

PCCUA PROGRAM ASSESSMENT PLAN

Division/Department: Business and Information Systems
Degree Program: Information Systems Technology AAS
Semester/Year: 2023-24 Academic Year

Mission Statement or Overview of Program

The Information Systems Technology degree is a two-year program designed to prepare students for entry-level computer maintenance, help desk, network technician jobs, and cybersecurity related fields. The curriculum focuses on the development of knowledge and skills in computer, network, and security technologies, as well as interpersonal skills in customer service and technical support needed to be successful within the industry. Depending on course selection, this program helps prepare students for industry recognized certification exams such as CompTIA A+, CompTIA Network +, CompTIA Security+, and CompTIA Linux+.

Program Student Learning Outcomes (PLOs)

PLO #1 (Reporting Year 1)	Assess operating systems using critical thinking skills, industry-standard tools, and best practices to demonstrate proper installation, configuration, maintenance, troubleshooting, and customer service.
PLO #2 (Reporting Year 1)	Detect, analyze, identify, and resolve security vulnerabilities, cyber threats, and breaches using appropriate software (tools, devices, and processes) to defend network infrastructures.
PLO #3 (Reporting Year 2)	Apply legal and ethical standards defined by federal, state, and local guidelines to provide integrity of data and network systems in information systems environments.
PLO #4 (Reporting Year 2)	Perform entry-level system administrator duties to analyze, diagnose, and repair common problems with network infrastructures including operating systems, Open Systems and Interconnection model, Transmission Control Protocol/Internet Protocol, and network servers.
PLO #5 (Reporting Year 3)	Demonstrate skills and techniques by using various scripting languages and databases to code data driven applications for web development.
PLO #6 (Reporting Year 3)	Perform skills needed to secure cloud-based infrastructure services, maintain and optimize cloud environments, manage and maintain servers including virtualization, and troubleshoot security issues related to cloud implementations
PLO # 7 (Reporting Year 3)	Demonstrate effective communication by using written and oral communication skills in a business professional manner for the information systems environment

PCCUA ASSESSMENT GUIDING QUESTIONS

Please respond based on the departmental discussion of the program assessment and how those outcomes reflect what students are learning and what needs to happen to improve student learning. You may provide this in a narrative or bulleted format. However, you must respond to each question and these responses should be based on your program assessment discussions. **Please respond in red font.**

Program Student Learning Outcomes

- A. Are the intended educational (learning) outcomes for the program appropriate and assessed appropriately?
Yes. Program Student Learning Outcomes are clearly aligned with workforce readiness and assessed using benchmarks such as lab notebooks, case study projects, and certification-based assignments. Assessment averages range from 64.2% (PLO #5) to 86.5% (PLO #1), showing that most outcomes are being met while highlighting areas that need improvement. These measures appropriately capture both technical and professional skills needed in the industry.
- B. How are the faculty and students accomplishing the program's student learning outcomes?
Faculty and students work together through hands-on labs, simulation activities, and virtual environments to demonstrate competencies. For example, high achievement was reported in configuring hardware/software (100% in NT 193) and Windows Server Active Directory (100% in NT 163). Faculty supplement instruction with video content, in-class discussions, and project-based assignments, ensuring students practice real-world scenarios while meeting assessment criteria.
- C. How is the program meeting market/industry demands and/or preparing students for advanced study?
The program prepares students for IT positions by aligning curriculum with CompTIA certifications (A+, Network+, Security+, Cloud+). Students have demonstrated technical competency (average 78.7% overall across PLOs) and many successfully pass certification exams. Feedback from the Advisory Committee and area businesses confirms the curriculum is industry-relevant, while graduates also continue their education at 4-year universities.
- D. Do course enrollments and program graduation/completion rates justify the required resources?
Yes. The program continues to attract students, and completion rates show a three-year graduate average of 8.36 students. Increasing graduation numbers and student participation in certifications justify maintaining and, in some areas, increasing resources.
- E. Based on the Program SLO's how well are students learning at the course and program level? Based on your assessment outcomes, how do you know this?

Students are generally meeting learning expectations. Average assessment results across PLOs show strong performance in technical areas such as operating systems (86.5%) and cloud infrastructure (83.5%). However, lower outcomes in database/web programming (64.2%) and written communication indicate areas where additional support is needed. Data from lab rubrics, projects, and case studies provide measurable evidence of student achievement.

F. What are the changes you need to make to improved student learning?

To strengthen student learning, more real-world scenarios tied to current technologies will be added, particularly in web development and programming. Faculty plan to increase hands-on projects, provide additional video instruction, and incorporate guest presentations from alumni and industry professionals to connect classroom learning with workforce expectations.

G. What are the weak areas demonstrating a need for improvement?

Weak areas include written and oral communication skills, with lower results in resume/job search activities (64%) and oral presentations (74%). Technical weak spots were also identified in database projects (62%) and secure website design (50%), suggesting a need for targeted remediation and expanded instructional support in these areas.

H. What are the strengths identified through assessment?

Students consistently excel in technical competencies, especially operating systems, server configuration, and security fundamentals. High pass rates were recorded in NT 193, NT 163, and NT 133 courses, with several categories achieving 100% proficiency. Certification exam success further validates the program's strength in preparing students for workforce entry.

Program Curriculum

A. Is the program curriculum appropriate to meet current and future market/industry needs and/or to prepare students for advanced study? Is that reflected in the assessment outcomes?

Yes. Advisory Committee along with other area business and industry provide feedback on program curriculum. Faculty also attend professional development and training to learn up-to-date technology which ensures relevant curriculum.

B. Are program exit requirements appropriate?

Yes. Students must successfully complete all areas of the curriculum.

C. Are students introduced to experiences within the workplace and introduced to professionals in the field?

Yes. Students have heard from guest speakers both virtually and in person.

D. Does the program promote and support interdisciplinary initiatives?

Not at this time, but plans are being formed to create a working relationship with other divisions based on the need to spread cyber awareness and build a stronger writing foundation for students.

E. Does the program support the college STACC skill development expected of all PCCUA graduates? Explain how you know this through assessment.

Yes. We assign activities that cover critical thinking, cultural awareness, and social responsibility.

F. Does the program provide respect and understanding for cultural diversity as evidenced in the curriculum, in program activities, in assignment of program responsibly and duties; in honors, awards and scholarship recognition; in recruitment?

Yes; Specific Units are taught on disability awareness and access to websites and other technology components. Students work in groups to also encourage students to work with others of varying backgrounds, attitudes, beliefs, values, and experiences.

Budget Requests Forms

Are more resources needed. If so, has there been an effort to acquire these resources through the college budgeting process?

No additional resources are needed at this time. With one full time instructor retiring, an additional instructor will need to be hired. Discussions are ongoing and plans are being made.

What program requests did you make for the next year which are tied to needs related to assessment outcomes?

Normal budget requests were made for the 2023-24 year. The 4-year NSF – Cyber Security grant has ended. Another grant is in the development process and will be submitted next year.

DIVISION OF BUSINESS AND INFORMATION SYSTEMS

The Information Systems Technology degree is a two-year program designed to prepare students for a wide range of career opportunities as an Information Technology (IT) professional. The curriculum in this program will prepare students with the required skills and knowledge of the security technologies required for IT positions such as computer maintenance/repair technician, help desk specialist, network/support technician, programming/coding specialist, web developer, and cybersecurity-related fields. Other areas of focus within the curriculum prepare students with interpersonal skills in customer service and technical support needed to be successful within the industry.

Depending on course selection, this program will help prepare students for industry-recognized certification exams such as CompTIA ITF+, CompTIA A+, CompTIA Network +, CompTIA Security+, CompTIA Linux+, and Cloud+.

GOAL 1: Assess operating systems using critical thinking skills, industry standard tools, and best practices to demonstrate proper installation, configuration, maintenance, troubleshooting, and customer service.

Student Learning Outcome	Related Courses	Benchmark: Assessment Criteria	Assessment Tools	Assessment Results			Action Plan
				Result	Number of Students Achieved	Total Number of Students	
Students will demonstrate the skills required to install and configure Windows Servers for a business infrastructure.	CT 173	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	92%	15	17	Continue using hands on virtual lab activities to ensure students demonstrate the necessary skills.
Students will demonstrate the skills required to install and configure Linux Operating Systems.	NT 143	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	75%	6	8	Provide additional instruction on completing virtual labs and documenting lab processes

Students will demonstrate the required skills in configuring and managing Windows Servers to utilize the appropriate protocols to provide end users in a Windows Domain environment with access to the necessary network services for business functions.	NT 173	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	67%	7	8	Provide virtual lab assignments that provide management and configuration exercise.
Students will demonstrate the required skills in supporting, configuring, and securing Operating System.	NT 133	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	100%	11	11	Continue using virtual lab activities that allow students to configure and secure Operating Systems.
Students will demonstrate the required skills to configure the Windows Server Active Directory objects in a Windows Domain environment.	NT 163	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	100%	8	8	Implement additional practice virtual lab activities to provide students with more practice exercises.
Students will demonstrate the required skills in installing and configuring computer hardware, software, operating systems, and drivers	NT 193	80% of the students will score 70% or higher on the Lab Projects.	Lab Projects-Rubric	100%	9	9	Continue to implement virtual lab and hands on lab assignments to help ensure students demonstrate the necessary skills.
Students will understand the basic terminology and concepts that apply to the business environment.	CT 163	80% of the students will score 70% or higher on the chapter tests.	Chapter Tests	88%	10	13	Review practice tests in class that cover the terminology and concepts of the course material. Provide additional instruction on proper coding practices.

Students will use logical analysis to apply a critical thinking approach to problem solving for information systems.	CT 173	80% of the students will score 70% or higher on Case Study Projects.	Case Study Projects	92%	15	17	Implement more time to discuss real problems that require logical analysis to determine the best problem-solving process
	CT 233	80% of the students will score 70% or higher on the Company Webpage project.	Company Web Project-Rubric	Not Assessed			
	CT 273	80% of the students will score 70% or higher on the Comprehensive Application Project.	Comprehensive Application Project	62%	13	21	Provide more review examples and assign in class assignments that encourage students to attend class.
	CT 293	80% of the students will score 70% or higher on the Computer Case Study Projects.	Chapter Case Study Projects	86%	6	7	Provide additional programming examples to assist students in understanding the coding language.
	NT 193	80% of the students will score 70% or higher on the Case Study Questions.	Case Study Questions	89%	8	9	Use portion of class time to hold class discussions on real world scenarios that encourage students to perform research in the lab.
Total for Program Learning Outcome # 1 Average Assessment Results				86.5%			

GOAL 2: Detect, analyze, identify, and resolve security vulnerabilities, cyber threats and breaches using appropriate software (tools, devices, and processes) to defend network infrastructures.							
Student Learning Outcome	Related Courses	Benchmark: Assessment Criteria	Assessment Tools	Assessment Results			Action Plan
				Result	Number of Students Achieved	Total Number of Students	
Students will demonstrate the skills required to secure and defend computer desktops and networks against virus attacks, malware, and other intrusions in both business and home environments with the appropriate software tools and utilities.	NT 213	80% of the students will score 70% or higher on Lab Projects.	Lab Projects-Rubric	78%	7	9	Utilize video instruction on lab platforms via a newly formed YouTube channel.
Students will demonstrate the ability to utilize various open source technologies: Routing, Intrusion Detection and Prevention systems.	CYS 123	80% of the students will score 70% or higher on Lab Projects.	Lab Projects-Rubric	80%	4	5	Utilize video instruction on lab platforms via a newly formed YouTube channel. Add more requirements for student contact.
Students will demonstrate the necessary skills with various utilities and tools related to network security.	CYS 133	80% of the students will score 70% or higher on Lab Projects.	Lab Projects-Rubric	71%	5	7	Continue providing students with virtual lab assignments.
Students will develop skills in writing the required documentation related to reporting results of network foot printing and defensive measures.	CYS 143	80% of the students will score 70% or higher on Case Study Projects.	Case Study Projects-Rubric	83%	5	6	Provide additional resources that help student develop writing skills.
Total for Program Learning Outcome # 2 Average Assessment Results				78%			

GOAL 3: Apply legal and ethical standards defined by federal, state, and local guidelines to provide integrity of data and network systems in information systems environments.							
Student Learning Outcome	Related Courses	Benchmark: Assessment Criteria	Assessment Tools	Assessment Results			Action Plan
				Result	Number of Students Achieved	Total Number of Students	
Students will demonstrate the necessary skills required in creating, querying, and maintaining a database using Microsoft Access.	CT 273	80% of the students will score 70% or higher on Case Study Projects.	Case Study Projects-Rubric	62%	13	21	Provide students with review examples and assign in class assignments to encourage students to attend class regularly.
Students will demonstrate the necessary skills in programming methodology producing mathematically sound results as a result of programming decisions for business applications.	CT 163	80% of the students will score 70% or higher on Case Study Projects.	Case Study Projects-Rubric	88%	10	13	Provide more review on folder structure and creating Visual Studio Files; Add video lectures of programming concepts in Blackboard
Students will use modern scripting languages to develop utilities and programs for the information systems environment.	CYS 103	80% of the students will score 70% or higher on Application Problems.	Application Problems-Rubric	83%	5	6	Incorporate carefully curated video content to assist in student learning.
Students will understand the basic terminology and concepts that apply to the business.	ES 213	70% of the students will score 70% or higher on the Posttest.	Post Test	78%	19	29	Provide practice test to review. Will require students to take Practice Test before taking the Post Test.

Students will demonstrate the skills required to design web sites that adhere to the American Disabilities Act and accommodate the needs of a diverse audience.	CT 233	80% of the students will score 70% or higher on the Company Web Project.	Company Web Project-Rubric	93%	24	32	Have students turn in a draft of the web site in sections and provide feedback on the drafts. Note: some students did not complete project
	CT 263	80% of the students will score 70% or higher on the Objective Exams.	Objective Exams	50%	1	2	Offer a specific Zoom meeting for students. Add additional video content.
Total for Program Learning Outcome # 3 Average Assessment Results				75.7%			

GOAL 4: Perform entry-level system administrator duties to analyze, diagnose, and repair common problems with network infrastructures including operating systems, Open Systems and Interconnection model, Transmission Control Protocol/Internet Protocol, and network servers.							
Student Learning Outcome	Related Courses	Benchmark: Assessment Criteria	Assessment Tools	Assessment Results			Action Plan
				Result	Number of Students Achieved	Total Number of Students	
Students will demonstrate the skills required to install and configure Windows Servers for a business infrastructure.	CT 173	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	88%	15	17	Continue using hands on and virtual lab activities to ensure students demonstrate the necessary skills
Students will demonstrate the required skills of IPv4 and IPv6 addressing fundamentals, subnetting, network cabling, and troubleshooting network connectivity with software utilities.	NT 123	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	100%	12	13	Continue using virtual lab activities that allow students to test their addressing and connectivity
Students will demonstrate the skills required to install and configure Linux Operating Systems.	NT 143	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	88%	13	16	Implement more virtual lab assignments that allow students to install Linux OS, Update lab rubrics and review process for completing online labs.
Students will demonstrate the required skills in configuring and managing Windows Servers to utilize the appropriate protocols to provide end users in a Windows Domain environment with access to the necessary network services for business functions.	NT 173	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	67%	7	8	Provide virtual lab assignments that provide management and configuration exercises.

Students will demonstrate the skills required to manage and optimize cloud environments and manage and maintain servers.	NT 163	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	Not Assessed			
Students will demonstrate the skills required to digitally footprint network systems and defend against attacks to those systems.	CYS 113	80% of the students will score 70% or higher on the Lab Projects.	Lab Projects-Rubric	80%	4	5	Develop a plan to provide instruction and encouragement on the need for completing assignments in a timely manner.
Students will use logical analysis to apply a critical thinking approach to problem solving for business information systems.	CYS 133	80% of the students will score 70% or higher on the Case Study Projects.	Case Study Projects-Rubric	71%	5	7	Continue providing business-related topics that focus on the end-user communication.
Total for Program Learning Outcome # 4 Average Assessment Results				82.3%			

GOAL 5: Demonstrate skills and techniques by using various scripting languages and databases to code data driven applications for web development.							
Student Learning Outcome	Related Courses	Benchmark: Assessment Criteria	Assessment Tools	Assessment Results			Action Plan
				Result	Number of Students Achieved	Total Number of Students	
Students will demonstrate the required skills to design and code effective user-friendly web sites using modern web design software.	CT 233	80% of the students will score 70% or higher on a Company Web Project.	Company Web Project-Rubric	92.5%	24	32	Have students turn in a draft of the web site in sections and provide feedback on the drafts. Note: some students did not complete project
Students will demonstrate the required skills to design and code secure data driven websites using modern web design software.	CT 1243	80% of the students will score 70% or higher on the Digital Portfolio Project.	Digital Portfolio Project-Rubric	50%	3	6	Assist in helping student progress through the assignments by dividing into 4 deliverables instead of 2.
Students will demonstrate the skills required to code in Java and JavaScript for computer and web applications.	CT 263	80% of the students will score 70% or higher on the Case Study Projects.	Case Study Projects-Rubric	50%	1	2	Add additional video content.
Total for Program Learning Outcome # 5 Average Assessment Results				64.2%			

GOAL 6: Perform skills needed to secure cloud-based infrastructure services, maintain and optimize cloud environments, manage and maintain servers including virtualization, and troubleshoot security issues related to cloud implementations							
Student Learning Outcome	Related Courses	Benchmark: Assessment Criteria	Assessment Tools	Assessment Results			Action Plan
				Result	Number of Students Achieved	Total Number of Students	
Students will demonstrate the required skills to configure the Windows Server Active Directory objects in a Windows Domain environment.	NT 163	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	100%	8	8	Continue to use virtual labs for students to gain knowledge and demonstrate working in the Windows Domain environment.
Students will demonstrate the skills required to manage and optimize cloud environments and manage and maintain servers.	NT 163	80% of the students will score 70% or higher on the Digital Lab Notebook	Digital Lab Notebook-Rubric	No Assessed			
Students will demonstrate the required skills in configuring and managing Windows Servers to utilize the appropriate protocols to provide end users in a Windows Domain environment with access to the necessary network services for business functions.	NT 173	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	67%	7	8	Provide virtual lab assignments that align with CompTIA Cloud+ certification exam.

Students will demonstrate the skills to configure network settings between virtual machines, install and configure workstations, and understand physical to virtual machine conversion.	NT 173	80% of the students will score 70% or higher on the Digital Lab Notebook.	Digital Lab Notebook-Rubric	Not Assessed			
Total for Program Learning Outcome # 6 Average Assessment Results				83.5%			

GOAL 7: Demonstrate effective communication by using written and oral communication skills in a business professional manner for the information systems environment.							
Student Learning Outcome	Related Courses	Benchmark: Assessment Criteria	Assessment Tools	Assessment Results			Action Plan
				Result	Number of Students Achieved	Total Number of Students	
Students will demonstrate professional business etiquette, dress, and behavior skills at a business etiquette event or Internship worksite.	BAN 263	90% of the students will score 80% or higher on the Business Etiquette and Networking Event rubric.	Business Etiquette and Networking Event – Rubric	78%	21	30	Provide networking examples and etiquettes for students to practice before events.
Students will demonstrate the ability to utilize the Internet to conduct research.	CT 113	80% of the students will score 70% or higher on the Internet Research Paper.	Internet Research Project-Rubric	75%	128	159	Show additional examples of research papers and complete at least one additional end of chapter activity to ensure students are aware of how to set up a research paper properly.

Students will communicate effectively in a written manner by typing and submitting clear and concise business professional documents.	BAN 263	75% of the students will score 70% or higher on Resume Job Search activity.	Resume/Job Search Unit	64%	19	30	Provide additional examples on resumes and cover letters for student to reference.
	ES 213	80% of the students will score 80% or higher on a current events article.	Current Events Article #3	88%	26	29	Provide more guidelines on professional documents; allow students to revise assignment after meeting to discuss mistakes.
	NT 133	80% of the students will score 70% or higher on the Written Help Desk Scenario.	Written Help Desk Scenario	86%	9	11	Provide students classroom demonstrations that focus on composing professional documents.
Students will demonstrate oral communication skills by developing and presenting an individual/group presentation.	BAN 263	85% of the students will score 80% or higher on the Group PowerPoint presentation.	Group PowerPoint Presentation	74%	21	30	Have students turn in draft then have a review session to review PPT before presenting.
	NT 133	80% of the students will score 70% or higher on the Oral Help Desk Scenario Projects	Oral Help Desk Scenario Projects- Rubric	100%	11	11	Continue implementing individual/group projects.
Students will develop skills in writing the required documentation related to reporting results of network foot printing and defensive measures.	CYS 143	80% of the students will score 70% or higher on the Case Study Projects.	Case Study Project-Rubric	83%	5	6	Provide additional resources that help students develop writing skills.
Total for Program Learning Outcome # 7				81%			
Average Assessment Results							
Total Program Outcomes for Information Systems Technology AAS				78.7%			