

## CSNT - COMPUTING, SECURITY, AND NETWORKING TECHNOLOGY

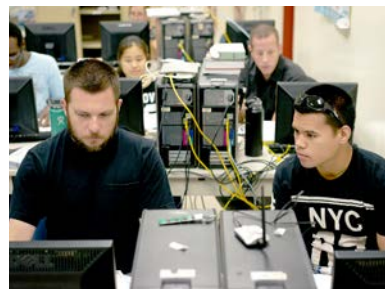
### FORMERLY CENT - COMPUTING, ELECTRONICS, AND NETWORKING TECHNOLOGY

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**FACULTY:** Sally Dunan, Roger Mitchell, Bradley Ramos, Aaron Tanaka

**PROGRAM MISSION:** The Computing, Security, and Networking Technology program's mission is to serve the community as a learning-centered, open door program that provides technical training to meet the demands of the Information and Communications Technology (ICT) industry and the needs of the individual. The program is designed to provide the student with a mixture of knowledge and hands-on training with an emphasis on preparing students for entry-level employment in the ICT industry.



**PROGRAM LEARNING OUTCOMES (PLOs):** Upon successful completion of the CSNT program, students will be able to:

1. Apply current industry standards, protocols, and techniques; and keep up with evolving technology to maintain professional proficiency.
2. Identify, analyze and improvise solutions to resolve problems using a systematic method.
3. Use appropriate industry tools and methodologies to analyze, troubleshoot, and install systems.
4. Install, configure, operate, and maintain systems.
5. Apply current standards for safety and security.
6. Communicate clearly and effectively through written reports and oral presentations.
7. Work effectively, independently, and interdependently, in diverse situations involving stress, teams, co-workers, customers, vendors, organizational partners and supervisors.
8. Demonstrate professionalism and integrity in supporting the mission of the organization.

**PROGRAM ARTICULATIONS:** The Honolulu Community College CSNT program has established an articulation with the University of Hawai'i at West O'ahu that provides the option to complete a Bachelor of Applied Science (BAS) in Information Security and Assurance (ISA). Within the BAS in ISA at UH West O'ahu, students may also choose to complete a focus area in CSNT by completing four to six 300-level CSNT courses at HonCC, which can also be used to meet the requirements for an Advanced Professional Certificate in CSNT. Students who complete the Associate of Science degree in CSNT may apply to transfer to UH West O'ahu to complete the BAS in ISA baccalaureate degree program. Students may be concurrently enrolled in the Bachelor of Applied Science program at UH West O'ahu and the CSNT AS or APC program at Honolulu CC. The CSNT program counselor at Honolulu CC and the counselor at UH West O'ahu can provide more detailed information about courses specifically required or recommended for the BAS in ISA.

**CYBER DEFENSE EDUCATION CERTIFICATION:** The Department of Homeland Security and the National Security Agency have reviewed the University of Hawai'i - West O'ahu and Honolulu Community College programs in the field of Cyber Defense Education and certified that these programs have met the nationally established criteria for the depth and maturity of established programs. Honolulu Community College has been designated as a National Center of Academic Excellence in Cyber Defense Two-Year Education through Academic Year 2022.

**ASSOCIATE IN SCIENCE DEGREE:** The Associate in Science (AS) Degree in the Computing, Security, and Networking Technology program is a two year course of study that prepares the student for entry-level employment in the field of Information and Communications Technology. Core courses are designed to give students a firm foundation in the basics of computers, networking, system administration and information security. The AS Degree also provides options for a Certificate of Achievement in Networking and Telecommunications, and a Certificate of Achievement in Information Assurance.

Elective courses allow students to further specialize in a field of study. Students will have the opportunity to participate in an internship or cooperative education experience before completing the program. Certain CSNT courses also help to prepare the student to take the following Information and Communications Technology industry certification exams: Computer Technician A+, Cisco Certified Network Associate

(CCNA), Microsoft Certified Professional, Security+, Linux+, and VMware Certified Professional. The CSNT program is a Cisco Academy, a CompTIA Training Center, a Microsoft Regional Academy, and a VMware Academy.

**PROGRAM REQUIREMENTS: ASSOCIATE IN SCIENCE DEGREE**

**Program Prerequisites:** Placement in ENG 100; Placement in MATH 103 or MATH 135 or Higher; ICS 100 or ICS 101

	Suggested Semester*		AS Credits
	1	2	
<b>General Education Requirements **</b>			
Communications (CTE Group I and FW): <i>ENG 100 - Composition I</i>	✓		3
Quantitative Reasoning (CTE Group 2 and FQ): <i>MATH 103 - College Algebra</i> or <i>MATH 115 - Introduction to Statistics and Probability ***</i> or <i>MATH 135 - Precalculus: Elementary Functions</i> or Higher	✓		3-4
Humanities: ** AS: Any course numbered 100 or above designated to meet Humanities and Fine Arts requirement for the AS. (CTE Group III) BAS: HIST 151 World History to 1500 (CTE Group III and FG)			3-4
Natural Sciences: <i>PHYS 105 - Principles of Technology (CTE Group IV and DP/DY)</i>		✓	4
Social Sciences: ** (CTE Group V and DS): AS: Any course numbered 100 or above designated to meet the Social Sciences requirement for the AS. BAS: ECON 130 Principles of Economics I: Microeconomics (3) or ECON 131 Principles of Economics II: Macroeconomics (3)			3
<b>CSNT Core Courses</b>			
CSNT 110- Introduction to Information Systems	✓		3
CSNT 132- ICT Support	✓		4
CSNT 140 - Computer Networking I		✓	4
CSNT 228 - System Administration & TCP/IP Networking with Unix/Linux (4) or CSNT 253 - System Administration with Unix/Linux I (4)			4
CSNT 231 - Telecommunications			4
CSNT 270 - Network Operating Systems I			4
CSNT 275 - Security Essentials			3
CSNT 280 - Database Systems I			3
ICS 111 - Introduction to Computer Science I (using Java)		✓	3-4
			<b>AS Credits</b>
<b>Program Electives (Complete 9-12 credits from below)</b>			
CSNT 240 - Computer Networking II (4)			
CSNT 281 - Introduction to Data Analytics & Machine Learning (3)			
CSNT 282 - Analytics Systems (3)			
CSNT 285 - Introduction to Internet Applications/Web Applications (3)			
CSNT 290V - CSNT Internship or CSNT 293V - Cooperative Education (3) ****			
Any CSNT course numbered 300 or above that is not otherwise used to meet a program requirement (3)			
ICS 211 - Introduction to Computer Science II (using Java) (3)			
A course in C Programming: EE 160 Programming for Engineers (4) or ICS 212 Programming Structure (3)			
MATH 241 - Calculus I (4) or MATH 242 - Calculus II (4) if not used to meet another program requirement			

<b>Other Program Requirements</b>	<b>AS Credits</b>
<i>ENG 209 - Business and Managerial Writing (Recommended for AS)</i> <i>or ENG 210 - Writing Term Papers</i> <i>or ENG 200 - Composition II</i>	3

**Minimum Credits Required: 60-66**

- \* Suggested courses for the first or second semester are designated with a "✓". Most CSNT courses have CSNT 140 as a prerequisite, so it is important to take this course early in the program.
- \*\* General Education Requirements are listed under *DEGREES AND CERTIFICATES* and must be numbered 100 or higher.
- \*\*\* MATH 115 may be used to meet the Quantitative Reasoning requirement, if the student has placed into MATH 135 or higher or has met the Natural Science requirement.
- \*\*\*\* Under special circumstances, and with prior approval, CSNT 290V/293V may be repeated for up to 8 credits. However, only 3 credits can be applied toward CSNT program requirements.

**PROGRAM REQUIREMENTS: CERTIFICATE OF ACHIEVEMENT IN NETWORKING AND TELECOMMUNICATIONS**

The courses within this certificate support established industry Networking and IT Support certifications.

**Program Prerequisites:** *Placement in ENG 100; Placement in MATH 103 or MATH 135 or Higher; ICS 100 or ICS 101*

<b>Courses</b>	<b>CA Credits</b>
<i>CSNT 132 - ICT Support</i>	4
<i>CSNT 140 - Computer Networking I</i>	4
<i>CSNT 231 - Telecommunications</i>	4
<i>CSNT 240 - Computer Networking II</i>	4
<i>CSNT 270 - Network Operating Systems I</i>	4
<i>CSNT 275 - Security Essentials</i>	3
<i>CSNT 228 - System Administration &amp; TCP/IP Networking with Unix/Linux</i> <i>or CSNT 253 - System Administration with Unix/Linux I</i>	4
<b>Minimum Credits Required</b>	<b>27</b>

**PROGRAM REQUIREMENTS: CERTIFICATE OF ACHIEVEMENT IN INFORMATION ASSURANCE (IA)**

This certificate provides the student with a basic background in Information Assurance. The content of the courses within this certificate is based on Information Assurance industry certification standards.

**Program Prerequisites:** *Placement in ENG 100; Placement in MATH 103 or MATH 135 or Higher; ICS 100 or ICS 101*

<b>Core Courses</b>	<b>CA Credits</b>
<i>CSNT 110 - Introduction to Information Systems</i>	3
<i>CSNT 140 - Computer Networking 1</i>	4
<i>CSNT 270 - Network Operating Systems I</i>	4
<i>CSNT 275 - Security Essentials</i>	3
<i>CSNT 228 - System Administration &amp; TCP/IP Networking with Unix/Linux</i> <i>or CSNT 253 - System Administration with Unix/Linux I</i>	4

<b>Elective Courses (2 Courses Minimum)</b>	<b>CA Credits</b>
<i>CSNT 231 - Telecommunications (4)</i>	
<i>CSNT 285 - Introduction to Internet Applications/Web Applications (3)</i>	
<i>CSNT 310 - Network Security (3)</i>	
<i>CSNT 330 - Ethical Hacking (3)</i>	
<i>CSNT 370 - Integrated Network Applications (3)</i>	
<i>CSNT 372 - Network Operating Systems II (3)</i>	
<i>CSNT 375 - Virtualization (3)</i>	
<i>CSNT 377 - Cloud Infrastructure and Services (3)</i>	
<i>A course in C Programming:</i> <i>EE 160 Programming for Engineers (4)</i> <i>or ICS 212 Program Structure (3)</i>	
<b>Minimum Credits Required</b>	<b>24-26</b>

**PROGRAM REQUIREMENTS: ADVANCED PROFESSIONAL CERTIFICATE (APC) IN CSNT**

The Advanced Professional Certificate in CSNT is designed to provide the student with advanced technical training in the field of Information and Communications Technology (ICT) with a core emphasis on Information Assurance. The student will have the opportunity to pursue advanced industry certifications.

**Program Prerequisites:**

*Graduation from the Associate of Science Program in CSNT or a Program in Information Technology \* that included equivalent course work in Basic Networking (such as CSNT 140), Network Operating Systems (such as CSNT 270), UNIX (such as CSNT 253 or CSNT 228), Introduction to Databases (such as CSNT 280), Introduction to Computer Science (such as ICS 111) and MATH 103 or MATH 115 or Higher.*

<b>APC Program Core</b>	<b>APC Credits</b>
<i>CSNT 310 - Network Security</i>	3
<i>CSNT 330 - Ethical Hacking</i>	3
<b>APC Program Electives (4 Courses Minimum)</b>	<b>APC Credits</b>
<i>CSNT 315 - Network Management (3)</i>	
<i>CSNT 331 - Telecommunications II (3)</i>	
<i>CSNT 336 - Malware Analysis (3)</i>	
<i>CSNT 340 - Advanced Routing (3)</i>	
<i>CSNT 345 - Multilayer Switching (3)</i>	
<i>CSNT 350 - Junos Routing (3)</i>	
<i>CSNT 370 - Integrated Network Applications (3)</i>	12
<i>CSNT 372 - Network Operating Systems II (3)</i>	
<i>CSNT 375 - Virtualization (3)</i>	
<i>CSNT 377 - Cloud Infrastructure and Services (3)</i>	
<i>CSNT 390 - Special Topics in CSNT (3) **</i>	
<i>CSNT 397 series - Experimental Courses (3) ***</i>	
<i>CSNT 399V - Special Studies (3) ****</i>	
<b>Minimum Credits Required</b>	<b>18</b>

\* Please see CSNT counselor for required prerequisites.

\*\* CSNT 390 may be taken twice for a maximum of 6 credits.

\*\*\* Two different CSNT 397 course offerings may be taken for a maximum of 6 credits.

\*\*\*\* Under special circumstances and with prior approval, 3 credits of CSNT 399V may be used as an elective for the APC.

**COST OF TEXTBOOKS/SUPPLIES:** The cost of equipment and textbooks is between \$1000-\$2000 for the entire program. It is recommended that students have their own computers and have access to the Internet.

**ADVISORY COMMITTEE:**

- Eran Agmon, Comptest Technologies
- Stan Chua, Referentia
- Anderson Lau, SNR-Systems
- Daren Presbitero, ATT
- Rodolf Sabalburo, Actionet
- John Tamagawa, Polycom