

SAN JOSE STATE UNIVERSITY
Department of Aviation and Technology
AE/ME/CMPE/ENGR/TECH 198--Technology and Civilization
COURSE OUTLINE Fall 2016

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| Instructor: | Lin Zou |
| Office Location: | Engineering Building 397 |
| Telephone: | N/A |
| Email: | lin.zou@sjsu.edu |
| Office Hours: | Th 15:00-16:30pm and by appointment |
| Class Days/Time: | Online only |
| Classroom: | Online |
| Prerequisites: | Completion of, or co-registration in a 100W class |

Course Format

This is an online only class. Students must use their own computers or computer labs on campus and have Internet access to finish weekly activities. Students will submit their homework through SJSU Canvas; course materials are posted on Canvas.

This class meets the SJSU Studies Area V requirement

Catalog Description

History, development, and use of technology in different cultures. Technology's impact on society, global environment, the workplace, cultural values, gender roles, and newly industrialized countries of the world. (Prereq: Upper division standing, passage of WST and CORE GE). 3 units.

Tech 198 is crosslisted with ME, AE, ENGR, and CompE

Prerequisite: Completion of Core General Education; a minimum aggregate GPA of 2.0 in GE Areas R, S, & V. For students beginning continuous enrollment in Fall 2005 or later, completion of, or co-registration in, a 100W course is required for enrollment in all SJSU Studies courses. Courses used to satisfy Areas R, S, and V must be taken from three separate SJSU departments, or other distinct academic units {having own HEGIS Code}).

Purpose of Course

Technology and Civilization is an SJSU Studies courses (formerly, advanced general education course) in Area V: Culture, Civilization & Global Understanding that is designed to introduce students to the realm of history and usage of technology in society from an international perspective and to increase their awareness of both the uncertainties as well as the promises of the utilization of technology as a creative human enterprise. TECH 198 provides a comprehensive overview of the human dimension of technological change as it continually molds and shapes the nature of our culture, social institutions, and the global environment.

While science and technology are often decried as pervasive agents of social change, this course focuses on the role individuals can play in the management and control of technological forces toward human achievement. Emphasis is given to the chronology of technology and its role in shaping human history. The perspective is to regard technology both as affecting and being affected by culture. This focus should help you broaden your view of technology and its role and effect on society. This course builds upon basic skills in reading, writing, speaking, critical thinking, research and knowledge from Core GE to give you a comprehensive view of the interaction of technology and society.

General Course Goals for Tech 198

1. Describe the core concepts of science and technology in contemporary society (Unit 1 multimedia activities on science and technology)
2. Compare the development and use of technology in various countries around the world (Research Exercise).
3. Analyze the interactions between gender, culture and technology in the history of technology (Unit 4 multimedia activities on Gender and Technology).
4. Describe the societal and technological relationships between gender and work (Unit 3 multimedia activities on Technology and Work).
5. Analyze the mechanisms of technology transfer and its effects on other countries (technology transfer class activities)
6. Analyze technological developments, issues, and trends with respect to how these have altered the overall quality of life (QOL) in the United States and in other nations (QOL class activities).
7. Review several contemporary technology innovations and developments and the ethics associated with responsible technology decision-making both for the United States as well as for other countries (Ethics class activities).

Student Learning Objectives for Area V of SJSU Studies (Advanced GE)

Students shall be able to:

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| 1. compare systematically the ideas, values, images, cultural artifacts, economic structures, technological developments, and/or | Research Exercise 2 will assess this learning objective. In addition, the following multimedia activities relate to this learning objective: Attitudes of, and about, women in technology (Section 5—Technology and Gender), Women working around the world (Section 4—Technology and |
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| attitudes of people from more than one culture outside the U.S.; | Gender). |
| 2. identify the historical context of ideas and cultural traditions outside the U.S. and how they have influenced American culture; | The web-based unit on the history of technology addresses this learning objective. Several sections of the multimedia relate to this learning objective: Assembly line (Section 5—Technology and work), The Nature of Work Today (Section 7—Technology and work) |
| 3. explain how a culture outside the U.S. has changed in response to internal and external pressures. | Research Exercise 1 will assess this learning objective. Several sections of the multimedia also address this learning objective: The Industrial Revolution (Section 1—Technology and work), The Industrialization of Society in the 19 th century (Section 2—Technology and work), Scientific Management (Section 4—Technology and work), Women at work before 1900 (Section 2—Technology and Gender). |

Textbook

Markert, L. R., & Backer, P. R. (2010). *Contemporary Technology. Innovations, Issues and Perspectives* (5th ed.). Tinley Park, IL: Goodheart-Willcox.

Other Materials

(1) *Criterion*: For this class, you will need to log into the class website on the Criterion® Online Writing Evaluation Service. The Criterion® Online Writing Evaluation service provides students with reliable evaluations of English-language essays. It delivers immediate score reporting and diagnostic feedback that students can use to revise and resubmit their essays. To access Criterion, you should go to the website, <https://criterion.ets.org> and log in.

The Class Access Code for Tech 198 is **8CP9 - 7XSC**; the Class Full Name is: **Tech 198-Fall 2016**.

(2) *Multimedia*: There are four different versions of the multimedia available: a Windows version, a Mac OS multimedia CD, a Word version, and an iBook version. The Mac OS multimedia does not work with the most recent MAC operating systems (OS X Lion and OS X Mountain Lion). You can download the multimedia and word versions.

All the multimedia versions are available on Canvas.

Backer, P. R. (2011). **Technology and Civilization: A multimedia course. Unit 1. The nature of science and technology** [CD-ROM software]. San Jose, CA: The Department of Aviation and Technology, SJSU.

Backer, P. R. (2011). **Technology and Civilization: A multimedia course. Unit 3. Technology and work** [CD-ROM software]. San Jose, CA: The Department of Aviation and Technology, SJSU

Backer, P. R. (2011). **Technology and Civilization: A multimedia course. Unit 4. Gender and Technology** [CD-ROM software]. San Jose, CA: The Department of Aviation and Technology, SJSU

(3) *Web-based material:* Backer, P. R. (2011). The history of technology [WWW online module]. San Jose, CA: The Department of Aviation and Technology, SJSU. Available at: <http://www.sjsu.edu/people/patricia.backer/history/>

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's Catalog Policies section at <http://info.sjsu.edu/static/catalog/policies.html>. Add/drop deadlines can be found on the current academic year calendars document on the Academic Calendars webpage at http://www.sjsu.edu/provost/services/academic_calendars/. The Late Drop Policy is available at <http://www.sjsu.edu/aars/policies/latedrops/policy/>. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the Advising Hub at <http://www.sjsu.edu/advising/>.

Accommodation to Students' Religious Holidays

San José State University shall provide accommodation on any graded class work or activities for students wishing to observe religious holidays when such observances require students to be absent from class. It is the responsibility of the student to inform the instructor, in writing, about such holidays before the add deadline at the start of each semester. If such holidays occur before the add deadline, the student must notify the instructor, in writing, at least three days before the date that he/she will be absent. It is the responsibility of the instructor to make every reasonable effort to honor the student request without penalty, and of the student to make up the work missed. See University Policy S14-7 at <http://www.sjsu.edu/senate/docs/S14-7.pdf>.

American with Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with DRC to establish a record of their disability.

The San Jose State University Accessible Education Center (AEC), formerly known as the Disability Resource Center (DRC), Division of Student Affairs, is a comprehensive center providing both students and employees with accommodations and services. The contact information for the AEC is below.

Accessible Education Center
One Washington Square, ADMIN 110

San Jose, California 95192-0168
408-924-6000
aec-info@sjsu.edu

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

Academic integrity statement (from Office of Student Conduct and Ethical Development): Your own commitment to learning, as evidenced by your enrollment at San José State University, and the University's Academic Integrity Policy requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Conduct and Ethical Development. The policy on academic integrity can be found at http://sa.sjsu.edu/student_conduct.

Each multimedia assignment (Units 1, 2, 3, and 4), the ethics Canvas assignment (Unit 7), all CANVAS assignments and both research exercises will be submitted to your instructor through the CANVAS dropbox. Your essay will be reviewed for Plagiarism through CANVAS.

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of forty-five hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including but not limited to internships, labs, clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Evaluation

- | 1. | Weighted Criteria | Percentage |
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| a. | Unit Activities. Each unit includes various activities, discussion questions, and responses. | 60 |
| b. | Research Exercise | |
| | First draft (outline) of RE | 5 |
| | Final version of RE (minimum 1250 words, approx. 5 pages D.S.) | 20 |
| c. | Final Exam (Oral presentation) | 15 |
2. Due dates are listed on the attached Course Schedule. Reading assignments that are pertinent to individual units are listed on the Course Schedule. It is your responsibility to keep current and read all relevant assignments before they are used in class.
3. **Class activity assignments will not be accepted late.** Exceptions will be made to this policy only in **emergency situations**. Please email Dr. Zou as soon as possible.

4. All work completed should be written in proper English. Work that is not done in an acceptable manner will receive no credit.

All assignments will be reviewed for grammar and sentence structure before they will be reviewed for content. If your assignment is returned for an excessive number of grammatical errors, you will receive a zero on the assignment. You will be allowed to rewrite and resubmit it. Your instructor strongly recommends that you use the online writing program, ETS Criterion, to review your work before you submit it. To access Criterion, you should go to the website, <https://criterion.ets.org/student/> and log in. The Class Full Name is Tech 198-Spring 2016 and the class access code is **BXV7 - QR6G**

5. Grade distribution. The final grade distribution will be as follows: 93-100 A; 90-92 A-; 88-89 B+; 83-87 B; 80-82 B-; 78-79 C+; 73-77 C; 70-72 C-; 69 D+; 65-68 D; below 65 F
6. This greensheet is subject to change with fair notice.

Submission of Assignments

Each assignment should be uploaded to the correct CANVAS dropbox. Since there are 40 students enrolled in this class, it is critical that you name your assignments in the correct manner. Otherwise, you may not receive credit for your assignments. The correct format is Lastname_Firstname_assignment name.

For example, if I was a student in the class and submitted unit 1A, I would name my submission:

Zou_Lin_unit1A.doc

Description of Major Activities in this Course

The class work portion of your grade includes all individual and group written and oral activities completed in class. Additionally, this category includes any homework, quizzes, and/or ancillary assignments. Over the course of the semester, you will write the equivalent of at least ten pages, double-spaced. The Unit activities include all online and multimedia activities for Units 1, 3, and 4; the CANVAS activities for Units 5, 6, and 7; and the Unit 2 History of Technology Web Tutorial.

- *Multimedia Activities, Units 1, 3, and 4.* Unit 1 (The Nature of Science and Technology), Unit 3 (Technology and Work), and Unit 4 (Gender and Technology) will be completed as self-paced multimedia activities. Each of these multimedia units has multiple sections. At the end of each section is a class activity. Each of these class activities must be submitted to your instructor by the due date indicated in the attached schedule. Your work on the multimedia class activities will be included in

- your class work grade.
- *Unit 2 History of Technology Web Tutorial.* This unit has been developed as a multimedia learning experience for students. The History of Technology web tutorial is divided into three major sections: Technology in the Middle Ages, Chinese Contributions to Technology, and Islam Spain and the History of Technology. This web tutorial is available at <http://www.engr.sjsu.edu/pabacker/history/>. At the end of the web-based tutorial, you will complete a class activity available online.
 - *Online activities.* Three of the units in this class are available online on the CANVAS website. These three units are: Unit 5--Technology Transfer and Cultural Issues, Unit 6—Quality of Life Issues, and Unit 7--Ethics. In each of these units, you will have homework/classwork activities. The CANVAS activities are available on the class website.

Research Exercises

In this class, you must complete one research exercise. For this research exercise, the class will be given a topic or an article (or articles) related to the content of this class. There are detailed instructions for the research exercise—these are available on the CANVAS website.

The narrative for the research exercise must be at least 5 pages double-spaced (1,250 words each). Detailed instructions for both research exercises are available on the CANVAS website. Please review these instructions and email your professor if you have any questions.

*The research exercise will be submitted first to **ETS Criterion**. You are supposed to fix **all fixable problems** before submitting them to me. This program should be used to improve your writing prior to final submission for grading. You may submit your writings to ETS Criterion as many times as you would like prior to the due date to improve your score on the final product. As such, you should begin working on assignments early so that you will have time to work with ETS Criterion to fix any errors in the writing prior to being graded. You will be graded down for any fixable errors that you did not fix that Criterion pointed out.*

Research Exercise Due Dates

- **10/14, Research Exercise Draft (outline) DUE:** By midnight, you must submit your outline of the second research paper and your reference articles to Canvas.
- **10/28:** You will receive content feedback on your outline from Dr. Zou.
- **11/11, Research Exercise Final Paper DUE:** You should submit your final draft of your research exercise (along with any additional reference articles) to Canvas and to Criterion by midnight. Also, before your final submission, you must submit your research exercise to Criterion and fix any fixable errors. You can submit your essay to Criterion multiple times.

Final Exam (Oral Presentation)

Your final exam will require you to synthesize the topics and materials covered in the course. Your final exam will be a Powerpoint presentation. You will complete an individual oral presentation. More information about the exam is available on the CANVAS website for this class.

Class Format

Tech198 is organized as a series of units or instructional topics. Within each unit there are objectives, assigned readings, activities, media, and evaluation measures. ***The units are NOT covered in the order they are listed here. Check the course schedule and the CANVAS course web site for the order and dates for each unit.*** Your instructor is hopeful that you will ultimately become enthusiastic about the material presented within the realm of this field, and that you will be willing to share your ideas with your fellow classmates throughout the coming term.

Outline of Course Content and Unit Objectives

Unit 1: Nature of Science & Technology

Objectives:

- a. Contrast the concepts of science and technology.
- b. Describe the evolution of “modern science” as a Western construct.
- c. Contrast several prevailing attitudes toward technological changes and innovations.
- d. Illustrate an example of technology dependence and technology traps.

This unit has been developed as a multimedia learning experience for students. It has five sections: What is Science? What is Technology?, Attitudes Toward Technology, Technology Dependence and Technology Traps, and Impact of Technology on Society. Refer to Canvas for details on how to complete this activity.

Textbook Readings

Markert & Backer, ch. 1 [Science, Technology and Society]

Markert & Backer, ch. 11 [Social Response to Technological Changes]

Unit 2: The History of Technology and Culture

Objectives:

- a. Analyze the development of technology over time and in different cultures.
- b. Synthesize the contributions of China and Islam to modern science and technology.
- c. Describe Western and non-Western contributions in the history of technology.

This unit has been developed as a web-based multimedia learning experience for students. It has these three main sections: Technology and China, Technology and Islam, and Medieval Technology in Europe. Refer to Canvas for details on this activity.

Unit 3: Technology and Work

Objectives:

- a. Compare two of the three theories about the start of the Industrial Revolution (the "invention" theory, the "capitalist" theory, and the "cultural" theory).
- b. Describe how work has evolved since the Industrial Revolution and how technology has influenced this evolution in the US and in other countries.
- c. Analyze the effect of Scientific Management on the workplace and the home.
- d. Describe the changes in technology and work since the Industrial Revolution and the interplay of this history with other significant historical events.
- e. Analyze the effect of the work environment on different groups in society throughout the history of "modern work."
- f. Discuss the nature of industrial work in the Twentieth Century?

This unit has been developed as a multimedia learning experience for students. It has seven sections: The Industrial Revolution, Industrialization of Society in the 19th Century, Workplace of 1900, Scientific Management, The Development of the Assembly Line, Consumerism in the West, and the Nature of Work Today? Please refer to Canvas for details on how to complete this activity.

Textbook Readings

Markert & Backer, ch. 6 [Manufacturing and Production Enterprises]

Unit 4: Technology and Gender Issues**Objectives:**

- a. Characterize the gender-related contexts of technology development.
- b. Synthesize the stereotypes of "men's work" and "women's work" as they relate to technology.
- c. Describe the impact of World War II on women in the workplace and the impact on society.
- d. Contrast how work in the home has evolved as compared to work in the marketplace.
- e. Analyze the effects of technology on women from different cultures and societies.

This unit has been developed as a multimedia learning experience for students. It has six sections: Technology and Gender; Women at work before 1900; Women at work, 1900 to today; Women working around the world; Attitudes of, and about, Women in Technology; and Gender-based Technologies. Please refer to Canvas for details on how to complete this activity.

Unit 5: Technology Transfer and Cultural Issues**Objectives:**

- a. Discuss the culture-related contexts of technology development.
- b. Describe the mechanisms of technology transfer.
- c. Analyze possible uses of technology transfer among countries.
- d. Compare technological problem solving using "technology fixes" versus social engineering.

This unit is an online unit in CANVAS.

Textbook Readings

Markert & Backer, ch. 7 [Technology Transfer]

Markert & Backer, ch. 8 [Appropriate Technology]

The relation between technology and culture by Patricia Backer available at
http://www.engr.sjsu.edu/pabacker/tech_culture.htm

Canvas Articles (the following articles are available on the Canvas website)

Dream machines - Cars in China (2005, June 4). *The Economist*.

China's road death rate highest in world (2008, March 21). *China News Daily*.

China's Car-Industry Slowdown Blip Before Next Boom. (2012, April 30). *Advertising Age*.

Electric cars in China, Not yet. (2012, May 5). *The Economist*.

Sales in China Fuel BMW's Profit (2012, May 3). *The New York Times*.

Ding, M., Wang, Y., & Wang, S. (2011, May). An analysis of causes and countermeasures for reconstruction and integration of automobile industry in China. *Asian Social Science*, 7(5), 215-218.

Unit 6: Quality of Life Issues

Objectives:

- a. Describe those elements that are essential to the QOL in societies around the world.
- b. Contrast opposing points of view to determine the effects of technology on the environment.
- c. Describe the impact of technology on the quality of life of people from different countries

This unit is an online unit in CANVAS.

Textbook Readings

Markert & Backer, ch. 9 [Environmental Issues]

Canvas Articles (the following articles are available on the Canvas website)

Dempsey, J. X. (2009). Civil liberties in a time of crisis. *Human Rights*, 29(1), 8-10.

Zinam, O. (1989). Quality of Life, quality of the individual, technology and economic development, *American Journal of Economics and Sociology*, 48(1), 55-68.

Learning to live with Big Brother (2007, September 17). *The Economist*.

Unit 7: Technology Ethics and Society

Objectives:

- a. Describe several contemporary technology innovations and developments and the ethics associated with responsible technology decision-making.
- b. Discuss the issues related to stem cell technologies
- c. Analyze the effect of information technology on individual and workplace privacy.

This unit is an online unit in CANVAS.

Readings

Markert & Backer, ch. 2 [Biotechnology]

Markert & Backer [Information Technologies]

Markert & Backer, ch. 12 [Social Institutions]

Canvas Articles (the following articles are available on the Canvas website)

Davis, H. B. (2004, Winter). Ethics in a digital age. *Threshold*, 18-21. Available:

<http://i.ciconline.org/CiCWebResources/Articles/W04-ethics.pdf>

Lind, M. (2011). A framework for addressing ethics in the Digital Age. *Information Systems Educators Conference Proceedings*, 28(1624). Available:

<http://proc.isecon.org/2011/pdf/1624.pdf>

Myhrvold, C. (2012, August 3). Study Reveals a Confused View of Mobile Phone Privacy and Security. *Technology Review*. Available:

<http://www.technologyreview.com/news/428656/study-reveals-a-confused-view-of-mobile-phone/?nld=nldly&nld=2012-08-03>

Schedule AE/ME/CMPE/ENGR/Tech 198

| Date | Unit | Topic | Assignments | Readings |
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| 8/28 | Intro | | Introduction Discussion Board | |
| 9/9 | 1 | The Nature of Science and Technology | Unit 1 Class Activities are due | |
| 9/16 | 7 | Technology and Ethics | Unit 7, Class discussion and class activity due | Markert & Backer, ch. 2 [Biotechnology]; Markert & Backer, ch. 12 [Social Institutions]; Markert & Backer [Information Technologies] Additional articles on CANVAS website |
| 9/23 | 2 | History of Technology | Unit 2 assignment due | |
| 9/30 | | Rewrites due for Units 1 (Nature of Science & Technology) and 2 (History of Technology) (if applicable) | | |
| 9/30 | 3 | Technology and Work Part 1 | Unit 3, Class Activities 1-4 due | Markert & Backer, ch. 6 [Manufacturing and Production Enterprises] |
| 10/7 | 3 | Technology and Work Part 2 | Unit 3, Class Activities 5-7 due | |
| 10/14 | Research Exercise Draft due | | <i>You must submit the outline of your research exercise and your reference articles to Canvas by 5pm.</i> | |
| 10/21 | 5 | Technology Transfer part 1 | Unit 5, Class activities due | Markert & Backer, ch. 7 [Technology Transfer]; Markert & Backer, ch. 8 [Appropriate Technology] Additional articles on CANVAS website |
| 10/28 | 5 | Technology Transfer part 2 | Unit 5, class activities due | |
| 10/28 | Rewrites due for Unit 3 (Technology and Work) if applicable | | | |
| 11/11 | Research Exercise Final Paper Due | | <i>You must submit the final draft of your research exercise and any additional reference articles to Canvas by 5pm. You must also submit your final draft to Criterion and fix any fixable errors.</i> | |
| 11/18 | Rewrites due for Unit 5 (Technology Transfer) if applicable | | | |
| 11/18 | 4 | Gender and Technology | Unit 4, Class Activities due | |
| 11/29 | 6 | Quality of Life | Unit 6, Class Discussion Online | Markert & Backer, ch. 9 [Environmental Issues] Additional articles on CANVAS website |

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| 12/11 | Unit 4 (Gender and Technology) if applicable |
| 12/11 | Final Exam. Students must submit their final exam by midnight |