**Continuous Improvement Plan**

**Outcomes might not change from year to year. For example, if you have not met previous targets, you may wish to retain the same outcomes. *If this is an academic, workforce, or continuing education program, you must have at least one student learning outcome.* You may also add short-term administrative, technological, assessment, resource or professional development goals, as needed.**

**Date:** 31Jan2022 **Name of Program/Unit:** Web & Mobile Development

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**Table 1: CIP Outcomes, Measures & Targets Table (focus on at least one for the next two years)**

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| **A. Expected Outcome(s)**  Results expected in this unit  (e.g. Authorization requests will be completed more quickly; Increase client satisfaction with our services) | **B. Measure(s)**  Instrument(s)/process(es) used to measure results  (e.g. survey results, exam questions, etc.) | **C. Target(s)**  Level of success expected  (e.g. 80% approval rating, 10 day faster request turn-around time, etc.) |
| PLO #1 - Design and create responsive front-end websites using current languages, techniques, and tools. | Final project in IMED 1341 - Interface Design in which students are required to design and create a responsive website. The design, code, and usability of the front-end will be graded using a rubric. | 70% of students score 70% or above based on project rubric. |
| PLO #2 - Demonstrate an understanding of back end (server-side) development/updates for websites and web applications. Concepts include server-side generated web sites or web applications, and database connectivity using current languages, techniques, and tools. | Final Exam in INEW 2334 - Advanced Web Programming that will test students on their knowledge and application of back-end development needed to create and maintain websites and web applications including: server-side coding, dynamic client-server interaction, data storage and retrieval, authentication, security, deployment, and unit testing. | 70% of students who attempt the last exam will score 70% or above. *Note that all questions on this exam relate to this PLO.* |
| PLO #3 - Apply industry required skills such as code validation, usability testing, interpersonal communication, and project time management. | Final Project in ITSE 2374 - Web and Mobile Application Development (Capstone) in which the student will be required to develop a website or mobile application. Students will be assessed by a grading rubric on the following industry required skills: code validation, the use of effective interpersonal communication skills (written and verbal, and project time management. | 70% of students score 70% or above based on project rubric. |
| PLO #4 – Demonstrate an understanding of the fundamental concepts of programming that are used to write computer programs for web applications. | First two quizzes in ITSE 2302 - Intermediate Web Programming that will test students on their knowledge of the JavaScript programming skills needed to create a web-based JavaScript application. | 70% of students will score 70% or above. *Note that all questions on this exam relate to this PLO.* |
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**Description of Fields in the Following CIP Tables:**

**A. Outcome(s)** -Results expected in this program (e.g. Students will learn how to compare/contrast conflict and structural functional theories; increase student retention in Nursing Program).

**B. Measure(s)** -Instrument(s)/process(es) used to measure results

(e.g. results of surveys, test item questions 6 & 7 from final exam, end of term retention rates, etc.)

**C. Target(s)** -Degree of success expected (e.g. 80% approval rating, 25 graduates per year, increase retention by 2% etc.).

**D. Action Plan** -Based on analysis, identify actions to be taken to accomplish outcome. What will you do?

**E. Results Summary** - Summarize the information and data collected in year 1.

**F. Findings** - Explain how the information and data has impacted the expected outcome and program success.

**G. Implementation of Findings** – Describe how you have used or will use your findings and analysis of the data to make improvements.

**Table 2. CIP Outcomes 1 (FOCUS ON AT LEAST 1)**

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| 1. **Outcome #1**   PLO #4 – Demonstrate an understanding of the fundamental concepts of programming that are used to write computer programs for web applications. | |
| 1. **Measure (Outcome #1)**   First two quizzes in ITSE 2302 - Intermediate Web Programming that will test students solely on their knowledge of the JavaScript fundamental programming skills which are needed to create a web-based JavaScript application. | 1. **Target (Outcome #1)**   70% of students will score 70% or above. *Note that all questions on this exam relate to this PLO.* |
| 1. **Action Plan (Outcome #1)**   In the next catalog year, the Web Development program curriculums will be changed to require students to take COSC-1436, instead of COSC-1315. COSC-1436 is a higher level programming course and should teach better programming fundamentals to students. Since both schedule plans, before and after the change, recommend that students take these COSC courses before taking ITSE-2302, the average programming abilities of students entering ITSE-2302 should increase. Therefore, they will learn the web programming content of ITSE-2302 better.  Exam scores will be recorded starting in the 2022 Spring semester class and continue every semester that ITSE-2302 is taught. Starting in the 2023 Spring semester, we should see an increase in the average final exam scores, as more students begin to use the new curriculum. By the time the next CIP report is completed in January 2024, we should be able to a full year of improvement. | |
| 1. **Results Summary (Outcome #1)**   Here is a summary of the data collected over the past two years.  The instructors did not give a midterm exam for ITSE-2302. Instead, the data focussed on the first two quizzes in the course which cover the fundamentals of programming with JavaScript.  We made sure to use the same quizzes each semester. Although each quiz uses a question bank that it randomly selects questions from, so that each student doesn't get the exact same questions. It's not a large question bank though. So they are fairly similar.  Data:  21SP – Prof Pannell  Quiz 1   * Avg Score: 92 * High Score: 100 * Low Score: 70 * Std Dev: 7.86 * Avg Time to complete: 14:51   Quiz 2   * Avg Score: 93 * High Score: 100 * Low Score: 70 * Std Dev: 9.6 * Avg Time to complete: 6:49   21FA – Prof Pannell  Quiz 1   * Avg Score: 95 * High Score: 100 * Low Score: 80 * Std Dev: 5.89 * Avg Time to complete: 12:51   Quiz 2   * Avg Score: 95 * High Score: 100 * Low Score: 80 * Std Dev: 6.56 * Avg Time to complete: 8:26   22FA – Prof Pannell  Quiz 1   * Avg Score: 86 * High Score: 100 * Low Score: 70 * Std Dev: 10.11 * Avg Time to complete: 19:04   Quiz 2   * Avg Score: 95 * High Score: 100 * Low Score: 70 * Std Dev: 8.19 * Avg Time to complete: 9:19   23SP – Prof Shoaib  Quiz 1   * Avg Score: 86 * High Score: 100 * Low Score: 60 * Std Dev: 10.65 * Avg Time to complete: 19:02   Quiz 2   * Avg Score: 95 * High Score: 100 * Low Score: 70 * Std Dev: 8.06 * Avg Time to complete: 7:56 | |
| 1. **Findings (Outcome #1)**   The grade reported were suprisingly high, ranging on average from 86%-95%. Therefore, they easliy met the assessment target of 70%, both before and after the improvements to the curriculum.  We kept the quizzes the same in an attempt to collect consistant data. However, the is limited data, since only one section of the course runs each semester. Also, the data may not be very consitant afterall, because for the final smeester when the changes would have made an impact, the course started being taught by a different professor. So any changes wouldn’t necessarily be caused by the addition of COSC-1436 to the curriculum.  That being said, the score from 22-FALL are almost identical to the scores from 23-SPRING. However, the scores for Quiz #1 actually dropped from the first two semester collected to the second two semester collected. However, since the curriculum changes couldn’t have influenced the scores until 23-SPRING, the drop would not appear to be related to the curriculum change, nor the instructor change. I do not have a hypothesis on why that quiz average dropped. Since the amount of data is limited, it may just be a fluke. | |
| 1. **Implementation of Findings**   More data would be needed try to make a better determination on whether the changes helped students’ programming abilities. However, the instructors of the course plan to make further changes to the course, including the book used and the testing. I do not plan to force them to lock the classes in place anymore in order to collect data, this would just prohibit improving the course.  Next year, starting Fall 2024, the program curriculum will be changing again, in order to continue to focus on improving students’ programming fundamentals. In addition to having them take the three Computer Science courses that were not required a couple years ago (Programming Fundamentals I, II, & III), the curriculum will now also have them take an intro to Python programming course as a lead in to the more difficult Computer Science courses. | |

**Program Assessment Data Report**

**Program:\_\_\_\_Web Development\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Terms Data Collected: Spring 2021-Spring 2023**

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| Program-Level Learning Outcome- (From Assessment Plan) | Assessment Measure(s) and Where Implemented in Curriculum – (From Assessment Plan) | Targets- Level of Success Expected-(From Assessment Plan) | Assessment Results – (Provide Data in a form related to targeted levels of success to left. Indicate if Targeted level of success was met, partially met, or not met.) |
| PLO #1 - Design and create responsive front-end websites using current languages, techniques, and tools. | Final project in IMED 1341 - Interface Design in which students are required to design and create a responsive website. The design, code, and usability of the front-end will be graded using a rubric. | 70% of students score 70% or above based on project rubric. | TARGET WAS MET   * + - 100% of students that completed the project scored above a 70.0 grade       * 5 out of 21 total students skipped it – inactive students or didn’t complete the project |
| PLO #2 - Demonstrate an understanding of back end (server-side) development/updates for websites and web applications. Concepts include server-side generated web sites or web applications, and database connectivity using current languages, techniques, and tools. | Final Exam in INEW 2334 - Advanced Web Programming that will test students on their knowledge and application of back-end development needed to create and maintain websites and web applications including: server-side coding, dynamic client-server interaction, data storage and retrieval, authentication, security, deployment, and unit testing. | 70% of students who attempt the last exam will score 70% or above. *Note that all questions on this exam relate to this PLO.* | TARGET WAS MET   * + - out of students who were active in course (7) 5 got 70% or above. 2 of them were under 70. 1 student was inactive all semester. |
| PLO #3 - Apply industry required skills such as code validation, usability testing, interpersonal communication, and project time management. | Final Project in ITSE 2374 - Web Application Development (Capstone) in which the student will be required to develop a website or mobile application. Students will be assessed by a grading rubric on the following industry required skills: code validation, the use of effective interpersonal communication skills (written and verbal, and project time management. | 70% of students score 70% or above based on project rubric. | TARGET WAS MET  100% above 70% - only 4 students – 3Bs + 1A – Average grade around an 87 |
| PLO #4 – Demonstrate an understanding of the fundamental concepts of programming that are write computer programs for web applications. | First two quizzes in ITSE 2302 - Intermediate Web Programming that will test students on their knowledge of the JavaScript programming skills needed to create a web-based JavaScript application. | 70% of students will score 70% or above. *Note that all questions on this exam relate to this PLO.* | TARGET WAS MET  21SP – Prof Pannell  Quiz 1   * Avg Score: 92   Quiz 2   * Avg Score: 93   21FA – Prof Pannell  Quiz 1   * Avg Score: 95   Quiz 2   * Avg Score: 95   22FA – Prof Pannell  Quiz 1   * Avg Score: 86   Quiz 2   * Avg Score: 95   23SP – Prof Shoaib  Quiz 1   * Avg Score: 86   Quiz 2   * Avg Score: 95 |
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