2	Introduction to Integrated Business Engineering	IBE 102C	In-person	D	Spring 2026	Sp	NA	Larry Head
IBE 2XXA	3	Introduction to Engineering Entrepreneurship	IBE 102D	In-person	D	Fall 2026	F	NA	Mark Peterson
IBE 2XXB	3	IBE Projects in the Community	IBE 2XXA	In-person	D	Spring 2027	Sp	NA	Mark Peterson/Mike Kwinn
IBE 300A	1	Junior Seminar I	IBE major and IBE 2XXB	In-person	D	Fall 2027	F	NA	Mike Kwinn
IBE 300B	1	Junior Seminar II	IBE 300 A	In person	D	Spring 2028	Sp	NA	Mike Kwinn
IBE 498C	3	Innovation and New Venture	IBE 300B	In-person	D	Fall 2028	F	NA	Larry Head

		Development Capstone I							
IBE 498D	3	Innovation and New Venture Development Capstone II	IBE 498C	In-person	D	Spring 2029	Sp	NA	Larry Head

*In development (D); submitted for approval (S); approved (A)

IV. FACULTY INFORMATION-

Faculty Member	Involvement	UA Vitae link or Box folder link
Head, Larry	Teach IBE 102C, IBE 102D, IBE 498C and IBE 498D	https://profiles.arizona.edu/person/klhead
Peterson, Mark	Teach IBE 2XXA and IBE 2XXB	https://profiles.arizona.edu/person/markpeterson
Kwinn, Michael	Teach IBE 2XXB, IBE 300A, and IBE 300B	https://profiles.arizona.edu/person/kwinnm

V. GRADUATION PLAN –

Semester 1		Semester 2		Semester 3		Semester 4	
Course prefix and number	**Units**	**Course prefix and number**	**Units**	**Course prefix and number**	**Units**	**Course prefix and number**	**Units**
First-Year Composition I	3	First-Year Composition II	3	ACCT 250	3	AME 230	3
MIS 111	3	SFWE 101	3	BNAN 276	3	CE 214	3
MIS 112	1	UNIV 101	1	IBE 2XX	3	IBE 2XX	3
MATH 125	3	IBE 102D	2	PHYS 141 (EP: NS)	4	BNAD 302	3
IBE 102C	1	ECON 200 (EP: SS)	3	SIE 265	3	Gen Ed: Exploring Perspectives	3
Second Language I	4	Second Language II	4				
Total	15	**Total**	16	**Total**	16	**Total**	15

Semester 5	Semester 6	Semester 7	Semester 8

Course prefix and number	Units	Course prefix and number	Units	Course prefix and number	Units	Course prefix and number	Units
BNAD 301	3	BNAD 303	3	IBE 498C	3	IBE 498D	3
ENTR 400	3	ENTR 465	3	FIN 480	4	Upper Division ENGR Elective	3
IBE 300A	1	SIE 457	3	Gen Ed: Building Connections	3	Gen Ed: Building Connections	3
CE 301 (Building Connections)	3	Gen Ed: Exploring Perspectives	3	MKTG 480	3	SIE 414	3
ECE 207	3	IBE 300B	1			UNIV 301	1
General ENGR Elective	3	General ENGR Elective	3				
Total	16	**Total**	16	**Total**	13	**Total**	13

VI. LEARNING OUTCOMES AND CURRICULUM MAP -

Learning Outcomes

Learning Outcome #1: Identify, formulate, and solve complex entrepreneurial problems by applying principles of business, engineering, science, and mathematics.
Concepts: Basic engineering, accounting, finance, entrepreneurship
Competencies: Engineering principles, business management, new venture activities
Assessment Methods: Assignment in FIN 480 and ENTR 465 and customer feedback in IBE 498C/D
Measures: Instructor grading assignment and customer feedback survey
Learning Outcome #2: Apply business concepts and engineering design to produce solutions that meet specific needs with consideration of public health, safety and welfare as well as global, cultural, social, environmental and economic factors.
Concepts: Developing holistic solutions considering all stakeholders
Competencies: Business processes, engineering understanding, synthesizing stakeholder and environmental concerns
Assessment Methods: IBE 2XX customer feedback, assignments in ENTR 465, IBE 498C/D customer feedback
Measures: Customer survey and instructor grading of assignments

Learning Outcome #3: Communicate business and engineering processes and solutions effectively with a range of audiences.
Concepts: Business and engineering processes, presentation skills
Competencies: Business and engineering processes, presentation skills
Assessment Methods: Instructor assessment on assignment in CE301 and IBE 300B, customer feedback in IBE 2XX, IBE 498C/D
Measures: Grades on presentations in multiple courses.
Learning Outcome #4: Recognize ethical and professional responsibilities in business and engineering situations and make informed judgments, which must consider the impact of such solutions in global, economic, environmental, and societal contexts.
Concepts: Ethical responsibilities, leadership in organizations, global views of issues
Competencies: Ethical conduct, leadership, consideration of multiple factors in decision making
Assessment Methods: Ethics quiz, leadership position assessment in team efforts in IBE 2XX, IBE498C/D
Measures: Ethics in Engineering quiz score, leadership assessment by instructor
Learning Outcome #5: Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
Concepts: Teamwork, appreciation of others' talents and time, identification and planning of tasks for a team
Competencies: Patience, understanding, leadership, planning, responsibility towards others
Assessment Methods: Instructor assessment, team feedback, customer feedback
Measures: Instructor and team assessment for IBE 2XX, IBE 498C/D

THE UNIVERSITY OF ARIZONA

ADDITIONAL INFORMATION FORM

To be used once preliminary proposal has been approved.

Curriculum Map

	Learning Outcome - Assessment Map				
	Solve Complex Problems	**Design Solutions**	**Communicate**	**Ethical Responsibilities**	**Function as a Teammate**
	An ability to identify, formulate, and solve complex entrepreneurial problems by applying principles of business, engineering, science and mathematics.	An ability to apply business concepts and 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	An ability to communicate business and engineering processes and solutions effectively with a range of audiences.	An ability to recognize ethical and professional responsibilities in business and engineering situations and make informed judgments, which must consider the impact of such solutions in global, economic, environmental, and societal contexts.	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.
Courses and Learning Activities					
MIS 111 Computers and Internetworked Society	R				
MIS 112 Computers and Internetworked Society - Lab		R			
IBE 102C Introduction to Integrated Business Engineering Lecture	I				
ECON 200 Basic Economic Issues		R			
SFWE 101 Introduction to Software Engineering		R			
IBE 102D Introduction to Integrated Business Engineering	I		I		I
IBE 2XX Introduction to Engineering Entrepreneurship	R	I		R	R
ACCT 250 Information for Business Decisions		R		R	
SIE 265 Engineering Management I	R				
BNAN 276 Statistical Inference in Management	R				
BNAD 302 Human Side of Organizations			R		
IBE 2XX IBE Projects in the Community	R	R		R	R
CE 214 Statics		R			
AME 230 Thermodynamics		R			
BNAD 301 Global and Financial Economics and Strategies		R			
ENTR 400 Tech Ventures	R		R		R
IBE 300A Junior Seminar I				I	
CE 301 Technical Communications	R		R		
ECE 207 Elements of Electrical Engineering	R	R			
BNAD 303 Marketing Principles, Concepts and Tools	R			R	
ENTR 465 Global Social Entrepreneurship		R		R	
SIE 457 Project Management	R		R	R	
IBE 300B Junior Seminar II			R	R	
IBE 498C Innovation and New Venture Development Capstone I	M	M	M	M	M
FIN 480 Finance for New Ventures	R			R	
MKTG 480 Marketing Research for Entrepreneurs	R	R			
IBE 498D Innovation and New Venture Development Capstone II	M	M	M	M	M
SIE 415 Technical Sales and Marketing	R	R			

Legend:	**I - Introduced**	**R - Reinforced**	**M - Mastered**

THE UNIVERSITY OF ARIZONA

ADDITIONAL INFORMATION FORM

To be used once preliminary proposal has been approved.

VII. PROGRAM ASSESSMENT PLAN-.

Assessment Measure	Source(s) of Evidence	Data Collection Point(s)
Job Placement Statistics	Student/Alumni Survey	At graduation, 90 days out
Academic Program Review	Board of Advisors input	Annually at the end of the school year
Outcome assessment	Outcome measures	End of each semester

VIII. ANTICIPATED STUDENT ENROLLMENT-

5-YEAR PROJECTED ANNUAL ENROLLMENT					
	1st Year	2nd Year	3rd Year	4th Year	5th Year
Number of Students	30	50	75	150	200

Data/evidence used to determine projected enrollment numbers:
Comparison to similar initial offerings at other universities such as Purdue and Ohio State.

IX. ANTICIPATED DEGREES AWARDED-

PROJECTED DEGREES AWARDED ANNUALLY					
	1st Year	2nd Year	3rd Year	4th Year	5th Year
Number of Degrees	27	45	68	135	180

Data/evidence used to determine number of anticipated degrees awarded annually: Comparison to program at Purdue and Ohio State. These students will be competitively chosen for this major and therefore retention should be high.

X. SUPPORT FACULTY/STAFF – please list name, title, and email for applicable positions below.
Lead Academic Advisor: Specific advisor has not been identified yet but will be on the Eller centralized advising team led by Laura Ullrich, Senior Director, Academic Advising
Director of Graduate Studies: NA
Graduate Coordinator: NA

THE UNIVERSITY OF ARIZONA

New Academic Program
PEER COMPARISON

Select three peers (if possible/applicable) for completing the comparison chart from ABOR-approved institutions, AAU members, and/or other relevant institutions recognized in the field. The comparison programs are not required to have the same degree type and/or title as the proposed UA program. Information for the proposed UA program must be consistent throughout the proposal documents. Minors and Certificates may opt to include only 2 peer comparisons.

Program name, degree, and institution	Proposed UA Program	BS Integrated Business and Engineering (IBE) Purdue University Integrated Business and Engineering - Purdue Business	BS Engineering Science (Business) Arizona State University Engineering Science (Business) - BS | Degree Details | ASU Degree Search	BS Integrated Business and Engineering The Ohio State University Integrated Business & Engineering Honors Program | COLLEGE OF ENGINEERING (osu.edu)
Current number of students enrolled		140	200[1]	180
Program Description	The Integrated Business and Engineering (IBE) major combines the skills gained through a study of advanced business principles to insights gained through engineering applications. The program provides our graduates with the capability to apply business and management skills in a technologically advanced environment and solve the most demanding societal problems. Under the Students will learn about advanced management	The Integrated Business and Engineering (IBE) major is focused on developing students with skills and knowledge to rapidly progress to leadership roles and be able to function effectively in complex, dynamic, and technology-driven organizations and enterprises - both new and established - that embrace technological progress for economic and social benefit. Offered under a partnership between the Daniels School of	The BS program in engineering science with a concentration in business in the School of Integrated Engineering prepares students to solve the most demanding problems facing society. The program connects students with the core values of ASU through an innovation-focused interdisciplinary education inclusive of students with a wide range of prior science and math backgrounds.	The IBE Honors Program offers selected students an intellectually challenging, academically rigorous four-year program that encourages students to reach their full intellectual and personal potential. Initiated in 2014, the Ohio State University IBE program has already developed a positive reputation for developing hard-working, well-rounded, and talented graduates via its selective

[1] This is s a new program. Their target for their first entering class is 200 students.

	techniques and diverse engineering applications which will make them invaluable assets to employers for internships and following graduation. Working as a cohort through an integrated project focused curriculum our students will develop the problem-solving skills that make our graduates highly sought after. Our program allows our students to challenge themselves through an understanding of supply chain and entrepreneurial processes so that they can exploit new technologies to create new business opportunities. Our graduates will be the strategic, holistic thinkers who can solve technologically advanced problems and make the difference we all seek.	Business and the College of Engineering, this rigorous and innovative program will provide a firm grounding in both business and engineering, with specialization options in interdisciplinary business and technology areas relevant to contemporary business environments. The program will combine the science of new technologies and the business opportunities created by them. The IBE curriculum will allow students to connect interests in a way that creates multiple career pathways within technologies and organizations. Students graduating with this degree will be able to adjust to changing environments, spur creativity, lead interdisciplinary teams, master communication skills, and use data to inform decisions. The IBE curriculum is based on a holistic, integrative, and strategic systems view at multiple levels (individual, group, and organization) through diverse coursework, interdisciplinary seminars, customized labs, and engagement with active research projects; It culminates in an industry-driven capstone design course consisting of a project that amplifies the	Coursework emphasizes basic engineering and business principles including engineering design, science, mathematics, artificial intelligence, business intelligence, accounting, supply chain management and ground theory in hands-on, project-based courses taught in makerspaces. Electives provide students with the choice to customize their degrees toward their preferred career pathways. The faculty in the program bring rich interdisciplinary perspectives to courses that foster creativity, critical thinking, communication, context and community by having students solve practical problems in partnership with local industry.	admission process, small class size, and challenging curriculum. The program offers two area of focus (IBE and IBE-Software Innovation) and is limited to a select group of 72 total business and engineering honors students. Our small class size helps us to build a cohort experience. Our curriculum provides a mix of rigorous academic tools and experiential learning opportunities. Throughout the IBE seminars, we highlight the differences in the types of problems addressed by business and engineering disciplines in an effort to focus attention on the benefits of an interdisciplinary approach to problem-solving. Our seminar classes emphasize facilitated discussion to polish students' writing, oral presentation, and teamwork skills. The IBE business seminars are taught by full-time, Ph.D.-educated faculty who have been elected to global leadership positions

		importance of collaboration among diverse stakeholders, strategic product/service development, and tactical product/service realization.		
Target Careers	• Business Analyst • Management Consultant • Technical Project Manager • Technology Consultant • Project Manager	• Data Analyst • Organizational Consultant • Technical Project Manager • Technology Consultant	• Computer Hardware Engineer • Data Analyst • Engineering Manager • Field Researcher • Project Manager • Quality Control Manager • Technical Sales Engineer	• Business Analyst • Consulting Analyst • Engineer • Management Consultant • Manager • Project Manager
Emphases? (Yes/No) List, if applicable	Entrepreneurship Supply Chain	Data Analysis Financial Engineering Operations and Supply Chain Student Designed Specialty Area	No	IBE Traditional Track – Engineering Sciences Minor IBE Software Track – Computer Science Minor
Minimum # of units required	120	120	120	137
Level of Math required (if applicable)	Moderate Includes 3 units of Calculus I and a Business statistics course	Substantial Includes 15 total units of Calculus I, II & III and a Statistics course	Moderate Includes 3 units of Precalculus and a Business statistics course	Substantial Includes 20 total units of Calculus I, II & III and two Statistics courses
Level of Second Language required (if applicable)	None	None	None	None
Pre-Major? (Yes/No) If yes, provide requirements.	No	No	No	No
Special requirements to declare/gain admission? (i.e. pre-requisites, GPA, application, etc.)	The usual process for entry into the program is as freshman. Students apply directly to the program with their application to the University. There is an opportunity for transfer into the program at a later time.	The usual process for entry into the program is as freshman. Students apply directly to the program with their application to the University. There is an opportunity for transfer into the program at a later time.	Admission requirements are the same as the university. Students can transfer according to the university guidelines.	Applicants must be first admitted to the University Honors program in either the Engineering College or the Business College

Internship, practicum, or applied/experiential requirements? If yes, describe.	Yes Design requirements each semester culminating in a year-long Senior Interdisciplinary Capstone	Yes Design requirements each semester culminating in a Senior IBE Capstone	Yes Design requirements each semester culminating in a year-long Senior Engineering Science Capstone	Yes Design requirements each semester culminating in a year-long Senior Interdisciplinary Capstone

Additional questions:

1. How does the proposed program align with peer programs? Briefly summarize the similarities between the proposed program and peers, which could include curriculum, overall themes, faculty expertise, intended audience, etc.

   The UA Integrated Business and Engineering program is modeled closely to the Integrated Business and Engineering program at Purdue University. Each of the peer programs are a partnership between the College of Engineering and the College of Business at the respective schools and are approximately evenly balanced between engineering classes and business classes. All of the programs have significant design components as they require design courses in all four years which are or will be taught in a cohort manner with the other IBE students. This gives the group a sense of belonging to a special program as well as allows them to focus on design problems to which their skill sets inherently apply. Each program requires a level of Math competency as well as two semesters of Physics.

   Much like the Purdue program, the intended audience is students who have a penchant for engineering thought and a desire to apply that to business situations. Students in all of these programs desire to achieve business success in an ever-changing and technologically advancing world. Design faculty will have expertise in entrepreneurship and/or consultancy in an engineering and business environment. Part of each program is seminar courses which will bring in expertise in specific areas relevant to the design approach of the curriculum.

2. How does the proposed program stand out or differ from peer programs? Briefly summarize the differences between the proposed program and peers, which could include curriculum, overall themes, faculty expertise, intended audience, etc.

   Though each program is selective, the Ohio State University program is limited to students already accepted into their Honors College in either the Engineering College or the Business College. Additionally, that program has the students take an ABET-accredited engineering program and a business minor or they take a business major and an engineering minor. This is a very elite program.

   Each program varies in their focus on math and engineering topics. The UA program proposes completing Calc I while taking three introductory engineering courses to give the students a strong background in basic engineering concepts. The Purdue program requires three semesters of Math as well as the introductory engineering courses. The ASU program requires low-level math (Pre-calculus) and

only an introductory engineering course. Finally, the OSU program requires a significant amount of math and engineering, especially for the ABET-accredited students. The Business major IBE students take Calc I and II and one introductory basic engineering course.

Arizona State's program is very light on engineering to the point where it is simply a business degree with two classes concerning engineering and then some project classes. Our program focuses on Entrepreneurship and Supply Chain whereas Purdue offers other options relevant to their students' needs. Ohio State is significantly different in that their students take any engineering major or any business major as part of their program. It is not an even blend so much as it is all of one and some of another.

3. How do these differences make this program more applicable to the target student population and/or a better fit for the University of Arizona?

The program proposed for the University of Arizona considers all the best aspects of the peer programs but selects what is most applicable and best for our potential students. The program at Ohio State is only for honors students and is very selective. Additionally, far and away the majority of the students in the program are engineering majors. They seek to have some business majors, but it is mostly the engineering students who are seeking an ABET-accredited degree with a business minor. We are seeking a much more diverse and inclusive group of students for our program and eventually a much larger number of students.

The program at ASU is billed as engineering science but is very light on engineering and math – only one introductory course in engineering and a Precalculus course for math. We are seeking a more even blend of disciplines as our students are looking for the best of both disciplines. This requires at least basic calculus and basic engineering courses. Our students will be able to handle such courses and will allow them to excel in their chosen field following graduation.

The program at Purdue is very engineering heavy and requires a significant level of math. Purdue University is renowned for being a strong engineering school and most students who attend there are very strong in math and science, much more so than our incoming student population. We want our students to come out of this program with an understanding of engineering so they can apply it to business situations, but this can be accomplished without three courses in Calculus.

Each of the programs have a focus on project-based learning and ours will be also. This is a perfect approach for such a major as it gives the students a hands-on experience in the application of business principles focused on engineering issues. The difference in our program will be that we intend to focus on social and environmental issues from organizations and peoples here in the southwest. Focusing on such problems will spark the interest of our primary constituency for recruiting students and our local communities.

THE UNIVERSITY OF ARIZONA

BUDGET PROJECTION FORM

Name of Proposed Program or Unit: Integrated Business and Engineering BS

Note: A substantial portion of the costs in the first 2-3 years will be covered by the savings from pausing the Engineering Management program

Budget Contact Person: Lin Qian	Projected 1st Year 2025-2026	2nd Year 2026-2027	3rd Year 2027-2028	4th Year 2028-2029	5th Year 2029-2030	
METRICS						
Net increase of 1st year students	*30*	*50*	*75*	*150*	*200*	
Net increase in annual college enrollment UG - on campus	30	80	155	305	475	
Net increase in college SCH UG - on campus						
Net increase in annual college enrollment UG - online	-	-	-	-	-	
Net increase in college SCH UG - online	-	-	-	-	-	
Net increase in annual college enrollment Grad						
Net increase in college SCH Grad						
Number of enrollments being charged a Program Fee	30	80	155	305	475	
New Sponsored Activity (MTDC)						
Number of Faculty FTE	1	1	1	1	1	
FUNDING SOURCES						
Continuing Sources						
Net Tuition Revenue (assuming 60% of gross tuition)	432,000	1,152,000	2,232,000	4,392,000	6,840,000	assume 50% non-resident
UG AIB Revenue - On Campus enrollment						
UG AIB On Campus Degree						
UG SCH - On Campus						
UG AIB Revenue - Online enrollment						
UG AIB Online Degree						
UG SCH - Online	-	-	-	-	-	
Grad AIB Revenue						
College Fee/Program Fee Revenue (net of 15% fin. aid)	56,100	149,600	289,850	570,350	888,250	assume 50% non-resident
F and A AIB Revenues						
Reallocation from existing College funds (attach description)						
Other Items (attach description)						
Total Continuing	**$ 488,100**	**$ 1,301,600**	**$ 2,521,850**	**$ 4,962,350**	**$ 7,728,250**	
One-time Sources						
College fund balances						
Institutional Strategic Investment						
Gift Funding						
Other Items (attach description)						
Total One-time	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
TOTAL SOURCES	**$ 488,100**	**$ 1,301,600**	**$ 2,521,850**	**$ 4,962,350**	**$ 7,728,250**	**$ 17,002,150**
EXPENDITURE ITEMS						
Continuing Expenditures						
Faculty	103,000	123,125	143,303	181,536	201,824	
Other Personnel	110,000	112,750	115,569	118,458	121,419	
Employee Related Expense	68,160	75,367	82,723	95,880	103,317	
Graduate Assistantships	-	-	-	-	-	
Other Graduate Aid	-	-	-	-	-	
Operations (materials, supplies, phones, etc.)	110,500	110,500	110,500	110,500	110,500	
College Level Overhead		147,610	158,233	177,231	187,971	35% of direct cost once>50 students
Additional Space Cost						
Other Items (attach description)						
Total Continuing	**$ 391,660**	**$ 569,352**	**$ 610,329**	**$ 683,604**	**$ 725,031**	
One-time Expenditures						
Construction or Renovation						
Start-up Equipment						
Replace Equipment						
Library Resources						
Other Items (attach description)						
Total One-time	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	
TOTAL EXPENDITURES AT HOME COLLEGE LEVEL	**$ 391,660**	**$ 569,352**	**$ 610,329**	**$ 683,604**	**$ 725,031**	**$ 2,979,976**
Net Projected Fiscal Effect	**$ 96,440**	**$ 732,248**	**$ 1,911,521**	**$ 4,278,746**	**$ 7,003,219**	**$ 14,022,174**

This worksheet contains information required to compute the On Campus program offering req

	Year 1	Year 2	Year 3
Enrollment	30	50	75
# of new sections	2	2	2
		2	2
			2
Total # of new sections	2	4	6
Instructional (OPS) cost for new sections	18,000	36,000	54,000
ERE	5,760	11,520	17,280
Total Salary	**18,000**	**36,000**	**54,000**
Total ERE	**5,760**	**11,520**	**17,280**
Professor of practice on campus	85,000	87,125	89,303
ERE	27,200	27,880	28,577
Professor of practice			
ERE			
Total Salary	**85,000**	**87,125**	**89,303**
Total ERE	**27,200**	**27,880**	**28,577**
Adjunct On Campus			
ERE			
Adjunct Online			
ERE			
Total Salary	**-**	**-**	**-**
Total ERE	**-**	**-**	**-**
UG Advisor	55,000	56,375	57,784
ERE	17,600	17,984	18,433
Total Salary	**55,000**	**56,375**	**57,784**
Total ERE	**17,600**	**17,984**	**18,433**
Staff (Career and/or Program Coordination)	55,000	56,375	57,784
ERE	17,600	17,984	18,433
Total Salary	**55,000**	**56,375**	**57,784**
Total ERE	**17,600**	**17,984**	**18,433**

Total Graders

Total ERE

Total Lab Assistants
Total ERE

Overall - Faculty	103,000	123,125	143,303
Overall - Staff	110,000	112,750	115,569
ERE	68,160	75,367	82,723
Total Personnel	281,160	311,242	341,595
	-	-	-

uirements for additional personnel.

Year 4	Year 5	Total
150	200	
4	4	
2	4	
2	2	
2	2	
10	12	
90,000	108,000	1
28,800	34,560	
90,000	**108,000**	
28,800	**34,560**	
91,536	93,824	1
29,291	30,024	
91,536	**93,824**	
29,291	**30,024**	
-	-	
-	-	
59,229	60,710	1
18,894	19,366	
59,229	**60,710**	
18,894	**19,366**	
59,229	60,710	1
18,894	19,366	
59,229	**60,710**	
18,894	**19,366**	

181,536	201,824
118,458	121,419
95,880	103,317
395,873	426,560
-	-

Operating Expenses	
Category	**FY Cost**
Dept. Travel	$25,500
Events/Conferences	$15,000
Office Supplies	$5,000
Other Operating Expenses	$25,000
Recruitment	$35,000
Student group support	$5,000
Total	$110,500

THE UNIVERSITY OF ARIZONA

Course Use/Collaboration/Concern Form

Please use this form to notify other colleges that your proposed new program intends to use course(s) under their ownership; has identified potential avenues for interdisciplinary collaboration; and/or wants to hear their concerns about the creation of this program.

Note: Requesting college should provide this request to leadership in unit who owns courses. Responding unit should respond within 10 business days from receipt. Lack of response after the 10 business days is presumed approval.

FOR REQUESTING COLLEGE:

I. Initiating College: Engineering

II. Representative(s) making the request: Ricardo Valerdi

III. Planned proposed program: Integrated Business and Engineering

IV. Planned program start date: Fall 2025

V. Courses planned to be included, belonging to college / departments:

Civil and Architectural Engineering / Mechanics

Electrical and Computer Engineering

FOR REVIEWING COLLEGE:

1. CE214 Statics **Yes** ☒ **No**☐ **Conditionally**☐**:** *Under what conditions?*
2. ECE207 Elements of Elec. Engr. **Yes** ☒ **No**☐ **Conditionally**☐**:** *Under what conditions?*
3. Course #3 **Yes** ☐ **No**☐ **Conditionally**☐**:** *Under what conditions?*
4. Course #4 **Yes** ☐ **No**☐ **Conditionally**☐**:** *Under what conditions?*
5. Course #5 **Yes** ☐ **No**☐ **Conditionally**☐**:** *Under what conditions?*

VI. Parameters of Use (add rows as necessary):

Undergraduate/Graduate

Course #	Units	Description of use (i.e., gen ed, major core, emphasis, elective/selective)
CE214	*3*	*Major core*
ECE207	3	*Major core*

THE UNIVERSITY OF ARIZONA

Course Use/Collaboration/Concern Form

VII. **Expected Yearly Enrollment (add rows as necessary):**

Course #	Units	Exp Enrollment for Yr 1	Exp Enrollment for Yr 2	Exp Enrollment for Yr 3
CE214	**3**	**20**	**30**	**40**
ECE207	**3**	**20**	**30**	**40**

VIII. **Opportunities for Interdisciplinary Collaboration (leave blank if none):**

IX. **Concerns about Proposed Program (leave blank if none):**

X. **Representative(s) reviewing request:** Kelly Potter, Assoc. Dean for Academic Affairs

Signature: _____ Date: ___9/3/2024_____

THE UNIVERSITY OF ARIZONA

OFFICE OF UNDERGRADUATE EDUCATION
Administration Building, 402
1401 E. University Blvd.
PO Box 210066
Tucson, AZ 85721-0066

To: Mike Kwinn, Director Integrated Business and Engineering Program, College of Engineering

From: Greg Heileman, Ph.D., Vice Provost for Undergraduate Education

Date: October 8, 2024

Subject: Approval of Preliminary Proposal for a BS Integrated Business and Engineering (IBE)

Thank you for submitting the preliminary proposal for a BS Integrated Business and Engineering (IBE). The degree will focus on learning the fundamentals of business and engineering and then applying those fundamentals to interesting and significant projects from real-world clients in order to make a real difference prior to graduation. We believe your ideas are sufficiently well developed that it now makes sense to advance through the stages of the formal academic program approval process.

Please proceed to the development of a full proposal, and do not hesitate to reach out to the Curricular Affairs Office for assistance with this process.

CC: Ron Marx, Interim Senior Vice President for Academic Affairs and Provost
Liz Sandoval, Director, Curricular Affairs, Academic Administration
Jeff Schatzberg, Vice Dean, Eller College of Management and Interim Head, McGuire Center for Entrepreneurship
Karthik Kannan, Dean, Eller College of Management