ETC 2001 – ENGINEERING CULTURE
College of Engineering Applied Science & Technology
Weber State University

Course Syllabus

Instructor:	Dr. Luke Fernandez	**Term:**	Fall 2016
Office:	EH-374	**Class Meeting Days:**	T,TH
Phone:	801-626-7377	**Class Meeting Hours:**	T,TH 10:30-1145
E-Mail:	lfernandez@weber.edu	**Class Room:**	EH-373
Office Hours:	M,W 11:30-12:30pm or after class	**Class Location:**	WSU Main Campus

I.   Welcome!

Welcome to the study of engineering culture

II.   University Course Catalog Description

Engineering culture describes the culture of engineering and the social and scientific practices as well as beliefs that engineers ascribe to in pursuing their profession. It also describes how culture is shaped by engineering and by the technologies that engineers make and maintain. This course examines the professional cultures that engineers inhabit as well as the way that a wider culture is shaped by engineering.

By the end of this course, students will:

- become familiar with cultural representations of technology and how these representations have changed over time
- be able to articulate whether technology plays a determinative role in historical change
- examine how the emergence of digital technology is reshaping American's experience of loneliness, boredom, and the sublime
- develop frameworks for determining whether a technology is inherently political
- distinguish between social and technological progress
- examine automation and artificial intelligence and some of the ethical challenges that arise as a result of the emergence of these technologies
- explore the culture of engineering and its relationship to technology, science, and art

III.   Student Learning Outcomes

This general education course will meet the learning outcomes for Social Science:

Social Science Learning Outcomes:

1. *Interactions between individuals and society*: Students will describe how individuals and groups influence and are influenced by social contexts, institutions, physical environments and/or global process.

2. *Application of concepts, theories, and methods*: Students will apply basic social science concepts, theories, and/or methods to a particular issue and identify factors that influence change.

3. *Diverse perspectives*: Students will identify an argument about a social phenomenon and understand alternative explanations.

IV. Assignments

25% - Weekly reading quizzes (L2)

Students will be quizzed on the weekly readings. These readings include theoretical and historical articles in Science, Technology and Society Studies (STS), as well as some fiction.

50% - Midterm and Final Analytical Essays (L1,L2,L3)

There are a total of two papers: one midterm paper and one final paper. Both papers will be 5 to 6 pages. Students will choose from a list of essay questions that address major themes that were explored in the course. Students will be asked to respond to the question with a well-reasoned argument that contains a thesis that is supported by evidence drawn from the readings. The argument must be presented in a logical sequence with appropriate segues.

25% - Class Participation (L1,L2,L3)

Students are prompted to orally summarize and critique the weekly readings and to respond and enlarge on their classmate's interpretations of the readings. In addition, each student will be asked to lead at least one class discussion.

V. Course Prerequisites
None

VI. Course Credits
3 credits

VII. Class Format
Lecture and seminar style discussion
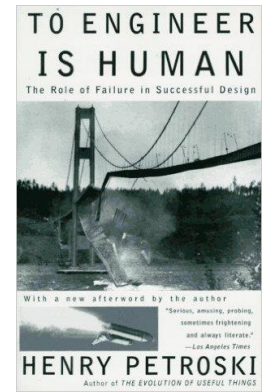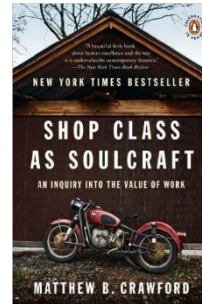
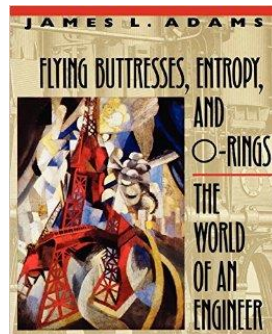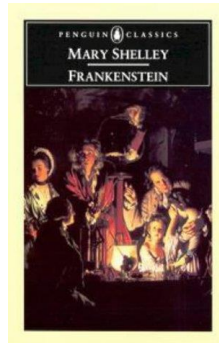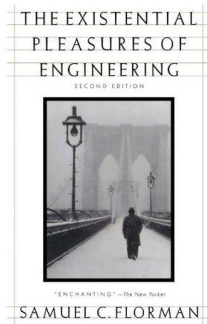**VIII. Required/Recommended Texts and Materials**
Frankenstein – Mary Shelley
James Adams, Flying Buttress, Entropy and O-Rings
Samuel C. Florman, The Existential Pleasures of Engineering
Henry Petroski, To Engineer Is Human
Matthew Crawford, Shop Class as Soulcraft

## IX.	Course Policies: Grades

Late Work Policy: There are no make-ups for the midterm or the final exam. Assignments turned in late will not be accepted.

Extra Credit Policy: extra credit may be given during the class.

Grades of "I": Incomplete grades are given only in exceptional cases.

## X.	Course Policies: Student Expectations

Disability Access: Any student requiring accommodations or services due to a disability must contact Service for Student with Disabilities (SSD) in room 181 of the Student Services Center. The phone number is (801) 626-6413.

Attendance Policy: Attendance is mandatory. If you have to miss a class for any reason, it is your responsibility to catch up on the lecture notes and find out what you have missed and what assignments are coming up.

Professionalism Policy: Per university policy and classroom etiquette; mobile phones, iPods, *etc*. **must be silenced** during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, *etc*., and have been warned may suffer a reduction in their final class grade.

Academic Conduct Policy: Academic dishonesty in any form will not be tolerated. CS Department policy dictates that any verifiable evidence of student academic cheating, as defined and determined by the instructor, will result in: 1) an automatic failing grade for the class and 2) a report to the Dean of Students that will include the student's name and a description of the student's dishonest conduct. A description of cheating and possible sanctions may be found in the Student Code (http://www.weber.edu/ppm/Policies/6-22_StudentCode.html).

XI.   Grading Scale

Scale (%)	Grade	Scale (%)	Grade
94 - 100	A	74 - 76	C
90 - 93	A-	70 - 73	C-
87 - 89	B+	67 - 69	D+
84 - 86	B	64 - 66	D
80 - 83	B-	60 - 63	D-
77 - 79	C+	0 - 59	E

XII.   Schedule

(All the topics, dates, and assignments are tentative, and may be changed at the discretion of the instructor)

Date	Course Work and Homework	Topics to be Discussed in Class
08/31	Introduction	**Course Introduction**
9/2	Introduction (Continued) Digital Nation: Frontline Video	**Intro Case Study: Technology Shaping Human Cognition**
09/9	Leo Marx, Does Technology Drive History? Kevin Kelly, What Technology Wants, Chap 1, 8	**Technological Determinism**
9/14	Leo Marx, Technology; the emergence of a hazardous concept Robert Pool, How Society Shapes Technology	**Tech Determinism Continued, Definitions of Technology, Relationship between Science, Technology and Humanities**
9/16	Mary Shelley, Frankenstein, Preface thru Ch 5	**Representations of Technology and Science in Anglo-American Literature**
9/21	Mary Shelley, Frankenstein, Ch 6 – Ch 14	**Representations of Technology and Science in Anglo-American Literature**
9/23	Mary Shelley, Frankenstein, Ch 15 – Ch 20	**Representations of Technology and Science in Anglo-American Literature**
9/28	Mary Shelley, Frankenstein, Ch 15 – Ch 24	**Representations of Technology and Science in Anglo-American Literature**
09/30	David Noble, The Religion of Technology, Intro and Chapter 10 Leo Marx, Does Improved Technology Mean Progress?	**Tech and Transcendence: The Natural Sublime**
10/05	The Frailest Thing Blog: American Technological Sublime: Our Civil Religion	**Tech and Transcendence: The Technological Sublime**
10/07	thesingularityfilm.com	**Tech and Transcendence: Transhumanism, AI, The Singularity**
10/12	Langdon Winner, Do Artifacts have Politics? Excerpts from Evegeny Morozov, To Save Everything, Click Here Schüll, Natasha Dow. The Folly of Technological	**The Politics of Technology**

	Solutionism: An Interview With Evgeny Morozov, *Public Books*, September 9, 2013.	
10/14	Richard Sennett, The Craftsmen Freeman Dyson, Technology and Social Justice Reread: Robert Pool, How Society Shapes Technology Ethics, Technology and Engineering: The Responsibilities of Engineers	**The Politics of Technology (continued): The ethics and responsibilities of the Engineer**
10/19	Excerpts from Challenger Case Study	**Case Study: The Challenger Disaster**
10/21	Excerpts from Mccrossen's book *Marking Time*	**The Technologization of Time**
10/26	Zeynep Tufekci, The Social Internet Not Lonely Sherry Turkle, The Flight From Conversation Stephen Marche, Is Facebook Making Us Lonely?	**Engineering Culture: Is the Internet Making Me Lonely?**
10/28	HER (the movie)	**Engineering Culture: Is the Internet Making Me Lonely? (continued)**
11/2	Excerpts from Nicholas Carr, The Shallows Malcolm Gladwell, "Running from Ritalin" Matt Richtel A Deadly Wandering Video Katherine Hayles, Hyper and Deep Attention: The Generational Divide in Cognitive Modes Gin, Television and Cognitive Surplus	**Engineering Culture: Is Technology Making Me Stupid?**
11/4	William Deresiewicz, The End of Solitude Stephanie Buck, "I'm on Facebook Because I'm Bored Beyond Belief Bored and Brilliant? A Challenge To Disconnect From Your Phone Patricia Spacks, Boredom: The Literary History of a State of Mind, Chapter 1	**Engineering Culture: Do Digital Technologies Make People Bored?**
11/9	Excerpts from Nicholas Carr, The Glass Cage Excerpts from David Noble, Progress Without People Podcasts from Planet Money Making It in America, The Atlantic	**Automation and the Deskilling of the American Worker**
11/11	Excerpts from Nicholas Carr, The Glass Cage Excerpts from Martin Ford, Rise of the Robots	**Automation and the Deskilling of the American Worker (Continued**
11/16	Excerpts from Matthew Crawford, Shopcraft as Soulcraft, Ch. 1, 2	**Automation and the Deskilling of the American Worker (Continued): Knowledge Work versus Manual Work**
11/18	Adams, Flying Buttresses….Chap 1 and 2	**Culture of the Engineer: The Development of Engineering as a Profession, The Types of Engineers**
11/23	Engineers and Artists (Chap 10 in Dreaming in Code) Adams, Flying Buttresses….Chap 6 Petroski, To Engineer Is Human Chap 4 Optional: New Bridge, old book: the shape of software progress	**Culture of the Engineer: Art versus Engineering versus Science**
11/25	Petroski, To Engineer is Human Chap 1,2,7	**Culture of the Engineer: Ethics**
11/30	Petroski, To Engineer is Human Chap 8 Hyatt Regency Case Study	**Culture of the Engineer: Ethics Case Study**
12/2	Petroski, To Engineer is Human Chap 9,17,afterward Challenger Disaster	**Culture of the Engineer: Ethics Case Study**
12/7	Gladwell, The Engineers Lament – Two Ways of Thinking About Automotive Safety	**Culture of the Engineer: Ethics Case Study**
12/9	The Existential Pleasures of Engineering, Ch 1,2,3	**Culture of the Engineer: Engineering Determinism**

	Adams, Flying Buttresses...Chap 3	**and Engineering Progress Revisited // Summary Observations**
12/14	Finals (Write Paper)	**Paper Writing**