



## Assessment Plan for Workforce and FOS Programs

Program/Track Name: AAS - Cloud Computing Infrastructure

### Description of Program-Level Learning Outcomes

Please indicate the Program Learning Outcomes for the degree, degree track, or certificate below:

Program-Level Learning Outcomes	
<b>Program Learning Outcome 1:</b>	Demonstrate understanding of cloud terminology, characteristics, cloud infrastructure and architecture
<b>Program Learning Outcome 2:</b>	Configure and implement virtual machines on a hypervisor platform
<b>Program Learning Outcome 3:</b>	Configure and implement cloud storage and database
<b>Program Learning Outcome 4:</b>	Design a cloud infrastructure to solve an assigned business/technical problem using a leading cloud vendor platform
<b>Program Learning Outcome 5:</b>	Apply security configuration to a cloud environment using best practices

### Section I: Technical Courses

For **all technical courses** in the program, indicate in the table on the following page whether and/or how the course will support the program learning outcomes. You should include courses outside your discipline area and work collaboratively with those disciplines to determine whether and/or how those course(s) will support the program learning outcomes. **Please note** that it is understandable if courses from outside the discipline do not assess the program-level learning outcomes and serve only to introduce, practice and/or emphasize the program outcomes. It is also possible that technical courses outside of your discipline may not directly support the specific program-level learning outcomes you have identified.

**How to complete the program map:**

For each technical course in your program, please indicate whether any program-level learning outcome is introduced to students (I), practiced by students (P), emphasized for students (E), or formally assessed (A).

For example, if course WXYZ 1234 introduces students to one of the program outcomes, then enter “I” for that specific program outcome in the appropriate column. Please note that a course can be “I”, “P”, “E” and/or “A” in any program outcome. The labels in the following table apply SOLELY to the program level learning outcomes defined above. (It is NOT necessary for every course to address a program level learning outcome, and it is NOT necessary that Assessment or program level learning outcomes occur in every course.)

**Program Map ▼**

I=Introduced P=Practiced E=Emphasized A=Assessed

Program Courses	Program Learning Outcome 1	Program Learning Outcome 2	Program Learning Outcome 3	Program Learning Outcome 4	Program Learning Outcome 5
CPMT 1305					
ITNW 1358		I	I		
ITNW 1309	I, P, E, A	I, P	I, P		I, P
ITNW 1354		I			
ITNW 2375		I, P, E, A			I
ITSC 1316		I			I
ITSE 1359					
ITNW 1373			I, P, E, A		I
ITNW 1374	P				I, P, E, A
ITNW 2370					

ITNW 1336	I, P	I, P, E	I, P, E	I, P, E, A	I, P
ITNW 1375	P, E	P, E	P, E		P
ITNW 2327	P, E	P, E	P, E	P, E	P
ITNW 1376	I, P, E	I, P, E	I, P, E	I, P, E	P

### Assessment Plan for Program Learning Outcomes

Review existing assessment methods and current practices for collecting/gathering student data to identify direct (and possibly indirect methods of assessment). Remember that the data will need to be gathered, analyzed, and used to support the program's continuous improvement processes.

**Note:** Because courses from other disciplines already have assessment plans in place, they do not have to be included in this assessment plan. Nonetheless, proposers must work collaboratively with these other disciplines to stay current and up-to-date with the assessment plans in these courses.

Program-Level Learning Outcome	Assessment Measure(s) and Where Implemented in Curriculum – Description of Instrument(s)/ process(es) used to measure results and indication of where the assessment will be collected in curriculum. (e.g. major projects, capstone assignments, practical tests, exams, etc.)	Targets- Level of Success Expected (e.g. students expected to achieve 70% grade on a major course project)
<b>PLO # 1</b> <b>Demonstrate understanding of cloud terminology, characteristics, cloud infrastructure and architecture</b>	<b>Course midterm (ITNW 1309 Fundamentals of Cloud Computing)</b>  A subset of questions from the midterm (30 questions) will measure student understanding of vendor-agnostic concepts and align to PLO # 1.	<ul style="list-style-type: none"> <li>70% of the students are expected to achieve a 70% grade or higher on the <b>subset of questions</b> from the midterm in ITNW 1309.</li> </ul>

<p><b>PLO # 2</b>  <b>Configure and implement virtual machines on a hypervisor platform</b></p>	<p><b>Course lab assignment (ITNW 2375 VMware vSphere: Installation, Configuration, and Management)</b></p> <p>Students will be expected to demonstrate they have the knowledge to configure and deploy virtual machines. This will be measured using Lab # 4 assignment in the course. A faculty-developed rubric will be used to determine the level of student success in the lab assignment.</p>	<ul style="list-style-type: none"> <li>70% of the students are expected to achieve 70% grade or higher on the <b>specified lab assignment</b> in ITNW 2375.</li> </ul>
<p><b>PLO # 3</b>  <b>Configure and implement cloud storage and database</b></p>	<p><b>Course project (ITNW 1373 Cloud Storage and Database)</b></p> <p>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.</p>	<ul style="list-style-type: none"> <li>70% of the students are expected to achieve 70% grade or higher on the <b>course project</b> in ITNW 1373.</li> </ul>
<p><b>PLO # 4</b>  <b>Design a cloud infrastructure to solve an assigned business/technical problem using a leading cloud vendor platform</b></p>	<p><b>Course project (ITNW 1336 Cloud Deployment and Infrastructure Management)</b></p> <p>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</p>	<ul style="list-style-type: none"> <li>70% of the students are expected to achieve 70% grade or higher on the <b>course project</b> in ITNW 1336.</li> </ul>

	determine the level of student success in the project.	
<b>PLO # 5</b> <b>Apply security configuration to a cloud environment using best practices</b>	<p><b>Course project (ITNW 1374 Cloud Computing Security)</b></p> <p>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.</p>	<ul style="list-style-type: none"> <li>70% of the students are expected to achieve 70% grade or higher on the <b>course project</b> in ITNW 1374.</li> </ul>