School of Electrical Engineering and Computer Science
B.S. and B.A. in Computer Science Program
Assessment Manual (ver. 10)

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Last Modified on 6/5/18

Revision History

Version	Description of Changes and the Rationale Behind Them
1 (12/26/13)	• Created initial manual per EECS AC meeting and 12/19 meeting with Behrooz and John.
2 (1/22/14)	• First complete draft of manual, based on further discussions with Behrooz and John.
3 (1/26/14)	• "Final" first draft based on input from John, Behrooz, Siva, and Jose
4 (2/11/14)	• Timeline updated based on meeting with Behrooz, Siva, and Jose
5 (3/7/14)	• Minor edits made to fix typos, and to bring timeline into correspondence with narrative
7 (5/22/15)	• Updated Outcome H to new "Information Literacy" outcome, per Assessment Committee decision
8 (6/08/15)	• Updated Table 3 (a) to remove outcome G from assessment in CptS 322, per discussion with instructor, and (b) to include CptS 423 as part of the B.A. assessment, since it is now a required part of the curriculum. Updated Figure 6 to establish 2.5 as the minimum acceptable level of performance, based on Assessment Committee discussion on May, 2015. We decided there was too much noise in the data to insist on 3.0 being the minimum acceptable level of performance; relaxing the minimum acceptable level of performance to 2. 5 seemed more realistic. • Added a note to indicate that data on student job seeking and job placement will be furnished by the Associate Director of EECS, who will clean the data by filtering out survey duplicates and also those students who did not actually graduate.
9 (5/11/2018)	• Updated process for assessing student work samples to include mandatory meeting between Assessment Chair and course instructors prior to academic year in which work samples are to be collected. This is to ensure that a set of deliverables/questions can be specifically tailored so as to facilitate assessment against targeted learning outcomes and performance indicators.
10 (6/5/2018)	• Added new section entitled "Student Learning Outcomes and Performance Indicators as an introductory (unnumbered) section of the manual. • Updated Student Learning Outcomes to align with the new CAC version 2 criteria • Revised associated performance indicators to operationalize new SLOs • Mapped new SLOs to courses targeted for assessment • Revised assessment plan for teaching excellence per meeting with Partha, Siva, Jose, and Tom Fischer on 6/14/18

Overview of this Manual

This manual documents the process by which the School of Electrical Engineering and Computer Science performs continuous assessment of its B.A. and B.S. programs in Computer Science. The manual is intended to serve as the authoritative guide to our continuous assessment process for those responsible for carrying it out. The manual is also intended to be a "living" document; we anticipate revisions to the document to occur regularly, and we will describe those revisions in the "Revision History" at the beginning of the document.

Student Learning Outcomes and Performance Indicators

The foundation of the continuous assessment process described in this manual is a set of *student learning outcomes* (SLOs). Developed by the ABET Computing Accreditation Commission (CAC) for the accreditation of computing degree programs, these SLOs inform the choices we have made regarding both the data we collect, and the specific assessments we perform using those data. Table 1 presents the six SLOs mandated by ABET's latest version of the document "Criteria for Accrediting Computing Programs" (version 2.0, see http://www.abet.org/wp-content/uploads/2018/02/C001-18-19-CAC-Criteria-Version-2.0-updated-02-12-18.pdf). In addition, because we deem it to be an essential capability of our graduates, we adopt a seventh SLO related to the ability to be an effective learner. Notably, this seventh SLO aligns with the seventh SLO in EECS's three engineering degree programs (EE, CE, SE), thus increasing the consistency of our assessment criteria across all of EECS's degree programs.

#	Description
1	Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3	Communicate effectively in a variety of professional contexts.
4	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6	Apply computer science theory and software development fundamentals to produce computing-based solutions.
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.

Table 1. Seven Student Learning Outcomes (SLOs) Used as Foundation for Assessment Plan

To provide more specific criteria for assessing student performance, we have developed a set of *performance indicators* for each SLO. These performance indicators aim to operationalize each SLO in more specific terms that can be readily used to assess student performance. The performance indicators we have developed for each SLO can be accessed here: https://goo.gl/kfiQeQ

Overview of the Continuous Assessment Process

Figure 1 presents a flowchart of our continuous assessment process. In this chart, inputs and outputs are denoted by parallelograms, processes are denoted by boxes, and decisions are denoted by diamonds. The personnel responsible for each element are shown in parentheses within the element; refer to the "Legend of Abbreviations" for descriptions of these personnel.

The process starts with an execution of our B.S. and B.A curricula (item labeled 0 in the Figure 1). The execution of the curriculum, combined with ancillary data collection activities, yields a rich set of evaluation data, as shown in the "input" parallelogram on the far left (labeled 1 in Figure 1):

- Faculty comments and input at an annual retreat held in May of each year

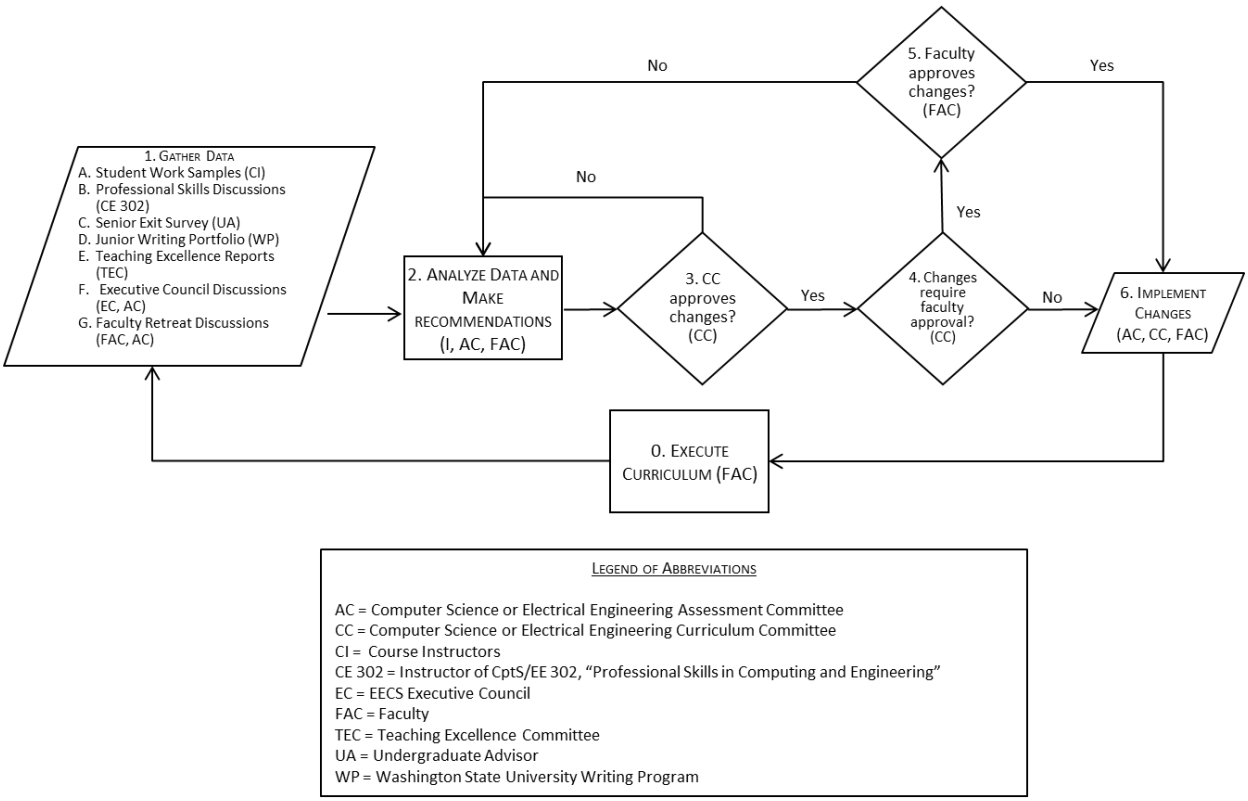

Figure 1. Flowchart Presenting Overview of Continuous Assessment Process

- "Professional skills discussions" in which student teams in CptS/EE 302, our required ethics and professional skills course, consider a complex, real-world engineering scenario
- Samples of student work collected in strategically-targeted lower- and upper-division courses
- Senior exit surveys completed by graduating seniors in our B.S. and B.A. programs (completion of these surveys is a requirement for graduation)
- Annual Teaching Excellence Reports issued by our Teaching Excellence Committee, which reviews student teaching evaluations and makes recommendations

In May of each year, our Assessment Committee, with the assistance of the instructors of targeted courses and the faculty as a whole, analyze the assessment data (see item labeled 2 in Figure 1). Discussions of the analysis results culminate in a set of recommendations, which are forwarded to the Computer Science Curriculum Committee for further consideration. At the Committee's discretion, a given recommendation may or may not need faculty approval (item labeled 4). If it is determined that a given recommendation requires faculty approval, it is put to a faculty vote (item labeled 5) and implemented if it passes. In contrast, if it is determined that a given recommendation does not require a faculty vote, the recommendation is implemented without a faculty vote. The implemented changes—the outputs of the continuous improvement process—are fed back into the execution of the curriculum. Thus, the feedback loop is closed, and the continuous assessment cycle starts another iteration.

1. Gather Data

Our program's assessment process considers seven different forms of data. Table 2 summarizes our methods for collecting and assessing each form of data. Table 3 Table 3maps each of our program's

DATA COLLECTED	WHEN COLLECTED	METHOD OF COLLECTION
A. Student Work Samples	Each December and May	We target 4-5 outcomes, and 3-4 courses per academic year. In each targeted course, we collect *all* student solutions to 2-3 strategically-selected course deliverables with respect to relevant targeted outcomes.
B. Professional Skills Discussions	Each May	In CptS/EE 302, our required professional skills and ethics course, a course project requires student teams to use an online tool to discuss a complex, real-world engineering scenario. Discussions of five teams are randomly sampled for assessment.
C. Senior Exit Surveys	Each December, May and August	All graduating seniors are *required* to complete an online exit survey as a condition of graduation.
D. Junior Writing Portfolio	Every two years in September	The Washington State University Writing Program collects writing portfolios of *all* students, and issues semi-annual reports of results.
E. Teaching Excellence Report	Each April	The Teaching Excellence Committee collects the course evaluations for all the courses taught in the School. The committee analyzes the evaluations and issues an annual report.
F. Executive Council Discussions	Each April	The Assessment Committee Chair presents annual assessment results to our Executive committee; we take notes on the ensuing discussion.
G. Faculty Retreat Discussions	Each September	The Assessment Committee collects feedback and comments from faculty at annual retreat; we take notes on discussion

Table 2. Overview of Assessment Data Collected

	TYPE OF ASSESSMENT DATA COLLECTED						
PROGRAM OUTCOME	Student Work Samples	Professional Skills Discussions	Senior Exit Surveys	Junior Writing Portfolio	Teaching Excellence Reports	Executive Council Discussions	Faculty Retreat Discussions
1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	D		I		I	I	I
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	D	D	I		I	I	I
3. Communicate effectively in a variety of professional contexts.	D	D	I	D	I	I	I
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.	D	D	I		I	I	I
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.	D	D	I		I	I	I
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.	D		I		I	I	I
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.	D	D	I		I	I	I

Table 3. Mapping of Program Outcomes to Relevant Assessment Data Collected (D = Direct Measure, I = Indirect Measure)

outcomes to a relevant set of evaluation data, and indicates whether the evaluation data directly or indirectly measure the outcomes. Below, we further document our methods for collecting data.

A. Student Work Samples

Figure 2 presents a flowchart of the process by which we collect student work samples. Prior to the start of each academic year, the Assessment Committee Chair arranges a face-to-face meeting with each instructor. In the past, we have observed that, while a targeted course may well assess targeted learning outcomes, course deliverables and/or exam questions need to be conscientiously designed in order to facilitate the direct and efficient assessment of those learning outcomes. To that end, the purpose of the instructor meetings is two-fold: (a) to identify a specific set of performance indicators that are relevant to, and assessable within, the course; and (b) to design a set of course deliverables and/or exam questions that are specifically tailored both to assess the targeted performance indicators as directly as possible, and to lend themselves to assessment by the Assessment Committee. Thus, this meeting yields a course assessment plan consisting of a specific set of performance indicators to target, and a set of two to three course deliverables (assignment and/or exam questions or sections) for which student work samples are to be collected.

Next, during the course of the semester, the course instructor collects the following samples of student work for each targeted deliverable: an A-level, B-level, and C-level sample, plus an additional five work samples selected at random, for a total of eight samples. By the end of the semester, the instructor delivers the student work to the Assessment Committee for assessment.

Table 4 presents the courses we target for student work samples in our B.S. and B.A. degree programs. As the table indicates, we collect student work samples on a two-year rotation. Only courses required for each degree program are targeted, in order to ensure that we obtain student work from the broadest possible sample of students. In addition, we have made an effort to target courses at a variety of levels (200-, 300-, and 400-levels) in each degree program. However, owing to mismatches between required courses at each level and the targeted outcomes, this was not possible in all cases.

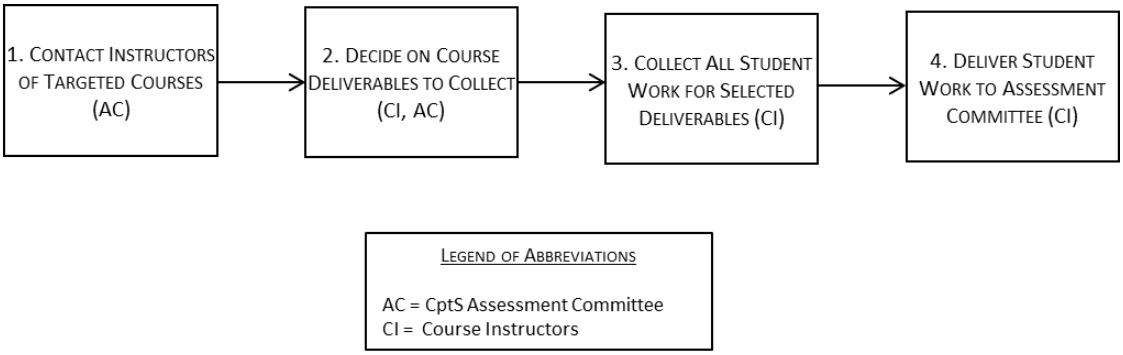

Figure 2. Flowchart Depicting Process of Collecting Student Work Samples

	Odd Years (e.g., 2017-18)	Even Years (e.g., 2018-19)
Outcomes Targeted	1, 2, 6, 7	3, 4, 5, 7
Courses Targeted (B.S. in CptS)	CptS 260 "Computer Architecture" (2) CptS 350 "Algorithms" (1,2, 6) CptS 355 "Programming Languages" (1, 2) CptS 423 "Senior Design Project II" (1, 2, 6,7)	CptS 302 "Professional Skills in Computing and Engineering" (3, 4, 5) CptS 322 "Software Engineering" (7) CptS 423 "Senior Design Project II" (3, 5)
Courses Targeted (B.A. in CptS)	CptS 260 "Computer Architecture" (2) CptS 355 "Programming Languages" (1, 2) CptS 423 "Senior Design Project II" (1, 2, 6, 7)	CptS 302 "Professional Skills in Computing and Engineering" (3, 4, 5) CptS 322 "Software Engineering" (7) CptS 423 "Senior Design Project II" (3, 5)

Table 4. Two-Year Schedule for Collecting Student Work Samples

As Figure 2 suggests, the choice of specific course deliverables to sample is left to the discretion of course instructors. However, in the case of CptS 423 ("Senior Design Project II"), the work samples remain the same from year to year. In odd years, we consider the final written reports of student teams. In even years, we engage a sample of senior design teams in a discussion of their project during the annual spring poster session.

B. Professional Skills Discussions

Team discussions of a complex and realistic engineering scenario take place as part of the final course project in CptS/EE 302, our required course on ethics and professional skills. Figure 3 presents a flowchart of the process by which these discussions are collected. (Note that such collection takes place *every other* year, in "even" years.) In consultation with the Assessment Committee, the CptS/EE 302 course instructor develops a prompt for the final course project that provides a context for the discussions (see item labeled 1 Figure 3). As an appendix, we include a sample assignment prompt used in a recent course offering.

Central to the assignment prompt is a complex, real-world engineering scenario specifically designed to engage students in discussions in which they are to demonstrate evidence of their attainment of Outcomes D – H. The course instructor sets up an OSBLE discussion assignment to provide an online space for the asynchronous discussions of student teams (see item labeled 1 Figure 3). Students are given the assignment prompt (see item labeled 3 Figure 3), which allows one to two weeks for completion of the online discussion. Discussion milestones are established in the assignment prompt in order to help move the discussions along. After the assignment closes, the course instructor randomly chooses the discussions of five student teams (see item labeled 5 Figure 3). Finally, the instructor converts these discussions to PDF documents (see item labeled 6 Figure 3) and hands them off to the Assessment Committee (see item labeled 7 Figure 3).

C. Senior Exit Surveys

As a requirement for graduation, seniors in the B.S. and B.A. programs complete an online exit survey near the end of the semester in which they are to graduate. Figure 4 presents a flowchart of the process. Through an iterative process that considers the input of the assessment committee, executive council, and academic advisors, the specific questions and sequence of questions on the survey continuously evolve; the assessment committee reconsiders the survey design in the spring of each year (see item 1 in Figure 4). The survey is administered online. Our undergraduate academic advisors make the survey available to graduating seniors during a three week window near the end of each semester (see items 2 and 3 in Figure 4). When the survey

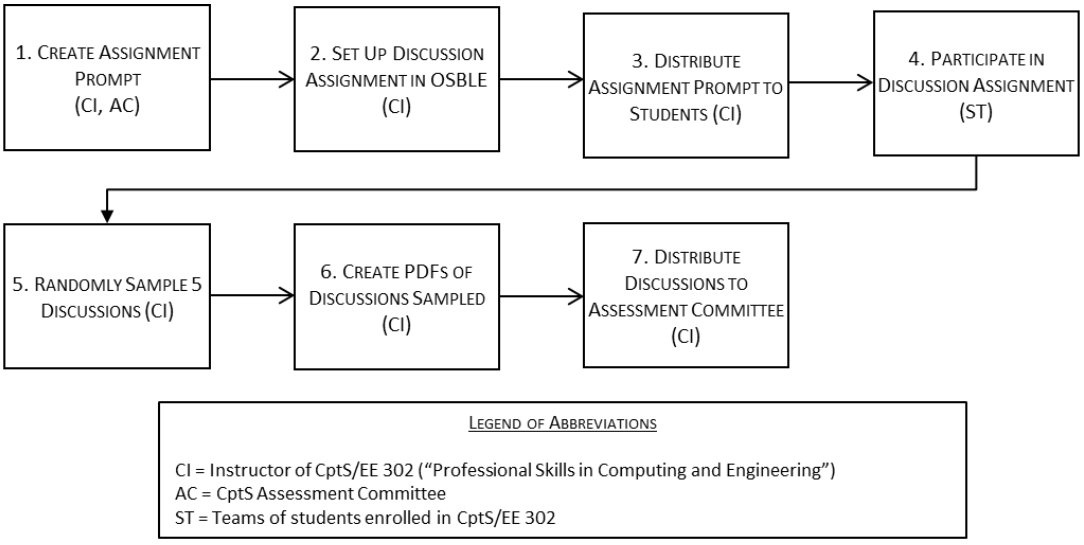

Figure 3. Flowchart Depicting Process of Collecting Professional Skills Discussions

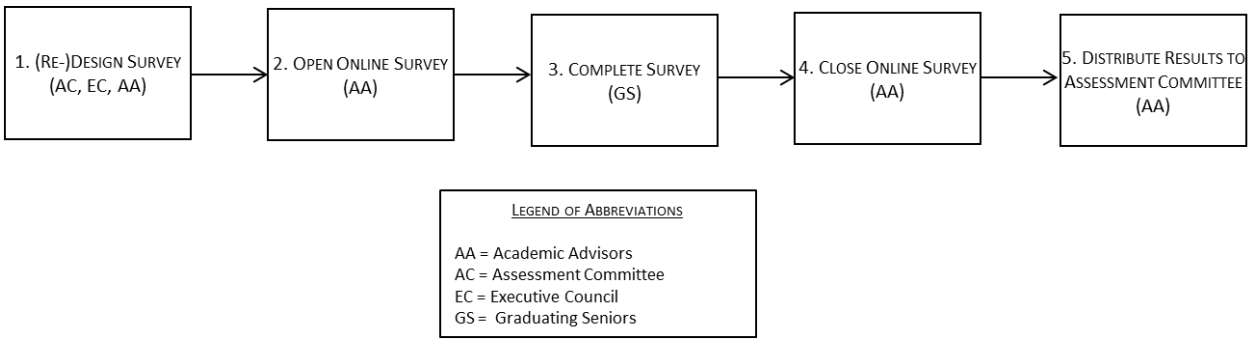

Figure 4. Flowchart Depicting Process of Collecting Senior Exit Survey Data

closes each semester, our academic advisors send the survey responses to the Assessment Committee (see item 5 in Figure 4)

D. Junior Writing Portfolio

The Junior Writing Portfolio, part of the WSU Writing Program, is a mid-career diagnostic assessment of all undergraduate students' writing prior to their enrollment in two upper-division Writing in the Major [M] courses, which instruct students in the written conventions of their chosen fields of study. In computer science, there are three ("M") courses: the two required software engineering courses, CptS 322 and CptS 422, and the required professional issues course, CptS 302. These courses also all contain oral presentation components.

All WSU undergraduates include five samples of their written work in their Junior Writing Portfolios. Two of these samples come from a two-hour writing exercise that students must perform under closed conditions. They are assessed by a set of cross-disciplinary faculty raters who are recruited and trained as paid evaluators

for the WSU Writing Assessment Program. The other three samples are drawn from students' college coursework. These three pieces of writing are re-evaluated for the Writing Portfolio by the original instructors of the courses as Acceptable or Outstanding.

The results of the Junior Writing Portfolio assessment are thoroughly documented in semi-annual reports issued by the University College Writing Program. These reports are made publicly available on their website sometime every two years in September (http://universitycollege.wsu.edu/units/writingprogram/units/writingassessment/reports/).

E. Teaching Excellence Reports

Students in our courses are encouraged to complete end-of-semester course evaluation surveys that ask them to evaluate and reflect on their experiences in the courses they take. Based on these course evaluation surveys, the Teaching Excellence Committee writes an annual report that identifies instructors and courses that (a) were particularly well-received by students, and (b) had issues or areas of concern that may need to be addressed by the department. A copy of the committee's report is delivered to the Assessment Committee each April.

F. Executive Council Discussions

The EECS Executive Council (EC) consists of the EECS Director and 10-25 representatives from industry. The EC is intended to give voice to the employers of graduates of the School of EECS. As such, council members are selected so as to be representative of the leadership of the largest employers of EECS graduates. One of the primary responsibilities of the EC is to provide industry perspective and feedback on the continuous evaluation of objectives and assessment of outcomes for the undergraduate curricula, and to

suggest changes for implementation as needed. The EC meets with the School of EECS twice annually: once in the fall at a location convenient to EC members (e.g., the Silicon Valley), and once in the spring in conjunction with the Senior Design Poster Session at the WSU Pullman Campus. During the spring meeting each year, the chair of the Assessment Committee presents the previous year's assessment results to the EC. Detailed notes on the discussion generated by each presentation are delivered to the Assessment Committee following the meeting.

G. Faculty Retreat Discussions

Each fall, we hold a one-day faculty retreat at which we present the previous year's assessment results, and solicit input and suggestions from the faculty as a whole. Detailed notes on the discussions that take place are delivered to the Assessment Committee following the retreat.

2. Assess Data and Make Recommendations

The previous section documented the processes by which we collect seven different types of assessment data. In this section, we describe the processes by which we assess these data and make recommendations to be considered for implementation. To provide an overview of this process, Table 5 presents a timeline of when we perform each assessment activity.

ANALYSIS ACTIVITY	WHEN PERFORMED
A. Assess student work samples	Each May in face-to-face meeting; recommendations generated in June through online discussion and compiled in assessment report
B. Assess professional skills discussions	Each May in face-to-face meeting; recommendations generated in June through online discussion and compiled in assessment report
C. Assess senior exit surveys	Each May through online discussion; recommendations generated through online discussion and compiled in assessment report
D. Assess junior writing portfolios	Each May through online discussion; recommendations generated through online discussion and compiled in assessment report
E. Assess Teaching Excellence reports	Each May through online discussion; recommendations generated through online discussion and compiled in assessment report
F. Assess Executive Council discussions	Each May through online discussion; recommendations generated through online discussion and compiled in assessment report
G. Assess faculty retreat discussions	Each May through online discussion; recommendations generated through online discussion and compiled in assessment report

Table 5. Timeline of Assessment/Recommendation Activities

SCALE LEVEL	DEFINING CRITERIA
1. Unsatisfactory	• The student work contains a number of elements that are confusing, inconsistent, inaccurate, biased, unrealistic and/or or not credible. • The student work contains glaring gaps or no evidence in addressing a given performance indicator.
2. Needs Improvement	• The student work contains some elements that are confusing, inconsistent, inaccurate, biased, unrealistic and/or or not credible. • The student work contains evidence of a given performance indicator, but it is unclear to the evaluator the extent of student understanding.
3. Capable	• The student work contains most, but not all, of the following characteristics: realistic, relevant, accurate, consistent, unbiased and/or credible. • The student work addresses a given performance indicator in an obvious way.
4. Exemplary	• The student work is consistently realistic, relevant, accurate, unbiased and/or credible. • The student work goes beyond the obvious and thoroughly addresses a given performance indicator, possibly in a creative or nuanced way.

Table 6. Standard Scale Used to Assess Student Work

A. Student Work Samples

Figure 5 presents a flowchart of the process by which we assess student work samples. Our assessment happens at a face-to-face meeting that brings together the Assessment Committee and the instructors of all of the courses whose work has been targeted for assessment. In that meeting, each course deliverable to be assessed is considered in turn (see items 3 – 8 in Figure 5). For each particular deliverable under consideration, the course instructor explains the correct solution and possible pitfalls students may encounter in completing the deliverable. This explanation is used as a basis for defining performance levels for that particular deliverable relative to the standard four-point assessment scale presented in Table 6. Once the

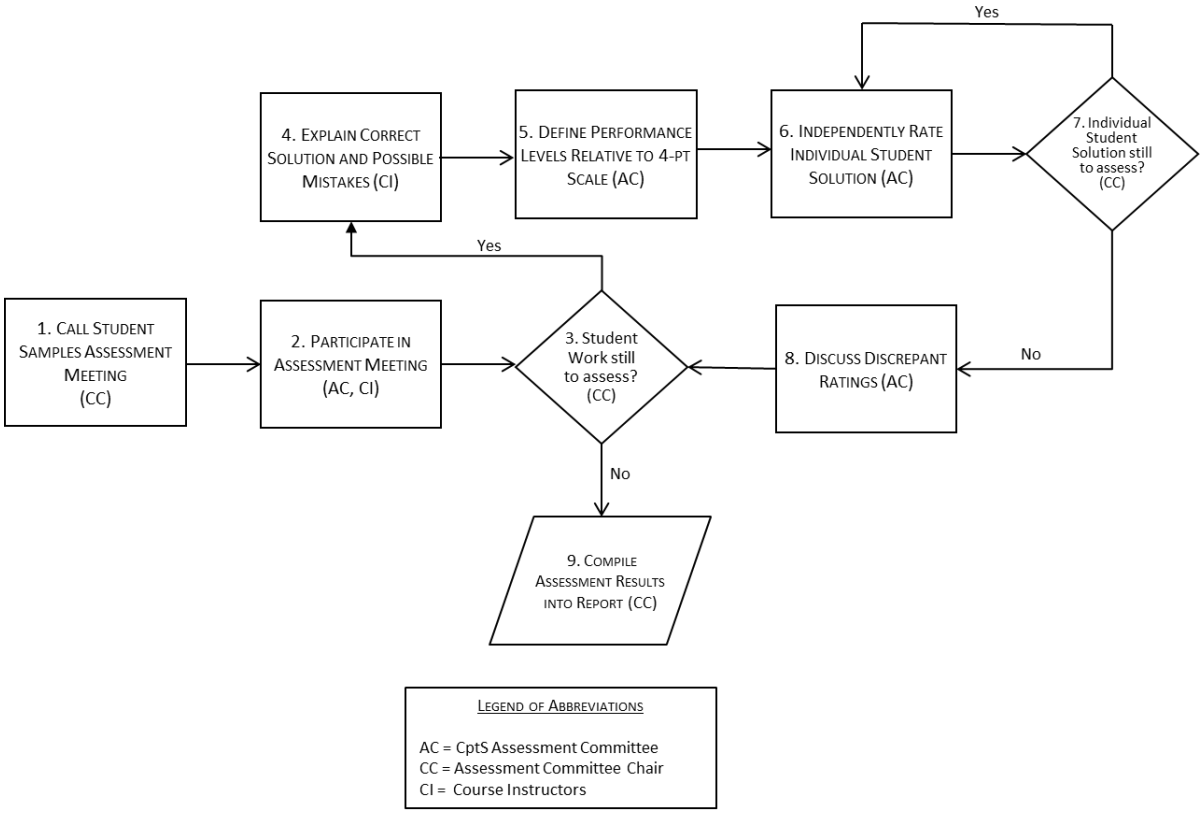

Figure 5. Flowchart Depicting Process of Assessing Student Work Samples

performance levels are agreed upon by the Assessment Committee, at least two committee members, plus the course instructor, *independently assess* each student solution relative to the four-point scale (in quarter-point increments), making sure to justify each rating with brief comments. After two members of the committee and the instructor have rated all student work samples for a given deliverable, they discuss discrepant results. These discussions may lead to one or more assessors changing their ratings. This process (items 3 – 8 in Figure 5) continues until there is no more student work to assess, at which point the meeting adjourns.

Following the meeting, the Assessment Committee chair compiles the assessment results into a report, and shares that report with the Assessment Committee through an online discussion. Based on the discussion, the committee compiles a list of recommendations—the output of this entire process (item 11 in Figure 5). The committee's recommendations are generally based on the average ratings of the student work, as illustrated by the flowchart presented in Figure 6. A rating of 2.0 or lower with respect to a given outcome provides strong

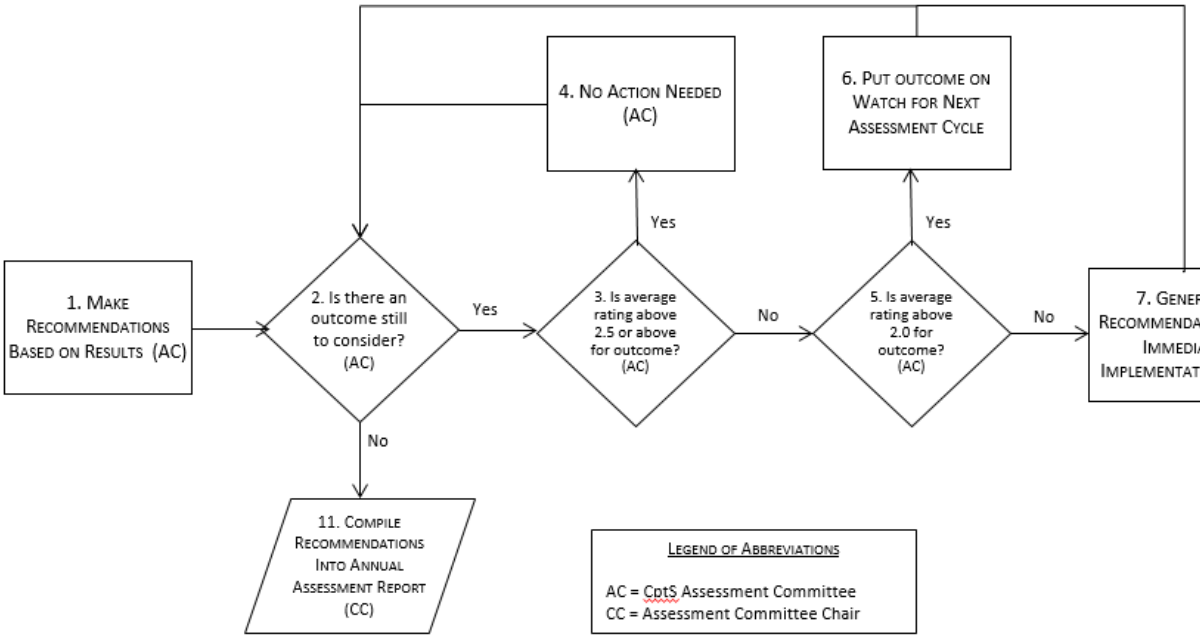

Figure 6. Flowchart Depicting Process of Making Recommendations Based on Assessment Results

evidence that a change to the curriculum should be implemented as soon as possible. While not raising an immediate concern, a rating between 2.0 and 2.49 with respect to a given outcome puts us on alert to carefully monitor progress over the next assessment cycle. This may lead to a recommendation that extra assessment be performed with respect to that outcome, or it may lead to a recommendation to make (minor) changes to the curriculum or assessment process. Finally, a rating of 2.5 or above with respect to a given outcome provides evidence that we are meeting our target level or performance, and hence that no changes are necessary.

B. Professional Skills Discussions

Figure 7 presents a flowchart of the process by which we assess the professional skills discussions collected each spring in our CptS 302 course. In preparation for this assessment, the Assessment Committee Chair randomly selects five discussions out of all the discussions submitted by the CptS 302 course instructor (see item 1 in Figure 7). Our assessment happens at a face-to-face meeting that brings together the Assessment Committee and the CptS 302 instructor. In that meeting, the CptS 302 instructor explains to the Assessment Committee the discussion prompt for the assignment, and provides any background information that will be helpful in performing an assessment. Next, the Assessment Committee discusses the definition of each performance level relative to the standard 4-point scale (see Table 6), and performs practice calibration sessions on one or more of the discussions not selected for assessment (see item 4 in Figure 7). Once the Assessment Committee members are sufficiently calibrated, each individual committee member *independently assesses* each discussion relative to the four-point scale, making sure to justify each rating with brief comments (see item 6 in Figure 7). Following each independent assessment session, the committee comes together to discuss discrepant ratings (see item 7 in Figure 7). These discussions may lead to one or more committee members changing their ratings. This process (items 5–7 in Figure 7) continues until there are no more discussions to assess, at which point the meeting adjourns.

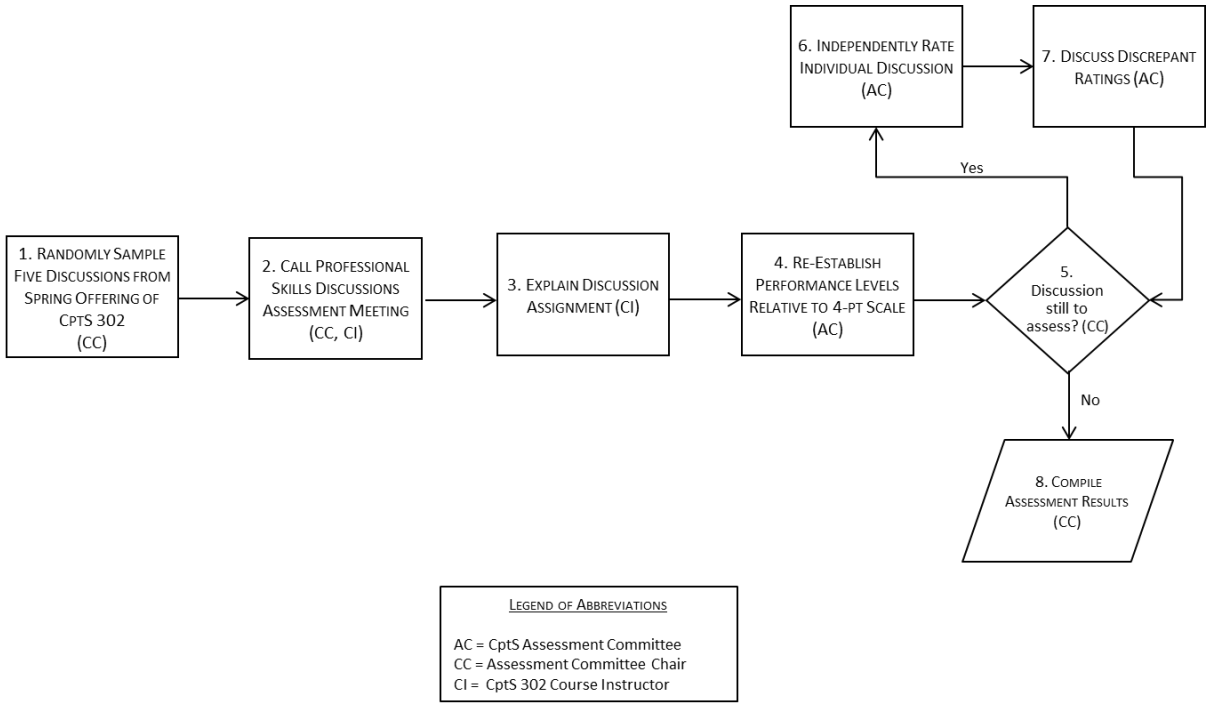

Figure 7. Flowchart Depicting Process of Assessing Professional Skills Discussions

Following the meeting, the Assessment Committee chair compiles the assessment results and shares them with the assessment committee through an online discussion. As with the assessment of student work samples (see previous section), the process depicted in Figure 6 is utilized to generate recommendations.

C. Senior Exit Surveys

Each May, the Assessment Committee Chair posts the survey responses online for the entire Assessment Committee to view and discuss. Through an online discussion that is open for approximately two weeks, the Assessment Committee posts comments on the responses and identifies issues or concerns. On survey questions that have a 5-point Likert-style scale, we aim for an average response of 2 or lower (where 1 is "excellent" and 5 is "poor"). In addition, our goal is that 75 percent of our graduating seniors either obtain a job in the field, or are accepted into graduate school. If these targets are not met, the discussion culminates in a set of recommendations, which the Assessment Committee Chair compiles in the annual assessment report.

Note: As of 2015, data on student job seeking and job placement will be obtained from the Associate Director of EECS in August of each year. The data from the Associate Director is more reliable because the Associate Director filters out duplicates and also filters out those students who did not actually graduate in the academic year.

D. Junior Writing Portfolio

Every other September, the Assessment Committee Chair obtains the latest Junior Writing Portfolio results from the WSU Writing Program, and posts the results to an online discussion, so the entire Assessment Committee can comment on and discuss them for a period of two weeks. We have established the following target level of performance for this data source: We want 80 percent or more of CS majors to pass their Junior Writing Portfolio on their first attempt, with 10 percent of those students passing with distinction. If this target level is met in a given assessment cycle, we make no further recommendations. If this target level is not met, we may choose to make recommendations to address the concern, depending upon the extent to which the target level was missed.

E. Teaching Excellence Reports

Each September, the Assessment Committee Chair posts the annual Teaching Excellence Report to an online discussion, so that the entire Assessment Committee can comment on and discuss it for a period of two weeks. The ultimate goal of the online discussion is to identify potential areas of concern, along with recommendations that might address those areas of concern. The recommendations that come out of the discussion (if any) are compiled in the annual assessment report.

F. Executive Council Discussions

Each May, the Assessment Committee chair posts to an online discussion the notes from the Executive Council discussion that took place the previous April. The Assessment Committee has two weeks to participate in the online discussion. The ultimate goal of the online discussion is to identify potential areas of concern, along with recommendations that might address those areas of concern. The recommendations that come out of the discussion (if any) are compiled in the annual assessment report.

G. Faculty Retreat Discussions

Each September, the Assessment Committee chair posts to an online discussion the notes from the Faculty Retreat discussion that took place the previous August. The Assessment Committee has two weeks to participate in the online discussion. The ultimate goal of the online discussion is to identify potential areas of concern, along with recommendations that might address those areas of concern. The recommendations that come out of the discussion (if any) are compiled in the annual assessment report.

3. Approve Recommendations

The overview flowchart presented in Figure 1 documents the process by which we decide whether to approve the recommendations that come out of the assessment process described in the previous section. At an annual meeting that takes place shortly after the faculty retreat, the CS Curriculum Committee considers each recommendation in turn. Using a ballot with the following three choices, the committee votes on whether to implement each recommendation:

1. Implement the recommendation without obtaining explicit faculty approval
2. Do not implement the recommendation
3. Implement the recommendation only if it gains faculty approval

If a majority of committee members choose (1) for a given recommendation, that recommendation is flagged for implementation in the upcoming assessment cycle. If a majority of committee members choose (2) for a given recommendation, that recommendation is not flagged for implementation. Finally, if a majority of committee members choose (3) for a given recommendation, that recommendation is passed along to the Director of EECS, who puts the item up for a faculty-wide vote at the next faculty meeting. If approved by the faculty, the recommendation is flagged for implementation in the next assessment cycle; otherwise it is not.

4. Implement Changes

Since each recommended change requires a different combination of personnel and resources to implement, it is impossible to document in detail a specific implementation process here. Rather, we simply note that the Curriculum Committee, in coordination with course instructors, academic advisors, and the Director of EECS, is responsible for developing a concrete plan for implementing each approved recommendation. That plan is shared with collaborating parties both through electronic correspondence and face-to-face meetings.

5. Summary Timeline

In order to provide an overview of each assessment cycle, Table 7 (next page) presents a summary timeline of data collection and assessment activities. Note that our assessment cycle commences with the submission of

When	Type of Activity	Description
December 15	Data Collection	Instructors of targeted fall courses submit student work samples to Assessment Committee
December 15	Data Collection	Graduating seniors in fall semester complete online senior exit survey
April 1	Data Collection	Assessment Committee Chair obtains Teaching Excellence Report from Teaching Excellence Committee Chair
April (EECS Open House)	Assessment	In even years, Assessment Committee participates in senior design team poster session in order to assess senior design team posters
April (EECS Open House)	Data Collection	Assessment Committee Chair presents assessment results to Executive Council for feedback and discussion
May 1	Data Collection	CptS 302 course instructor submits professional skills discussion transcripts from spring semester to Assessment Committee
May 10	Data Collection	Graduating seniors in spring semester complete online senior exit survey
May (day after final grades due)	Assessment	Assessment Committee, with assistance from course instructors, assess student work samples
May (two days after final grades due)	Assessment	Assessment Committee, with assistance from the CptS 302 instructor, assesses professional skills discussions
May 10	Data Collection	Instructors of targeted spring courses submit student work samples to Assessment Committee
May 31	Recommendation/ Implementation	Curriculum Committee discusses results of student work assessment online, makes recommendations, and decides whether to implement them.
May 31	Recommendation/ Implementation	Curriculum Committee discusses results of Professional Skills Discussions online, makes recommendations, and decides whether to implement them.
May 31	Recommendation/ Implementation	Curriculum Committee discusses results of Senior Exit Survey, makes recommendations, and decides whether to implement them.
May 31	Recommendation/ Implementation	Curriculum Committee discusses results of Teaching Excellence Report online, makes recommendations, and decides whether to implement them.
May 31	Recommendation/ Implementation	Curriculum Committee discusses results of Executive Council discussion online, makes recommendations, and decides whether to implement them.
August (Friday of first week of fall semester)	Data Collection	Assessment Committee Chair presents assessment results at annual faculty retreat for feedback and discussion
September 1 (every other year)	Data Collection	Assessment Committee Chair obtains Junior Writing Portfolio results for CS majors from WSU Writing Program
First Friday of September	Recommendation/ Implementation	Curriculum Committee discusses results of Faculty Retreat discussion online, makes recommendations, and decides whether to implement them.
September 10 (every other year)	Recommendation/ Implementation	Curriculum Committee discusses Junior Writing Portfolio results for CS majors, makes recommendations, and decides whether to implement them.
September 15	Recommendation/ Implementation	Assessment Committee Chair compiles results of annual assessment process into an annual report.

Table 7. Summary Timeline of Annual Assessment Process

student work samples in fall semester (mid-December), and ends with the completion of the annual assessment report the following fall.

Appendix: Sample CptS 302 Project Prompt Used to Elicit Professional Skills Discussions

CptS 402—Social and Professional Issues in Computer Science Fall 2013

Team Project: Online Professional Skills Discussion and Policy Statement
Released: Tuesday, Oct. 21
Initial Posts Due: Thursday, Oc. 31at 11:59 p.m.
Response Posts Due: Thursday, Nov. 7 at 11:59 p.m.
Policy Statement Thread Due: Thursday, Nov. 14 at 11:59 p.m.
Final Policy Statement Due: Thursday, Nov. 21 at 11:59 p.m.
Worth: 20% of your overall grade

Overview

This team project is designed to assess your knowledge of, and ability to apply, ethics and professional skills. The overarching purpose is to determine how well the computer science degree program has taught you this knowledge and these skills. In addition to counting toward your CptS 402 grade, the CptS Curriculum Committee will assess a sample of the team discussions. When the CptS Curriculum Committee assesses these discussions, all names will be anonymized.

For this project, you have either self-selected a team of students, or you have been randomly assigned to a team. As part of this team, you will engage in an online discussion to capture your thoughts, perspectives, ideas, and revisions as you consider a computing scenario. Through this online discussion, you will engage in a collaborative exchange and critique of each other's ideas and work. The goal is to challenge and support one another as a team, so that, as a team, you can (a) tap your collective resources and experiences, and (b) dig more deeply into the issue(s) raised by the computing scenario. In addition to engaging in an online discussion, your team will produce a policy statement that summarizes your proposed approach to the scenario.

Scenario

As discussed in class, several new technologies, including GPS tracking, surveillance cameras and automatic face recognition technology, make it increasingly easy to track the movements and whereabouts of people who are out in the world. Given these state-of-the-art of these technologies, suppose that your team is considering the possibility of launching a new Internet start-up company to develop "webcam history" technologies.[1] Using the latest and greatest facial recognition technology, your company proposes to continuously process the images of surveillance cameras. Based on this processing, your technology would make at least two new features possible:

(a) You can present visual timelines that provide a historical trace of the camera images (and locations) of a given person.

(b) You can support historical and spatial searches for specific people and places, e.g., "Where was John Doe at 5 p.m. on March 15, 2008?," or "Who was at the Washington Monument at 6:33 p.m. on January 3, 2010?"

[1]This scenario was inspired by a description offered by Georgetown University law professor Jeffrey Rosen on a broadcast of "The Diane Rehm Show." See http://thedianerehmshow.org/shows/2011-11-02/constitution-today-fourth-amendment/transcript, and refer to timestamp 11:30:52.

Note that some surveillance cameras are operated by public agencies, and are presently available online. Others are operated by public agencies, but used only by law enforcement. Still others are operated by private agencies. In order to gain access to those cameras that are not presently available online, your company would need to develop contracts with these agencies.
Possible users of your technology are both (a) individuals, who could access your technologies through a public website you develop, or (b) government agencies, for-profit businesses, and non-profit businesses, which could directly or indirectly (by licensing your technologies) use your technologies.

As a team, your task is to think about, discuss, and converge on the specific kinds of technologies you should and should not support, the people and places that should and should not be included in your searchable database, and the users who should and should not have access to your technologies. To that end, you will need to design and clearly articulate your company's ethical and social responsibilities policies, which will be ultimately codified in your "policy statement."

Guidance on Ethical and Social Responsibilities Policies

Your company will be required to provide detailed information to its constituents on the ethical and social responsibilities policies that you will follow. You are expected to do substantial research and conduct discussions before designing these policies for your site. Your policies must be based on, but not limited to, the ethical principles, Code of Ethics, facts, data, laws, and frameworks discussed in the course. You are required to cite all external sources of information, both in your discussion and in your final policy statement. Examples of policies to consider include, but are not limited to:

Users' Personal Information

1. In addition to the Webcam History records, what personal information is collected from the user and why?
2. Do you have opt-in or opt-out option policies? If so, for what information?
3. How secure should your database be? Why?
4. How and what information is made available to law enforcement (government) agencies without a court order?
5. How and what information is used for user profiling?
6. What information is shared with (or sold to) third-party vendors?

Access to your technology

1. How transparent/easy to see/understand are your policies to your users?
2. Is any Webcam History information exempted from being collected, disseminated, or sold? Why?
3. Do you buy/sell Webcam History data? If so, for what purpose?
4. Is your technology available in multiple countries? What are the implications?

Project Timeline

You will have **four weeks** to complete the online discussion and produce a policy statement with regard to this scenario. To foster the refinement and maturation of ideas, ensure that you actively participate, and adhere to the deadlines described below. It is important to make your initial posts (and subsequent responses) in a timely manner. Your initial post, which you will compose independently, is due by **11:59 p.m. on Thursday, October 31**. You are expected to make multiple posts during each stage of this on-going discussion. The timeline below suggests how to pace your discussion. This is just a suggestion. Feel free to

pace the discussion as you see fit, but note that your grade will be partly based on how well you adhere to these deadlines.

- *By Thursday, Oct. 31 at 11:59 p.m.: Make Initial Posts.* All participants post initial responses that address the scenario prompt and take into consideration the issues raised in the "Guidance on Ethical and Social Responsibilities Policies" section above. These initial posts must be a minimum of **500 words**. Note that you are expected to write these posts *independently*, without consulting your other team members. You will not be able to see others' posts until you make your initial posts. These posts are intended to provide the starting point for your team's deliberations.

- *By Thursday, Nov. 7 by 11:59 p.m.: Complete Response Posts*. Team members respond by tying together information and perspectives on important points and possible approaches. To that end, the team creates new discussion threads to address each the following (each discussion thread should be clearly labeled):

    - *Professional, ethical, legal, and social issues and responsibilities*. In this thread, engage in a discussion to identify professional, ethical, legal, and social dimensions of each proposed decision or policy. **The ethical frameworks and Code of Ethics discussed in the class must be enlisted to provide a rationale for and/or against each proposed decision or policy**. In cases where competing ethical perspectives or Code clauses are in conflict, the team should attempt to resolve the conflict by prioritizing competing perspectives/clauses and/or using its best judgment.

    - *Local and global impacts on individuals, organizations, and society*. In this thread, engage in a discussion that explicitly considers the local and global impacts of each proposed decision or action on key stakeholders, including individuals, organizations, and society. In addition, assess the certainty with which you can determine the impacts of each proposed decision or action.

    - *Further knowledge and research needed*. In this thread, engage in a discussion that identifies additional knowledge (facts, laws, statistics, etc.) that you need to know in order to make the best possible decisions or choose the best possible policies. Fill in the gaps you identify by performing research to seek and evaluate outside sources, making sure to cite each source. In cases where you choose not to perform additional research, identify appropriate methods you would use to obtain the information.

    - *Biases and assumptions*. In this thread, engage in a discussion to identify and analyze your personal biases and assumptions about the scenario. These biases and assumptions will be important to make explicit as you move toward identifying viable approaches and courses of action.

- *By Thursday, April 11 by 11:59 p.m. Complete Policy Statement thread*. Start a new thread entitled "Policy Statement," and use the thread to converge as a team upon a set of decisions and policies to address the scenario.

- *By Thursday, April 11 by 11*:59 p.m. *Submit Final Policy Statement Document*. Create a PDF document that brings together and synthesizes your team's final position. This statement should be at least 1,000 words, and be written as a polished essay in clear English. At a minimum, the statement should

enumerate the set of policies and decisions your group would adopt, and clearly articulate your rationale for each one. Submit the PDF document through the "Team Policy Statement" assignment in OSBLE.

Assessing team members' contributions

You are required to submit a team member evaluation of the contribution of each member of the team towards the final policy statement. (We will evaluate each team member's individual contributions in the online discussions separately, so please consider only each member's contribution to the final policy statement.) These evaluations will be used to weight each team member's policy statement grades based on his or her relative contribution. All team members are expected to contribute equally.

Grading

You will receive both an individual grade for your contribution to the online discussions (weighted 70%), and a team grade for your policy statement (weighted 30%). The multiplier that results from the team member evaluations will be applied to your policy statement grade. Both the online discussion contributions and the policy statement will be scored using detailed evaluation rubrics available on OSBLE.