Annual Departmental Report
Amended for 2020-2021 Academic Year to Accommodate and Reflect Adjustments due to Pandemic

There are amended instructions throughout this document to reflect the special circumstances of this academic year (AY20-21) that you will find red. *As an institution and as departments we have learned that we can use our creativity to deliver learning even in the most difficult of circumstances.*

Program Information

Program/Department: *Computer Science/Computer Science*
Department Chair: Nadimpalli Mahadev
Department Assessment Committee Contact: Kevin Austin

> *This document is to be kept in the department and an electronic file is due to the AVP of Institutional Research & Planning by June 1, 2021.*

A. Departmental Special Section for AY2021

Department Lessons Learned and Accomplishments
In thinking through the academic year, report on how the department adapted to changes brought on by the pandemic. Reflect on actions that surprised you, on lessons learned that will help in the future, and major accomplishments.

> Both students and faculty needed to adapt to remote teaching, mainly using synchronous course delivery (ONSYNC) rather than the standard asynchronous delivery (ONLINE).   We also used ONSYNC for conducting departmental meetings as well as meetings with the administrative assistant. The meetings were quite productive.
> We were unable to hold our usual high school programming contest as it needs onsite facilities and support. We also did not have our yearly "Program Advisory Committee" meeting as we felt that meeting remotely would not be conducive to discussions.
>
> We make the following observations regarding the remote teaching.
> 1. Many students had serious technical issues such as inadequate personal computer performance/resources, poor internet connections, unavailable cameras/microphones, serious difficulty connecting to the software labs. All of this resulting in

organizational and motivational problems for students … particularly among the freshmen. As a result, there was a historically high number of dropouts, failures, and suspensions. The number of suspensions that resulted at the end of the Fall, 2020 semester was truly tragic.

2. In addition to technical issues, many students reported difficulty maintaining mental health. Issues with depression and anxiety were reported in many classes.
3. Conducting hardware labs remotely was a challenge. Students began with enthusiasm that quickly waned after the first few weeks. Several different methods for delivering content and providing feedback were tried but the rigor of these courses is demanding even during normal times. Many 2nd year students were lost moving into the Spring semester.
4. One-on-one help provided in software labs became a time-consuming process.
5. Teaching remotely was an all-consuming process for some faculty. Leaving them with little or no down time … always trying new things to improve remote engagement.
6. Nevertheless, some mature students with access to sufficient technical resources (particularly those in the higher-level courses) embraced the ONSYNC classes and performed very well.

For the most part, the academic year went smoothly in that we had no gaps in content delivery and our 3rd and 4th year students were able to progress toward graduation. However, we strongly believe that returning to the in-class, face-to-face, mode of teaching that students attending FSU expect, is the best way to help our students succeed.

We also believe that it's important to reach out to students that have legitimate reasons for not being able to attend campus classes, by either letting them attend classes remotely or by providing recorded lectures for later viewing. These recordings may only include the instructor and the students that are participating remotely. However, students should be required to qualify for remote learning using an application to disability services which will verify and approve a student's need for such an arrangement.

B. Program Learning Outcomes (PLOs) (Educational Objectives)

I.   List of PLOs and the timeline for assessment.

PLO #	PLO – Stated in assessable terms	Where are the learning outcomes for this level/program published? (please specify) Include URLs where appropriate	Timing of assessment (annual, semester, bi-annual, etc.)	When was the last assessment of the PLO completed?
1.	Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.	CS program web site. https://www.fitchburgstate.edu/academics/undergraduate/undergraduate-day-programs/computer-science/	Annual	Spring, 2020
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.		Annual	Spring, 2020
3.	Communicate effectively in a variety of professional contexts.		Annual	Updated PLO Spring, 2020
4.	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.		Annual	Updated PLO Spring, 2020
5.	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.		Annual	Updated PLO Spring, 2020
6.	Apply computer science theory and software development fundamentals to produce computing-based solutions.		Annual	Updated PLO Spring, 2020

II. **PLO Assessment** (Please report on the PLOs assessed and/or reviewed this year. Programs should be assessing at least one each year.)

Using the table below, list and briefly describe the **direct method(s)** used to collect information assessing whether students are learning the core sets of knowledge (K), skills (S) and attitudes (A) identified as essential.

PLO # (from above)	Assessment description (exam, observation, national standardized exam, oral presentation with rubric, etc.)	When assessment was administered in student program (internship, 4th year, 1st year, etc.)	To which students were assessments administered (all, only a sample, etc.)	What is the target set for the PLO? (criteria for success)	Reflection on the results: How was the "loop closed"?
1	Presentations 1 & 2 and assignment 1 in capstone CSC 4400	4th year students	All	70% of the students achieve 80%	Criteria was met in 4 of 4 performance indicators.
2	Presentation 4 and assignment 5 in capstone CSC 4400	4th year students	All	70% of the students achieve 80%	Criteria was met in 3 of 4 performance indicators. Committee decided that closing the loop was not necessary.
3	Presentations 1 & 3 and assignment 1 in capstone CSC 4400	4th year students	All	70% of the students achieve 80%	Criteria was met in 4 of 4 performance indicators.
4	Written assignments in Ethics course CSC 4102	3rd & 4th year students	All	70% of the students achieve 70%	Criteria was met in 3 of 3 performance indicators.
5	Assignment 4 in capstone CSC 4400	4th year students	All	70% of the students achieve 80%	Criteria was met in 4 of 4 performance indicators.

6	Final presentation plus assignment 3 in capstone CSC 4400	4th year students	All	70% of the students achieve 80%	Criteria was met in 4 of 4 performance indicators.

All of the students assessed were 3rd and 4th year students. As previously mentioned, the more mature students were least affected by the move to remote learning. Most seemed to have sufficient resources (both technical and otherwise) to participate fully. Of the 22 performance indicators measured, only one did not meet criteria … and the low performance in that was due to delinquent submissions. The absence of evidence is not evidence. After deliberation, the committee decided that making changes to adjust for what may be a covid-induced anomaly is unnecessary at this time.

Summary of Findings: Briefly summarize the results of the PLO assessments reported in Section II above combined with other relevant evidence gathered and show how these are being reviewed/discussed. How are you "closing the loop"? Please reflect on changes that the department has had to engage in given changes to teaching modality and especially capstone experiences.

Reflection Prompt	Narrative Response
Other than GPA, what data/ evidence is used to determine that graduates have achieved the stated outcomes for the degree? (e.g., capstone course, portfolio review, licensure examination)	All PLOs were assessed by instruments administered in various courses. PLO 1 through 4 and 6 were assessed in the CSC 4400 Software Engineering capstone. The assessments are based on six in-class presentations and five written assignments. Using methods that comply with ABET site team recommendations, assessment was based on 19 performance indicators. In all but one PI, more than 70% of the students tested achieved proficiency and no action was required. That single PI was one of four that contributed to PLO 2. All of the other PIs contributing PLO 2 demonstrated over 95% proficiency. Further, the PI was deficient because of missing submissions reverting to a grade of zero … something

	that was much more common during the pandemic. Therefore, the committee ruled that no action was necessary at this time. PLO 5 was assessed in CSC 4102 Ethics in Computer Science. The assessment was based on 10 written assignments. Using methods that comply with ABET site team recommendations, assessment was based on three different performance indicators. In every case, more than 70% of the students tested achieved proficiency and no action was required.
Who interprets the evidence? **What is the process?** **(e.g. annually by the curriculum committee)**	The department gathered to organize, examine, and discuss all assessment data. Based on our departmental assessment guidelines one instructor is responsible for collecting and establishing the instruments, collecting the data, performing the analysis, and suggesting changes if needed to close the loop. A second, oversight professor (faculty-in-charge, FiC), is responsible for reviewing the assessment and bringing it to the curriculum committee for discussion. The curriculum committee provides a global context for any suggested interventions.
What changes have been made as a result of using the data/evidence? **(close the loop)**	The committee decided that given the overall excellent outcome of the assessment and the unusual nature of an academic year in the shadow of a pandemic no action is necessary at this time.

C. Assessment Plan for Program/Department

I.   Insert the program or department Assessment Plan

       a.   The process for assessment and continuous improvement was revised and approved by the department on Jan 28, 2020. The plan consists of: (1) performance indicators (PIs) for each PLO and (2) rubrics for rating each of 22 PIs on a 4 point scale of Excellent, Proficient, Marginal and Weak (see PIs and rubrics, attached). We had originally planned to assess the 22 PIs based on student performance in three key courses: CSC 1650 (Digital Electronics), CSC 4400 (Software Engineering) and CSC 4102 (Ethics and Impacts of Computing Solutions). However, very few students made the transition from CSC 1600 in the Fall to CSC 1650 and the students in CSC 1650 were relatively non-compliant with the assessment due to various pandemic-related academic difficulties mentioned elsewhere. Therefore, the committee decided to transfer the assessment of PLO-2 from CSC 1650 to the capstone course, CSC 4400.

       b.   Each outcome was assigned to a faculty-in-charge (FiC) responsible for contacting the instructors conducting the assessments. Going forward, the instructor(s) will collect all the required data and the FiC will document the process. (see FiC assignments, attached). The process was also summarized in part II of the PLO section, above.

       c.   The revised process was implemented for one PLO during the Spring, 2020 semester. Results were summarized in Part II above and details are provided in the appendix.

II.   Explain any changes in the assessment plan including new or revised PLOs, new assessments that the program/department plans to implement and new targets or goals set for student success.

III.   If you do not have a plan, would you like help in developing one?

                   ☐   Yes

D. Program Review Action Plan or External Accreditation Action Letter/Report

Annual Reflection/Follow-up on Action Plan from last Program Review or external accreditation (only complete the table that is appropriate for your program)

I.   Programs that fall under Program Review:

      i.   Date of most recent Review:

         In Spring 2020, only PLO #6 was assessed for the newly implemented assessment plan.

ii. Insert the Action Plan table from your last Program Review and give any progress towards completing the tasks or achieving targets set forth in the plan.

Specific area where improvement is needed	Evidence to support the recommended change	Person(s) responsible for implementing the change	Timeline for implementation	Resources needed	Assessment Plan	Progress Made this Year

iii. If you do not have an action plan, would you like help in developing one based on your last program review and needs of the program?

☐ Yes

II. Programs with external Accreditation:

i. Professional, specialized, State, or programmatic accreditations currently held by the program/department.
ABET
ii. Date of most recent accreditation action by each listed agency.
A team of ABET Computing Accreditation Commission visited our campus on September 22-24, 2019
iii. Date and nature of next review and type of review.

ABET accredited the program till September 30, 2022 with an interim report on one weakness that is due by July 1, 2021.

- We only submitted the assessment data on one student outcome as the assessment process needed to be revamped. The next interim report must complete assessing all the 6 outcomes.

List key issues for continuing accreditation identified in accreditation action letter or report.	Key performance indicators as required by agency or selected by program (licensure, board or bar pass rates; employment rates, etc.)(If required.)	Update on fulfilling the action letter/report or on meeting the key performance indicators.
Continuous Improvement	Student data from selected CS courses upon which assessment is based	The report is created for submission and will be submitted by June 10, 2021.
	Minutes of the assessment committee showing the evaluations outcome	
	Evidence that the results of these evaluations of the assessments are systematically utilized as input for the continuous improvement of the program	

E. Departmental Strategic Initiatives

Accomplished Initiatives AY 20-21 Add more rows as needed	Corresponding Strategic Plan Goal & Strategy Goal # followed by Strategy # ex: 1.3	Indicate if a Diversity, Equity and Inclusiveness (DEI) Goal
Adapt to the new LA&S curriculum.	Curriculum was updated to include new "General Education" requirements. Program descriptions were updated for the catalog. New 4-year plans were developed. Developed and added new 3-credit Ethics Course CSC 4102 with ER designation. New capstone designation (IHIP) for CSC 4400. Developed FYE 1021 CS Freshman Seminar and supported QR and PLT designations for MATH 1800	☐

	and 1900. Changes were approved by AUC.	
Review our course descriptions and prerequisites and update as needed.	Course descriptions were reviewed and updated.	☐
Revamp our ABET assessment plan based on feedback from site visitors.	Our assessment plan that was developed as recommended by ABET site visitors in AY2013-14 was criticized as being too complex by site visitors in AY2019-20. A new assessment plan was developed In Spring, 2020 and was received with approval from ABET. We continued with this plan in the current year.	☐
		☐

Planned Initiatives for AY 2021-22 Add more rows as needed	Associated Strategic Plan Goal & Strategy Goal # followed by Strategy # ex: 1.3	Indicate if a Diversity, Equity and Inclusiveness (DEI) Goal
Further streamline the curricula and introduce tracks and new concentrations.	The goal is to provide students more options which in turn can help with enrollments and retention as discussed in most recent PAB meeting 12/2019. The strategy is to encourage regular faculty discussion. However, since all faculty are currently occupied teaching full loads, the establishment of new programs will require additional full-time professors. The administration must offer a salary	☐

	significantly higher than that expected by our top-earning CS undergrads in entry-level positions because the options for salary increases for faculty are limited. Part of the strategy would be to encourage the administration to take salary negotiations seriously and make an offer significantly better that that offered to entry-level top earners with an undergraduate degree. Additional tracks were suggested during the most recent PAB meeting. Additional full-time faculty are needed to meet the needs of new programs … particularly in the area of computer hardware.	
Upgrade the hardware labs	Goal is to maintain modern course delivery in a comfortable lab/classroom space. Despite changes to the windows and heating system in Edgerly 203, several problems remain. The noise caused by the continuous droning of a fan that cannot be turned off system interferes with effective oral content delivery. On hot days, the window air conditioner from the 1980's does not cool the room and blows circuit breakers after running for less than 20 minutes. The noise generated makes concurrent oral course delivery impossible. The lab benches are adequate but the seating encourages bad posture and may have negative health effects.	

Faculty recruitment.	Our four-course hardware sequence is a unique aspect to our CS program that attracts students, introduces problem-solving experiences not emphasized elsewhere in the curriculum, and provides expanded employment options for our graduates. We currently have only one full-time professor capable of teaching these courses (Kevin Austin). In 2012, Professor Archambeault retired and no replacement was ever approved. Professor Taylor filled in for several years but retired in 2017 and the administration refused to show the patience and stamina required to find a replacement with the appropriate hardware expertise. We currently have an adjunct teaching the classes that Dr. Austin cannot cover and Dr. Austin may choose to retire at any moment. Thus, leaving the department with no qualified full-time faculty to teach the four hardware courses and putting accreditation in jeopardy. The administration has refused to acknowledge this as a problem in the past.	☐
		☐

F.   Departmental Reflection:

Take this section to reflect on--

1) *Initiatives that you may be considering for 22-23 academic year that you did not already capture above.*

Unexpected changes to Blackboard interfered with workflow. Changes were made to Blackboard that made workflows more difficult. The two changes made the simple task of pasting an image into the Blackboard editor progressively more complex until a task that used to take a few seconds was extended to a process that could take up to a minute. This became an issue for classes where visual representations are an integral part of communicating. During the first weeks of the semester, one could easily paste images into the Blackboard editor from the clipboard. But by semester's end, the process had been altered to require users to upload images to Blackboard separately, then locate them within Blackboard's folder system to incorporate them in documents. Even then, for some types of test questions and/or test instructions/descriptions image inclusion was prohibited. Both students and faculty found this frustrating during a time when everyone was encouraged to use Blackboard for everything. Stressed students simply gave up and moved on to something easier.

2) *Reflect on how the department adapted to the pandemic. Reflect on actions that surprised you and on lessons learned that will help in the future.*

Technology is something we do well in our department. We all embraced the technology associated with remote learning. All professors made use of Blackboard and Google Meet for remote sessions. Other technologies included pen-based computing where appropriate and session recordings posted on Blackboard for students to review at a later time. Innovative ways to do group work in breakout rooms were instituted by some. Unfortunately, the results on the student side were mixed. The freshman class entering in Fall, 2020 was traumatized. A historically high number of students were either suspended or put on probation at the end of the Fall, 2020 semester. So, even though we all comfortably delivered content, many first-year students did not do well. Students had both technical and mental health issues. Prominent among technical issues was the lack of an internet connection with sufficient bandwidth (often due to sharing a connection with others while living off-campus) and computers without sufficient multimedia accessories (cameras/microphones) that would allow them to fully participate. Having limited access to the usual campus resources made activities of daily life harder for many on-campus residents. Many off-campus students had strained relationships with cohabitants and those holding jobs reported finding that work to be more stressful as well. Class attendance was often sporadic. Students reported being anxious and depressed and many sought counseling.

We purchased, assembled and distributed lab kits for hardware classes so students could complete hardware lab assignments wherever they were. There were mixed results. Students would sometimes disappear during lab sessions and not return. The normal lively interaction during face-to-face lab sessions was absent. Some students would forget the skills they demonstrated during the previous lab sessions and would not ask for help. Such behavior would snowball into assignments

submitted with minimal effort. Slowing down to provide individualized lab assistance did not help. Allowing for extra time did not help. At the end of the semester, students reported difficulty focusing on the task at hand because they were worried about work in other classes that also had not been completed. One student stopped responding to requests to return lab equipment. He disappeared along with the lab kit loaned to him. Therefore, a hold has been placed on his account.

On the other hand, 3rd and 4th year students seemed to adapt to remote learning quite well. Attendance was high and most found ways to interact with the course content and each other outside of class. This may be because of relationships and skills that had been established during the first two years. After the second year, the student focus is mostly on completing courses within the major. During the first two years they became familiar with most department faculty and also became proficient with the tools required to move forward.

Overall, the value of face-to-face learning became abundantly clear. This proved to be especially true for 1st and 2nd year where relationships are not fully established with classmates and professors and students were still relatively unfamiliar with the fundamental skills they need to succeed moving forward. That said, some faculty reported that they preferred remote delivery and that their students embraced it too … even some 2nd year students did well. It will take some additional group reflection to figure out what methods work for each group of students and what courses they work best in. Most everyone will agree that teaching remotely was harder and more time-consuming. Some will describe it as stressful, less effective, and something they wish to not experience again.

APPENDIX: ASSESSMENT DATA

Glossary

- **Proficiency Score:** Represents the minimum score in each instrument that qualifies at meeting the Proficiency level or better (as defined in the Rubric).

- **Number Proficient:** Actual number of students that meet or exceed the proficiency score.

- **% Proficient:** Percentage of the students that meet or exceed the proficiency score.

Data from SP21 CSC 4400 Software Engineering (used to assess PLO-1,2,3,5,6)

Data for each performance indicator.

This table shows cores on performance indicators for each individual student taking the CS program capstone Software Engineering (CSC 4400) during the Spring, 2021 semester. Some instruments contribute to more than one PI. Percent of students meeting or exceeding the proficiency score are compiled in the last row. Assignment 2, included for completeness, is related to PLO-5 (ethics) but we assess in another course.

| Count (student) | Presentations and related PLOs | | | | | Assignments and related PLOs | | | | | |
	Pres 1 PLO-1 & PLO-3	Pres 2 PLO-1	Pres 3 PLO-3	Pres 4 PLO-2	Pres 5 PLO-6	Assg 1 PLO-1 & PLO-3	Assg 2	Assg 3 PLO-6	Assg 4 Team Dynamics PLO-5	Assg 5 PLO-2	Final Total
1	16	10	9	10	10	10	10	7	16	10	28
2	20	10	10	10	10	10	0	10	11.5	10	30
3	20	10	10	10	10	10	10	9.5	7	10	27
4	20	10	10	10	10	10	10	10	16	10	30
5	15	10	8	10	8	10	10	8	9.5	0	19
6	19	10	9	7	8	10	10	10	10.5	0	19
7	20	10	10	10	10	10	10	10	16	0	30

8	20	10	10	10	10	10	10	10	16	0	29
9	20	10	10	10	10	10	10	10	15	10	30
10	20	10	10	10	10	10	10	10	15.5	10	27
11	20	10	10	10	10	10	10	10	16	0	28
12	16	10	9	10	10	10	10	10	16	10	28
13	17	10	0			10	10	10	7	0	
14	15	10	9	10	10	10	10	10	16	10	28
15	20	10	9	10	10	10	10	10	16	0	29
16	17	10	10	10	10	10	10	10	13	0	29
17	20	10	10	10	10	10	0	10	16	10	29
18	20	10	9	10	10	10	10	10	14	0	25
19	20	10	10	10	10	10	10	10	16	10	30
20	15	10	7	9	8	10	10	10	12.3	10	22
21	20	10	10	10	10	10	10	10	16	10	29
22	20	10	10	10	10	10	10	10	16	0	26
23	20	10	10	10	10	10	10	9	13.5	10	28
24	19	10	10	10	10	10	10	10	16	10	28
Proficiency Score	16	8	8	8	8	8	8	8	13	8	24
Number Proficient	21	24	22	22	23	24	22	23	18	14	20
Percent Proficient	87.5	100	91.7	95.7	100	100	91.7	95.8	75	58.3	87

Instruments used as performance indicators.

Each performance indicator is described below. Files referred to are posted on Blackboard.

Pres 1: File UseCaseTemplates.docx (18.658 KB)

> For the feature that you will implement during the first cycle, create use case diagram (as described in the lecture notes), user story and use case scenarios (using the template provided here) and the SRS-style listing of user requirements and system specification (as described in the lecture notes) for the functionality you picked for the first cycle (sprint). All of this could be a single word document. You present this document in the class first and after any corrections, submit here.

> Please note that just for the use case diagrams, you should include all the features (functionalities) that will be eventually implemented.

> Due in class on Wednesday, Feb 24.

Pres 2: BookStore.jpg (75.146 KB)

> This presentation is given by one of the team members on behalf of the whole team. Construct the common database for the entire project that will be used by all the team members using MySQL from XAMPP.

> Then use the Design View to rearrange the ER diagram and capture the diagram as a JPEg file using snip&snatch or similar software. You can present the ER Diagram and once Okayed, upload it here for grade.

> Presentation is due on Monday, March 8. See the attached sample ER Diagram.

Pres 3:

> For this presentation, each of you must complete Sprint 1 and demonstrate the completed product. The process also includes regular updates to the task dashboard that I will check regularly.

> Every team member has their own story to complete and present. This is not a group presentation. Presentation is due on Monday March 22 in the class.

> Presentations will be recorded.

Pres 4:

> You make Sprint 2 presentations on Monday. As a team you discuss what is done, and what you plan to do for the Sprint 2. You must create Sprint2.docx in the shared folder and have the stories to be completed for this sprint, create list of tasks and report your progress just as with the Sprint1. Monday you present the completed Sprint 2. As always, I will match what is reported in Sprint2.docx with what you present in the class. I will also look at the progress made from previous sprint. See you on Monday, March 29.

As always, presentation is graded for content, style and organization that is consistent with the documentation created for Sprint 2. Nothing to submit. Presentations will be recorded.

Pres 5

Sprint 3 presentations are due in class on Monday April 5. Nothing to submit, but must update your Sprint 3.docx in the share as usual.

Assg 1: ProjectDescription.docx (20.663 KB)

Each team must set up a google chat to discuss their project ideas among themselves. Modify the attached projectDescription document with the details about your project using the template as a guide. Then save the file as a pdf file and submit here. All members of the team get same credit for this and only one member needs to upload it after getting the approval from all the team members.

Here are some conditions for the project that are specified in the Lecture Notes, Week 2

- Must involve user interface design, database design, programming the frontend user interface work with backend database.

- You may use existing web apps or standalone apps in the market to get some ideas.

- You may use friend or family's business to get ideas for the project.

- Your project need not fully implement all the functionalities, but you must try to conceive all possible functionalities for the user type and order them by priority for implementation.

- Project that is already submitted for grade in another course cannot be used again even if it is from a different semester.

Due on Friday, Feb 12.

Assg 2:

For this assignment, read the code of ethics document and then for each of the 8 principles listed there, come up with a situation (real or imagined) that violates that principle. Explain in a paragraph that situation and another brief paragraph why or how the principle is violated. Submit the write-up as a single word or pdf document. Preferable if you can unearth real situations by browsing the web.

Due on Saturday March 13 anytime.

Assg 3:

Submit the Sprint1, Sprint2, Sprint3 and Sprint4 docx after compressing all of them into a single zip file. I look for each team member's stories, tasks lists and progress to see consistency from Sprint to sprint and with the presentations. I could ask for a presentation as part of this assignment that is consistent with what is reported in the sprints. ONLY ONE MEMBER FROM EACH TEAM NEED TO SUBMIT THIS. NEVERTHELESS, THE GRADE FOR INDIVIDUAL MEMBERS COULD BE DIFFERENT.

Due on Apr 21.

Assg 4 - Team Dynamics

Peer evaluation of team dynamics - Must complete in 10 minutes in one sitting. Due on Thursday Apr 22.

Assg 5: Student.dia (39.684 KB)

Your final assignment is to generate the code for the attached class diagram (student.dia), and complete the code to implement the constructors and the set and get methods. In addition, the inherited boolean method must be implemented in each subclass as follows:

In the Undergrad class, the method returns true if the debt is zero, credits earned is at least 120 and the gpa is at least 2.0.

In the grad class, the method returns true if the debt is zero, credits earned is 30 and the gpa is at least 3.0.

Then implement JUnit testing by creating a NetBeans project and adding the .java files to the source package first and the creating the tests for each.

All tests must pass. Submit the entire project folder as a zip file here. Due on Wednesday, May 5

Final Presentation

Final presentation is a demo of all the features you implemented and not just the things since your last presentation. Every individual in the team needs to present their own portion.

Final presentation takes place during regular class hours on any of the following dates.

Wednesdays: May 5 or May 12

Mondays: May 10

See the announcement about when the presentations are.

Please let me know in advanced which day you want to make the presentation so that I can notify the entire class.

LAST DAY TO PRESENT IS MAY 12 DURING THE CLASS HOUR. THERE CAN BE NO EXTENSIONS POSSIBLE BEYND THAT TIME.

If you make a presentation sooner and want a second chance to fix things, you will get it. But not on May 12.

After the final presentation, there is nothing to submit. Presentations will be recorded.

Data from SP21 CSC 4102 Ethics in Computer Science (used to assess PLO-4)

Performance Data

All scores are out of 100. Assignments labelled DQ (discussion questions) are based on textbook questions and used for assessment. Using ABET guideline, PLO-4 was broken down into (a) understanding responsibilities, (b) understanding social impacts, and (c) making informed decisions. This break-down is included in the data headings below. Exams were not used in the assessment, but performance data was generated that reinforces the value of the chosen indicators. Each row represents an individual student.

Count (student)	Textbook discussion question assignments & related PLO sub-category										Exams				
	Ch 1 DQ	Ch 2 DQ PLO-4a	Ch 3 DQ PLO-4b	Ch 4 DQ PLO-4a	Ch 5 DQ PLO-4a	Ch 6 DQ PLO-4b	Ch 7 DQ PLO-4b	Ch 8 DQ PLO-4b	Ch 9 DQ PLO-4c	Ch 10 DQ PLO-4b	Exam Ch2&3	Exam Ch4&5	Exam Ch6&7	Exam Ch 8&9	Final Exam
1	90	100	90	75	100	100	100	100	100	100	100	100	97	100	100
2	70	90	80	100	100	100	100	100	100	100	100	96	97	100	100
3	70	90	75	60	100	100	75	70	75	100	100	95	95	97	85
4	75	90	85	90	75	100	100	90	90	100	100	90	100	90	100
5	60	65	60	60	70	100	100	60	90	100	60	98	90	80	100
6	90	100	100	75	85	100	100	100	100	100	100	80	92	97	80
7	85	80	85	90	80	100	100	90	100	100	70	93	100	100	100
8	80	85	70	60	75	100	100	60	90		95	75	97	100	85
9	100	100	90	75	100	100	100	85	90	100	100	84	70	91	100
10	90	80	80	90	90	100	100	100	100	100	100	90	91	85	85
11	85	90	90	80	75	100	100	100	100	100	100	90	92	94	100

13	0	50	60	70	65	70	0	0	0	0	80	60	92	90	60
14	0	0	70	70	85	100	100	80	80	0	40	80	0	0	85
15	80	90	80	70	95	100	100	90	100	100	100	92	92	90	100
16	75	100	60	60	75	75	90	100	90	100	95	98	94	97	85
17	90	100	85	100	100	0	0	0	0	0	100	0	0	0	0
18	65	0	0	0	0	0	0	0	0	0	100	75	0	0	100
19	80	75	100	100	100	100	100	100	100	100	100	85	87	100	100
20	100	0	80	95	80	90	70	65	90	100	100	87	85	95	100
21	80	0	0	0	0	0	60	70	70	80	0	0	0	0	50
22	60	60	80	0	50	70	100	70	80	85	35	8	0	85	70
Proficiency Score	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Number Proficient	16	14	16	14	17	18	17	15	18	16	17	17	16	17	18
Percent Proficient	76.2	66. 7	76.25	66.7	81	85.7	81	71.4	85.7	80	81	81	76.2	81	85.7

Instruments used as performance indicators.

Each performance indicator is described below based on the textbook: **Ethics for the Information Age, 8th edition** by Michael J. Quinn

Chapters and starting page

1. Catalysts for Change 1
2. Introduction to Ethics 49
3. Networked Communications 109
4. Intellectual Property 165
5. Information Privacy 233
6. Privacy and the Government 281
7. Computer and Network Security 333

8. Computer Reliability 381
9. Professional Ethics 439
10. Work and Wealth 483

CSC 4201 Assignments

Chapter 1 discussion questions: Pg 42: 13, 14, 18, 22, 23, 24

Chapter 2 discussion questions: Pg 100: 29, 35, 36, 38, 39, 41

Chapter 3 discussion questions: Pg 152: 23, 26, 30, 31, 40

Chapter 4 discussion questions: Pg 220: 14, 17, 20, 21, 23

Chapter 5 discussion questions: Pg 267: 13, 16, 19, 23, 25, 28, 32

Chapter 6 discussion questions: Pg 321: 17, 18, 21, 22, 24, 25

Chapter 7 discussion questions: Pg 267: 13, 14, 16, 18, 19,21, 24, 25, 26, 27

Chapter 8 discussion questions: Pg 428: 11, 12, 13, 16, 18, 20, 21, 22, 23

Chapter 9 discussion questions: Pg 472: 9, 11, 12, 15, 16, 18, 19

Chapter 10 discussion questions: Pg 520: 13, 15, 19, 20, 22, 24, 27, 28

Exams (Not used in the assessment)

On Chapters 2-9

Final Exam (Not used in the assessment)

In-class exercises:

1. Ch 4 pg 221: 26
2. Ch 5 pg 269: 37
3. Ch 7 pg 369: 30
4. Ch 9 pg 475: 22, 23

CSSO-1   Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.

Faculty-in-Charge: Ricky Sethi

Performance Indicator	Semester	Course	Instrument(s)	Instructor	Target %	Actual %	Action Needed?
a) Understand the application domain.	SP 21	CSC 4400 Software Engineering	Pres 1	N Mahadev	70% proficient	87.5	No
b) Understand the inputs, outputs and other requirements for the problem.	SP 21	CSC 4400 Software Engineering	Pres 1	N Mahadev	70% proficient	87.5	No
c) Compare and contrast multiple approaches to solving the problem.	SP 21	CSC 4400 Software Engineering	Assg 1	N Mahadev	70% proficient	100	No

d) Understand relevant computing principles.	SP 21	CSC 4400 Software Engineering	Pres 2	N Mahadev	70% proficient	100	No

CSSO-1 Analysis

A review of the performance indicators suggests that Fitchburg State University Computer Science graduates are proficient in analyzing complex computational problems as well as applying relevant computational principles to other disciplines.

CSSO-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.

Faculty-in-Charge: Frits Lander

Performance Indicator	Semester	Course	Instrument(s)	Instructor	Target %	Actual %	Action Needed?
a) Identify design principles appropriate to the problem.	SP 21	CSC 4400 Software Engineering	Pres 4	N Mahadev	70% proficient	95.6	No
b) Plan and document computing-based solution development.	SP 21	CSC 4400 Software Engineering	Pres 4	N Mahadev	70% proficient	95.6	No
c) Design and implement test cases for solution evaluation.	SP 21	CSC 4400 Software Engineering	Assg 5	N Mahadev	70% proficient	59	Yes

d) Implement a computing-based solution.	SP 21	CSC 4400 Software Engineering	Pres 4	N Mahadev	70% pr ofi cie nt	95.6	No

CSSO-2 Analysis

A review of the performance indicators suggests that Fitchburg State University Computer Science graduates are proficient in designing, implementing, and evaluating a computing-based solution to meet a given set of computing requirements. However, due to COVID related issues, the testing part is inconclusive due to lack of submission by some students for one of the assignments (part c) used as a PI.   The final project itself used several sprint cycles and in each sprint cycle, the team needs to maintain a dashboard showing the progress of the tasks as began, completed, tested and implemented. Assg5 is a different standalone instrument for learning Junit testing and is assigned towards the end of the semester. More time needs to be spent with additional example for this important concept and students be given more time to complete it. Several students that had to install special software on their personal computers had issues configuring and running it. If the COVID situation is resolved and the students can use the university labs, this will not be an issue.

CSSO-3 Communicate effectively in a variety of professional contexts.

Faculty-in-Charge: Brady Chen

Performance Indicator	Semester	Course	Instrument(s)	Instructor	Target %	Actual %	Action Needed?
a) Understand and translate stakeholder requirements into computing specifications.	SP 21	CSC 4400 Software Engineering	Pres 1	N Mahadev	70% proficient	87.5	No
b) Present solution prototypes to the customer.	SP 21	CSC 4400 Software Engineering	Pres 3	N Mahadev	70% proficient	91.7	No
c) Communicate the solution design to the project managers.	SP 21	CSC 4400 Software Engineering	Pres 3	N Mahadev	70% proficient	91.7	No

d) Participate in group discussions with team members.	SP 21	CSC 4400 Software Engineering	Assg 1	N Mahadev	70% proficient	100	No

CSSO-3 Analysis

A review of the performance indicators suggests that Fitchburg State University Computer Science graduates are proficient in communicating effectively in a variety of professional contexts.

CSSO-4 Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

Faculty-in-Charge: Natasha Kurtonina

Performance Indicator	Semester	Course	Instrument(s)	Instructor	Target %	Actual %	Action Needed?
a) Understand legal and ethical responsibilities.	SP 21	CSC 4102 Ethical Issues in Computer Science	Chapter 2, 4, 5	Lori Leonard	70% proficient	AVG 71.4	No
b) Understand social impacts of potential solutions.	SP 21	CSC 4102 Ethical Issues in Computer Science	Chapters 3, 6, 7, 8, 10	Lori Leonard	70% proficient	AVG 78.8	No
c) Make informed ethical decisions.	SP 21	CSC 4102 Ethical Issues in Computer Science	Chapter 9	Lori Leonard	70% proficient	85.7	No

CSSO-4 Analysis

A review of the performance indicators suggests that Fitchburg State University Computer Science graduates are proficient in recognizing professional responsibilities and making informed judgments in computing practices based on legal and ethical principles. We also observed that the proficiency level has improved over the semester as they are exposed to more viewpoints through discussions.

CSSO-5   Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

Faculty-in-Charge: Robin C

Performance Indicator	Semester	Course	Instrument(s)	Instructor	Target %	Actual %	Action Needed?
a) Cooperate and contribute fully within the team.	SP 21	CSC 4400 Software Engineering	Assg 4	N Mahadev	70% proficient	75	No
b) Communicate effectively with the team.	SP 21	CSC 4400 Software Engineering	Assg 4	N Mahadev	70% proficient	75	No
c) Demonstrate time and project management skills.	SP 21	CSC 4400 Software Engineering	Assg 4	N Mahadev	70% proficient	75	No

CSSO-5 Analysis

A review of the performance indicators suggests that Fitchburg State University Computer Science graduates are proficient in functioning effectively as a member or leader of a team engaged in relevant activities. This is based on peer evaluations.

CSSO-6   Apply computer science theory and software development fundamentals to produce computing-based solutions.

Faculty-in-Charge: Kevin Austin

Performance Indicator	Semester	Course	Instrument(s)	Instructor	Target %	Actual %	Action Needed?
a) Determine appropriate algorithms and data structures for a given problem.	SP 21	CSC 4400 Software Engineering	Final	N Mahadev	70% proficient	87	No
b) Identify appropriate software engineering methodology for a given project.	SP 21	CSC 4400 Software Engineering	Final	N Mahadev	70% proficient	87	No
c) Identify the computing technologies to be used in a given project.	SP 21	CSC 4400 Software Engineering	Final	N Mahadev	70% proficient	87	No

d) Design and document the development and testing processes.	SP 21	CSC 4400 Software Engineering	Assg 3	N Mahadev	70% proficient	95.8	No

CSSO-6 Analysis

A review of the performance indicators suggests that Fitchburg State University Computer Science graduates are proficient in applying computer science theory and software development fundamentals to produce computing-based solutions.