2014-2015 Annual Assessment Report – Computer Science

FOR GRADUATE AND CREDENTIAL PROGRAMS: THIS TEMPLATE REFERS TO SAC STATE BACCALAUREATE LEARNING GOALS. PLEASE IGNORE THESE REFERENCES IN YOUR REPORT.

Question 1: Program Learning Outcomes

Q1.1. Which of the following Program Learning Outcomes (PLOs) and Sac State Baccalaureate Learning Goals (BLGs) **did you assess in 2014-2015**? **[Check all that apply]**

- [ ] 1. Critical thinking
- [ ] 2. Information literacy
- [X] 3. Written communication
- [ ] 4. Oral communication
- [ ] 5. Quantitative literacy
- [ ] 6. Inquiry and analysis
- [ ] 7. Creative thinking
- [ ] 8. Reading
- [ ] 9. Team work
- [ ] 10. Problem solving
- [ ] 11. Civic knowledge and engagement
- [ ] 12. Intercultural knowledge and competency
- [X] 13. Ethical reasoning
- [ ] 14. Foundations and skills for lifelong learning
- [ ] 15. Global learning
- [ ] 16. Integrative and applied learning
- [ ] 17. Overall competencies for GE Knowledge
- [ ] 18. Overall competencies in the major/discipline
- [ ] 19. Other, specify any PLOs that were assessed in 2014-2015 but not included above:

a.
b.
c.

Q1.3. Are your PLOs closely aligned with the mission of the university?

- [X] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know

Q1.4. Is your program externally accredited (other than through WASC)?

- [X] 1. Yes
- [ ] 2. No (Go to **Q1.5**)
- [ ] 3. Don't know (Go to **Q1.5**)

Q1.4.1. If the answer to Q1.4 is yes, are your PLOs closely aligned with the mission/goals/outcomes of the accreditation agency?

- [X] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know

Q1.5. Did your program use the *Degree Qualification Profile* (DQP) to develop your PLO(s)?

- [ ] 1. Yes
- [X] 2. No, but I know what the DQP is
- [ ] 3. No, I don't know what the DQP is.
- [ ] 4. Don't know

Q1.6. Did you use action verbs to make each PLO measurable (See Attachment I*)? Yes*

Q1.2. Please provide more detailed background information about **EACH PLO** you checked above and other information such as how your specific PLOs were **explicitly** linked to the Sac State BLGs:

Computer science student learning outcomes or PLOs are abilities a B.S. computer science graduate should possess at the time of graduation. Two major changes to PLOs were made this year: (1) Outcome (f): "Understand professional, ethical, legal, social, and security issues and responsibilities; analyze the impact of computing on individuals, organizations, and society both locally and globally" was revised to "Understand professional, ethical, and security issues and responsibilities." Parts not included in the revision are viewed as characteristics and were enabled in courses. (2) Outcome (i): "Recognize the need for, and the ability to engage in, continuing professional development" was removed as an outcome and enabled as characteristics in courses. All eight outcomes are evaluated at least once and usually twice within a six-year period. The updated outcomes are as follows.

At graduation, a B.S. Computer Science graduate should be able to:

(a) Apply fundamental knowledge of mathematics, algorithmic principles, computer theory, and principles of computing systems in the modeling and design of computer-based systems that demonstrate an understanding of tradeoffs involved in design choices.
(b) Analyze a problem, specify the requirements, design, implement, and evaluate a computer-based system, process, component, or program that satisfies the requirements.
(c) Apply design and development principles in the construction of software systems of varying complexity.
(d) Use current skills, techniques, and tools necessary for computing practice.
(e) Function effectively as a member of a team to accomplish a common goal.
(f) Understand professional, ethical, and security issues and responsibilities.
(g) Write effectively.
(h) Give effective oral presentations.

The performance indicators associated with computer science outcomes (f) and (g) which correspond to PLO 3 and PLO 13, respectively, are given below.

Outcome (f). Understand professional, ethical, and security issues and responsibilities.

(f-1) Know, understand, and practice professional codes of conduct (i.e., ACM, IEEE, and ACM/IEEE Software Engineering codes of ethics)
(f-2) Understand the need for and the use of proper security measures
(f-3) Be able to evaluate the ethical dimensions of a computer solution to a problem
(f-4). Understand moral/ethical issues in resolving conflict

Outcome (g). Write effectively

(g-1) Focus – responds to the questions asked
(g-2) Structure – well-organized, consistent style, and smooth transitions
(g-3) Sentence Structure – correct use of language; clearly communicates ideas; and uses correct syntax, grammar, and spelling. Word Choice – use and placement of words are appropriate.
(g-4) Paragraph Structure – well-written paragraphs, on topic and understandable
(g-5) Problem Statement – objective, nature of challenges, and value of project are clear; purpose is clear

(Reference to outcomes (f) and (g) will be made using PLOs 3 and 13, respectively.)

Q1.2.1. Do you have rubrics for your PLOs?

	1. Yes, for all
X	2. Yes, but fo
	3. No rubrics
	N/A, other (p

A rubric was used in the assessment of PLO 3 write effectively.

PLO 3 and PLO 13 are aligned with Sac State's BLGs as given in the table 1 below.

Table 1. Alignment of PLO 3 and PLO 13 with Sacramento State's BLGs

BLG / PLO	Competence In the Discipline	Knowledge in Human Cultures & Physical & Natural Worlds	Intellectual & Practical Skills	Personal & Social Responsibilities	Integrative Learning
3. Write effectively			X		X
13. Understand professional, ethical, and security issues and responsibilities		X	X	X	

IN QUESTIONS 2 THROUGH 5, REPORT IN DETAIL ON ONE PLO THAT YOU ASSESSED IN 2014-2015

Question 2: Standard of Performance for the selected PLO

Q 2.1. Specify one PLO here as an example to illustrate how you conducted assessment (be sure you checked the correct box for this PLO in Q1.1):

PLO 13. Understand ethical and professional issues and responsibilities

Q2.2. Has the program developed or adopted **explicit** standards of performance for this PLO?

- [X] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know
- [ ] 4. N/A

Q2.3. **Please provide the rubric(s)** and standard of performance that you have developed for this PLO here or in the appendix: **[Word limit: 300]**

Performance indicators for PLO 13 were evaluated as follows:

- Directly using student papers and questions embedded in quizzes and in the final exam in
  - Phil 103 Business and Computer Ethics, a required course for all computer science majors
  - CSC 138 Computer Networks and Internets, a required core course for computer science majors
- Indirectly using surveys completed by supervisors of students in CSC 195 Field Work in Computer Science and CSC 195A Professional Practice, both elective courses satisfying experiential (2-unit) requirement

For each performance indicator, the percentage of student responses meeting or exceeding the standard was computed and then averaged over all indicators evaluated for a particular PLO. Originally, the minimum average for an outcome to be considered satisfied was established at 75%. In 2013-2014, the faculty considered changing the minimum standard to 70% for some indicators since it is common practice to view a score of 70% as a passing grade. However, it was this year, 2014-2015, that the change to 70% was officially implemented for all indicators and PLOs.

Q2.4. Please indicate the category in which the selected PLO falls into.

	1. Critical thinking
	2. Information literacy
	3. Written communication
	4. Oral communication
	5. Quantitative literacy
	6. Inquiry and analysis
	7. Creative thinking
	8. Reading
	9. Team work
	10. Problem solving
	11. Civic knowledge and engagement
	12. Intercultural knowledge and competency
X	13. Ethical reasoning
	14. Foundations and skills for lifelong learning
	15. Global learning
	16. Integrative and applied learning
	17. Overall competencies for GE Knowledge
	18. Overall competencies in the major/discipline
	19. Other:

Please indicate where you have published the PLO, the standard of performance, and the rubric that measures the PLO:	Q2.5 (1) PLO	Q2.6 (2) Standards of Performance	Q2.7 (3) Rubrics
1. In **SOME** course syllabi/assignments in the program that address the PLO			
2. In **ALL** course syllabi/assignments in the program that address the PLO	X		
3. In the student handbook/advising handbook	X		
4. In the university catalogue			
5. On the academic unit website or in newsletters	X		
6. In the assessment or program review reports, plans, resources or activities	X	X	X
7. In new course proposal forms in the department/college/university	X		
8. In the department/college/university's strategic plans and other planning documents	X		
9. In the department/college/university's budget plans and other resource allocation documents			
10. Other, specify: ABET/CAC Self-Study	X	X	X

Question 3: Data Collection Methods and Evaluation of Data Quality for the Selected PLO

Q3.1. Was assessment data/evidence **collected** for the selected PLO in 2014-2015?

X	1. Yes
	2. No (Skip to **Q6**)
	3. Don't know (Skip to **Q6**)
	4. N/A (Skip to **Q6**)

Q3.2. If yes, was the data **scored/evaluated** for this PLO in 2014-2015?

X	1. Yes
	2. No (Skip to **Q6**)
	3. Don't know (Skip to **Q6**)
	4. N/A (Skip to **Q6**)

Q3.1A. How many assessment tools/methods/measures **in total** did you use to assess this PLO?

Three assessment tools/methods/measures were used to assess this PLO:

- Test-embedded questions
- Student papers
- Surveys

Q3.2A Please describe how you collected the assessment data for the selected PLO. For example, in what course(s) or by what means were data collected (see Attachment II)? **[Word limit: 300]**

Data was collected from the following courses:

Phil 103 Business and Computer Ethics

- Test-embedded questions
- Student papers

CSC 138 Computer Networks and Internets

- Test-embedded questions

CSC 195/195A Field Experience/Coop Work

- Surveys

Q3A: Direct Measures (key assignments, projects, portfolios)

Q3.3. Were direct measures [key assignments, projects, portfolios, etc.] used to assess this PLO?

[X] 1. Yes
[ ] 2. No (Go to **Q3.7**)
[ ] 3. Don't know (Go to **Q3.7**)

Q3.3.1. Which of the following direct measures were used? **[Check all that apply]**

[ ] 1. Capstone projects (including theses, senior theses), courses, or experiences
[X] 2. Key assignments from required classes in the program
[ ] 3. Key assignments from elective classes
[X] 4. Classroom based performance assessments such as simulations, comprehensive exams, critiques
[ ] 5. External performance assessments such as internships or other community based projects
[ ] 6. E-Portfolios
[ ] 7. Other portfolios
[ ] 8. Other measure. Specify:

Q3.3.2. Please attach the direct measure you used to collect data.

Ethics is assessed in Phil 103 Business and Computer Ethics using surveys, exams, and reports. Security is assessed in CSC 138 Computer Networks and Internets which uses test embedded exam questions. See Attachment A for the direct measures used.

Q3.4. How was the data evaluated? **[Select only one]**

[X] 1. **No** rubric is used to interpret the evidence (Go to **Q3.5**)
[ ] 2. Used rubric developed/modified by the faculty who teaches the class
[ ] 3. Used rubric developed/modified by a group of faculty
[ ] 4. Used rubric pilot-tested and refined by a group of faculty
[ ] 5. The VALUE rubric(s)
[ ] 6. Modified VALUE rubric(s)
[ ] 7. Used other means. Specify:

Q3.4.1. Was the direct measure (e.g. assignment, thesis, etc.) aligned directly and explicitly with the PLO?

[ ] 1. Yes
[ ] 2. No
[ ] 3. Don't know
[ ] 4. N/A

Q3.4.2. Was the direct measure (e.g. assignment, thesis, etc.) aligned directly and explicitly with the rubric?

[ ] 1. Yes
[ ] 2. No
[ ] 3. Don't know
[ ] 4. N/A

Q3.4.3. Was the rubric aligned directly and explicitly with the PLO?

[ ] 1. Yes
[ ] 2. No
[ ] 3. Don't know
[ ] 4. N/A

Q3.5. How many faculty members participated in planning the assessment data collection of the selected PLO?

One

Q3.5.1. If the data was evaluated by multiple scorers, was there a norming process (a procedure to make sure everyone was scoring similarly)?

	[ ] 1. Yes [ ] 2. No [ ] 3. Don't know
Q3.6. How did you **select** the sample of student work [papers, projects, portfolios, etc.]? The student work evaluated was selected by instructors of courses relevant to the achievement of the indicators. The courses for ethical reasoning were: CSC 138 Computer Networks and Internets Phil 103 Business and Computer Ethics.	**Q3.6.1.** How did you **decide** how many samples of student work to review? Each sample consisted of all the students in a class who answered a question or completed an assignment relevant to the performance indicator evaluated. The number of samples was determined by the faculty.

Q3.6.2. How many students were in the class or program? Student enrollments in the targeted courses for ethics assessment, Phil 103 and CSC 138, were 104 and 30, respectively.	**Q3.6.3.** How many samples of student work did you evaluate*?* Sample size for performance indicators 1, 3, 4 was 104 and for indicator 2 was 30. There was a total of four samples.	**Q3.6.4.** Was the sample size of student work for the direct measure adequate? [X] 1. Yes [ ] 2. No [ ] 3. Don't know

Q3B: Indirect Measures (surveys, focus groups, interviews, etc.)

Q3.7. Were indirect measures used to assess the PLO? [X] 1. Yes [ ] 2. No (Skip to **Q3.8**) [ ] 3. Don't know	**Q3.7.1.** Which of the following indirect measures were used? **[Check all that apply]** [ ] 1. National student surveys (e.g., NSSE) [ ] 2. University conducted student surveys (e.g. OIR) [ ] 3. College/Department/program student surveys [ ] 4. Alumni surveys, focus groups, or interviews [X] 5. Employer surveys, focus groups, or interviews [ ] 6. Advisory board surveys, focus groups, or interviews [ ] 7. Other, specify:
Q3.7.2 If surveys were used, how was the sample size decided? Supervisors of the students who participate in CSC 195 Field Work in Computer Science and CSC 195A Professional Practice (or Coop Experience) rate their interns' abilities in terms of several PLOs. The following evaluation scale is used: Outstanding, Above Average, Average, Below Average, Weak, and Did Not Observe. The percentage of Outstanding/Above Average/Average ratings for an outcome aggregated over several semesters. The sample size is determined by the number of students registered for internships	
Q3.7.3. If surveys were used, briefly specify how you selected your sample. See response to Q3.7.2.	**Q3.7.4. If** surveys were used, what was the response rate? All supervisors of student interns completed surveys. Students receive credit only after the supervisor's evaluation is submitted. The response rate is 100%.

Q3C: Other Measures (external benchmarking, licensing exams, standardized tests, etc.)

Q3.8. Were external benchmarking data such as licensing exams or standardized tests used to assess the PLO? [ ] 1. Yes [X] 2. No (Go to **Q3.8.2**) [ ] 3. Don't know	**Q3.8.1.** Which of the following measures were used? [ ] 1. National disciplinary exams or state/professional licensure exams [ ] 2. General knowledge and skills measures (e.g., CLA, CAAP, ETS PP, etc.) [ ] 3. Other standardized knowledge and skill exams (e.g., ETS, GRE, etc.) [ ] 4. Other, specify:

Q3.8.2. Were other measures used to assess the PLO? [ ] 1. Yes [X] 2. No (Go to **Q3.9**) [ ] 3. Don't know (Go to **Q3.9**)	**Q3.8.3.** If other measures were used, please specify:

Q3D: Alignment and Quality

Q3.9. Did the data, including the direct measures, from all the different assessment tools/measures/methods directly align with the PLO? [X] 1. Yes [ ] 2. No [ ] 3. Don't know	**Q3.9.1.** Were **ALL** the assessment tools/measures/methods that were used good measures for the PLO? [X] 1. Yes [ ] 2. No [ ] 3. Don't know

Question 4: Data, Findings and Conclusions

Q4.1. Please provide simple tables and/or graphs to summarize the assessment data, findings, and conclusions: (see Attachment III)

The direct measures used in the assessment of the four performance indicators and their results are provided in Table 2. below.

Table 2. Direct measures used to assess PLO 13 and their results.

Performance Indicator		**Core Course**	**Direct Measure** (See Attachment A for Details)	**% Satisfying Criteria** n= sample size
f-1	Know, understand, and practice professional codes of conduct (i.e., ACM Code of Ethics and Professional Conduct, IEEE Code of Ethics, and ACM/IEEE Software Engineering Code of Ethics and Professional Practice.)	Phil 103,	Professional Ethics quiz	97% (n=104)
f-2	Understand need for and use of proper security measures.	CSC 138	Test question	89% (n= 30)
f-3	Be able to understand the ethical dimensions of a computer solution to a problem.	Phil 103	Paper # 2	98% (n=104)
f-4	Understand moral/ethical issues in resolving conflict.	Phil 103	Average of student grades for Paper #1 and the Final Exam	91% (n=104)
			Average Percentage	**93.75%**

Each of the four indicators for this PLO exceeded criteria with an overall average of 93.75%.

An indirect measure using supervisors' surveys of the performance of student interns during the period of Fall 2009 to Fall 2014 revealed that 100% of the student interns were rated as Outstanding, Above Average, or Average by their supervisors in the students' "awareness of ethical and societal concerns" This result supported similar results of the direct measures..

Q4.2. Are students doing well and meeting program standard? If not, how will the program work to improve student performance of the selected PLO?

The students are doing extremely well in satisfying the outcome ”Understand professional, ethical, and security issues and responsibilities.”

Q4.3. For **selected** PLO, the student performance:

- [X] 1. **Exceeded** expectation/standard
- [ ] 2. **Met** expectation/standard
- [ ] 3. **Partially** met expectation/standard
- [ ] 4. **Did not meet** expectation/standard
- [ ] 5. No expectation or standard has been specified
- [ ] 6. Don’t know

Question 5: Use of Assessment Data (Closing the Loop)

Q5.1. As a result of the **assessment effort in 2014-2015** and based on the prior feedback from OAPA, do you anticipate making any changes for your program (e.g., course structure, course content, or modification of PLOs)?

- [ ] 1. Yes
- [X] 2. No (Go to **Q6**)
- [ ] 3. Don't know (Go to **Q6**)

Q5.1.2. Do you have a plan to assess the impact of the changes that you anticipate making?

- [ ] 1. Yes
- [ ] 2. No
- [ ] 3. Don't know

Q5.1.1. Please describe what changes you plan to make in your program as a result of your assessment of this PLO. Include a description of how you plan to assess the impact of these changes. **[Word limit: 300 words]**

Q5.2. How have the assessment data from last year (**2013 - 2014**) been used so far? **[Check all that apply]**

	(1) Very Much	**(2)** Quite a Bit	**(3)** Some	**(4)** Not at all	**(8)** N/A
1. Improving specific courses					X
2. Modifying curriculum					X
3. Improving advising and mentoring					X
4. Revising learning outcomes/goals					X
5. Revising rubrics and/or expectations					X
6. Developing/updating assessment plan					X
7. Annual assessment reports					X
8. Program review					X
9. Prospective student and family information					X
10. Alumni communication					X
11. WASC accreditation (regional accreditation)					X
12. Program accreditation					X
13. External accountability reporting requirement					X
14. Trustee/Governing Board deliberations					X
15. Strategic planning					X
16. Institutional benchmarking					X
17. Academic policy development or modification					X
18. Institutional Improvement					X
19. Resource allocation and budgeting					X
20. New faculty hiring					X
21. Professional development for faculty and staff					X
22. Recruitment of new students					X
23. Other Specify:					

Q5.2.1. Please provide a detailed example of how you used the assessment data above.

Additional Assessment Activities

Q6. Many academic units have collected assessment data on aspects of a program that are not related to PLOs (i.e., impacts of an advising center, etc.). **If** your program/academic unit has collected data on the program elements, please briefly report your results here. **[Word limit: 300]**

Q7. What PLO(s) do you plan to assess next year?

X	1. Critical thinking
	2. Information literacy
	3. Written communication
	4. Oral communication
X	5. Quantitative literacy
X	6. Inquiry and analysis
	7. Creative thinking
	8. Reading
	9. Team work
X	10. Problem solving
	11. Civic knowledge and engagement
	12. Intercultural knowledge and competency
	13. Ethical reasoning
	14. Foundations and skills for lifelong learning
	15. Global learning
X	16. Integrative and applied learning
	17. Overall competencies for GE Knowledge
X	18. Overall competencies in the major/discipline
	19. Other, specify any PLOs that were assessed in 2014-2015 but not included above:
	a.
	b.
	c.

Q8. Have you attached any appendices? If yes, please list them all here:

Attachment A Direct measures used in assessment of Understand Ethical and Professional Issues and Responsibilities

Program Information

P1. Program/Concentration Name(s):
B.S. Computer Science

P1.1. Report Authors: Dr. Mary Jane Lee

P2. Program Director:

P2.1. Department Chair: Dr. Cui Zhang

P3. Academic unit: Department, Program, or College:
Computer Science Department

P4. College: College of Engineering and Computer Science

P5. Fall 2014 enrollment for Academic unit *(See* Department Fact Book 2014 by the Office of Institutional Research for fall 2014 enrollment:
Headcount: 740 (Computer Science only, Computer Engineering not included)

P6. Program Type: **[Select only one]**

X	1. Undergraduate baccalaureate major
	2. Credential
	3. Master's degree
	4. Doctorate (Ph.D./Ed.d)
	5. Other. Please specify:

Undergraduate Degree Program(s):

P7. Number of undergraduate degree programs the academic unit has: 2 (one joint program)

P7.1. List all the name(s):

B.S. Computer Science
B.S. Computer Engineering (joint with EEE)

P7.2. How many concentrations appear on the diploma for this undergraduate program? 0

Master Degree Program(s):

P8. Number of Master's degree programs the academic unit has: 3 (one joint program)

P8.1. List all the name(s):
M.S. Computer Science
M.S. Software Engineering
M.S. Computer Engineering (joint with EEE)

P8.2. How many concentrations appear on the diploma for this master program? 0

Credential Program(s):

P9. Number of credential programs the academic unit has: 0

P9.1. List all the names:

Doctorate Program(s)

P10. Number of doctorate degree programs the academic unit has: 0

P10.1. List all the name(s):

When was your assessment plan?	1. Before 2007-08	2. 2007-08	3. 2008-09	4. 2009-10	5. 2010-11	6. 2011-12	7. 2012-13	8. 2013-14	9. 2014-15	10. No formal plan
P11. Developed			X							
P12. Last updated							X			

	1. Yes	2. No	3. Don't Know
P13. Have you developed a curriculum map for this program?	X		
P14. Has the program indicated explicitly where the assessment **of student learning** occurs in the curriculum?	X		
P15. Does the program have any capstone class?	X		

P16. Does the program have **ANY** capstone project?	X		

Assessing Other Program Learning Outcomes (Optional)

If your program assessed PLOs not reported above, please summarize your assessment activities in the table below. If you completed part of the assessment process, but not the full process (for example, you revised a PLO and developed a new rubric for measuring it), then put N/A in any boxes that do not apply.

Report Assessment Activities on Additional PLOs Here

Q1: Program Learning Outcome	Q2: Standard of Performance/ Target Expectation	Q3: Methods/ Measures (Assignments)	Q4: Data/Findings/ Conclusions	Q5: Use of Assessment Data/ Closing the Loop
PLO: <u>Written Communication</u> Performance Indicators: g-1. Focus – responds to questions asked. g-2. Structure – well organized g-3. Good sentence structure and word choice g-4. Paragraph structure – well written and understandable g-5. Problem statement – purpose of project/report is	At least seventy percent (70 %) of our students will be rated as satisfying or exceeding criteria.	In spring 2015 semester, 38 students in CSC 191 Senior Project: Part !! were asked to submit individual (maximum 2-paged) reports that answered three questions. A rubric was designed to assess these reports. Faculty were paired to rate each report and asked to submit if possible one evaluation. If not, the two ratings were averaged.	Students meet the standards for indicators f-3 (82%), f-4 (81%), and f-5 (70%). Students do not meet the standards of f-1 (63%) and f-2 (58%). Although the average percentage for this PLO satisfied the minimum standard at 71% and 3 out of 5 indicators were satisfied, two areas in need of improvement are f-1 Focus and f-2 Organized	A number of students did not answer the three questions completely. The faculty recommended that the assignment and the rubric be reviewed and modified before the next scheduled assessment of this outcome.

ATTACHMENT A Direct Measures Used to Assess Performance Indicators for PLO 13 Ethical Reasoning

Indicator (f-1): Know, understand, and practice professional codes of conduct (i.e., ACM Code of Ethics and Professional Conduct, IEEE Code of Ethics, ACM/IEEE Software Engineering Code of Ethics and Professional Practice)

Course: Philosophy 103 Business and Computer Ethics

Professional Ethics Quiz (Quiz #12):

Based on Scenario 7.1
Carl is a software designer at Acme Software. He has been assigned to work on a project designing a system that monitors radar signals and will launch nuclear missiles in response to detected incoming nuclear missiles.

Carl has significant concerns about the adequacy of the system that has been developed – it seems likely that false positives will occur, sending missiles abroad in response to non-threats. He documents his concerns, including design weaknesses, and estimates it would take about six months to implement and test an adequate fix.

Carl brings his concerns and documentation to the project director, Jane, who dismisses his concerns. She points out that Acme is already behind schedule and over budget. She tells Carl that they will include his ideas into Acme's bid for a second phase of development that will start in about a year.

Explain how Jane's response is in violation of various aspects of the Software Engineering Code of Ethics and Professional Practice.

Indicator (f-2): Understand the need for and the use of proper security measures

Course: Computer Science 138 Computer Networks and Internets

Test Question #18

Which of the following is false?

a) A worm does not need a user interaction in order to be effective
b) A virus needs to be attached to an application in order to be effective
c) Internet was originally designed without much security in mind

Indicator (f-3): Be able to evaluate the ethical dimensions of a computer solution to a problem

Course: Philosophy 103 Business and Computer Ethics

Paper #2 Prompt:
4-6 pages (1000 word minimum)

Chapter #4 of the Johnson book claims that living in an IT-configured society is analogous to living under the constant surveillance of prison (96). Your employers are likely to closely monitor you on the job and take an interest in what you do off the job. Your call and browser history are likely stored somewhere, your physical location is easy for others to keep track of, there is some chance that you are being recorded anytime you are in public (in some cities, it is all but guaranteed), and your personal preferences and interests are constantly monitored by advertisers or their agents. Living under this degree of surveillance changes our behavior.

Write an argumentative paper that defends a position regarding the following question:

Do we have a morally acceptable level of privacy in this kind of society?

This is again a fairly broad topic: You might argue that our right to privacy must be respected, despite the benefits that come with such a "wired" society. You might argue that we should balance a variety of goods, privacy among them, and that we only have a right to privacy to the degree that fits the optimal balance of goods. You might argue that privacy is a luxury, not a right, and therefore any degree of privacy we maintain is a bonus and therefore is an acceptable level. It's up to you. Both Shaw (chapter #9) and Johnson (chapter #4) have some things to say about the importance of privacy. You don't have to accept their views about privacy, but be sure that their discussion of privacy influences your paper.

Your paper should be structured in a way that approximates the structured exemplified in the department writing guidelines. Remember, you are taking a position on the issue above, not summarizing the book. The grading criteria can be found here: department grading standards.

Indicator (f-4): Understand moral/ethical issues in resolving conflict

Course: Philosophy 103 Business and Computer Ethics

Average of grades for Paper #1 and the Final Exam

Paper #1 Prompt:
4-6 pages (1000 word minimum)

Write an argumentative paper that defends a position regarding the following question:

Is capitalism morally justified?

Chapter #4 of the book discusses arguments for and against capitalism. Use this discussion as a starting point of your paper. Be sure to scrutinize capitalism in light of the normative theories we've discussed in class. This is not a compare and contrast assignment.

Your paper should be structured in a way that approximates the structure exemplified in the department writing guidelines. Remember, you are taking a position on the issue above, not summarizing the book. The grading criteria can be found here: department grading standards.

The Final Exam is available from Prof. David Denman in the Philosophy Department.