

CEE 181: Technological, Social, and Sustainable Systems



Overview

Understand the impact of technology on sustainability and society, using relevant historical examples and current issues in the news, and gain insight on the cultural frameworks within which ideas such as sustainability and different technologies are understood and evolve. You'll also 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.

Course Prerequisites and Requirements

To be successful in this course, we recommend English language fluency and computer literacy. We also encourage you to make sure your laptop or desktop computer meets the technical requirements.

What You'll Learn

- The importance of technology and technological systems
- The social and environmental implications of design, construction, operation, and management of technology systems
- The critical principles of complexity and complex systems
- 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
- The 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

Transcript

This course appears on your transcript identically to how it appears on the transcript of an enrolled ASU student who has taken the course on one of ASU's campuses.

This course satisfies 3 credit hours toward the Humanities, Arts and Design (HU) General Studies requirement for Arizona State University. 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 your credit.

Exams and Grading

20%

Quizzes (7)

10%

Content Mastery (7)

10%

Graded Discussions (7)

30%

Midterm Exam

30%

Final Exam

Creators

Brad Allenby

President's Professor,
Civil, Environmental, and Sustainable Engineering,
Professor of Law, Director, Center for Earth Systems
Engineering and Management



Dr. Braden R. Allenby is currently Lincoln Professor of Engineering and Ethics, and President's Professor of civil, environmental and sustainable engineering and professor of law, at Arizona State University. He is the founding director of the Center for Earth Systems Engineering and Management, and the founding chair of the Consortium for Emerging Technologies, Military Operations, and National Security, at Arizona State University. He is also an American Association for the Advancement of Science (AAAS) fellow, a Batten Fellow in Residence at the University of Virginia's Darden Graduate School of Business Administration, and a fellow of the Royal Society for the Arts, Manufactures and Commerce. He was the U.S. Naval Academy Stockdale Fellow (2009-2010), a Templeton Fellow (2008-2010), and the J. Herbert Hollowman Fellow at the National Academy of Engineering (1991-1992). During 1995 and 1996, he served as director of energy and environmental systems at Lawrence Livermore National Laboratory. His areas of expertise include industrial ecology, sustainable engineering, earth systems engineering and management, and emerging technologies. His latest books are "Industrial Ecology and Sustainable Engineering" (co-authored with Tom Graedel, 2010), "The Theory and Practice of Sustainable Engineering" (Pearson/Prentice-Hall, 2011), and "The Techno-Human Condition" (with Dan Sarewitz, 2011).

Creators

Samuel Markolf

Assistant Research Professor,
School of Sustainable Engineering and the Built Environment

Dr. Samuel Markolf is an Assistant Research Professor within the School for Sustainable Engineering and the Built Environment (SSEBE) at Arizona State University. His research broadly focuses on urban infrastructure resilience to extreme events. In particular, current projects include characterizing vulnerabilities that arise in transportation systems via interdependencies with other infrastructure systems (e.g. the electricity grid); critically assessing the role of risk analysis in infrastructure resilience and the exploration of alternative approaches; and modeling disruption and resilience in regional transportation networks.

In addition to research, Dr. Markolf has helped instruct courses within SSEBE for three years. He earned his B.S. from the University of Texas-Austin and his Ph.D. in Civil & Environmental Engineering and Engineering & Public Policy from Carnegie Mellon University. When not working on ways to enhance the sustainability and resiliency of our cities, Dr. Markolf is most likely traveling, hiking, biking, or enjoying the company of his friends and family.

