AC 2007-228: TECHNOLOGY AND GENDER ISSUES: DEVELOPMENT AND ASSESSMENT OF A FRESHMAN GENERAL EDUCATION COURSE IN THE COLLEGE OF ENGINEERING

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Technology and Gender Issues: Development and Assessment of a freshman General Education course in the College of Engineering

Abstract

This class, Technology VS Women, explores the interaction of gender with technology and answers questions such as: Is technology a "male" science? Is modern technology compatible to both male and female users? What does history tell us about the role of women at work relating to technology? The ideas presented in this course challenges some commonly held myths and misconceptions about technology in our society. This course focuses on the technological changes since 1900 and how they have affected both men and women. The effect of cultural biases and perspectives on the working and educational environments also are addressed. This course is part of the Metropolitan University Scholars' Experience (MUSE) at San Jose State University (SJSU). MUSE courses are designed to help new freshmen make an effective transition into college. Discovery, research, critical thinking, written work, attention to the rich cultural diversity of the campus, and active discussion are key parts of this MUSE course. Technology VS Women has been taught for four years at SJSU. During this time, we have collected yearly assessment data on this course to assure its meets the General Education (GE) Student Learning Objectives.

MUSE Program at SJSU

There are many different models for first-year experience programs in engineering. Pennsylvania State University requires that all freshmen complete a one-unit seminar as part of their GE requirements. In four semesters, they offered 51 unique engineering seminars.[1] The researchers found that the students in these seminars reported "moderate or greater progress in several key areas: teamwork (37%), using computers (41%), and making life decisions (37%)". Overall, 63% of the 1024 students who took these seminars were satisfied. A different approach was taken by the Maseeh College of Engineering and Computer Science at Portland State University. Portland State has a four year General Education program that includes "freshman and sophomore inquiry sequences, junior level cluster courses that help students focus on a particular theme of inquiry, as well as the Senior Capstone project."[2] The freshmen inquiry course on Design & Society is one of nine themes offered.

In Fall 2002, SJSU began their MUSE program for incoming freshmen. MUSE was designed to bridge the gap from high school to college. MUSE includes academic seminars on a variety of subjects that help the freshmen students gain skills that are necessary to academic success. In addition, all MUSE classes are certified in one of SJSU's General Education areas. Therefore, students taking the MUSE seminars receive three units of General Education credit. The seminars qualify in one of the following areas: B1 (physical science), B2 (life science), C1 (arts), C2 (letters), D1 (human behavior), or E (human understanding and development). In contrast to many freshmen-level classes, the MUSE seminars are limited to seventeen students. Also, freshmen are allowed to only take one MUSE course. The goals and learning outcomes for the MUSE seminars are shown in Figure 1.

Figure 1. Goals and learning objectives for the MUSE program at SJSU[3]

MUSE Goals:
- To establish a strong foundation for becoming a university level student and scholar.
- To become acclimated to both the intellectual and social activities of university life.

MUSE Learning Outcomes:
- To understand the learning process and their responsibility and role in it.
- To know what it means to be a member of a metropolitan university community.

The MUSE seminars were not intended to replace introductory courses in several majors on campus such as Science 2, Engineering 10 or Business 10. Instead, the MUSE seminars "are intended to help a new student's transition to becoming a college level student/scholar. MUSE seminars emphasize how to view topics and issues from different perspectives, how to gain an understanding of a subject matter, improvement of critical thinking skills and information competencies, critical writing and reading skills, interaction among students, and strategies to help students assess their own learning and learning styles."[4]

There are many steps in the process of creating a course for the MUSE program. In the preceding Fall (i.e., in Fall 2005 for a course to be taught in Fall 2006), the faculty must submit a one-page course proposal form that includes: a proposed title, the GE area requested for the course, a short course description, a brief bio, and signatures of the Department Chair and Dean. A January orientation workshop is required for new MUSE faculty and optional for returning MUSE faculty. At the orientation workshop, the faculty are put into a peer review group by GE area with a faculty coordinator. In addition to creating a course syllabus for the class, the faculty member must complete a MUSE checklist that indicates how their course meets both the MUSE and the General Education goals for their GE area.

The peer group works together reviewing the group members' MUSE courses. After the peer group has approved the MUSE course, the course is subjected to a second evaluation. The course proposals (consisting of the syllabi and GE checklists) are exchanged between the peer review groups for an initial GE check, with a member of SJSU's General Education Advisory Panel (GEAP) augmenting each peer review group to ensure expertise in GE evaluation. Each course must undergo the peer review process each year it is offered. If the peer review panels make any recommendations for changes, the revised syllabi and checklists must be submitted to the MUSE Director. The final approval of all MUSE classes is by the Director of MUSE, and the AVP of Undergraduate Studies or the Associate Dean of Undergraduate Studies.

The MUSE courses at SJSU are not distributed equally among the various colleges. During the past three years, only five engineering faculty have taught in the MUSE program. This percentage is much lower than any other college on campus. Engineering students who wish to take MUSE seminars usually take them from faculty in the Colleges of Social Sciences, Applied Sciences & the Arts, or the College of Humanities & the Arts. Figure 2 shows the distribution of

MUSE seminars among the colleges at SJSU in Fall 2007. Since the MUSE program is not required for freshman at San Jose State University, some colleges do not offer many MUSE seminars for freshmen.

Figure 2. Distribution of MUSE seminars by College at SJSU, Fall 2007

MUSE Seminars by College	Fall 2007
Business	3
Applied Sciences & Arts	14
Engineering	5
Humanities & Arts	12
Science	4
Social Science	18
Total	56

A MUSE course must be assessed before it can be taught the fourth time. In this case, the faculty must follow the course assessment procedures for regular GE courses. Technology VS Women was first taught under the MUSE program in Fall 2003 and the course has been taught four times as a MUSE seminar. In Fall 2006, this course submitted its assessment data to the university for approval as an continuing MUSE course. This paper will describe the development and assessment of this unique GE course at SJSU.

Content of this Course

Technology VS Women was designed to meet the Student Learning Objectives for Area D1 of SJSU's General Education program. In addition to meeting the GE goals, a MUSE course must meet the MUSE requirements (see Figure 1).

This class, Technology VS Women, explores the interaction of gender with technology. We address questions such as: Is technology a "male" science? Is modern technology compatible to both male and female users? What does history tell us about the role of women at work relating to technology?

The ideas presented in this course challenge some commonly held myths and misconceptions about technology in our society. There is a focus on stereotypically "female-based" technologies and how they differ from "male-based" technologies in our society. The time span for this course is the 20th and 21st centuries and how technological changes since 1900 have affected both men and women. There are six student learning objectives for this class.

1. Demonstrate an understanding of technology's impact on gender, societal, and cultural values
2. Characterize the gender-related contexts of technology development
3. Synthesize the stereotypes of "men's work" and "women's work" as they relate to technology
4. Contrast how work in the home has evolved as compared to work in the marketplace

5. Describe the evolving role of women in society since the beginning of the 20th century and how technology has affected this development
6. Utilize primary resources to describe the relationship of women and technology during different periods in American history

This course uses three different textbooks, one of which is out of print. The textbooks are supplemented with additional readings from scholarly journals, magazines, and web-based resources. A detailed syllabus for this course is shown in the appendix. In this course, the students use the Library of Congress memory collection of artifacts to supplement the course. This class meets twice a week for two 75-minutes periods.

The students are given book chapters or articles to read in preparation for class. The teaching philosophy of the instructor is non-lecture, interactive learning. Most of the class periods consist of directed question & answer sessions, group activities, online activities, individual activities, and video sessions. The group activities, structured according to Johnson & Johnson's principles of Collaborative Learning[5], are designed so that they contain an individual part and a group part. Figure 3 shows an example of a group class activity in this course.

Figure 3. Sample group class activity for Technology VS Women

The growth of consumerism from the 1930s to the 1960s

Instructions:
1. Your class will be divided into groups of 3-4 students.
2. Each group will be given an advertisement from the 1930s to 1960s.
3. Read and analyze the advertisement.
4. Each group should be prepared to orally answer the following questions in a class discussion.
   - What is the primary message?
   - What indirect messages in the advertisement sending about society?
   - Is this advertisement sending any messages about gender roles and technology?

Since Technology VS Women is offered in GE Area D1, the students must write at least 1,500 words throughout the semester. This course is designed so that students have two formal writing assignments and weekly in-class writing assignments. This is done to give the students continual feedback both on their writing and the content.

Each research paper is completed in three parts (see Figure 4). First, the students submit their references to the instructor. Next, the students bring a first draft of their papers to class where the students conduct a peer review. The instructor uses the peer review rubric designed by the Writing Center at the University of Wisconsin-Madison[6]. Each student completes a peer review of at least two other student's papers. The instructor also participates in the peer review and the instructor gives feedback to all students in the class. Finally, the students revise their papers and submit them for grading.

Assessment results from the entire MUSE program indicate that writing continues to be an issue in all MUSE classes. Therefore, this class uses an incremental approach to writing papers so that students get more feedback on their writing.

Figure 4. Sample Research Paper Assignment for Technology VS Women

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Fall 2006 Research Exercise 1

GE Area D1
Student Learning Objective (SLO) 2: identify the dynamics of ethnic, cultural, gender/sexual, age-based, class, regional, national, transnational, and global identities and the similarities, differences, linkages, and interactions between them.

This research paper will focus on GE D1 SLO 2.

1. Read the following article. As you read this article, you should review it with respect to the above student learning objective. Here are some questions about the reading that might help you with this article.
   a. What is the historical and social impact of Martha Stewart and how does it interact with the dimensions of race, class and gender?
   b. The author discusses the roles of work and family to be competing areas for women. How does the history of paid work versus unpaid work (housework) compare for women of different ethnic, cultural and class groups?
   c. The author compares the career of Martha Stewart and the career of Oprah Winfrey and how they are similar and different in terms of race, class, and gender. What are the similarities, differences, linkages, and interactions between them?

Taylor, M. H. (2002). Martha Stewart as a sociological phenomenon. **Race, Gender and Class**, **9**(2), 85.

2. Using library resources, find at least three additional articles that analyze the same issues. The articles must be credible; that is, they must be from mainstream resources (Professional journals are preferred). Articles from corporate, educational, or personal web sites are not acceptable unless they are published. Your articles must be attached to your essay when you submit it to your professor. You can attach a list of URLs instead of the actual articles; however, the articles must be current (within the past few years). Your references for this research exercise should be submitted to Dr. Backer by 9/28/06.
3. Write an essay that focuses on the following topic: identify the dynamics of ethnic, cultural, gender/sexual, age-based, class, regional, national, transnational, and global identities and the similarities, differences, linkages, and interactions between them. In this particular case, we are looking at the identities of women both as housewives and as paid workers. In your response, you should refer directly to your sources and give a comprehensive and integrative response.
4. Your essay must be at least 1000 words (approximately 3 pages double-spaced). Three copies of the first draft of your research exercise should be brought to class on 10/05/06. Your final written research exercise must be submitted to Turnitin.com by 10/17/06. You should also email a copy to your professor by 5:00 pm.

Assessment of Course

SJSU's GE program is developed as an outcomes-based program. SJSU uses course-embedded assessment to determine the university's achievement of its GE learning goals. Each course, which is approved for general education, must submit an assessment report to document how students meet the specific learning objectives for the GE area. The assessment data for all the courses in a GE area is aggregated by the university to assess the overall results for each GE learning objective. Course-embedded assessment "uses instructor grading to answer questions about student learning outcomes in a non-intrusive, systematic manner. The process requires instructors to define learning objectives for each course, devise a rubric that measures these objectives, use the rubric to grade student work, record the data, and note needed changes for future course offerings."[7]

Normally, courses submit assessment reports every four years. Since Tech 198 was recertified as a GE course in 2002-2006, it was required to submit a complete assessment report to SJSU's Board of General Education in Fall 2006 in order for the course to remain in the General Education program.

The assessment data for Technology VS Women was submitted to the university in Spring 2006. The assessment summary included information on how many students met each GE learning objective and how this was assessed by the instructor. After review by the university, the course was approved for continuing certification in MUSE. Figure 5 shows the assessment results for this course for each GE area over the four-year period (only the assessment data for three years was submitted to the university).

Based upon the assessment of student learning outcomes, this course was successful in meeting most of the student learning objectives for both MUSE and the D1 (human behavior) GE area. One student learning objective had assessment results that were lower than expected (GE SLO#3: Students will be able to identify the dynamics of ethnic, cultural, gender/sexual, age-based, class, regional, national, transnational, and global identities and the similarities, differences, linkages, and interactions between them.)

GE SLO#3 is assessed through two different class activities. Each semester, one of the research activities directly addressed this learning objective. For example, in Fall 2005, the students were given an article on information technology from a gender perspective in India. For each research exercise, the students were asked to find at least three additional articles that analyze the same issues and they wrote a 1000-word paper analyzing their sources. In order to meet this learning objective, a student had to get a C or better on his/her research exercise. The students also completed a multimedia class activity related to this learning objective related to technology-related stereotypes of men and women.

Since the assessment data for Fall 2006 still indicates that this course did not fully meet this student learning objective, the course will be revised in Fall 2007 to increase its coverage of this student learning objective. I plan on redesigning my course materials related to learning objective 3 to give the students a better context for analyzing the similarities, differences,

linkages, and interactions between ethnic, cultural, gender/sexual, age-based, class, regional, national, transnational, and global identities. I will take the readings that I have already used and supplement them with individual and group activities so that the students can better understand the complexities of these issues. Also, I plan on giving the students more background information about the topics in this class so that they can better meet the learning objective.

Figure 5. Assessment results for Technology VS Women by semester for each GE and MUSE objective.

	Fall 2003	Fall 2004	Fall 2005	*Fall 2006	Total	percent
GE Goals and Objectives	N=8	N=9	N=7	N=11	N=35	
Students shall be able to identify and analyze the social dimension of society as a context for human life, the processes of social change and social continuity, the role of human agency in those social processes, and the forces that engender social cohesion and fragmentation	7	9	4	11	31	0.89
Students will be able to place contemporary developments in cultural, historical, environmental, and spatial contexts;	5	7	6	11	29	0.83
Students will be able to identify the dynamics of ethnic, cultural, gender/sexual, age-based, class, regional, national, transnational, and global identities and the similarities, differences, linkages, and interactions between them	5	7	5	8	25	0.71
Students will be able to evaluate social science information, draw on different points of view, and formulate applications appropriate to contemporary social issues.	7	9	6	11	33	0.94
Students will be able to recognize the interaction of social institutions, culture, and environment with the behavior of individuals	3	7	6	11	27	0.77
MUSE Learning Objectives						
Students should be able to understand the learning process and their responsibility and role in it	7	9	4	11	31	0.89
Students should understand what it means to be a member of a metropolitan university community	7	9	5	11	32	0.91

* Fall 2006 data does not include students who received incompletes for the class.

Student Assessment of Course

Students who took this class in the Fall 2006 semester were asked to complete an assessment of this course using the Student Assessment of Learning Gains (SALG) instrument. The SALG was originally designed for assessing chemistry teaching and learning in over 100 two- and four-year institutions[8]. The National Science Foundation funded this project for five years (1995-2000) as part of two, linked consortium, "ChemLinks" and "ModularChem." The SALG instrument was modified to meet the needs of this course. The SALG can be found at http://www.wcer.wisc.edu/salgains/instructor.

The complete SALG instrument for this course is shown in the Appendix. There are four standard questions in the SALG instrument for this course and four additional questions. Each of the four standard questions has sub-questions. This section will summarize the results for the questions that result to the student learning objectives for this class, (Q2: As a result of your work in this class, how well do you think that you now understand each of the following?) and question 3 (Q3: How much has this class added to your skills in each of the following?). The results for question 4 (Q4: To what extent did you make gains in any of the following as a result of what you did in this class?) also will be discussed as this question relates to overall MUSE goals and objectives.

Figure 6. Student responses to Question 2 (Q2: As a result of your work in this class, how well do you think that you now understand each of the following) [N=12]?

Sub-question	Not at all	A little	Somewhat	A lot	A great deal	Mean	SD
1. Technology's impact on gender, societal, and cultural values	0	0	3	3	6	4.25	0.83
2. Gender-related contexts of technology development	0	0	4	2	6	4.17	0.9
3. Stereotypes of "men's work" and "women's work" as they relate to technology	0	0	0	6	6	4.5	0.5
4. How work in the home has evolved as compared to work in the marketplace	0	1	2	4	5	4.08	0.95
5. The evolving role of women in society since the beginning of the 20th century and how technology has affected this development	0	1	1	4	6	4.25	0.92

Figure 6 displays the results of the student responses for all sub-questions in Question 2. All of the sub-questions used the same Likert scale (1=not at all; 2=a little; 3=somewhat; 4=a lot; 5=a great deal). The means for each of the sub-questions are 4.08 or higher indicating that the students believed that the course helped them understand the student learning objectives for this class.

Figure 7 displays the results of the student responses for all sub-questions in Question 3. All of the sub-questions used the same Likert scale (1=nothing; 2=a little; 3=somewhat; 4=a lot; 5=a great deal). The means for each of the sub-questions have a higher standard deviation than the results for Question 2. This indicates that there was a lower level of consistency in the responses. Two of the sub-questions had means below 4.0: Critically reviewing articles and Giving oral presentations.

Figure 7. Student responses to Question 3 (Q3: How much has this class added to your skills in each of the following?) [N=12]?

Sub-question	Nothing	A little	Somewhat	A lot	A great deal	Mean	SD
1. Using library services to do school work	0	1	2	2	7	4.25	1.01
2. Writing papers	0	0	2	5	5	4.25	0.72
3. Critically reviewing articles	0	1	3	4	4	3.92	0.95
4. Working effectively with others	0	1	3	3	5	4	1.00
5. Giving oral presentations	0	2	2	4	4	3.83	1.07

Figure 8. Student responses to Question 4 (Q4: To what extent did you make gains in any of the following as a result of what you did in this class?) [N=12]?

Sub-question	Not at all	A little	Somewhat	A lot	A great deal	Mean	SD
1. Understanding the main concepts	0	0	5	4	3	3.83	0.8
2. Understanding the relevance of this field to real world issues	0	2	3	3	4	3.75	1.09
3. Ability to think through a problem or argument	0	0	6	3	3	3.75	0.83
4. Feeling comfortable with complex ideas	0	0	6	3	3	3.75	0.83
5. Enthusiasm for subject	1	1	2	5	3	3.67	1.18

Figure 8 displays the results of the student responses for all sub-questions in Question 4. All of the sub-questions used the same Likert scale (1=not at all; 2=a little; 3=somewhat; 4=a lot; 5=a great deal). The means for these sub-questions are lower than those for questions 2 or 3. Overall, the students indicated that the course helped them "somewhat" understand the concepts. The qualitative comments that the students made in response to supplemental question 3 (see Figure 9) give additional insight into the students' responses.

Figure 9. Open-ended responses to the question: Why did you take this particular course?

- Because all of the other choices for Muse courses were taken.
- Because at orientation they made it sound like such a great class and only freshman their first semester can take it so you know everyone in your class is brand new to college like you
- Because I wanted to make the smooth transition into college. Plus, the name sounded interesting.
- I took this course because it seemed like a course that would interest me.
- I took this course because it was recommended for fresh-men to make the transition from high school to college, it did not do this at all! This was my hardest class!! not even my math class was this hard!!
- It seemed to be interesting to learn about women and our involvement with technology.
- It sounded interesting and is something that is important to know as a woman.
- Other MUSE classes were full.
- So that it can help me transition in to college. In addition to getting my D1 out of the way to broaden my horizon
- To complete the GE requirement and learn about the stereotype between men and women in everyday life and in the past.
- To learn more about technology and to have an easy transition to college.

Many students took this particular MUSE class because of a desire to participate in the MUSE program rather than a particular interest in the class' subject matter. In reviewing the intended majors of the students in this course in Fall 2006, only five students out of nineteen in the class had a major in any science, technology, engineering or mathematics (STEM) field. This is lower than the enrollment of students in the four other Engineering MUSE classes for Fall 2006. Overall, of the five Fall 2007 Engineering MUSE classes, 28 students had STEM majors (out of 84 students). The vast majority of students in the Engineering MUSE classes were in non-STEM majors.

Figure 10. Intended majors of students in Fall 2007 Technology VS Women as compared to the students in the other Engineering MUSE classes

Student Major	Tech VS Women	Other MUSE Engr classes (4)
Engineering	3 (16%)	15 (23%)
Other STEM	2 (11%)	8 (12%)
Non-STEM majors	14 (74%)	42 (65%)
Total	19	65

It is interesting that five of the twelve students took the MUSE class to assist in their transition to college rather than because of a specific interest in this subject matter. Considering this to be the case, perhaps this course and other similar freshmen-level experiences should be designed to

primarily prepare the student for the rigor of university-level work rather than be an indepth analysis of a specific topic. For the next offering of this class, I plan on reevaluating its content to make sure that the content appeals to more students.

Bibliography

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[7] Gerretson, H., & Golson, E. (2004). Introducing and evaluating course-enbedded assessment in General Education. *Assessment Update, 16*(6), 4-6.

[8] Seymour, E., Wiese, D. J., Hunter, A., & Daffinrud, S. (2000). *Creating a Better Mousetrap: On-line Student Assessment of their Learning Gains*. Paper originally presented to the National Meetings of the American Chemical Society Symposium, "Using Real-World Questions to Promote Active Learning," San Francisco, March 27, 2000. Available: http://www.aacu-edu.org/SENCER/pdfs/Mousetrap.pdf

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SAN JOSE STATE UNIVERSITY
Department of Aviation and Technology

Metropolitan University Scholar's Experience

Technology VS. Women
MUSE/Tech 12D-04
COURSE OUTLINE Fall 2007

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Instructor:	Patricia Ryaby Backer	**Phone:**	924-3214
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Class Web Page:	http://www.engr.sjsu.edu/pabacker/tech		
Class Time:	TR 1030-1145, CL 129		

Peer Mentor:

This class fulfills Area D1 in GE

Office Hours: Dr. Backer's office hours will vary weekly. You can find out her office hours by going to the class website or by calling the AVTECH secretary at 924-3190.

Introduction to MUSE
University-level study is different from what you experience in high school. The Metropolitan University Scholars' Experience (MUSE) is designed to help make your transition into college a success by helping you to develop the skills and attitudes needed for the intellectual engagement and challenge of in-depth university-level study. Discovery, research, critical thinking, written work, attention to the rich cultural diversity of the campus, and active discussion will be key parts of this MUSE course. Enrollment in MUSE courses is limited to a small number of students because these courses are intended to be highly interactive and allow you to easily interact with your professor and fellow students. MUSE courses explore topics and issues from an interdisciplinary focus to show how interesting and important ideas can be viewed from different perspectives.

Vision 2010
San José State University will be a prominent student-centered campus. By creating a vibrant educational institution focused on academic rigor, social responsibility and mutual respect, San José State University will be a university of choice – a desirable place for study and work. The University will be known for the value it places on the integration of liberal and professional education and theoretical and applied knowledge. The University will also be known for providing a welcoming, inclusive environment and exemplary student support services from application to graduation. Through the high quality of its graduates and the scholarship, research and service of its faculty and staff, San José State University will be viewed as a crucial resource for Silicon Valley and an important contributor to the region, the state and the world.

Description of this course
This class, Technology VS Women, will explore the interaction of gender with technology and questions such as: Is technology a "male" science? Is modern technology compatible to both male and female users? What does history tell us about the role of women at work relating to technology?

The ideas presented here will challenge some commonly held myths and misconceptions about technology in our society. Also, we will discuss stereotypically "female-based" technologies and how they differ from "male-based" technologies in our society. This course will focus on the technological changes since 1900 and how these has affected both men and women. The effect of cultural biases and perspectives on the working and educational environments also will be addressed.

Course Learning Objectives
At the end of this class, the student should be able to:
1. Demonstrate an understanding of technology's impact on gender, societal, and cultural values (Research Exercises).
2. Characterize the gender-related contexts of technology development (Tech Museum Activity).
3. Synthesize the stereotypes of "men's work" and "women's work" as they relate to technology (multimedia activities).
4. Contrast how work in the home has evolved as compared to work in the marketplace (multimedia activities).
5. Describe the evolving role of women in society since the beginning of the 20th century and how technology has affected this development (class group activities).
6. Utilize primary resources to describe the relationship of women and technology during different periods in American history (class activities).

GE Area D1 Student Learning Goals and Objectives
Students shall be able to identify and analyze the social dimension of society as a context for human life, the processes of social change and social continuity, the role of human agency in those social processes, and the forces that engender social cohesion and fragmentation. Students will be able to:

- place contemporary developments in cultural, historical, environmental, and spatial contexts (Multimedia activities, class activities);
- identify the dynamics of ethnic, cultural, gender/sexual, age-based, class, regional, national, transnational, and global identities and the similarities, differences, linkages, and interactions between them; and (Research exercises)
- evaluate social science information, draw on different points of view, and formulate applications appropriate to contemporary social issues (Research exercises, book review).
- recognize the interaction of social institutions, culture, and environment with the behavior of individuals (Tech Museum activity; Final exam).

MUSE Goals
In addition to the class and General Education student learning objectives above, this class will also be focused on the MUSE goals.
1. To establish a strong foundation for becoming a university level student and scholar. [MUSE] (Research Activities)
2. To become acclimated to both the intellectual and social activities of university life. [MUSE] (MUSE workshops, library tutorials on Research and Academic Integrity)
3. To understand the learning process and their responsibility and role in it. [MUSE] (Research Activities)
4. To know what it means to be a member of a metropolitan university community. [MUSE] (MUSE activities, library tutorials on Research and Academic Integrity)

Textbooks
Sweetman, C. (Ed). (1998). **Gender and technology**. Oxford, UK: Oxfam.
Wajcman, J. (1991). **Feminism confronts technology**. University Park, PA: Penn State University Press (This book is currently out-of-print. However, you will be given portions of this book in class)
Wosk, J. (2001). **Women and the machine**. Baltimore: The Johns Hopkins University Press.

Course Readings
The additional course readings for this class can be obtained at the course web site, http://www.engr.sjsu.edu/pabacker/tech/. Also, I will be giving out copies of other sources in class. If you miss a class, you should contact me by email to see if you missed an important handout.

Evaluation

1.　Weighted Criteria　　　　　　　　　　　　　　　　　　　　Percentage
　　a.　Unit Activities—includes various activities, group discussion,　　25
　　　　questions, and homework responses.
　　b.　Book review　　　　　　　　　　　　　　　　　　　　　20
　　c.　Final Exam　　　　　　　　　　　　　　　　　　　　　20
　　d.　Research Exercise 1
　　　　(minimum 1000 words, approx. 3 pages D.S.)　　　　　　10
　　e.　Research Exercise 2
　　　　(minimum 1000 words, approx. 3 pages D.S.)　　　　　　10
　　f.　Tech Museum paper and presentation　　　　　　　　　10
　　g.　MUSE Activities　　　　　　　　　　　　　　　　　　 5

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.　**No assignments will be accepted late**. Exceptions will be made to this policy only in **emergency situations**. Please call or email Dr. Backer as soon as possible. If you are absent the day an assignment is due, you should arrange to one of the following.
　　(a) drop off the assignment in the DOT office (IS 111) before 4:30 p.m. on the due date
　　(b) mail the assignment to Dr. Backer at the university (It must be post-marked on or before the due date).
　　(c) send the assignment to Dr. Backer by EMAIL or FAX (It must be date- and time-stamped before the due date indicated in the assignment).

4.　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

Teaching Philosophy of Your Instructor
The teaching philosophy of the instructor is non-lecture, interactive learning. Most of the class periods will consist of directed question & answer sessions, group activities, online activities, individual activities, and video sessions. The group activities, which are structured according to Johnson & Johnson's principles of Collaborative Learning, are structured so that they contain an individual part and a group part.

Because of the focus of your instructor, it is critical that you are prepared for class. Your instructor expects that you read each reading before you come to class so that you are ready to either discuss it or complete the class activity. However, you should not worry if you can't understand all the reading—I am happy to answer all of your questions in class. Some of these readings are challenging for me also; but overall, they should allow you to expand your current perceptions of the interactions of technology and gender.

American with Disabilities Act
If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment to meet with me as soon as possible, or see me during office hours provided on the greensheet.

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.

PLAGIARISM:

At SJSU plagiarism is the act of representing the work of another as one's own (without giving appropriate credit) regardless of how that work was obtained, and submitting it to fulfill academic requirements. Plagiarism at SJSU includes but is not limited to:

The act of incorporating the ideas, words, sentences, paragraphs, or parts of, and/or the specific substance of another's work, without giving appropriate credit, and representing the product as one's own work;
Representing another's artistic/scholarly works such as musical compositions, computer programs, photographs, paintings, drawings, sculptures or similar works as one's own.

Each research exercise will be submitted to your instructor through Turnitin.com (http://www.turnitin.com). You will be given details about this in class.

Description of Major Activities in this Course

Unit Activities
The class work portion of your grades includes all individual and group written and oral activities completed in class. Additionally, this category includes any homework, quizzes, and/or ancillary assignments that are given in class. Over the course of the semester, you will write the equivalent of at least four pages, double-spaced. Your unit activities are worth a total of 300 points.

MUSE activities
As part of your class activities, students are required to attend at least three MUSE activities and provide brief summaries of their experiences to colleagues in class.

Research Exercises
In this class, we require two research exercises instead of one research paper. For each research exercise, the class will be given a topic or an article (or articles) related to the content of this class. Using library resources, each student must find additional articles, books, etc that relate to the article(s) given.

By the date indicated in the course schedule, you must write an essay that compares your research with the articles. (Your articles must be attached to your essay when you submit it to your professor.) In your response, you should refer directly to your sources and give a comprehensive and integrative response.

After you turn in your research exercise, your instructor will review it and give you feedback about your writing. Higher credit will be given for responses that show evidence of a comprehensive understanding of the topics involved. If, based upon the instructor's preliminary evaluation, your assignment does not meet the criteria for this assignment, you will be asked to revise it. More details on this assignment will be given out in class. Each research exercise is worth 30 points for the peer review and 100 points for the final research exercise.

Tech Museum paper and oral presentation
You should visit the Tech Museum and find an artifact of technology that you wish to focus on for this assignment. Research the history of your technology. Write a short (approximately 500 words) summary of the history of this technology. What was the original role for this technology? Has the role of this technology expanded/contracted since it was developed? Observe several people (at least five) using this technology or reacting to it. Please discuss how people use or react to this technology. Is there any consistency as to how people respond to this technology?

More details on this assignment will be given out in class. This Tech Museum report is worth 10 points for the peer review and 100 points for the final research exercise.

Book review

You will be able to choose from a wide range of books that relate to this class. You will be asked to pick one book to review in depth. You should not consider this to be a traditional book report; instead, you will pick one to three topics to focus on in your report. After reading your book and choosing your topics, you will research them using the library's resources. Your instructor will assist you in narrowing down your research and will give you more information on this activity in class. This assignment is worth 200 points.

Final Exam

Your final examination will require you to synthesize the topics and materials covered in the course. Your instructor will provide more information about this examination in class. A review session will be held during the week prior to your exam. The examination will be held in your regular classroom.

Schedule MUSE/Tech 198 Fall 2006 REVISED 9/12/07

Date	Topic	Assignments DUE	Readings
8/23/07	Opening Activities Gender-related stereotypes		
8/28/07	The language of technology	Class meets in ENG 103	Wacjman, ch. 1 (handout)
8/30/07	Gender and technology	Complete Multimedia, Section 1 in class, ENG 103	Foster, M. (1988). Supporting the invisible technologists. In C. Sweetman (Ed), **Gender and technology** (pp. 17-24). Oxford, UK: Oxfam.
9/4/07	Gender and technology		Hester, T. (2001, Jan. 31).The Digital Divide -- How are Girls Faring in the New Computer Age. California Commission on the Status of Women. Reports, Hearings, Recommendations, etc.. Sacramento:
9/6/07	Gender and technology		Denner, J., Werner, L., Bean, S., & Campe, S. (2005). The girls creating games program: Strategies for engaging middle school girls. **Frontiers, 26**(1), 90-97. Computer Games for Girls: What Makes them Play? (handout) Varney, W. (2002). Of men and machines: Images of masculinity in boys' toys. **Feminist Studies, 28**(1), 153-174.
9/11/07	Attitudes to, and about, women in technology	Complete Multimedia, Section 4 in class, ENG 103	Sanoff, A. P. (2005, October). Competing forces. **Prism**, 26-28.
9/13/07	Gender contexts of technology development	Meet in Eng 103	Bush, C. G. (2003). Women and the assessment of technology. In M. E. Winston & R. D. Edelbach (Eds.), **Society, ethics, and technology (2nd ed.).** (pp. 71-84). Belmont, CA: Wadsworth.
9/18/07	Gender contexts of technology development	Choose book for book review	Bix, A. S. (2004, Spring). From "Engineeresses" to "Girl Engineers" to "Good Engineers": A history of women's U.S. engineering education. **NWSA Journal, 16**(1), 27-49.
9/20/07	Women at work in the 19th century		Wosk, chapter 1 (Framing images of women and machines) Women and the household economy in the preindustrial period: An assessment of women, work, and family, **Journal of Women's History**, **11**(3), 10.
9/25/07	Presentation on conducting library research	Meet in King Library 217	*Special Presentation by Sandra Kajiwara (Science & Engineering librarian)*

9/27/07	Women at work in the 19th century	References for Research Exercise 1 due	Wosk, chapter 2 (Wired for gender in the 19th century)
10/2/07	Women at work in the 19th century	Complete Multimedia, Section 2 in class, ENG 103	United States 20th Century: Boys are apprenticed to learn the trade but girls never go beyond press work (1998, April 30). **Tradeswomen: A Magazine for Women in Blue-Collar Work, 17**(1), 16.
10/4/07	Peer evaluation, Research Exercise 1	First draft of Research Exercise 1	
10/9/07	Women and early unionization		Women and Unions Late 19th Century. Labor Organizing by and for Women, http://womenshistory.about.com/library/weekly/aa010228a.htm
10/11/07	Women at work, 1900 to 1940		The Triangle Factory Fire, an online resource. Please read the six sections under the title "The Story of the Fire" http://www.ilr.cornell.edu/trianglefire/
10/16/07	Women at work, 1900 to 1940	Research Exercise 1 due	Wosk, chapter 3 (The Electric Eve) Video: Metropolis (portions)
10/18/07	Women at work, WWII	Submit one to three topics for book review	Hughes, K. (1994). Women at War: Redstone's WWII Female "Production Soldiers" Paper originally written for presentation to the US Army Historians Conference, June 1994. http://www.redstone.army.mil/history/women/welcome.html Wosk, chapter 7 (Women in wartime)
10/23/07	Women at work, post-WWII	No class meeting; Complete Multimedia, Section 3 in class at home	Wacjman, ch. 2 (handout) Woman's Place After the War by Eleanor Roosevelt, Originally published in *Click* 7 (August 1944): 17, 19, http://newdeal.feri.org/er/er15.htm
10/25/07	Research session book review	Meet in ENG 103	
10/30/07	Women at work, post-WWII		U.S. Department of Labor Bureau of Labor Statistics (2000, May). **Highlights of Women's Earnings in 1999,** Report 943. Washington, DC: Author Tomorrow's second sex (1996, September 28), **The Economist,** 23-26. The conundrum of the glass ceiling (2005, July 23), **The Economist,** 63-65. Helping women get to the top. (2005, July 23), **The Economist,** 11.
11/1/07	Peer evaluation, Research Exercise 2	First draft of Research Exercise 2	

11/6/07	Gender and development activities		Prabhu, M. (1988). Marketing treadle pumps to women farmers in India. In C. Sweetman (Ed), **Gender and technology** (pp. 25-33). Oxford, UK: Oxfam. Humphreys, R. (1988). Skilled craftswomen or cheap labour? In C. Sweetman (Ed), **Gender and technology** (pp. 56-63). Oxford, UK: Oxfam. Irwin, L. (2000). Gender inequities in technology in developing nations: Females and computers in traditional cultures. **Intercultural Education, 11**(2), 195-200.
11/8/07	Gender and development activities	Research Exercise 2 DRAFT #2 DUE	Otsyina, J. A., & Rosenberg, D. (1988). Rural development and women: What are the best approaches to communicating information? In C. Sweetman (Ed), **Gender and technology** (pp. 45-55). Oxford, UK: Oxfam. Schreiner, H. (1988). Rural women, development, and telecommunications: A pilot programme in South Africa. In C. Sweetman (Ed), **Gender and technology** (pp. 64-70). Oxford, UK: Oxfam. Steady, F. C. (1998). Gender equality and ecosystem balance: Women and sustainable development in developing countries. **Race, Gender & Class**, **6**(1), 13.
11/13/07	Discussion session on book reviews	Book review due	
11/15/07	Class visit to Tech Museum	Research Exercise 2 due (please email to Dr. Backer)	**Class visit to Tech Museum**
11/20/07	Peer evaluation, Tech Museum Report	First draft Tech Museum report due	
11/27/07	Women's place in the home		Wajcman, ch. 4 (handout)
11/29/07	Women's place in the home	Complete Multimedia, Section 5 for homework	Mattingly, M. J., & Bianchi, S. M. (2004). Gender Differences in the Quantity and Quality of Free Time: The U.S. Experience. *Social Forces,* 81(3), 999-1040. Available: http://muse.jhu.edu/journals/social_forces/v081/81.3mattingly.html
12/4/07	Domestic Technology		Wacjman, ch. 4 (handout); Rosen,C. (2006, Winter). Are we worthy of our kitchens? **The New Atlantis**, 75-86.
12/6/07	Student presentations	Tech Museum report due	
	FINAL EXAM		The final exam is scheduled for Tuesday December 12 2007 from 0945-1200 in our regular classroom

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Student Assessment of Learning Gains

Instrument

Go to your List of Courses   Log Out   Go to your Course Options

Go back

Your students will see the questions as they appear on this page.

Instructions:
Check one value for each question on each scale. If the question is not applicable, check 'NA'. You may add a comment for any item in the text box at the end of the survey.

Q1: How much did each of the following aspects of the class help your learning?

	NA	No help	A little help	Moderate help	Much help	Very much help
A. The way in which the material was approached	○	○	○	○	○	○
B. How the class activities, labs, reading, and assignments fit together	○	○	○	○	○	○
C. The pace at which we worked	○	○	○	○	○	○
D. The class activities	NA	No help	A little help	Moderate help	Much help	Very much help
1. Class presentations (including lectures)	○	○	○	○	○	○
2. Discussion in class	○	○	○	○	○	○
3. Group work in class	○	○	○	○	○	○
4. Hands-on class activities	○	○	○	○	○	○
5. Multimedia activities	○	○	○	○	○	○
E. Tests, graded activities and assignments	NA	No help	A little help	Moderate help	Much help	Very much help
1. Opportunities for in-class review	○	○	○	○	○	○
2. The number and spacing of written assignments	○	○	○	○	○	○
3. The mental stretch required of us	○	○	○	○	○	○
4. The grading system used	○	○	○	○	○	○
5. The feedback we received	○	○	○	○	○	○
F. Resources	NA	No help	A little help	Moderate help	Much help	Very much help
1. The text	○	○	○	○	○	○

2. Other reading materials	○	○	○	○	○	○
3. use made of the WWW in this class	○	○	○	○	○	○

G. The information we were given about	NA	No help	A little help	Moderate help	Much help	Very much help
1. Class activities for each week	○	○	○	○	○	○
2. How parts of the classwork, readings, or assignments related to each other	○	○	○	○	○	○
3. The grading system for the class	○	○	○	○	○	○

H. Individual support as a learner	NA	No help	A little help	Moderate help	Much help	Very much help
1. The quality of contact with the teacher	○	○	○	○	○	○
2. Working with peers outside of class	○	○	○	○	○	○
K. The way this class was taught overall	○	○	○	○	○	○

Q2: As a result of your work in this class, how well do you think that you now understand each of the following?

	NA	Not at all	A little	Somewhat	A lot	A great deal
1. Technology's impact on gender, societal, and cultural values	○	○	○	○	○	○
2. Gender-related contexts of technology development	○	○	○	○	○	○
3. Stereotypes of "men's work" and "women's work" as they relate to technology	○	○	○	○	○	○
4. How work in the home has evolved as compared to work in the marketplace	○	○	○	○	○	○
5. The evolving role of women in society since the beginning of the 20th century and how technology has affected this development	○	○	○	○	○	○

Q3: How much has this class added to your skills in each of the following?

	NA	Nothing	A little	Somewhat	A lot	A great deal
1. Using library services to do school work	○	○	○	○	○	○
2. Writing papers	○	○	○	○	○	○
3. Critically reviewing articles	○	○	○	○	○	○
4. Working effectively with others	○	○	○	○	○	○
5. Giving oral presentations	○	○	○	○	○	○

Q4: To what extent did you make gains in any of the following as a result of what you did in this class?

	NA	Not at all	A little	Somewhat	A lot	A great deal

1. Understanding the main concepts	○	○	○	○	○	○
2. Understanding the relevance of this field to real world issues	○	○	○	○	○	○
3. Ability to think through a problem or argument	○	○	○	○	○	○
4. Feeling comfortable with complex ideas	○	○	○	○	○	○
5. Enthusiasm for subject	○	○	○	○	○	○

Additional Questions:

1. What is your gender?
○ Female
○ Male

2. What is the race or ethnicity that you most closely identify with? (choose one)
○ African American
○ American Indian or Native American
○ Asian American
○ Hispanic American
○ European American
○ Foreign National
○ Other

3. Why did you take this particular course?

4. Overall, how satisfied are you with this first-year seminar?
○ Very Unsatisfied
○ Somewhat Unsatisfied
○ Neutral
○ Somewhat satisfied
○ Very Satisfied