(NEW GRADUATE INITIATIVES)

PROPOSAL PROCEDURES CHECKLIST

Academic units should adhere to the following procedures when requesting new curricular initiatives (degrees, concentrations or certificates).

☐ **Obtain the required approval from the Office of the Provost to move the initiative forward for internal ASU governance reviews/approvals.**

- Establishment of new curricular initiative requests; degrees, concentrations, or certificates
- Rename requests; existing degrees, concentrations or certificates
- Disestablishment requests; existing degrees, concentrations or certificates

☐ **Submit any new courses that will be required for the new curricular program to the Curriculum ChangeMaker online course approval system for review and approval.**

- Additional information can be found at the Provost's Office Curriculum Development website: Courses link
- For questions regarding proposing new courses, send an email to: courses@asu.edu

☐ **Prepare the applicable proposal template and operational appendix for the proposed initiative.**

- New degree, concentration and certificate templates (contain proposal template and operational appendix) can be found at the Provost's Office Curriculum Development website: Academic Programs link

☐ **Obtain letters or memos of support or collaboration. (if applicable)**

- When resources (faculty or courses) from another academic unit will be utilized
- When other academic units may be impacted by the proposed program request

☐ **Obtain the internal reviews/approvals of the academic unit.**

- Internal faculty governance review committee(s)
- Academic unit head (e.g. Department Chair or School Director)
- Academic unit Dean (will submit approved proposal to the curriculumplanning@asu.edu email account for further ASU internal governance reviews (as applicable, University Graduate Council, CAPC and Senate)

Additional Recommendations - All new graduate programs require specific processes and procedures to maintain a successful degree program. Below are items that Graduate Education strongly recommends that academic units establish after the program is approved for implementation.

☐ **Set-up a Graduate Faculty Roster for new PhD Programs** – This roster will include the faculty eligible to mentor, co-chair or chair dissertations. For more information, please go to http://graduate.asu.edu/graduate_faculty_initiative.

☐ **Establish Satisfactory Academic Progress Policies, Processes and Guidelines** – Check within the proposing academic unit and/or college to see if there are existing academic progress policies and processes in place. If none have been established, please go to http://graduate.asu.edu/faculty_staff/policies and scroll down to the **academic progress review and remediation processes** (for faculty and staff) section to locate the reference tool and samples for establishing these procedures.

☐ **Establish a Graduate Student Handbook for the New Degree Program** – Students need to know the specific requirements and milestones they must meet throughout their degree program. A Graduate Student Handbook provided to students when they are admitted to the degree program and published on the website for the new degree gives students this information. Include in the handbook the unit/college satisfactory academic progress policies, current degree program requirements (outlined in the approved proposal) and provide a link to the Graduate Policies and Procedures website. Please go to http://graduate.asu.edu/faculty_staff/policies to access Graduate Policies and Procedures.

Check Box Directions – To place an "X" in the check box, place the cursor on the left-side of the box, right click to open the drop down menu, select ***Properties***, under ***Default value***, select ***Checked*** and then select ***Ok***.

ARIZONA STATE UNIVERSITY
PROPOSAL TO ESTABLISH A NEW GRADUATE DEGREE

This template is to be used only by programs that have received specific written approval from the University Provost's Office to proceed with internal proposal development and review. A separate proposal must be submitted for each individual new degree program.

DEGREE PROGRAM

College/School(s) offering this degree: Ira A. Fulton Schools of Engineering

Unit(s) within college/school responsible for program: School of Sustainable Engineering and the Built Environment

If this is for an official joint degree program, list all units and colleges/schools that will be involved in offering the degree program and providing the necessary resources: N/A

Proposed Degree Name: Sustainable Engineering

Master's Degree Type: Master of Science in Engineering (MSE)

Proposed title of major: Sustainable Engineering

Is a program fee required? Yes ☐ No **X**

Requested effective term: Fall **and year:** 2015
(The first semester and year for which students may begin applying to the program)

PROPOSAL CONTACT INFORMATION
(Person to contact regarding this proposal)

Name: Dr. Brad Allenby
Title: President's Professor and Lincoln Professor of Engineering and Ethics, School of Sustainable Engineering and the Built Environment
Phone: 480-727-8594
email: Braden.Allenby@asu.edu

DEAN APPROVAL

This proposal has been approved by all necessary unit and College/School levels of review, and the College/School(s) has the resources to offer this degree program. I recommend implementation of the proposed degree program. (*Note: An electronic signature, an email from the dean or dean's designee, or a PDF of the signed signature page is acceptable.*)

College Dean name:

College Dean Signature _____ **Date:** 3/20/14

College Dean name:
(if more than one college involved)

College Dean Signature _____ **Date:** _____

ARIZONA STATE UNIVERSITY
PROPOSAL TO ESTABLISH A NEW GRADUATE DEGREE

This proposal template should be completed in full and submitted to the University Provost's Office [mail to: curriculumplanning@asu.edu]. It must undergo all internal university review and approval steps including those at the unit, college, and university levels. A program **may not** be implemented until the Provost's Office notifies the academic unit that the program may be offered.

DEGREE PROGRAM INFORMATION

Master's Type: MSE

Proposed title of major: Sustainable Engineering

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1. PURPOSE AND NATURE OF PROGRAM:

A. Brief program description –

The online Masters of Science in Engineering (MSE) in Sustainable Engineering is a multi-disciplinary graduate program offered by the School of Sustainable Engineering & the Built Environment (SSEBE). The program is ideal for professionals and graduate level students with engineering and physical science backgrounds who wish to design a flexible, online, individualized plan of study leading to the MSE. Courses cover such sustainable engineering topic areas as energy systems and alternative energy production, water, transportation, earth systems engineering, industrial ecology, life cycle assessment, environmental technologies, green construction practices, and sustainable technology systems.

The goal of Sustainable Engineering (SE) is to enable long-lasting improvement of the human condition. SE transcends traditional engineering education by integrating considerations of complex social, environmental, political, and economic factors into engineering theory and practice in order to achieve more economically, technically, environmentally, institutionally and socially efficient and robust solutions. Students graduating in this degree program will acquire expertise in understanding and working effectively with complex engineering and technological systems.

B. Will concentrations be established under this degree program? ☐ Yes **X** No

2. PROGRAM NEED - Explain why the university should offer this program (include data and discussion of the target audience and market).

The online MSE in Sustainable Engineering is SSEBE's response to requests received from students who have graduated from its program and moved from the area, and from professionals around the country, for a technical online graduate degree in sustainable engineering. SSEBE has been testing this demand through the Certificate in Sustainable Technology and Management, offered through SSEBE, which has been successful, but is now being segued into a full MSE program. It is anticipated that this will help establish sustainable engineering as a distinguishing characteristic of not just SEBE and the IAFSE, but also of ASU, and enable SSEBE to not just develop a robust internal program, but an important component of the ASU and Engineering School external brand. This program will allow our 30 undergraduates an avenue to do the 4+1 program in Sustainable Engineering along with an opportunity for students in the School of Sustainability (SOS) to cross over to Engineering.

3. IMPACT ON OTHER PROGRAMS - Attach any letters of collaboration/support from impacted programs. (see Checklist coversheet)

The MSE in Sustainable Engineering is bound to have a positive impact on other ASU programs. It will complement the Master of Science (MS) in Sustainability, within the School of Sustainability (SOS), and the Construction Engineering graduate program within SEBE. Many of the classes making up the degree will form the body of knowledge integral with current technical issues which many engineering companies are grappling. This program will formalize a new academic direction in

engineering education which many universities are starting to consider seriously. The online mode of instruction will benefit a wide body of students both nationwide and worldwide

4. **PROJECTED ENROLLMENT -** How many new students do you anticipate enrolling in this program each year for the next five years? Please note, The Arizona Board of Regents (ABOR) requires nine masters and six doctoral degrees be awarded every three years. Thus, the projected enrollment numbers must account for this ABOR requirement. Our first graduate will be two years after the Masters in Sustainable Engineering is started.

5-YEAR PROJECTED ANNUAL ENROLLMENT					
Please utilize the following tabular format.	**1st Year**	**2nd Year** (Yr 1 continuing + new entering)	**3rd Year** (Yr 1 & 2 continuing + new entering)	**4th Year** (Yrs 1, 2, 3 continuing + new entering)	**5th Year** (Yrs 1, 2, 3, 4 continuing + new entering)
Number of Students Majoring (Headcount)	5	10	15	20	30

The steady state enrollment number is anticipated to be 30.

5. **STUDENT LEARNING OUTCOMES AND ASSESMENT:**
   A. **List the knowledge, competencies, and skills** students should have attained by graduation from the proposed degree program. (You can find examples of program Learning Outcomes at (http://www.asu.edu/oue/assessment.html).

      Outcome T1: Graduates of the Sustainable Engineering program will have the technical and communication skills necessary to understand the sustainability implications and interactions between systems by analyzing, designing, and synthesizing engineered systems in a sustainable framework, as measured by grades in core courses.

      Outcome T2: Graduates of the Sustainable Engineering program will develop the necessary foundation to acquire lifelong learning skills as measured by post-graduation surveys five years after graduation

      Outcome T3: Graduates will be able to explicate life cycles of technologies, and determine social and environmental considerations associated with each life cycle stage, as determined by performance in industrial ecology and life cycle assessment modules in core classes.

      Outcome T4: Graduates will be able to introduce environmental and social considerations into technology design activities, as measured by performance in core classes.

   B. **Describe the plans 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 (http://www.asu.edu/oue/assessment.html).

      Outcomes 1 and 4: Homework, quizzes, examinations, papers, technical presentations and other written assignments will be evaluated to determine whether students have correctly identified relevant environmental and social systems associated with specific technologies and design decisions, and whether having done so they have communicated the results of their analysis effectively so that appropriate design decisions are facilitated, and non-expert lay people such as managers can understand the social and environmental concerns and how they were addressed

      Outcome 2: Lifelong learning skills will be evaluated by professors based on classroom material as in Outcome 1, enhanced by interviews with graduating students of the program, and, once they are available, graduates who have been applying skills learned in the program for several years.

Outcome T3: Student work products will be assessed to determine if a) technologies are evaluated using an industrial ecology/lifecycle framework, b) if the identification of lifecycle stages and associated environmental and social considerations is done properly, and c) if the results are communicated effectively so that both expert and non-expert audiences can understand the process and the results.

6. ACCREDITATION OR LICENSING REQUIREMENTS (if applicable): Provide the names of the external agencies for accreditation, professional licensing, etc. that guide your curriculum for this program, if any. Describe any requirements for accreditation or licensing.

The proposed degree integrates ABET requirements into the design and conduct of courses. Although there are no licensing requirements, the degree will be desirable to assist students in preparing for the professional engineering licensing exam but we do not intend on applying for accreditation since a graduate program in SE is not accredited by ABET.

7. FACULTY, STAFF, AND RESOURCE REQUIREMENTS:

A. Faculty

i. Current Faculty - List the name, rank, highest degree, area of specialization/expertise and estimate of the level of involvement of all current faculty members who will teach in the program.

The Graduate Supervisory Committee (GSC) shall consist of tenured or tenure-track faculty from SEBE. The advisor shall serve as the chair of the GSC.

From the Civil, Environmental and Sustainable Engineering Program

- **Braden Allenby**; PhD; President's Professor; Research Expertise: Sustainable engineering, Design for Environment, industrial ecology, engineering and applied ethics, transhumanism and emerging technologies, and earth systems engineering and management.
- **Mikhail Chester**; PhD; Assistant Professor; Research Expertise: Energy and environmental assessment of large infrastructure systems, transportation systems and cities, evaluating life-cycle and supply chain effects and their associated human and environmental impacts.
- **Matt Fraser**; PhD; Associate Professor; Research Expertise: Urban air quality, sources and control of air pollution, sustainability analysis of energy systems; Level of Involvement: Teaches courses related to energy and the environment, renewable energy, and the scientific basis for global environmental change.
- **Amy Landis;** PhD; Associate Professor; Research Expertise: industrial ecology, byproduct synergies, biofuels for bioremediation on marginal lands, biofuels, biopolymers, development of sustainability metrics, Life Cycle Assessment.
- **Agami Reddy-** PhD, PE; Professor; Research Expertise: Sustainable energy, building energy data analytics and knowledge extraction for efficient operation of building energy systems, green building technologies and solar systems.
- **Tom Seager-** PhD; Associate Professor; Research Expertise: ultra-low energy community infrastructure, ethics education and life-cycle environmental implications of single-walled carbon nanotubes in energy applications.

From the Construction Management Program

- **W. Oswald Chong**; PhD; Associate Professor; Expertise: Carbon Emissions Modeling; Sustainable Infrastructure and Building Codes and Standards; Sustainable Engineering Information System; Life Cycle Analysis; Energy and Resource Efficiency; Weathering and Climate Impacts on Material Surface; Level of Involvement: Teaching courses in the undergraduate and graduate curriculum, mentoring graduate students, participating in unsponsored and sponsored research projects, and editorial of journals and proceedings.

- **Mounir El Asmar**; PhD; Assistant Professor; Research Expertise: Innovative project delivery systems such as integrated project delivery (IPD) and design-build (DB), performance analysis of sustainable construction practices, cost engineering; Level of Involvement: Teaching classes on innovative project delivery methods and sustainable construction at ASU. He is also the co-director of sustainable construction practices at the National Center for Excellence on SMART Innovations.
- **G. Edward Gibson**; PhD; Professor; Expertise: Front end planning, risk management, construction productivity, organizational change, dispute resolution, lessons learned; Level of Involvement: Teaching courses in the undergraduate and graduate curriculum, mentoring graduate students, participating in unsponsored and sponsored research projects. Managing the administrative side of the program as the Graduate Program Chair.
- **Kristen Parrish**- PhD; Assistant Professor; Research Expertise: Energy-efficiency in commercial buildings, lean construction, integrated project delivery, decision-making systems.

Faculty from other departments will be identified progressively

ii. **New Faculty -** Describe the new faculty hiring needed during the next three years to sustain the program. List the anticipated hiring schedule and financial sources for supporting the addition of these faculty members.

None

iii. **Administration of the program -** Explain how the program will be administered for the purposes of admissions, advising, course offerings, etc. Discuss the available staff support.

The administration of this program will be provided by current staff members in SSEBE. The current graduate advisor will respond to inquiries on the program and provide the day to day support for the program chair and faculty members through admissions and advising. Faculty members will provide the primary course advising for the program, although the graduate advisor will provide the administrative support for the program.

B. Resource requirements needed to launch and sustain the program: Describe any new resources required for this program's success such as new staff, new facilities, new library resources, new technology resources, etc

None from ASU since Global Outreach & Extended Education (GOEE) will assist in migrating the course material online on a cost share basis

8. COURSES:

A. Course Prefix(es): Provide the following information for the proposed graduate program.

i. Will a new course prefix(es) be required for this degree program?

Yes ☐ No **X**

ii. If yes, complete the **Course Prefixes / Subjects Form** for each new prefix and submit it as part of this proposal submission.

B. New Courses Required for Proposed Degree Program: Provide course prefix, number, title, and credit hours and description for any new courses required for this degree program.

CEE 572 Life Cycle Assessment for Civil Systems - Concepts of the life cycle assessment (LCA) framework exploring products, services, activities, and infrastructure systems. Key concepts for system boundary selection, functional unit selection, inventorying, impact assessment, and interpretation stages are examined with a focus on energy and environmental assessment. Advanced concepts include allocation of effects, problem formulation for assessing footprints versus decisions or policies, and assessment of infrastructure interdependencies and

supply chains. Exposure to tools and data sources will occur throughout the course and approaches for evaluation of sensitivity and uncertainty of results will be presented.

CEE 579 Sustainability Ethics - Explore the professional ethical dimensions of sustainability by being immersed in emotionally resonant, cognitively challenging educational games. Topics include environmental ethics, the Tragedy of the Commons, moral luck vs. moral hazard, inter- and intra-generational equity, the Bystander Effect, and weak vs. strong formulations of sustainability. Compare different models of moral maturity, examine moral conation and apply these to a personal self-examination of their aptitude for moral leadership.

CON 548 Sustainability in Construction - Principles associated with sustainable construction: problem definition, definition of sustainability, measures of sustainability, examination of current industry practices, financial and resource impacts of sustainable construction, and independent student investigation.

CEE 586 Sustainable Civil and Environmental Systems - This course introduces the formulation and solution of engineering systems problems using mathematical modeling, including selection of an objective function, design variables, modeling constraints and identifying an optimal solution. Students will work a number of design problems from several civil and environmental specialty areas. Special topics include risk and uncertainty, multi-criteria decision-making, and mathematical modeling of dynamic and complex systems.

APPENDIX I
OPERATIONAL INFORMATION FOR GRADUATE PROGRAMS
(This information is used to populate the Graduate Programs Search/catalog website.)

1. Provide a brief (catalog type - no more than 150 words) **program description.**

The MSE in Sustainable Engineering is a multi-disciplinary graduate program ideal for professionals and graduate level students with engineering and physical science backgrounds who wish to design a flexible, online, individualized plan of study. Courses cover such sustainable engineering topic areas as energy systems and alternative energy production, water, transportation, earth systems engineering, industrial ecology, life cycle assessment, environmental technologies, green construction practices, and sustainable technology systems. The goal of Sustainable Engineering is to enable long-lasting improvement of the human condition. Sustainable Engineering transcends traditional engineering education by integrating considerations of complex social, environmental, political, and economic factors into engineering theory and practice in order to achieve more economically, technically, environmentally, institutionally and socially efficient and robust solutions.

2. Campus(es) where program will be offered:
(Please note that Office of the Provost approval is needed for ASU Online campus options.)

X **ASU Online only (all courses online)**

All other campus options (please select all that apply):

☐ Downtown ☐ Polytechnic
☐ Tempe ☐ West

☐ **Both** on-campus **and** ☐ ASU Online **(*) -** (Check applicable campus from options listed.)

(*) Please note: Once students elect a campus option, students will not be able to move back and forth between the on-campus (in-person) or hybrid options and the ASU Online campus option.

This program is not on the Polytechnic campus but the integration of activity at the Ploytechnic campus with the Tempe campus is an on-going process; and we intend to continue to coordinate with their program and courses.

3. Admission Requirements:

Degree: Minimum of a Bachelor's or Master's degree in engineering or a closely related field from a regionally accredited College or University.

Civil engineering, Environmental engineering, construction engineering, mechanical engineering Students with an engineering degree other than the above may be admitted, with deficiencies as identified by the Sustainable Engineering faculty if appropriate.

If the applicant does not have an undergraduate degree in any of the above, Additional requirements may be placed based upon the applicant's background.

- Sufficient courses in Mathematics including but not limited to Calculus, Differential Equations, and Linear Algebra.

  A faculty committee will determine which required courses are needed on a case by case basis.

GPA: Minimum of a 3.00 cumulative GPA (scale is 4.0=A) in the last 60 hours of a student's first bachelor's degree program. Minimum of 3.00 cumulative GPA (scale is 4.0 = A) in the applicable Master's degree.

English Proficiency Requirement for International Applicants: The English proficiency requirements are the same as the Graduate Education requirement. (see Graduate Education requirement http://graduate.asu.edu/admissions/international/english_proficiency): **X Yes** ☐ **No**

The English Proficiency Requirement for International Applicants will remain consistent with Graduate Education standards.

If applicable, list any English proficiency requirements that are supplementary to the Graduate Education requirement.

Foreign Language Exam:

Foreign Language Examination(s) required? ☐Yes **X** No

Required Admission Examinations: X GRE ☐**GMAT** ☐**Millers Analogies** ☐ **None required**

Letters of Recommendation: X Yes ☐No

4. Application Review Terms (if applicable Session): Indicate all terms for which applications for Admissions are accepted and the corresponding application deadline dates, if any:

X Fall (regular) Deadline (month/year): January 1

X Spring (regular) Deadline (month/year): July 1

5. Curricular Requirements:

(Please expand tables as needed. Right click in white space of last cell. Select "Insert Rows Below")

5A. Will concentrations be established under this degree program? ☐ Yes **X** No

5B. Curricular Structure:

A total of 30 credits are required (12 credits of required core, 9 credits from one of the three individual tracks, 3 free elective credits and 6 credits /capstone/applied project/thesis).

Required Core Courses for the Degree			**Credit Hours**
(Prefix & Number)	**(Course Title)**	**(New Course?) Yes or No?**	**(Insert Section Sub-total)** **12**
CEE 581 or SOS 552	Advanced Earth Systems Engineering and Management	N	3
CEE 582 or SOS 515	Industrial Ecology and Design for Sustainability	N	3
CEE 572	Lifecycle Assessment for Civil Systems	Y	3
CON 548	Sustainable Construction	Y	3
Infrastructure Systems Track Courses (Students select three courses from the list below or other coursework approved on a case by case basis by the faculty supervisor)			**Credit Hours**

(Prefix & Number)	(Course Title)	(New Course?) Yes or No?	(Insert Section Sub-total) 9
CEE 579	Sustainability Ethics	Y	3
CEE 586	Sustainable Civil and Environmental Systems	Y	3
CON 551	Alternate Project Delivery Methods	N	3
CON 598	Front-end planning	N	3
Energy Systems Track Courses (Students select three courses from the list below or other coursework approved on a case by case basis by the faculty supervisor)			**Credit Hours**
(Prefix & Number)	**(Course Title)**	**(New Course?) Yes or No?**	**(Insert Section Sub-total) 9**
CEE 516	Sustainable Energy and Material Use	N	3
CEE 587	Sustainable Energy Technologies	N	3
ALT 501	Advanced Renewable Energy: Global Hydrogen Economy	N	3
MET 598	Alternative Energy Systems Research	N	3
Earth Systems Engineering and Industrial Ecology Track Courses (Students select coursework from the list below or other coursework approved on a case by case basis by the faculty supervisor)			**Credit Hours**
(Prefix & Number)	**(Course Title)**	**(New Course?) Yes or No?**	**(Insert Section Sub-total) 9**
IEE 534	Supply Chain Modeling/Analysis	N	3
IEE 581	Six Sigma Methodology	N	3
IEE 556	Introduction to Systems Engineering	N	3
Elective Courses *(as deemed necessary by supervisory committee)*			**Credit Hours**
(Prefix & Number)	**(Course Title)**	**(New Course?) Yes or No?**	**(Insert Section Sub-total) 3**
Students select three credit hours of a free elective course approved by their academic advisor.			3
Culminating Experience			**Credit Hours (Insert Section Sub-total) 6**
CEE 599 Thesis			6

CEE 593 Applied Project Examples might include helping municipalities to design more sustainable transportation systems, or design and operation of more sustainable commercial buildings of different kinds in different parts of the country (and hence different climate regimes). *The deliverable or deliverables for the applied or capstone project will be negotiated with the supervising professor, and will reflect the nature of the project: examples might include a consultant's report, a research paper, an article suitable for publication, or a physical product or artifact.*	6
CEE 588 Sedimentation Engineering (Capstone Course) A capstone project is designed to take advantage of the student's experience and interests, so that it functions as an experience that brings the principles of sustainable engineering to the specifics of a mission or challenge in the real world. Examples might include helping municipalities to design more sustainable transportation systems, or design and operation of more sustainable commercial buildings of different kinds in different parts of the country (and hence different climate regimes).	6
Other Requirements ***E.g. -*** *Internships, clinical requirements, field studies as applicable*	**Credit Hours** **(Insert Section Sub-total)**
None	
Total required credit hours	**30**

- List all required core courses and total credit hours for the core (required courses other than internships, thesis, dissertation, capstone course, etc.)**.**
- Omnibus numbered courses cannot be used as core courses.
- Permanent numbers must be requested by submitting a course proposal to Curriculum ChangeMaker for approval. Courses that are new, but do not yet have a new number can be designated with the prefix, level of the course and X's (e.g. ENG 5XX or ENG 6XX).

6. Comprehensive Exams:

Master's Comprehensive Exam (when applicable), please select the appropriate box.

(Written comprehensive exam is required in addition to each culminating experience)

☐ Oral comprehensive exam is required – in addition to written exam

X No oral comprehensive exam required - only written exam is required

The faculty advisor along with 1-2 other faculty will determine the form of the examination. Typical examples are slide presentation of the applied project, technical paper to be (or already) presented in a technical conference, journal paper draft

7. Allow 400-level courses: X Yes ☐ **No** (No more that 6-credit hours of 400-level coursework can be included on a graduate student plan of study.)

8. Committee: Required Number of Thesis or Dissertation Committee Members (must be at least 3 including chair or co-chairs).

3 for thesis option.

If the culminating experience is an applied project or a capstone, then the committee will be one faculty member.

9. Keywords (List all keywords that could be used to search for this program. Keywords should be

specific to the proposed program.)

Sustainable engineering, sustainable energy, sustainable transportation, sustainable infrastructures, earth systems engineering, industrial ecology

10. Area(s) of Interest

A. Select **one (1)** primary area of interest from the list below that applies to this program.

- ☐ **Architecture & Construction**
- ☐ **Arts**
- ☐ **Business**
- ☐ **Communication & Media**
- ☐ **Education & Teaching**
- X **Engineering & Technology**
- ☐ **Entrepreneurship**
- ☐ **Health & Wellness**
- ☐ **Humanities**
- ☐ **Interdisciplinary Studies**
- ☐ **Law & Justice**
- ☐ **Mathematics**
- ☐ **Psychology**
- ☐ **STEM**
- ☐ **Science**
- ☐ **Social and Behavioral Sciences**
- ☐ **Sustainability**

B. Select **one (1)** secondary area of interest from the list below that applies to this program.

- ☐ **Architecture & Construction**
- ☐ **Arts**
- ☐ **Business**
- ☐ **Communications & Media**
- ☐ **Education & Teaching**
- ☐ **Engineering & Technology**
- ☐ **Entrepreneurship**
- ☐ **Health & Wellness**
- ☐ **Humanities**
- ☐ **Interdisciplinary Studies**
- ☐ **Law & Justice**
- ☐ **Mathematics**
- ☐ **Psychology**
- ☐ **STEM**
- ☐ **Science**
- ☐ **Social and Behavioral Sciences**
- X **Sustainability**

APPENDIX II
SUPPORT STATEMENTS

Ira A. Fulton Schools of Engineering – Official Submission

From: Jeremy Helm [mailto:JEREMY.HELM@asu.edu]
Sent: Thursday, March 20, 2014 3:23 PM
To: curriculumplanning@asu.edu; Amanda Morales-Calderon
Cc: James Collofello; Brian Skromme; Braden Allenby
Subject: New Graduate Degree Proposal - MSE Sustainable Engineering
Importance: High

Good afternoon,

Please find attached an approved proposal to establish a new graduate degree in Sustainable Engineering.

Jeremy Helm
Director, Academic Administration & Student Success
Ira A. Fulton Schools of Engineering
Arizona State University
Tempe, AZ 85287-8109
(480) 965-8931 voice
(480) 965-8095 fax

School of Sustainable Engineering and the Built Environment – Support Statement

From: G Gibson
Sent: Saturday, March 01, 2014 4:13 PM
To: Braden Allenby; T Agami Reddy
Cc: G Gibson; Michael Sever; 'reddyta@asu.edu'
Subject: Re: Seeking impact statement regarding a new online graduate degree program in SSEBE

Yes, we are ok with this in Construction.

Best

Edd

From: Braden Allenby <Braden.Allenby@asu.edu>
Date: Sat, 1 Mar 2014 22:22:01 +0000
To: Agami Reddy <T.Agami.Reddy@asu.edu>
Cc: G Gibson <Edd.Gibson@asu.edu>, Sever Michael <Mike.Sever@asu.edu>, "'reddyta@asu.edu'" <reddyta@asu.edu>
Subject: RE: Seeking impact statement regarding a new online graduate degree program in SSEBE

Edd – to make sure things go smoothly, can you give us an ok representing construction? I notice that was mentioned somewhere in one of the email chains. We have Peter's ok, and Carey's ok, and I just re-emailed SOS for their ok . . . that should give us enough of a package . . .

School of Sustainability – Support Statement

March 3, 2014

Brad Allenby
President's Professor of civil, environmental, and sustainable engineering
Lincoln Professor of Engineering and Ethics
School of Sustainable Engineering and the Built Environment

Dear Brad,
I am writing to support the proposal to establish a new online MSE in Sustainable Engineering. This degree program will have no adverse effect on the School of Sustainability. Rather, it will strengthen the sustainability education mission of FSE, SOS, and ASU more broadly. I am very happy to support this effort.

Sincerely,
Christopher Boone
Dean

Del E. Webb School of Construction – Support Statement

From: G Gibson
Yes, we are ok with this in Construction.
Best
Edd

Subject: RE: Seeking impact statement regarding a new online graduate degree program in SSEBE
Edd – to make sure things go smoothly, can you give us an ok representing construction? I notice that was mentioned somewhere in one of the email chains. We have Peter's ok, and Carey's ok, and I just re-emailed SOS for their ok . . . that should give us enough of a package.

W. P. Carey School of Business – Support Statement

From: Stacey Whitecotton
Sent: Thursday, February 20, 2014 4:21 PM
To: Kay Faris
Cc: Braden Allenby; Amy Hillman
Subject: Re: sustainable engineering masters program - response requested

Dear Brad:
I consulted with our Dean and the W. P Carey School of Business does not expect any negative impact on our existing or planned masters programs as a result of this new degree. Please let me know if you need a more formal letter or if this email will suffice. I am out of the country but can try to get someone to draft something for you if necessary.

Thanks, Stacey Whitecotton
Sr. associate dean for graduate programs
W. P Carey School of Business