This course proposal form should be completed when introducing a new course or a revision of an existing course. The proposal will be reviewed by the Committee on Curriculum, or, in the case of minor revisions, will be approved administratively by the Associate Provost for Instruction.

This Course Proposal must be completed according to the guidelines provided in Course Proposal Form – Instructions and Guidance. Please see the last page of Course Proposal Form – Instructions and Guidance, for instructions on how this Course Proposal should be submitted to the Committee on Curriculum for review.

Date: 10/08/18

1. Course Information:

1.1 Course Prefix and Number: SUS 420

Course Title: Sustainable Energy: Technology, Systems & Policy

(If a new or renumbered course, please check with the Registrar regarding the use or reuse of the course number)

1.2 ☒ This is a New Course.

OR

☐ This is a Major Course Revision

OR

☐ This is a Minor Course Revision

If this is a Course Revision, please see Course Proposal Form – Instructions and Guidance to determine if your revision is major or minor. Indicate below the reason(s) for the revision.

(Please check all that apply)

☐ Course Number/Division ☐ Learning Outcomes ☐ Institutional Resources

☐ Title ☐ Concepts, Content ☐ Semester Offered

☐ Credit hours ☐ Catalog Description ☐ Course Inactivation

☐ Pre- or Co-requisite(s) ☐ Instructional Methods ☐ Course Reactivation

☐ Format ☐ General Education

1.3 General Education knowledge and skills area (if applicable): If none, check here ☒

☐ American History ☐ Humanities ☐ Other World Civilizations

☐ The Arts ☐ Mathematics ☐ Social Sciences

☐ Basic Communication ☐ Natural Sciences ☐ Western Civilization
2. Proposer Need Statement:

2.1 Describe why this course (or course revision) is needed to meet current or proposed goals and outcomes of the program or College, and, if a revision, provide an explanation of and justification for the revision.

Students in the Sustainability Management program require exposure to current and emerging technologies in sustainable energy in their curriculum. The proposed course will develop a background in energy conversion pathways with a focus on renewable energy and related technologies that promote sustainability. Online coursework will focus on both qualitative and quantitative skills appropriate to evaluating energy production and its use. Students will develop solutions that balance the priorities of sustainable development by analyzing data and working on both independent and collaborative system-level projects.

2.2 List the pre-requisite or co-requisite courses (taught within the home department or taught by another department) and explain their relationship to the proposed course.

None

2.3 Explain the impact of this course in meeting the goals and outcomes of other Departments/programs (if any). The proposed course meets the requirements of the Sustainability Management B.S. We do not expect enrollment from other departments or programs.

2.4 If the proposed course is designed to fulfill SUNY General Education Requirements, the Associate Provost for Instruction must review this proposal to ensure that General Education Requirements will be met for the specified knowledge area (See Instructions and Guidance).

Please provide an explanation of how this course fulfills SUNY General Education Requirements.

N/A

2.5 What are the staffing requirements (instructor, TA, Lab tech, etc.) for this course? If a new course, are there new staffing needs or are there adequate staff members already in place? If a revised course, are there additional staffing needs?

All required staffing is in place.

2.6 What Department (or extra-Department) resources are or will be made available to support the course or course revision? ESF Open Academy staffing, supplemented by a SUNY Performance Improvement Fund award, are and will be available to support the course.

2.7 Anticipated Enrollment (enter where applicable)

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<tr>
<th>Semester</th>
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<tr>
<td>Fall Semester:</td>
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<td>Summer Semester:</td>
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<td>Spring Semester:</td>
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2.8 Anticipated frequency of class meetings. N/A, this is an online course.
3. DETAILED COURSE DESCRIPTION

3.1 COURSE IDENTIFICATION AND FORMAT:

3.1.1 Course Prefix and Number: SUS 420
3.1.2 Course Name: Sustainable Energy: Technology, Systems & Policy
3.1.3 Credit Hours: 3
3.1.4 Semester (check all that apply): Fall X Spring X Summer X
3.1.5 Format (check as appropriate): Lecture ☐ Online ☒ Lab ☐ Field ☐ Other ☐ (explain)
3.1.6 Contact hours per week: 3
3.1.7 Prerequisite(s) – if none, please enter “None” (Be specific, as Upper Division courses and Graduate courses will likely have some pre-requisite knowledge) None

3.2 SCOPE:

3.2.1 Level of Instruction (check one, or two if a shared resource course):

- Lower Division ☐
- Upper Division ☒
- Beginning Graduate ☐
- Advanced Graduate ☐

3.2.2 Relation to curriculum or to other ESF or Syracuse University courses:

a. Is this a required course? No ☐ Yes ☒. If Yes, please list the program(s) for which it is a requirement: Sustainability Management
b. Is this an elective course within your department? No ☒ Yes ☐.
c. Is enrollment in this course restricted? No ☐ Yes ☒. If Yes, please explain: There is priority for online students enrolled in the Sustainability Management B.S. program.
d. Are other ESF or SU courses similar or identical to this course? No ☐ Yes ☒. If Yes, please identify the courses: SRE 335 draws some parallels with energy conversion technology, but SUS 420 is less quantitative (no specific STEM courses required). SUS 420 explores energy-human interactions, history, and energy policy development.
e. Is this course a shared resource offering (i.e. is there a graduate or undergraduate concurrent offering)? No ☒ Yes ☐. If Yes, what is the course number of the concurrent offering?

3.3 STUDENT LEARNING OUTCOMES:

Identify the student learning outcomes associated with this course. Upon successful completion of this course, students will be able to:

1. Compare and contrast several energy technologies within a sustainability framework.
2. Assess the viability of various renewable energy technologies among different contexts and geographical locations.
3. Analyze social, political, economic, and ecological factors that impact the barriers or incentives of implementing renewable energy resources and systems in various contexts and geographical locations.

3.4 MAJOR CONCEPTS, PROCESSES or TOOLS:

Identify the course content and themes (e.g. Table of Contents) consistent with the learning domains and outcomes. Energy and power concepts, global and local energy use, renewable energy technologies, renewability towards sustainability, distributed energy, sustainable energy design.
3.5 INSTRUCTIONAL METHODS:

Identify the methods used to meet the course outcomes, as well as the principal instructional methods.

This course will engage students in regular and substantive interaction among and between students and the instructor. This course is constructed on a weekly module basis that includes learning materials, learning activities, substantive interactions, and assessment and evaluation. Overall student course expectations include active and timely engagement with course materials and participation in all course learning activities each week. In each module, students will:

- Read and, in some cases, view course materials and resources (e.g., books, reports, articles, multimedia, videos);
- Write, e.g., discussion board / threaded discussion participation, reflection/reaction statements, position papers, analysis reports, journals or blog posts, reading summaries, case study assignments);
- Complete ungraded and graded assignments, e.g., problem sets, quizzes, exams, presentations, policy briefs, self-assessments, values clarification exercises, field work reports, project reports;
- Work individually and collaborate in small groups; and
- Communicate with the instructor and fellow students, sharing their perspective and providing constructive feedback through peer interaction and feedback.

The delivery of this course will take place primarily through the Blackboard learning management system.

3.6 CATALOG DESCRIPTION

Provide the course description using the precise format to be included in the ESF catalog (i.e. course number and title; format; brief description; semester(s) offered; and pre-/co-requisites). Please do not exceed 1000 characters.

SUS 420 Sustainable Energy: Technology, Systems, and Policy

Online

This course explores concepts and various technologies in sustainable energy production, consumption, storage, environmental and social impact, and explores the ways in which these relate to sustainability. Topics cover a wide range of energy systems, including nuclear, fossil fuels, wind, solar, biofuels, and biomass.

Fall, with Spring and Summer as needed

Pre-requisites: None

Note: Enrollment in the Sustainability Management major, or permission of Sustainability Management program advisor is required.

3.7 COURSE HISTORY:

Provide the dates of prior approval of this course, and its revision history. N/A

3.7.1 Relationship to current ESF courses

This course is replacing a current ESF course ☐ YES ☒ NO

If NO, then proceed to section 4 below.

If YES, then provide below the number and name of the course to be deactivated and removed from the catalog once this course proposal has been approved:
Course Number (of the course to be replaced)
Course Name (of the course to be replaced)

If the course to be replaced is used by departments other than the department sponsoring this proposal, please indicate below which departments are affected and the date they were notified about the course replacement.

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<th>Department</th>
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4. Institutional Impacts:

This section pertains to forecasting institutional resource needs to support the course or course revision. Provide clear statements regarding the needs and current availability (or absence) of resources. Note that, if this is a course revision, only the impacts of the revision should be included.

Staffing needs: Staff is already in place.

Classroom resources (e.g. physical facilities in a laboratory, lecture hall, flexible space, academic computing): N/A

Technology Resources: Blackboard Learning Management System is already in place

Computing Resources (software licensing, hardware, access): ESF Computing and Network Services (e.g., Office 365, E-mail), Blackboard is already in place

Library Resources (subscriptions, services): Existing support, resources, and access for off-campus students.

Transportation Requirements (budget, fees, fleet vehicles): N/A

Forest Properties or Field Practicum Facilities: N/A
5. Health and Safety Considerations:

Will any of the conditions or situations outlined below be present in association with the course?  Yes / No

5.1. Will substances with any of the following properties be used during instruction: flammability, toxicity, corrosivity, reactivity, registered pesticide, legally controlled, or other characteristics with the potential to cause harm or injury?  ☐ / X

5.2. Will any physical hazards be present during instruction? (e.g., machines that need safety guards; razor blades or syringes; compressed gases, etc.).  ☐ / X

5.3. Will any biological hazards be present during instruction? (e.g., handling animals (rabies or hantavirus); cultures or stocks of infectious agents (fungal spores, viruses, bacteria, etc.).  ☐ / X

5.4. Will any radiation hazards be present during instruction? (e.g., radioisotopes, X-rays, ultraviolet rays, lasers, etc.).  ☐ / X

5.5. Will any electrical equipment that, due to its design, location, or method of use, pose any threat to safety during instruction? (Give considerable thought to electrical use outdoors, or any potentially wet location.).  ☐ / X

5.6. Will there be any personal safety issues related to the class? (e.g., due to time of day or location, at the end of any organized class exercise, will students be in danger of physical assault, etc.).  ☐ / X

5.7. Will any students be driving official state or research sponsored land or water vehicles during any class or instructional exercise?  ☐ / X

5.8. Will any type of personal protective equipment be necessary during class exercises? (e.g., hard-hats, eye/face protection, hearing protection, hand/foot protection, lab coat, visibility clothing, etc.)  ☐ / X

If the answer was “Yes” to any of the HEALTH AND SAFETY questions, please explain:

For lab and field courses to which all answers are “no”, you should explain that here, also. Normally, we would expect some safety precautions for such courses.  N/A
6. Coordination and Consultation

Emails/letters, as noted below and attached to this proposal, or signatures below, indicate that the affected departments, programs or units have been notified of this proposal and have had an opportunity to assess the impact of the proposal on their respective units.

**Affected Academic Department(s) or Program(s) – other than the sponsoring department:**

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<thead>
<tr>
<th>Department/Program 1</th>
<th>Name of Chair/Program Director</th>
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(if more than three Departments/Programs, please continue on a separate page)

**Other Units:**

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<tr>
<td>Associate Provost for Instruction &amp; Dean of the Graduate School (for Gen Ed courses only)</td>
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<td>Registrar</td>
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<td>Library Director</td>
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<td>Computing and Network Services</td>
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<td>Physical Plant</td>
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<td>Environmental Health and Safety</td>
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7. Proposer Information and Sponsoring Department Chair
Affirmation:

Contact Person:

Name: _Douglas Johnston_______________  Department:  Landscape Architecture
Email:  _dmjohnst@esf.edu______________  Phone:  _315-470-6544__________

This proposal has been reviewed and approved by the sponsoring Department. Affected departments have been notified and given the opportunity to provide feedback. Department resources are or will be made available to support the course, or a plan is in place to meet the resource needs as identified in the Institutional Impacts section of this proposal (see Section 4, above).

Name:  _Chuck Spuches_______________________________________  Date:  9/13/18
Department Chair (or designated curriculum representative)

Signature:_________________________________________________________  Or letter attached ☒
Department Chair (or designated curriculum representative)

8. Approvals:

__________________________________________________  ____________  ______
Curriculum Committee  Date

__________________________________________________  ____________  ______
Faculty Governance  Date

__________________________________________________  ____________  ______
Provost  Date