Course Description:
Over the past several centuries we have constructed and inhabited an increasingly artificial world. As a result, human contact with nature has become increasingly mediated by our technologies. There is a layer between us and the natural world — sometimes many layers — that did not exist in the past. The world of artifice in which we live is more orderly, more controllable, and more predictable than a world where contact with nature is more direct and immediate. Nature cannot ever be totally controlled, however, and many of the challenges facing us today have to do with discovering the limits to our power to control nature. This course will examine some of the key steps in the construction of our artificial, mediated world, paying particular attention to the human dreams, desires, and experiences associated with momentous technological changes.

This course is based on the basic idea that technology and society both make each other, all the time. Because technology and society are so closely intertwined, every significant technology is invented twice. The first invention is a technical solution to a recognized problem. The second invention is a social reinvention or repurposing of the new technology. Invention doesn’t stop there, of course; the new, repurposed technology poses new technical challenges, and some of the solutions to those challenges will lead to another social reinvention. Together, these two ideas — the co-construction of technology and society and the repeating cycle of invention and reinvention — are the chief lessons of this course. Like so many important lessons, they seem simple on the surface, but are surprising in their depth and application.

Course Mechanics
Each week there will be three class meetings. You are expected to attend every class unless you have a family emergency, are ill, or have some other legitimate reason for having to miss class. If you know that you will have to miss a class, you should let me know as soon as possible. Like most professors, I am much more sympathetic to excuses presented before rather than after the fact. If you have a question or concern, please talk to me. Your job in this class is to learn, and my job is to help you do it. Asking questions helps both of us do our jobs better, and I only rarely bite off students’ heads.

In general, Mondays will be devoted to discussing readings. The Monday readings will be secondary sources intended to provide a broad overview of the topic for the week. You will need to complete these readings and take a short online quiz on them before class each Monday. (The quiz will take 15-20 minutes.) In class on Monday, you will break into discussion groups, where you will tackle a group assignment on the material. You will keep the same discussion groups the whole semester, unless I decide to change them due to chemistry problems.

On Wednesdays, I will give a lecture on a special topic related to the general topic of the week. Usually, these will be case studies or examples illustrating the main theme. Fridays, like Mondays, will be devoted to group discussion and group assignments, this time focusing on a second set of readings/viewings and on material from Wednesday’s lecture. The Friday readings will be chosen to be more provocative and evocative, with most of them being novels or films. Again, there will be a short online quiz due before class Friday, with the pre-Friday quiz covering the Wednesday lecture and the Friday readings.

The quizzes are to help ensure that everyone in each group shows up ready to contribute rather than hoping to coast on the efforts of their team-mates. They will not be too difficult if you have done the reading, attended the lecture, and reviewed your reading and lecture notes before taking the quiz. They will be very difficult if you have not done so.

In addition to your weekly quizzes and group assignments, you will have two mid-term exams and a final exam. Both of the midterms will be take-home essay exams. You will get the questions in class on Wednesday and will turn them in in class on the next Monday. It is expected that you will write at least 1000 words (a little over three pages) for each take-home exam, with most essays being about
4-5 pages. You do not need to do outside reading or research for these take-home exams, but you will need to pay attention to clarity of expression, grammar, and spelling in addition to the intellectual content of the essay. The final exam will be a combination of essays and quiz-like questions.

**Grade Breakdown for HSCI 2333**

- **Weekly Quizzes:** 25%
- **Weekly Group Assignments:** 25%
- **Take-Home Midterm:** 25% (total)
- **Final Exam:** 25%

**Books to Buy:**


**Films to Rent or Buy**


**Course Schedule**

**Week 1: Course Introduction**

Jan 18. Course Introduction. What is technology? Why study its history?
Jan 20. Discussion: technology and society. (Pre-test for course)

Readings:

1. Melvin Kranzberg, “Kranzberg’s Laws.” On D2L.
2. Edgerton, “Significance” from *Shock of the Old*. On D2L.

**Week 2: Background to Revolution: technology and society in world history**

Jan. 23. Overview of part I of course.
Jan. 25. A Walking Tour of the World, @1400.
Jan. 27. Discussion: Before the Revolution

Readings:

1. Lewis Mumford, selections from *Technics and Civilization*. On D2L
2. Lynn White, Jr., selections from *Medieval Technology and Social Change*. On D2L
3. Lynn White, Jr., “Historic Roots of our Ecologic Crisis.” On D2L

**Week 3: The Revolution of the Word**

Jan. 30. The Print Revolution
Feb. 1. Piracy!
Feb. 3. Discussion: The Revolution of the Word.

Readings:

1. Umberto Eco, excerpts from *The Name of the Rose*. On D2L

**Week 4: Purchasing Power**

Feb. 6. The Military Revolution. On D2L
Feb. 8. Money, Money, Money
Feb. 10. Discussion: Guns, Kings, and Credit

Readings:

1. Watch *Master and Commander*. (Rent/watch on your own before class.)
2. Thomas Esper, “Replacement of the Longbow by Firearms.” On D2L
3) Barton Hacker, “The Weapons of the West.” On D2L

Week 5: Time is Money
Feb. 15. Revolution in Work (factory, automatic machinery, wage labor)
   Reading: *Artifice*, chapter 3. On D2L
Feb. 15. Revolution in Power (fossil fuel-based industry)
Feb. 17. Discussion: work
   Readings:
   1) Start Charles, Dickens, *Hard Times*. Discussion will cover the first half of the book.

Week 6: Lines of Power
Feb. 20. The Control Revolution.
   Reading: *Artifice*, introduction to Part II and Chapter 4. On D2L
Feb. 22. Rails, Wires, and Empires
Feb. 24. Discussion:
   Readings:
   1) Finish Dickens, *Hard Times*.

Week 7: Power, Light, Water
Feb. 27. Things That Flow.
   Reading: *Artifice*, chapter 5. On D2L
Feb. 29. Sewer Gases and Sublime Lights Midterm 1 handed out!
Mar. 2. Discussion:
   Readings:
   1) David Nye, excerpts from *Electrifying America*. On D2L

Week 8: Perpetual Motion
Mar. 5. Mass Production and the Second Industrial Revolution
   Reading: *Artifice*, Chapter 6. On D2L
   Midterm 1 due in class!
Mar. 7. The Automobile and the Mobile Life
Mar. 9. Discussion: the system must come first
   Reading:
   1) Henry Ford, “Mass Production.” On D2L
   2) James Flink, “The Car Culture.” On D2L
   3) Daniel Boorstin, “The Democratic Experience.” On D2L

Week 9: Media Revolution
Mar. 12. The Laboratory Revolution and Pervasive Design
   Readings: *Artifice*, introduction to Part III and Chapter 7; Richard Popp, “Machine-Age Communication.” All on D2L
Mar. 14. Revolution in Sight and Sound
Mar. 16. Discussion:
   Readings:
   1) War of the Worlds broadcast
   2) *OR Singing in the Rain
   3) *OR Citizen Kane
   4) *OR Modern Times

Week 10: Spring Break.
Mar. 21. Take it easy.
Mar. 23. Relax.
**Week 11: Synthetica**

   Reading: Jeffrey Meikle, selections from *American Plastic*. On D2L

Mar. 28. Nylon!

Mar. 30. Discussion: plastic America
   Reading:
   1) Ray Bradbury, *Fahrenheit 451*.

**Week 12: Atomic World/A Change of Scale**

Apr. 2. The Manhattan Project
   Reading: "Introduction: Trinity," from *The Manhattan Project, a Documentary History*; Richard Rhodes, excerpt from *The Making of the Atomic Bomb*. Both on D2L

Apr. 4. Fallout: The bomb in film
Apr. 6. Discussion: scale, control, and morality
   Readings (your group will choose one of the following and watch it outside of class):
   1) *The Atomic Café* OR
   2) *Dr. Strangelove* OR
   3) *Failsafe* OR
   4) Another nuclear power/weapon-related film chosen by your group and approved by me.

**Week 13: Artificial Spaces**

Apr. 9. A Controlled Environment
   Reading: Kenneth Jackson, excerpt from *The Crabgrass Frontier*; Kenneth Helphand, "McUrbia"; Zukin, et al, "From Coney Island to Las Vegas." All on D2L

Apr. 11. The Magic Kingdom
Apr. 13. Discussion: artificial spaces, real lives?
   Reading:
   1) *The Truman Show*. (Watch outside of class.)

**Week 14: Aerospace**

Apr. 16. The Global Network.
   Reading: Manuel Castells, *Rise of the Network Society*, Prologue. On D2L

Apr. 18. The Race to the Moon
Apr. 20. Discussion: technology, progress, evolution
   Reading:
   1) Watch *2001: a space odyssey*

**Week 15: Digital Convergence**

Apr. 25. IT and the 3rd Industrial Revolution.
   Reading: Heyck, "Embodiment, Emotion, and Moral Experience." On D2L

Apr. 25. The Computer in Film
Apr. 27. Discussion: What is real? What is human?
   Readings:
   1) One of the following films: *I, Robot; The Matrix; The Terminator; Tron* (the first one); *Moon*; or another film approved by me.

**Week 16: The Big Picture**

Apr. 50. Biomed/biotech (the pill)
   Reading: Elaine Tyler May, *America and the Pill*, Introduction through Chapter 4, plus the Conclusion.

May 2. Course wrap-up
May 4. Final discussion, course evaluation
   **Final Exam:** Monday, May 7, 8-10 a.m.