**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:** 01/09/2023 **Name of Program/Unit: Cloud Computing**

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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.) |
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| Demonstrate understanding of cloud terminology, characteristics, cloud infrastructure and architecture | **Course midterm (ITNW 1309 Fundamentals of Cloud Computing)**  A subset of questions from the midterm (30 questions) will measure student understanding of vendor-agnostic concepts and align to the outcome. | 70% of the students are expected to achieve a 70% grade or higher on the **subset of questions** from themidterm in ITNW 1309. |
| Configure and implement virtual machines on a hypervisor platform | **Course lab assignment (ITNW 2375 VMware vSphere: Installation, Configuration, and Management)**  Students will be expected to demonstrate they have the knowledge to configure and deploy virtual machines. This will be measured using Lab # 4 assignment given in the course. A faculty-developed rubric will be used to determine the level of student success in the lab assignment. | * 70% of the students are expected to achieve 70% grade or higher on the **specified lab assignment** in ITNW 2375. |
| Configure and implement cloud storage and database | **Course project (ITNW 1373 Cloud Storage and Database)**  Students will analyze a "client's" given business requirements to design and document the best strategy to create cloud storage and database components using a leading cloud platform. They will deploy the components, create and upload data to these components, and configure setting for encryption, replication, scalability/availability.  A faculty-developed rubric will be used to determine the level of student success in the project. | * 70% of the students are expected to achieve 70% grade or higher on the **course project** in ITNW 1373. |
| Design a cloud infrastructure to solve an assigned business/technical problem using a leading cloud vendor platform | **Course project (ITNW 1336 Cloud Deployment and Infrastructure Management)**  Students in ITNW1336 are presented with a problem to solve as an assignment in this course. Students will analyze the given business/technical requirements to determine and document specifics of the Amazon Web Services (AWS) cloud services they will use. They will architect an infrastructure in AWS using best practices to develop a cloud solution. A faculty-developed rubric will be used to determine the level of student success in the project. | * 70% of the students are expected to achieve 70% grade or higher on the **course project** in ITNW 1336. |
| Apply security configuration to a cloud environment using best practices | **Course project (ITNW 1374 Cloud Computing Security)**  As organizations move to the cloud, students will need to understand concepts of cloud security. Students must be able to identify best practices supporting Identity and Access Management (IAM). Students will analyze a "client's" given business and security requirements to determine, document, and apply the best strategy to create IAM profiles and permissions for the cloud environment. A faculty-developed rubric will be used to determine the level of student success in the project. | * 70% of the students are expected to achieve 70% grade or higher on the **course project** in ITNW 1374. |

**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 & 2 (FOCUS ON AT LEAST 1)**

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| 1. **Outcome #1**   Demonstrate understanding of cloud terminology, characteristics, cloud infrastructure and architecture | |
| 1. **Measure (Outcome #1)**   **Course midterm (ITNW 1309 Fundamentals of Cloud Computing)**  A subset of questions from the midterm (30 questions) will measure student understanding of vendor-agnostic concepts and align to the outcome. | 1. **Target (Outcome #1)**   70% of the students are expected to achieve a 70% grade or higher on the **subset of questions** from themidterm in ITNW 1309. |
| 1. **Action Plan (Outcome #1)**   One possible explanation for not being able to meet the expected level of success could be attributed to the broad scope of the outcome. The department is proposing refining the outcome to make it more specific. | |
| 1. **Results Summary (Outcome #1)**   Beginning Fall 2021 and up to and including Fall 2022, a total of ten (10) sections of ITNW 1309 have been taught (hybrid, F2F, and web modalities). Based on the data collected, 60% of students (105 out of 175) have earned a score of 70% or higher on the subset of questions (30) on the midterm. | |
| 1. **Findings (Outcome #1)**   The student performance is below the expected target of 70%. | |
| 1. **Implementation of Findings**   The action plan will be revised to reflect a more specific outcome for the 3rd year of the CIP cycle. Through instruction, continuous concept review, and practice activities, faculty will ensure that the specified level of performance is achieved. | |

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| 1. **Outcome #2**   Configure and implement virtual machines on a hypervisor platform | |
| 1. **Measure (Outcome #2)**   **Course lab assignment (ITNW 2375 VMware vSphere: Installation, Configuration, and Management)**  Students will be expected to demonstrate they have the knowledge to configure and deploy virtual machines. This will be measured using Lab # 4 assignment given in the course. A faculty-developed rubric will be used to determine the level of student success in the lab assignment. | 1. **Target (Outcome #2)**   70% of the students are expected to achieve 70% grade or higher on the **specified lab assignment** in ITNW 2375. |
| 1. **Action Plan (Outcome #2)**   Faculty instruction in working well and students are performing above the set expectation. Though the actual performance is higher than the expected, the sample size in consideration currently is small (number of students = 38). The department plans to retain this outcome in the action plan for the 3rd year of the CIP cycle and continue collecting data until an adequate sample size is achieved (minimum 100 students). | |
| 1. **Results Summary (Outcome #2)**   Since Fall 2021, two (2) sections of ITNW 2375 were delivered. Based on the data collected, 78.94% of the students (30 out of 38) have earned a score of 70% or higher on the specified lab assignment (Lab 4) in the course. | |
| 1. **Findings (Outcome #1)**   Lab scores were above the expected target of 70%. | |
| 1. **Implementation of Findings**   The department will make no changes to this outcome in the next action plan. | |