Technological, Social, and Sustainable Systems
Spring A 2017

Course Overview

This course will help you to understand more about the impact of technology on sustainability and society, using relevant historical examples and current issues in the news. It will also help you gain insight on the cultural frameworks within which ideas such as sustainability and different technologies are understood and evolve. You'll explore emerging technologies from the Industrial Revolution through present day, leading to a future that will be complex and challenging, and in many ways look like science fiction.

This 3 credit hour course satisfies the Humanities, Arts and Design (HU) general studies requirement at Arizona State University. This course may satisfy a general education requirement at other institutions; however, it is strongly encouraged that you consult with your institution of choice to determine how these credits will be applied to their degree requirements prior to transferring the credit.

Course Learning Objectives and Topics

To introduce students to the importance and role of technological, social, cultural, and sustainable systems in the modern world, which is increasingly characterized by integrated human/natural/built complex adaptive systems at local, regional and global scales. Emphasis will be on characteristics and fundamentals of technology systems; complex adaptive systems behavior and evolution; the interrelationship among technological and cultural domains and how cultural products (art, cinema, advertisements and media images, philosophy and religious beliefs) affect technological imagination and technological evolution; and current patterns in technological evolution and the potential cultural, philosophical, and religious challenges that they may create.

At the end of the course, students should be able to:

1. Explain the importance of technology and technological systems;
2. Explain the social and environmental implications of design, construction, operation, and management of technology systems;
3. Identify and explain critical principles of complexity and complex systems;
4. Explain how art, cinema, literature, and other cultural products create the ground from which technological systems emerge, and affect the evolutionary paths of technological systems; and how they are in turn affected by those technological systems; and,
5. Understand economic, environmental, social, cultural, philosophic, and religious issues and impacts associated with technology systems and emerging technologies at a broad cultural and geographic level extending across urban, regional, national, and global scales.

In terms of ABET (Accreditation Board for Engineering and Technology) criteria, the course will enable students to:

1. Understand professional and ethical issues in the context of engineered and earth systems, and learn to include cultural, ethical, and social perspectives in professional activities;
2. Understand issues and impacts of engineering solutions at a broad cultural and geographic scale extending across urban, regional, national and global scales;
3. Understand the need and develop the capability to participate in lifelong learning; and,
4. Take into consideration contemporary social and cultural perspectives and issues, and environmental impacts, in civil and environmental engineering practices.

For more information about ABET, visit the link that follows here: http://www.abet.org/

Grading

Content Mastery - 10%

There are 7 interactive content mastery exercises, at the rate of one per week, which will count for 10% of your total grade. You must reach level 0.1 on each interactive content mastery exercise to receive credit.

Weekly Quizzes - 20%

There are 7 short quizzes to assess your understanding of key concepts presented in the readings and lectures that week. Quizzes will be based on module content and on the designated readings. The quizzes must be completed within the timeframe designed in the course schedule. These seven quizzes will count for 20% of your final grade.

Midterm Exam and Final Exam - 70%

You will be required to show proficiency in course concepts by successfully passing two exams. These exams will be a Midterm and a Final. The exams will be offered online and must be completed during the specific exam period. These two exams will count for 70% of your grade, 30% and 40% respectively. The midterm will cover content from weeks one through three while the final exam will cover content from all weeks of the course.

You may take these exams any time during the open window; however, once you start, you will have three hours to complete it. Proctoring information will be provided**.**

Note about proctoring: For students taking the exams as proctored (ID Verified students interested in credit-eligibility), the proctoring process is a virtual software set-up that you must test on your computer system prior to the Midterm. To test your system, you will take the Practice Proctored Exam in the Before the Course Begins section of the course. It is highly recommended that you take any proctored exams well before the exam deadline to ensure we can support you if you experience any technical difficulties with the proctoring software. Exam close times are not negotiable and we will not extend exam windows for technical difficulties.

Final grades are based on the number of points you earn on the content mastery, quizzes, midterm and final exam. There is no extra credit available. You can see your percentage of the total points to date on your edX progress page.

Final scores will be reported as follows:

A = 90% or higher
B = 80% or higher
C = 70% or higher

There will be no + or - added to grades.

Grades above 70% will result in a pass for the purposes of auditing or ID Verified certificate.

You must achieve a grade of C (70%) or higher in order to receive credit from ASU on your ASU transcript (should you choose this option).

Recommended Prior Knowledge

To be successful in this course, we recommend English language fluency and computer literacy.

Online Course Requirements

This is an online course. The content and learning activities will be found within the edX platform. There will be at least one optional live event through YouTube Live. All course interactions will utilize Internet technologies. It is your responsibility to complete the assigned reading, content mastery activities, quizzes, watch the recorded lectures, and exams. You are encouraged to ask any questions you have in the discussion area.

Computer Requirements

Important Note: Potential limitations of internet connectivity by some countries are beyond the control of Arizona State University and may limit the ability of an ID Verified student residing in those countries to complete all the assessments, and therefore potentially impede the eligibility to earn college credit. Students impacted by such limitations should contact gfa@edx.org.

This course is best accessed by a reasonably modern browser on a laptop or desktop computer. Course videos can be accesses using the edX App for iPhone and Android. More information on mobile at the link that follows here: https://www.edx.org/mobile

Students who are interested in taking the course for credit will need additional computer requirements and skills located at: http://clientportal.softwaresecure.com/support/index.php?/Knowledgebase/Article/View/252/0/system-requirements-remote-proctor-now

If a student is not certain about their system compatibility, they must successfully complete the practice proctored exam to confirm.

Reading Materials

In the course, all required readings will be provided electronically by Brad Allenby's book, *Theory and Practice of Sustainable Engineering.* The textbook cannot be accessed on mobile devices.

You may request accommodations for an accessible version of the textbook by submitting a service ticket at gfa@edx.org. Accessible versions of the textbook will be given to students with disabilities.

Course Communications

Communication will take place in discussion boards and course updates.

Course Time Commitment

Class preparation means completing the assigned readings and reviewing all information required for that week. Attendance in an online course means logging into edX on a regular basis and participating in all of the activities that are posted.

This 7.5-week, three-credit course requires approximately 110 hours of student work. Therefore, expect to spend approximately 12-18 hours per week preparing for and actively participating in this course.

Submitting Assignments

All required quizzes, content mastery activities and exams, unless otherwise announced by the instructor, MUST be submitted via edX. Each assignment will have a designated place for submission.

Assignment Deadlines

Late assignments will not be accepted at any point during the course. We recommend that you establish your time management schedule for this course during the first two days that the course is open to meet all course obligations. For time management tips, sign up for the GFA Orientation course.

Student Support

Student Support: Please access the edX Help Center for solutions to common problems. Please also be sure to review our "Before the Course Begins" section for further information. If you are still experiencing issues, you can reach out to gfa@edx.org.

Proctoring: For students taking the midterm and final exams proctored, please do the following to address any technical issues:

1. Contact our proctoring partner, Software Secure, at 1-844-224-9759.
2. Send an email to edX at gfa@edx.org

Both Software Secure and edX must be informed of the issue to ensure resolution.

Please put "Problem with proctored exam" in the subject line. Also, provide as much information as possible, including screenshots, error messages, and urgency due to upcoming deadlines.

Academic Integrity

Academic honesty is expected of all students in all examinations, papers, laboratory work, academic transactions, and records. The possible sanctions include, but are not limited to, appropriate grade penalties, course failure due to academic dishonesty. For more information, see ASU's Academic Integrity Policy and edX's Terms of Service.

Prohibition of Commercial Note Taking Services

In accordance with ACD 304-06 Commercial Note Taking Services, written permission must be secured from facilitators of the workshop in order to sell a facilitator's oral communication in the form of notes. Notes must have the notetaker's name as well as the facilitator's name, the course number, and the date.

http://www.asu.edu/aad/manuals/acd/acd304-06.html

Taking This Course for ASU Credit

Students wishing to take this course for ASU credit are required to ID verify by January 20, 2017 at 07:00 UTC, opt in to proctoring for quizzes or exams that offer it, and, ultimately, pass the course with a C or better. (Cost of ID verification is $49 USD/course; cost of credit is $600 USD/course. Visit "Important Information About Credit Eligibility" in our "Before the Course Begins" section for additional details.)

Note: Potential limitations of internet connectivity by some countries may limit the ability of an ID Verified student residing in those countries to complete all the assessments, and therefore potentially impede the eligibility to earn college credit. Students impacted by such limitations should contact gfa@edx.org.

Disclaimer: Syllabus Subject to Change Notice

This syllabus is to be used as a guideline only. Information contained in this document such as assignments, grading scales, due dates, and other materials are subject to change. Please refer to your instructor for the most recent version of the syllabus.