

The completed and signed proposal should be submitted by the Dean's Office to: curriculumplanning@asu.edu. Before academic units can advertise undergraduate minors or include them in their offerings as described in the university catalogs, they must be recommended for approval by the Senate Curriculum and Academic Programs Committee and approved by the University Provost.

Definition and minimum requirements:

These are the minimum requirements for approval. Individual undergraduate minors may have additional requirements.

A minor is an approved, coherent focus of academic study in a single discipline, other than the student's major, involving substantially fewer hours of credit than a corresponding major. Certain major and minor combinations may be deemed inappropriate either by the college or department of the major or minor. Inappropriate combinations include (but would not be limited to) ones in which an excessive number of courses in the minor are simultaneously being used to fulfill requirements of the student's major.

A minor:

- Requires a minimum of 15 semester hours of which at least 9 semester hours must be upper division
- Is not intended for students pursuing a major in the department which offers the minor

College/School/Institute: Ira A. Fulton Schools of Engineering / W. P. Carey School of Business
Department/Division/School: The Polytechnic School
Proposing Faculty Group (if applicable): Technological Entrepreneurship & Management (CTECHMAN)
Proposed Minor Name: Technological Entrepreneurship and Management
Requested effective date: 2018-19
Delivery method: Both, On-Campus and ASU Online

Note: Once students elect a campus or On-line option, students will not be able to move back and forth between the on-campus and the ASU Online options. Approval from the Office of the University Provost and Philip Regier (Executive Vice Provost and Dean) is required to offer programs through ASU Online.

Campus/Locations: indicate all locations where this program will be offered.

Downtown Phoenix Polytechnic Tempe West Other: ASU Online

Proposal Contact

Name: Cindy Boglin **Title:** Assistant Director, Advising Services
Phone number: 480-727-5213 **Email:** cindy.boglin@asu.edu

DEAN APPROVAL(S)

This proposal has been approved by all necessary unit and College/School levels of review. I recommend implementation of the proposed organizational change.

College/School/Division Dean name: James S. Collofello

Signature  **Date:** 11/17/17

College/School/Division Dean name: Amy Hillman
(if more than one college involved)

Signature  **Date:** 9.29.17

Note: An electronic signature, an email from the dean or dean's designee, or a PDF of the signed signature page is acceptable.

1. Overview

A. Description

Provide a brief description of the proposed minor.

A minor in Technological Entrepreneurship and Management is available to students throughout the university who are interested in advancing ideas for new/improved products/services but wish to pursue majors in other colleges. The courses available for the minor are designed to advance entrepreneurial/systems thinking and cover a broad range of topics important to creation of new products and services, such as

- creativity
- entrepreneurship
- innovation
- global impact
- systems thinking

B. Why should this be a minor rather than a concentration?

Minors are an optional way for students to choose courses that personally interest them without the commitment/time of a second major. A minor helps to expand the college learning experience without compromising success in a chosen career field.

Concentrations are designed to offer additional specific classes in one’s chosen degree requirements. In other words, a concentration provides a narrow path within a broad degree program. Concentrations can be used to inform employers of a students’ specific area of interest/expertise.

C. Affiliation

If the minor is affiliated with a degree program, include a brief statement of how it will complement the program. If it is not affiliated with a degree program, incorporate a statement as to how it will provide an opportunity for a student to gain knowledge or skills not already available at ASU.

This minor will complement the Technological Entrepreneurship and Management program by creating an entrepreneurial mindset in the students. The minor will serve the needs of students in other majors who want to expand their knowledge base and skill set in the area. Courses are normally delivered by experiential learning opportunities or scenarios that will challenge students’ thinking and make explicit the need for creativity and innovation in their chosen career fields.

D. Demand

Explain the need for the new minor (e.g., market, student demand, interdisciplinary considerations).

Students desire to have intellectual effectiveness and precision in more than one area as evidenced by the request from other programs within Fulton Schools of Engineering (Graphic Information Technology, Information Technology, Engineering) and from programs outside Fulton Schools of Engineering (New College of Interdisciplinary Arts & Sciences, Future of Innovation in Society, and Mary Lou Fulton Teacher College). The establishment of a minor for Technological Entrepreneurship and Management will allow students in these disciplines to integrate their program specific skills with a basic knowledge of entrepreneurship in order to create new products/services, and begin their own business or consulting services. For students seeking to make incremental improvements, this minor will give them the necessary skills to analyze, interpret, and make recommendations for process and product improvement.

E. Projected Enrollment

What are enrollment projections for the first three years?

	1st Year	2nd Year (Yr. 1 continuing + new entering)	3rd Year (Yr. 1 & 2 continuing + new entering)
Number of Students <i>(Headcount)</i>	50	105	175

2. Support and Impact

A. Faculty governance

Provide a supporting letter from the chair of the academic unit verifying that the proposed minor has received faculty approval through appropriate governance procedures in the unit and that the unit has the resources to support the minor as presented in the proposal, without impacting core program resources.

Letter attached

Other related programs

Identify other related ASU programs and outline how the new minor will complement these existing ASU programs. (If applicable, statements of support from potentially-affected academic unit administrators need to be included with this proposal submission.)

In addition to the programs listed in 1D above, this minor can complement existing ASU programs in business, health, science, arts and design, engineering, and behavioral health related fields. The minor will broaden a student's academic preparation and appeal to and inform students of the skills that are important to technology entrepreneurship and innovation. This additional academic preparation will prepare students to be competitive in the job market.

B. Letter(s) of support

Provide a supporting letter from each college/school dean from which individual courses are taken.

All courses are taken through the Technological Entrepreneurship and Management (TEM) program.

3. Academic Curriculum and Requirements

A. Knowledge, competencies, and skills

List the knowledge, competencies, and skills students should have when they graduate from the proposed degree program. You can find examples of program Learning Outcomes at (<https://uoeee.asu.edu/plan-outcomes>).

- Utilize the knowledge of entrepreneurship and innovation gained through project-based instruction to plan a business venture.
- Utilize a systems approach to evaluate the design of an entrepreneurial or innovative venture.
- Launch products and services from idea generation through actualization.
- Demonstrate the ability to identify, analyze and synthesize information to address and solve global use-inspired open-ended problems, assessing their impact on social, cultural and economic environments.
- Apply quantitative and qualitative methods to demonstrate continuous improvement of global products, services and processes.

B. Assessment

Describe the plan and methods to assess whether students have achieved the knowledge, competencies and skills identified in the Learning Outcomes. You can find examples of assessment methods at (<https://uoeee.asu.edu/creating-plan>).

Students will be assessed through direct and indirect assessment. Direct assessment measure(s) will include exams and quizzes, homework assignments, discussions (both online discussion threads and in-class discussions), oral and written presentations, research papers, and final projects.

Indirect assessment measure(s) will include surveys and interviews of alumni and employers, admission to graduate school, and student focus groups.

Assessment:

Assessment criteria: literacy, discipline specific knowledge, communication, critical thinking

Using a systems approach, 70% of students will receive a "C" or better in an applied project that plans an entrepreneurial or innovative venture to address a social, cultural, or environmental problem.

A. Program Map

Attach a copy of the “proposed” map for this minor program. Instructions on how to create a “proposed minor map” in [BAMM](#) can be found in the [Build a Major Map Training Guide](#).

B. Provide a description of the curricular requirements for the minor. Be specific in listing required courses as well as electives and specify the total minimum number of hours required for the minor.

Required Minor Courses:	Credit Hours
FSE 301 Entrepreneurship and Value Creation OR ENT 360 Entrepreneurship and Value Creation	3
TEM 230 Creativity and Business Innovation OR ENT 340 Creativity and Innovation	3
TEM 330 Systems Innovation OR TEM 431 Innovation Management	3
TMC 110 Understanding the Enterprise OR ENT 305 Principles of Entrepreneurship	3
Section Subtotal	12
Electives (choose two)	
ACC 382 Accounting and Financial Analysis	3
CIS 300 Web Design and Development OR GIT 215 Introduction to Web Authoring	3
ENT 446 Venture Capital Experience	3
ENT 447 Lean Launch	3
ENT 448 Corporate Entrepreneurship	3
LES 380 Consumer Perspective of Business Law OR OMT 402 Legal Issues for Technologists	3
MGT 380 Management and Strategy for Nonmajors OR TMC 430 Enterprise Strategy and Innovation	3
MKT 425 Global Marketing Management	3
TEM 294 Social Entrepreneurship I	3
TEM 311 Opportunity Analysis	3
TEM 394 Social Entrepreneurship II	3
TEM 400 Technology Entrepreneurship	3
TEM 481 Consulting Project	3
TEM 482 Startup Workshop	3
TMC 310 Promotion of the Enterprise OR MKT 300 Marketing and Business Performance OR MKT 390 Essentials of Marketing OR AGB 420 Food Advertising and Promotion	3
TMC 320 Funding the Enterprise OR FIN 455 Entrepreneurial Finance	3
TMC 330 Leading the Enterprise OR MGT 300 Organization and Management Leadership OR ENT 441 Entrepreneurial Management	3
TMC 331 Quality Assurance	3
TMC 410 Enterprise Operations	3
TMC 470 Enterprise Planning and Implementation	3
Section Subtotal	6

Other Minor Requirements

- * Four (4) of the six (6) courses listed must be upper division.
- **To be included in the minor major map: By petition, students can take two (2) upper division electives from their chosen discipline.

Total minimum credit hours required for the Minor: 18 credit hours

- A. Minimum residency requirement
How many hours of the minor must be ASU credit? 18
- B. New Courses
Provide prefix, number and a brief course description for each new course.

Note: All new required courses should be submitted in Curriculum ChangeMaker and ready for Provost’s Office approval before this minor is put on Curriculum and Academic Programs Committee (CAPC) agenda

4. Administration and Resources

- A. Enrollment Criteria
Describe the procedures and any qualifications for enrollment in the minor.
Application:

A student seeking the Technological Entrepreneurship & Management minor must see an advisor in the student's major in order to add the minor to the student's degree audit (DARS).

Current ASU undergraduate students may pursue a minor and have it recognized on their ASU transcript at graduation. Students interested in pursuing a minor should consult their academic advisor to declare the minor and to ensure that an appropriate set of courses is taken. Minor requirements appear on the degree audit once the minor is added. Certain major and minor combinations may be deemed inappropriate by the college or department of either the major program or the minor. Courses taken for the minor may not count toward both the major and the minor. Students should contact their academic advisor for more information.
- B. Administration
How will the proposed minor be administered (including enrollment, student advisement, retention, minor completion verification, etc.)?
This degree will be administered through the Ira A. Fulton Schools of Engineering at the Polytechnic campus.
- C. What are the resource implications for the proposed minor, including any projected budget needs? Will new books, library holdings, equipment, laboratory space and/or personnel be required now or in the future? If multiple units/programs will collaborate in offering this minor, please discuss the resource contribution of each participating program. Letters of support must be included from all academic units that will commit resources to this minor.
All resources are currently available for the minor
- D. Primary Faculty
List the primary faculty participants regarding this proposed minors. For interdisciplinary minors, please include the relevant names of faculty members from across the University.

Name	Title	Area(s) of Specialization as they relate to proposed minor
Richard Filley	Academic Professional	Entrepreneurship & Innovation
Chad Kennedy	Lecturer	Technology Entrepreneurship, Creativity, Design and Project Mgt

Yueming (Lucy) Qiu	Assistant Professor	Economics, Finance and Entrepreneurship
Jason Bronowitz	Lecturer	Entrepreneurship, Innovation, and Marketing
Steven Cho	Lecturer	Technology Entrepreneurship and Marketing
Gary Waissi	Professor	Strategy, Statistical Modeling, Senior Project

5. Additional Materials

- A. Appendix
Complete and attach the Appendix document.
- B. Program of study
Provide one or more model programs of study (if appropriate).
- C. Attach other information that will be useful to the review committees and the Office of the University Provost.

**APPENDIX
OPERATIONAL INFORMATION FOR MINORS**

(This information is used to populate the Degree Search/catalog website.

Please consider the student audience in creating your text.)

1. Proposed Minor Name: Technological Entrepreneurship and Management

2. Description (150 words maximum)

A minor in technological entrepreneurship and management is available to students throughout the university who are interested in advancing ideas for new or improved products or services. The courses available for the minor are designed to advance entrepreneurial and systems thinking, and cover a broad range of topics important to venture startups such as creativity, entrepreneurship, innovation, global impact and systems thinking. This minor is available as either an on-campus or a 100 percent online program.

3. Contact and Support Information

Building Name, code and room number: ([Search ASU map](#))
 Program office telephone number: (i.e. 480/965-2100)
 Program Email Address:
 Program Website Address:

WANER 240
 480/727-1874
 technology@asu.edu
<https://poly.engineering.asu.edu/tem/bs-technological-entrepreneurship-and-management/>

4. Program Requirements: Provide applicable information regarding the program such as curricular restrictions or requirements, specific course lists, or academic retention requirements.

Completion of the technological entrepreneurship and management minor requires 18 resident credit hours of the specified TEM courses with a grade of “C” or better in each course.

Students may not double count any courses with other entrepreneurship certificates.

Required Minor Courses:	Credit Hours
FSE 301 Entrepreneurship and Value Creation OR ENT 360 Entrepreneurship and Value Creation	3
TEM 230 Creativity and Business Innovation OR ENT 340 Creativity and Innovation	3
TEM 330 Systems Innovation OR TEM 431 Innovation Management	3
TMC 110 Understanding the Enterprise OR ENT 305 Principles of Entrepreneurship	3
Section Subtotal	12
Electives (choose two)	
ACC 382 Accounting and Financial Analysis	3
CIS 300 Web Design and Development OR GIT 215 Introduction to Web Authoring	3
ENT 446 Venture Capital Experience	3
ENT 447 Lean Launch	3
ENT 448 Corporate Entrepreneurship	3
LES 380 Consumer Perspective of Business Law OR OMT 402 Legal Issues for Technologists	3
MGT 380 Management and Strategy for Nonmajors OR TMC 430 Enterprise Strategy and Innovation	3
MKT 425 Global Marketing Management	3

TEM 294 Social Entrepreneurship I	3
TEM 311 Opportunity Analysis	3
TEM 394 Social Entrepreneurship II	3
TEM 400 Technology Entrepreneurship	3
TEM 481 Consulting Project	3
TEM 482 Startup Workshop	3
TMC 310 Promotion of the Enterprise OR MKT 300 Marketing and Business Performance OR MKT 390 Essentials of Marketing OR AGB 420 Food Advertising and Promotion	3
TMC 320 Funding the Enterprise OR FIN 455 Entrepreneurial Finance	3
TMC 330 Leading the Enterprise OR MGT 300 Organization and Management Leadership OR ENT 441 Entrepreneurial Management	3
TMC 331 Quality Assurance	3
TMC 410 Enterprise Operations	3
TMC 470 Enterprise Planning and Implementation	3
Section Subtotal	6

Other Minor Requirements

* Four (4) of the six (6) courses listed must be upper division.

**To be included in the minor major map: By petition, students can take two (2) upper division electives from their chosen discipline.

Depending upon a student's undergraduate program of study, prerequisite courses may be needed in order to complete the requirements of this minor.

Total minimum credit hours required for the Minor: 18 credit hours

5. Additional Enrollment Requirements

If applicable list any additional enrollment requirements students must complete

GPA Requirement: 3.00 minimum; junior standing

Majors Ineligible to Add This Minor:

BS in Technological Entrepreneurship and Management; BAS in Applied Science (Operations Management)

Other Enrollment Requirements:

Current ASU undergraduate students may pursue a minor and have it recognized on their ASU transcript at graduation. Students interested in pursuing a minor should consult their academic advisor to declare the minor and to ensure that an appropriate set of courses is taken. Minor requirements appear on the degree audit once the minor is added. Certain major and minor combinations may be deemed inappropriate by the college or department of either the major program or the minor. Courses taken for the minor may not count toward both the major and the minor. Students should contact their academic advisor for more information. The technological entrepreneurship and management minor is open to non-TEM undergraduate students. TEM students are not eligible to apply for this minor.

6. Delivery/Campus Information Delivery:

Both, On-Campus and ASU Online

Note: Once students elect a campus or On-line option, students will not be able to move back and forth between the on-campus and the ASU Online options. Approval from the Office of the University Provost and Philip Regier (Executive Vice Provost and Dean) is required to offer programs through ASU Online.

7. Campus/Locations: indicate all locations where this program will be offered.

Downtown Phoenix Polytechnic Tempe West Other: Online

MLPPOKC

Completion of the technological entrepreneurship and management minor requires 18 resident credit hours of the specified TEM courses with a grade of "C" or better in each course.

Junior standing and a 3.00 GPA. Technological Entrepreneurship and Management, BS or Applied Science (Operations Management) BAS students may not enroll in this minor.

Required Courses -- 12 credit hours

FSE 301 / ENT 360: Entrepreneurship and Value Creation (3)

TEM 230: Creativity and Business Innovation or ENT 340: Creativity and Innovation (L or HU) (3)

TEM 330: Systems Innovation or TEM 431: Innovation Management (3)

TMC 110: Understanding the Enterprise or ENT 305: Principles of Entrepreneurship (3)

Elective Courses -- 6 credit hours

ACC 382: Accounting and Financial Analysis (3)

CIS 300: Web Design and Development or GIT 215: Introduction to Web Authoring (3)

ENT 446: Venture Capital Experience (3)

ENT 447: Lean Launch (3)

ENT 448: Corporate Entrepreneurship (3)

LES 380: Consumer Perspective of Business Law or OMT 402: Legal Issues for Technologists (3)

MGT 380: Management and Strategy for Nonmajors or TMC 430: Enterprise Strategy and Innovation (3)

MKT 425: Global Marketing Management (G) (3)

TEM 294: Social Entrepreneurship I (3)

TEM 311: Opportunity Analysis (3)

TEM 394: Social Entrepreneurship II (3)

TEM 400: Technology Entrepreneurship (3)

TEM 481: Consulting Project (3)

TEM 482: Startup Workshop (3)

TMC 310: Promotion of the Enterprise or MKT 300: Marketing and Business Performance or MKT 390: Essentials of Marketing or AGB 420: Food Advertising and Promotion (3)

TMC 320: Funding the Enterprise or FIN 455: Entrepreneurial Finance (3)

TMC 330: Leading the Enterprise or MGT 300: Organization and Management Leadership or ENT 441: Entrepreneurial Management (3)

TMC 331: Quality Assurance (3)

TMC 410: Enterprise Operations (3)

TMC 470: Enterprise Planning and Implementation (3)

At least four (4) of the six (6) courses must be upper division.

Depending on a student's undergraduate program of study, prerequisite courses may be needed in order to complete the requirements of this minor.

By petition, students can take two (2) upper division electives from their chosen discipline.

June 30, 2017

Curriculum Planning Committee
Dean's Office
Ira A. Fulton Schools of Engineering
Tempe, Arizona

Dear Committee Members,

The faculty of the Technological Entrepreneurship & Management (TEM) Program has proposed the establishment of a minor degree offering. This minor degree will consist of 18 hours of course work (15 required, 6 electives) chosen from the curriculum already established for the program.

This letter is added as an attachment to the Proposal to Establish a Minor to validate this minor degree offering was discussed and unanimously approved by the TEM faculty at their faculty meeting.

Sincerely,



Carolyn Hirata, MST
Program Chair, Technological Entrepreneurship & Management

From: Kay Faris
Sent: Friday, September 29, 2017 5:16 PM
To: Cindy Boglin <Cindy.Boglin@asu.edu>
Cc: Kay Faris <KAY.FARIS@asu.edu>; Michele Pfund <Michele.Pfund@asu.edu>; Daniel Eckstrom <Daniel.Eckstrom@asu.edu>; Carolyn Hirata <Carolyn.Hirata@asu.edu>
Subject: FW: TEM

Hi Cindy,

Attached is the TEM Minor proposal that has been approved through our governance process in W. P. Carey. We have approval from our Undergraduate Committee, our Faculty Council and the Dean. We are very supportive of this co-branded program.

If you have any questions, please let me know.

Thanks,

Kay

Kay A. Faris
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