



NEW GRADUATE CONCENTRATION PROPOSALS
ARIZONA STATE UNIVERSITY
GRADUATE COLLEGE

This form should be used for academic units wishing to propose a new concentration for existing graduate degrees.

A concentration is a subspecialty within a degree and major, which reflects that the student has fulfilled a designated, specialized course of study, which qualifies the student as having distinctive skills and training in one highly concentrated area of the major. Concentrations are formally-recognized educational designations (including the assignment of a university plan code for reporting/record-keeping purposes and appearance on the ASU transcript). Concentrations are to be distinguished from not formally recognized academic distinctions frequently referred to as “emphases,” “tracks,” “foci,” “options,” etc.

Submit the completed and signed (chairs, unit deans) proposal to the **Office of Graduate Academic Programs**. Mail code 1003 and electronic copies to eric.wertheimer@asu.edu or Denise.Campbell@asu.edu

Please type.

| | |
|--|---|
| Contact Name(s): Gary R. Waissi | Contact Phone(s): (480) 727-1595 |
| College/School/Division Name: College of Technology and Innovation (CTI) | |
| Academic Unit Name: (or proposing faculty group for interdisciplinary proposals) Department of Technological Entrepreneurship and Innovation Management (TEIM) | |
| Existing Graduate Degree and Major under which this concentration will be established: Master of Science in Technology (MSTech) | |
| Proposed Concentration Name: Global Technology and Entrepreneurship (GTE) | |
| Requested Effective Term and Year: Fall 2013 | |
| Do Not Fill in this information: Office Use Only Plan Code: | CIP Code: |

1. Overview

- A. Provide a brief description (*not to exceed 250 words*) of the new concentration (including the specific focus of the new concentration, relationship to other concentrations in this degree program, etc).

The College of Technology and Innovation offers the MSTech in Technology with a concentration in Global Technology and Entrepreneurship (GTE) preparing graduates of the program for entrepreneurial and intrapreneurial roles in global technology-driven organizations (private, public, as well as start-ups and Small and Medium Enterprises - SMEs).

Global Technology and Entrepreneurship (GTE) is defined here as technology management and use of technology for human advantage, as well as a process by which individuals identify opportunities, threats, strengths and weaknesses, with the goal of advancing knowledge via entrepreneurship in order to create value. A company or an organization adopts, uses and manages technology to gain and retain a strategic competitive advantage. The leadership as well as all employees (knowledge workers) has to embrace the role of technology, entrepreneurship and intrapreneurship in their organization’s value chain, and the role of the organization in the industry supply chain and value chain network. Global Technology and Entrepreneurship, for agility and adaptability to the changing global competitive environment, serves as an enabler in the implementation of the organization’s strategy.

Global Technology and Entrepreneurship consists of strategic management of technology; entrepreneurship and intrapreneurship; innovation; strategic adoption and use of technology; analysis and modeling of systems; identification, testing and acceleration of adoption of new business- and manufacturing processes; continuous improvement and lean; creation of, and collaboration in, special technology and industry clusters for best practices; and thereby, contribution to, and utilization of knowledge management.

2. Impact Assessment

- A. Explain the unit’s need for the new concentration (e.g., market demand, research base, direction of the discipline, and interdisciplinary considerations). How will the new concentration complement the existing degree program, including enrollment, national ranking, etc?

The concentration in Global Technology and Entrepreneurship supports the direction of the CTI, the discipline and the department. The existing CTI Technology Entrepreneurship Management undergraduate program has seen very rapid enrollment growth, expanding to over 200 students within several years, and this new concentration under the MS in Technology degree provides avenues of growth mirroring those within the undergraduate degree. The concentration provides a unique pathway within the MS Tech degree by its synergistic inclusion of “global”, “entrepreneurship”, “innovation,” “lean” and “systems” topics.

Industry need – The program is designed to address strategy, lean six sigma, systems analysis and innovation skill needs demonstrated by technology companies. For example, current CTI student internships in strategy, systems and lean six sigma at Intel; current graduate level applied projects in innovation, systems and lean six sigma at Intel; a current graduate level applied project in systems analysis and lean six sigma at Amazon; a current graduate level applied project in systems analysis, process improvement and lean six sigma by a student for the Electric House, Saudi Arabia; a current graduate level strategy project of medical record standardization, process improvement and automation for a local hospital; aerospace- and defense SME supply chain database and software for A&D companies; DoD acquisition process software for A&D companies (<http://129.219.40.44/adsr/Default.aspx>). The program also addresses needs parallel (but not duplicate) to the systems engineering executive program by Fulton Engineering to General Dynamics (2008-2010). These projects and activities, as examples, demonstrate the need of technology companies for the knowledge, skills and competencies that the proposed concentration addresses, and the program graduates will possess.

- B.** Please identify other **related** ASU programs and outline how the new concentration 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.)**

The College of Technology and Innovation offers currently a BS in Technological Entrepreneurship and Management. The proposed concentration may attract graduates of this undergraduate program to consider applying to this new graduate concentration program, plus attract students from a variety of other UG degree programs. The proposed program is intended for a wide audience, uses primarily project-based experiential learning and is focused on Global Technology and Entrepreneurship. Thus, this new concentration does not duplicate or impact other programs at ASU but is complementary to those programs.

The proposal has been sent to the W. P. Carey School of Business for comment. The notification of support is attached to this proposal.

- C.** Is this an interdisciplinary concentration? If yes, please address the relationship of the proposed concentration to other existing degree programs and any parallel or similar concentrations in these degree programs. **(Please include relevant Memoranda of Understanding regarding this interdisciplinary concentration from all applicable academic units.)**

n/a

3. Academic Requirements and Curriculum

- A.** What are the total minimum hours required for the major and degree under which the proposed concentration will be established?
33 credit hours required for the degree and concentration.
- B.** Please provide the admissions criteria for the proposed concentration. If they are identical to the admission criteria for the existing major and degree program under which this concentration will be established, you may attach a copy of these criteria as they appear on the departmental website, or other source (please indicate source). Please also list all undergraduate and graduate degrees and/or related disciplines that are required for admission to this concentration program.

In addition to the University requirements, the Program admission requirements include:

1. An appropriate technical, science or business baccalaureate degree from an accredited college or university
2. A minimum of 30 credit hours in technology, science and mathematics or their equivalents, with a grade “C” or better in each course.
3. Completion of an undergraduate college-level statistics and probability course with a grade of B or better.
4. Completion of an undergraduate college-level technical writing and communications course with a grade “B” or better.

5. A minimum undergraduate grade point average (GPA) of 3.0 on a 4.0 point scale for the last 60 credit hours of undergraduate study.
6. GRE test
7. A letter of application.
8. A current resume.
9. Three (3) letters of recommendation, either academic or professional.

Industrial or business experience beyond completion of a baccalaureate degree is strongly recommended. Graduate work presupposes an adequate technical preparation in a selected technology at the undergraduate level. Undergraduate deficiencies for admission to the graduate program, if any, will be specified at the time of admission and tracked by the academic unit. The applicant's past work and professional experience will also be evaluated and taken into consideration in the admission decision.

- C. If the proposed concentration is part of a larger, interdisciplinary agenda, please provide additional admission information related to students who may enter with various academic backgrounds, including expected entry-level competencies. As applicable, please also address the courses that must be taken to remedy any relevant deficiencies for incoming students.
n/a
- D. What knowledge, competencies, and skills (learning outcomes) should students have when they graduate from this proposed concentration program? Examples of program learning outcomes can be found at (<http://www.asu.edu/oue/assessment.html>).

The objective of the M.S. Technology with a concentration in Global Technology and Entrepreneurship (GTE) is to prepare graduates of the program for entrepreneurial and intrapreneurial roles in global technology-driven organizations (private-, public, as well as start-ups and SMEs). Graduates will be able to lead and manage strategy-, innovation-, lean-, and systems analysis projects. And, thereby, graduates, as their career grows, will be better prepared to start their own companies, as well as, will be better prepared to move into a leadership role outside their area of technical expertise. Graduates of the program possess skills in research and the ability to apply these research skills in practice.

Specifically, graduates of the program will be able to critically assess and solve problems, as well as communicate about, contribute to and utilize their knowledge and applied learning experience relating to strategic management of technology; entrepreneurship and intrapreneurship; innovation; strategic adoption and use of technology; analysis and modeling of systems; identification, testing and acceleration of adoption of new business- and manufacturing processes; continuous improvement and lean; as well as assess, evaluate and adopt global best practices; and contribute to and utilize knowledge management.

The proposed concentration uses experiential project-based learning.

- E. How will students be assessed and evaluated in achieving the knowledge, competencies, and skills outlined in 3.D. above? Examples of assessment methods can be found at (<http://www.asu.edu/oue/assessment.html>).

Outcome 1:

Graduates of the program will be able to critically assess and solve problems, as well as communicate about, contribute to and utilize their knowledge and applied learning experience relating to strategic management of technology; entrepreneurship and intrapreneurship; strategic adoption and use of technology; analysis and modeling of systems; identification, testing and acceleration of adoption of new business- and manufacturing processes; continuous improvement and lean; as well as assess, evaluate and adopt global best practices; and contribute to and utilize knowledge management.

Measure 1.1 (direct):

Applied Project Track: OMT 593 Applied Project

Performance Criterion 1.1

At least 80% of the students will earn a rating 80% or better in the Applied Project.

F. Please provide the curricular structure for the proposed concentration.

- Additionally, please ensure that all **new** required course proposals have been submitted to the Provost's office through the Curriculum ChangeMaker online course proposal submission system for approval before this concentration is put on the University Graduate Council and CAPC agendas.

Non-Thesis (Applied Project)

| Required Courses for the Concentration | | | Credit Hours |
|---|---|-----------------------------|--|
| (Prefix & Number) | (Course Title) | (New Course?) Yes or No? | 9 |
| OMT 504 | Law and Ethics for Technical Professionals | no | 3 |
| OMT 520 | Strategic Management of Technology | no | 3 |
| OMT 549 | Research Techniques and Applications | no | 3 |
| Additional Concentration Courses | | | Credit Hours |
| | Select 5 courses | (New Course?) Yes or No? | 15 (Non-Thesis) |
| TEM 555 | Global Impact Entrepreneurship | Yes | 3 |
| OMT 548 | Statistical Methods for Research | No | 3 |
| OMT 560 | Managerial Decision Making | No | 3 |
| OMT 570 | Advanced Project Management | No | 3 |
| TEM 532 | Advanced Analysis of Systems | Yes | 3 |
| TEM 531 | Disruptive Innovation and Technological Evolution | Yes | 3 |
| TEM 505 | Lean Process Improvement | Yes | 3 |
| | | | |
| ELECTIVES (as deemed necessary by supervisory committee) | | | Credit Hours |
| (Prefix & Number) | (Course Title) | (New Course?) Yes or No? | 6 (as outlined below) |
| Two elective Courses from ASU graduate offerings or from partner Universities or programs OR Global Experience: Up to two concentration courses (six credit hours) may be substituted by approved courses from a global partner university, or as a part of an approved global experience. Such an approved global experience could, in part, consist of participation in the ASU, College of Technology and Innovation, Global Resolve program, or a semester- or year-long study abroad program. OR Electives: Elective graduate courses may be taken from other majors, other degree programs of ASU, for example the MS of Global Technology and Development (GTD), and other universities, with approval from the student's graduate advisory committee. These courses are to support the student's individual career goals and perceived needs. | | | 6 |
| | | | |
| CULMINATING EXPERIENCE E.g. - Capstone project, applied project, thesis (masters only) – 6 credit hours) or dissertation (doctoral only) – 12 credit hours) as applicable | | | Credit Hours |

| | |
|---|-----------|
| OMT 593 Applied Project (*Please note that students must take OMT 549 before taking OMT 593) | 3 |
| | 33 |

*** The academic unit will be responsible for ensuring that students take these courses as outlined in these sections.**

- G. Please describe the primary course delivery mode, (e.g., online, face-to-face, off-site etc.). **Please note:** If this proposed initiative will be offered completely online, clearly state that in this section.
Face to face, hybrid, and iCourses will be used to deliver the program.
- H. Please **describe** the culminating experience(s) required for completion of the existing degree and major, and the proposed concentration (e.g., thesis, dissertation, comprehensive exams, capstone course(s), practicum, applied projects, etc.).

Applied project focused on addressing a technology related problem or issue faced by industry. The faculty committee consists of three members with one serving as the chair of the committee.
- I. Please **describe** any other requirements for completion of the existing degree and major, and the proposed concentration (e.g., internships, foreign language skills, etc.).

n/a
- J. **For interdisciplinary programs**, additional sample curricular structures must be included as appendix items to this proposal relating to students with various academic backgrounds who may pursue the proposed concentration, including expected mastery of core competencies (e.g., course work, skills, and/or knowledge).

4. Administration and Resources

- A. How will the proposed concentration be administered (including recommendations for admissions, student advisement, retention etc.)? Describe the administering body in detail, especially if the proposed concentration is part of a larger interdisciplinary agenda. How will the graduate support staff for this proposed concentration program be met?
TEIM faculty evaluate applications and advise students on program and curriculum related questions. CTI student services, TEIM chair, administration support and advise students on administrative matters
- B. How many students will be admitted immediately following final approval of the concentration? What are enrollment projections for the next three years?

Fall 2013: 30 students; Fall 2014: 45 students; Fall 2015: 60 students; Fall 2016: 80 students
- C. What are the resource implications for the proposed concentration, including any projected budget needs? For Doctoral students, how will the students be supported financially? 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 concentration 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 concentration.

Existing faculty plus qualified faculty associates can deliver the program.
- D. Please list the primary faculty participants regarding this proposed concentration. For interdisciplinary concentrations, please include the relevant names of faculty members from across the University.

| Name | Title | Area(s) of Specialization as they relate to proposed concentration |
|------|-------|--|
|------|-------|--|

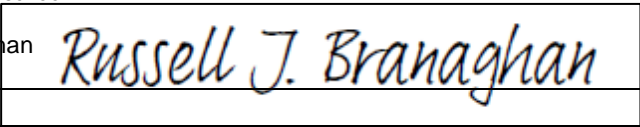
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|---|---------------------|---|
| Gary. R Waissi, Ph.D. | Professor | Statistical and systems modeling, strategy, supply chain |
| Jane E. Humble, Ph.D. | Associate Professor | Managerial decision making, process improvement, lean six sigma |
| Gerry Polesky, Ph.D. | Instructor | Lean six sigma |
| Jason Bronowitz , (Ph.D. expected from ASU) | Instructor | Instructor Innovation; entrepreneurship |

E. Is there a graduate faculty structure for this concentration program that will differ from the original degree program graduate faculty structure (**for PhD programs only**)? If yes, please include the name of the graduate faculty group and whether they will participate in offering this concentration.

n/a

5. Additional Material — Please attach any additional information that you feel relates to the proposed concentration. (Please label accordingly, i.e., Appendix or Attachment A, B, etc.)

Approvals (if the proposal submission involves multiple units, please include letters of support from those units)

| | | |
|--|---|-----------|
| DEPARTMENT CHAIR or SCHOOL DIRECTOR Dr. Russ Branaghan |  | 9/27/2012 |
| SIGNATURE | | DATE |
| DEAN (Please print or type) See attached email | | |
| SIGNATURE | | DATE |

The following section will be completed by the GC following the recommendations of faculty governance bodies.

| | | |
|--|--|------|
| EXECUTIVE VICE PROVOST FOR ACADEMIC AFFAIRS AND DEAN OF THE GRADUATE COLLEGE | | |
| SIGNATURE | | DATE |

Please note: Proposals for new concentrations also require the review and recommendation of approval from the University Graduate Council, Curriculum and Academic Programs Committee (CAPC), the Academic Senate (Information item only), and the Office of the Provost before they can be put into operation.

The final approval notification will come from the Office of the Provost.

GF0311E-92

From: Mitzi Montoya
Sent: Thursday, September 27, 2012 4:04 PM
To: Scott Danielson
Subject: MS in Tech concentration of Global Technology Management and Entrepreneurship Prop

Approved.

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*Mitzi M. Montoya, PhD
Vice Provost and Dean - College of Technology & Innovation
Arizona State University
Santan Hall - Suite 330
7321 East Sonoran Arroyo Mall
Mesa, AZ 85212
Tel: 480-727-1955*

From: Scott Danielson
Sent: Thursday, September 27, 2012 4:04 PM
To: Mitzi Montoya
Subject: MS in Tech concentration of Global Technology Management and Entrepreneurship Proposal Approval

Dean Montoya,

I am asking for your approval on the attached proposal for a new MS in Tech concentration of Global Technology Management and Entrepreneurship to be offered in the College of Technology and Innovation at the Polytechnic campus. Your approval is needed before I can send the proposal forward to the Provost's office.

Your approval indicates that the proposal has been approved by the Department and College levels of review and the College has the resources to offer this degree program. Thus, you recommend implementation of the proposed degree program.

Thank you.

Scott Danielson, Ph.D., P.E.
Associate Dean for Academic Programs
College of Technology and Innovation
Arizona State University
480-727-1185

W.P. Carey School of Business (Notification of Support)

From: Frederick Corey
Sent: Tuesday, October 09, 2012 6:54 AM
To: Mitzi Montoya
Subject: FW: Global Technology and Entrepreneurship

Mitzi,

Bob and Amy are okay with the new title.

Fred

From: Robert **Mittelstaedt**
Sent: Monday, October 08, 2012 10:01 PM
To: Amy Hillman; Frederick Corey
Subject: RE: Global Technology and Entrepreneurship

OK

From: Amy Hillman
Sent: Monday, October 08, 2012 9:56 PM
To: Frederick Corey
Cc: Robert **Mittelstaedt**
Subject: Re: Global Technology and Entrepreneurship

I'd be OK with this.

Amy

Amy Hillman
Rusty Lyon Chair of Strategy
Executive Dean
Arizona State University
amy.hillman@asu.edu

On Oct 9, 2012, at 1:35 AM, "Frederick Corey" <FREDERICK.COREY@asu.edu> wrote:
Bob and Amy,

If CTI re-titled the proposal for a concentration in Global Technology Management and Entrepreneurship as follows, would you still object?

MS in Technology with a concentration in Global Technology and Entrepreneurship

Fred

Frederick C. Corey, PhD
Vice Provost
Dean, University College
Director, School of Letters and Sciences