385T TECHNOLOGY AND WORK
Fall 2009
Tuesdays 12-3
UTA Bldg Rm 1.210A

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Who Should Take This Course
This course is designed for students who wish to consider information technology as a recent addition to a host of technologies that, over time, individuals have employed at work. Students should be curious about the interplay between work and technology, be willing to draw lessons from historical as well as modern-day work and technology scenarios, be capable of extensive reading, and be eager to participate in class discussions in ways that extend their own and others’ learning.

OVERVIEW
Together, we will examine the relationship between technology and work in the particular context of six cases: the moving assembly line in factories, automation and IT in plant and shop work, automation and IT in office work, diagnostic and surgical tools in medicine, communication technologies in geographically distributed work, and computational and logic tools in engineering. Independently, you will investigate technology and work in a seventh setting of your choice. In considering technologies that range from CNC machines to cardiac surgery techniques, we will refute the deterministic notion that technology shapes its own design, choice, use, and outcomes. By acknowledging human agency and the importance of context, we will develop a deeper understanding of the interplay between technology and work. Our goal is to appreciate why the study of work is essential for the design of work technologies and why an understanding of work technologies is key to designing and organizing work.

COURSE DETAILS

Weekly Sessions
Each week’s three-hour class will begin with a short lecture by me to set the stage for our readings. Most weeks, student presentations of additional readings will follow (or be incorporated into) this lecture, opening up to broader discussion among all students. This broader discussion will constitute the bulk of our time. Several weeks are exceptions to this pattern and will feature no reading at all: week 7 (when we meet to discuss your course project ideas), week 12 (when you verbally present your project findings) and week 14 (when we sum up what we have learned over the semester).

Attendance and Participation
You are expected to attend every day and to have completed the reading and any assignments so that you can actively engage in discussions. Poor attendance and participation will lower your grade.
Required Course Materials

• **Texts (all students)**
  6. One additional book per student, see Book Presentation and Summary, below.

• **Other Required Reading**
  Several journal articles are also required; in digital form, they are on the Blackboard website.

• **Video**
  One video is to be viewed outside of class for in-class discussion; it is on reserve at the computer lab.

• **Blackboard website**
  The syllabus, all lecture slides, many course readings and other course information will be posted to the Blackboard website. Look there regularly for updates.

Assignments and Projects

• **Essays**
  Students must complete three essays, each 2-3 pages in length, due in weeks 2, 4, and 6. Topics are listed in the class schedule, below.

• **Book Presentation and Summary**
  Each student will read one additional text over the course of the semester and prepare a verbal presentation and a written summary of the book. The verbal presentation shall be no more than FIVE minutes in length, with no slides or handouts, and will be given in class during the appropriate week. The purpose of the verbal presentation is to help your classmates better understand the week’s topic by providing the major insights of the additional reading and situating those insights with respect to what the class read. The written summary should be no more than five pages in length. The purpose of the written summary is to convey to me your ability to read new material and integrate it with our class readings in a way that extends your understanding of the topic. Both summaries should include the main thesis of the book with an analysis of how the book complements or opposes other readings for the week. Students must choose from among the texts listed at the end of the syllabus, with no two students reading the same text.
• Course Project
Students will work alone or in pairs to research an occupation over the course of the semester. Your goal is to develop a rich, thorough depiction and analysis of technology and work in the context of this occupation. Plotting the course of work and technology over time, thus providing historical as well as modern-day accounts to trace change, would be a good strategy. Students are expected to learn about the occupation through interviews, site visits, shadowing, newspaper articles, movies, books and other sources.

Students will verbally present their findings in class November 17th and will submit an academic research paper the last day of class:

Verbal Presentation. Verbal presentations may feature Powerpoint slides, videos, and other media as appropriate to convey your findings. I value creativity, originality, depth of thought and thoroughness of research. The purpose of the verbal presentation is to provide your class colleagues with an informed, in-depth understanding of the relationship between work and technology in the occupation you studied.
Research Paper. Papers – approximately 20 pages in length – should evince rigor in data collection and analysis and should follow academic standards of writing and presentation (not journalistic ones). The purpose of the written paper is to convey to me practical and theoretical application of the knowledge you gained in this class without attempting to serve as an exhaustive interpretation of course material in the particular context of your chosen occupation.

Grading
Individual component weights in final grade:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Essays (5% each)</td>
<td>15%</td>
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<tr>
<td>Book Verbal Presentation</td>
<td>15%</td>
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<tr>
<td>Book Written Summary</td>
<td>20%</td>
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<tr>
<td>Course Project Verbal Presentation</td>
<td>20%</td>
</tr>
<tr>
<td>Course Project Research Paper</td>
<td>30%</td>
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<tr>
<td>Total</td>
<td>100%</td>
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Participation and attendance may shift a grade up or down.

Late Work Policy
Some work cannot be late because the class depends on your contribution on that day. Thus, essays, verbal book presentations, and verbal project presentations cannot be late; you will lose full credit if you are not ready when they are due. For your book written summary and your project research paper, you will lose 10% of your grade if you fail to hand them in when due. If the work is not handed in within 48 hours, you will lose another 10%. No summaries or papers will be accepted more than one week late.
CLASS SCHEDULE

Week 1 Tuesday 9/1

Introduction
What is technology? What is information technology? What is work? Examples of technology at work. Outdated notions of technology and work. Discussion of syllabus and course mechanics, including class brainstorming of occupations that you might investigate for your course project.

Reading: Barley and Kunda, Bringing Work Back In (Blackboard)
Discussion: How does work shape us? What images of work did we garner in childhood from parents and others, from our personal work experiences? What does work mean to us? What role has workplace technology played in this shaping of our image of ourselves and those around us?

Week 2 Tuesday 9/8

Case 1: Moving Assembly Line – Origin and Early Implementation

The transformation of production work in the first half of the twentieth century: Taylor and efficiency, Ford and the technology of the moving assembly line, the rationalization of work, automation, outcomes for work and workers, including task cycles, alienation and job satisfaction.

Exercise: Time Study Example and Therblig Analysis Tool
Reading: Taylor, Principles of Scientific Management
Braverman, Chapters 1-5
Due (and Discussion): Essay, Explain the separation of execution from conception and why Taylor favored it. Discuss how such separation is evident in a modern-day job of your choice.
In-Class Assignment. Students select their choice of text for presentation and summary.

Week 3 Tuesday 9/15

Case 1: Moving Assembly Line – Updated Implementations


Reading: Hamper, Rivethead
Video: PRIOR to class, view Modern Times (on reserve at the computer lab)
Presentation: Selected student presentations of additional reading.
Discussion: See questions online for in-class comparison of book and movie.
**Week 4 Tuesday 9/22**

**Case 2: Automation and IT in Plant and Shop Work**

The effects of increasing automation in factory work. Arguments for managerial intent with respect to technological change. Labor process theories (deskilling, upskilling). Computer and information technology and the transformation of production work from acting-on to acting-with, from tacit skills to intellective skills.

*Reading:* Braverman, Chapters 6-11  
Zuboff, Chapters 1-2

*Presentation:* Selected student presentations of additional reading.

*Discussion:* What are the implications of deskilling? What is the potential of upskilling? What forces shape managers’ decisions? What factors might shape different outcomes across settings?

*Due:* Essay, The occupation you intend to investigate for your course project, with brief description of the work and explanation for your choice. (submit hard copy and digital copy)

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**Week 5 Tuesday 9/29**

**Case 3: Automation and IT in Office Work**

Technological change and the transformation of clerical and white-collar work. Early offices, impact of office automation prior to introduction of IT, effect of IT, Zuboff’s dental offices. Managers claim to authority, impact of scientific management, how class matters, managers’ IT dilemma, Zuboff’s paper pulp mills.

*Reading:* Braverman, Part IV  
Zuboff, Chapters 3-4  
Zuboff, Chapters 5 and 7

*Presentation:* Selected student presentations of additional reading.

*Discussion:* How do workers in Zuboff’s studies respond to new technologies? What are managers trying to achieve with the new technologies? What do these scholars tell us about technology, power, authority and control and how do these factors differ by blue-versus white-collar work?

*Assignment:* Read the essays assigned to you as material for your next essay.
**Week 6 Tuesday 10/6**

**Interlude: Refuting Technological Determinism**
Contingency theorists argued that technology (writ large) shaped organizations and their behavior, but recent scholars challenge this determinism by showing that technology (often writ small) shapes structures and structures shape technology and that the same technology has different effects in different settings.

*Reading:* Barley, Technology as an Occasion for Structuring (Blackboard)
DeSanctis and Poole, Capturing the Complexity (Blackboard)
Orlikowski, Duality of Technology (Blackboard)

*Presentation:* Selected student presentations of additional reading.

*Discussion:* How do individuals “cheat” technological determinism through their use of workplace technologies? How far can tool designers “see” into likely user behavior? Think of some technologies that are highly malleable and some that are not, then consider their differing consequences in work.

*Due:* Essay, Ideas for your fellow students regarding their chosen occupations.

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**Week 7 Tuesday 10/13**

**Presentation and Discussion:** Occupation choices for course project.

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**Week 8 Tuesday 10/20**

**Case 4: Diagnostic and Surgical Tools in Medicine**

The introduction of new technologies for diagnosis and surgery in medicine highlights how differences in the implementation of a technology may occasion different effects on the social dynamics at work. The introduction of new computer and information technologies also has the potential to drastically alter the global distribution of the medical workforce.

*Reading:* Edmondson et al., Disrupted Routines (Blackboard)
Pisano et al., Organizational Differences in Rates of Learning (Blackboard)
Levy and Goelman, Offshoring and Radiology (Blackboard)
Stack et al., The Offshoring of Radiology (Blackboard)
Strehle and Shabde, 100 Years of Telemedicine (Blackboard)
Jarvis and Stanberry, Teleradiology: Threat or Opportunity? (Blackboard)
McLean and Richards, Teleradiology: A Case Study (Blackboard)

*Presentation:* Selected student presentations of additional reading.

*Discussion:* What does the work of Edmondson and her colleagues tell us with respect to technological determinism? What lessons about implementation do we gain? Why is teleradiology possible? What are its implications for radiologists, physicians who treat patients, and patients?
**Week 9 Tuesday 10/27**

**Case 5: Geographically Distributed Work - Telework**

What happens when individuals work from home or other locations outside the main office. Problems in visibility, isolation, managerial concerns, promotion, social networking, and work-family balance.

**Reading:** Bailey and Kurland (Blackboard)
Duxbury et al., After-Hours Telecommuting (Blackboard)
Golden, Co-workers Who Telework (Blackboard)

**Presentation:** Selected student presentations of additional reading.

**Discussion:** What do managers fear in telework? What do employees fear in it? Why do most people who telework fail to do so full-time? In what ways do you suspect that after-hours, or supplemental, telework has different outcomes for individuals, families and organizations than does substitution telework?

**Week 10 Tuesday 11/3**

**Case 5: Geographically Distributed Work – Virtual Teams**

The impact on group processes and performance when individuals and groups work in separate locations, contributing factors such as cultural and national differences as well as technology-mediated communication, problems in sharing contextual knowledge and building mutual knowledge.

**Reading:** Cramton, Mutual Knowledge (Blackboard)
Jarvenpaa and Leidner, Communication and Trust (Blackboard)
Majchrzak et al. Technology Adaptation (Blackboard)

**Presentation:** Selected student presentations of additional reading.

**Discussion:** Why do organizations favor virtual teams? What problems arise on these teams? Will new technologies solve these problems? Will new managerial and team leader practices do so? How do the lives of workers change when they work on virtual teams?
**Week 11 Tuesday 11/10**

**Case 6: Computational and Logic Tools in Engineering**

Differences in the role of computational and logic tools in design and analysis across engineering disciplines. How technology advances are transforming engineering work: simulations replace physical tests, visualizations replace prototypes, and tasks are offshored.

**Reading:** Henderson, Flexible Sketches (Blackboard)
Leonardi and Bailey, Task-Based Offshoring (Blackboard)
Bailey, Leonardi and Chong, Minding the Gaps (Blackboard)

**Presentation:** Selected student presentations of additional reading.

**Discussion:** Compare and contrast the situation in teleradiology with that in engineering analysis. How are knowledge and skills changing in engineering? Are sketching and technology gaps likely to persist in the face of ever-advancing technology?

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**Week 12 Tuesday 11/17**

**Presentation (and Due):** Verbal presentations on occupations for course project.

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**Week 13 Tuesday 11/24**

**The Future of Technology and Work**

With computers ubiquitous in the workplace and communication and information technologies connecting distant sites with ease, what does the future hold for American workers and for the global workforce?

**Reading:** Levy and Murnane, *New Division of Labor*

**Presentation:** Selected student presentations of additional reading.

**Discussion:** Futurists tend to paint a bleak picture for the future of technology and work. Why might their predictions prove false and what hope is there for American (and global) workers in the face of technology advances?

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**Week 14 Tuesday 12/1**

**Summing Up**

What we learned in our investigations, readings and discussions and how to apply what we learned.

**Due:** Research paper on occupation for course project.
TEXTS FOR PRESENTATIONS AND REPORTS

Week 3. Moving Assembly Line – Updated Implementations

Week 4. Automation and IT in Plant and Shop Work

Week 5. Automation and IT in Office Work

Week 6. Technological Determinism

Week 8. Diagnostic and Surgical Tools in Medicine

Week 9. Geographically Distributed Work – Telework
Week 10. Geographically Distributed Work – Virtual Teams

Week 11. Computational and Logic Tools in Engineering Work


University of Texas Honor Code
The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.

Documented Disability Statement
Any student with a documented disability who requires academic accommodations should contact Services for Students with Disabilities (SSD) at (512) 471-6259 (voice) or 1-866-329-3986 (video phone). Faculty are not required to provide accommodations without an official accommodation letter from SSD.

- Please notify me as quickly as possible if the material being presented in class is not accessible (e.g., instructional videos need captioning, course packets are not readable for proper alternative text conversion, etc.).

- Please notify me as early in the semester as possible if disability-related accommodations for field trips are required. Advanced notice will permit the arrangement of accommodations on the given day (e.g., transportation, site accessibility, etc.).

- Contact Services for Students with Disabilities at 471-6259 (voice) or 1-866-329-3986 (video phone) or reference SSD’s website for more disability-related information: http://www.utexas.edu/diversity/ddce/ssd/for_cstudents.php