




The University of Hawai'i (UH) Naval Information Warfare Center (NIWC) Cybersecurity Internship

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Internships - Introduction

- Internships are essential and provide:
 - a bridge from academia to the workforce
 - immersive learning experiences
 - insight into the practical aspects of an industry
 - increased network opportunities
 - exposure to industry experts
 - hands-on practice with the tools of a trade
 - better chances of employment post-graduation
 - Increased opportunities for advancement

Internships vs. Apprenticeships

- Apprenticeships:
 - structured guidance under a recognized master of a trade
 - specific skills targeted, evaluated on ability
 - several years of instruction
- Internships:
 - supervised guidance by a person knowledgeable in a specific industry
 - training in skills, evaluated on performance of tasks, communication, and teamwork.
 - usually several weeks to months

The numbers support internship success

- National Association of Colleges and Employers (NACE) compiled data showing:
 - completing an internship makes students 85% more likely to secure a full-time job once they graduate
 - with a conversion rate of 66.4%, meaning just over two-thirds of interns transitioned into a full-time position after completing their internship
 - this number increased substantially from 55.5% in 2020.

Kapi'olani CC (KapCC) – The Template

- The KapCC IT Program has always had an internship:
 - Required for all students to graduate with their AS in IT
 - Must be taken in the second year or beyond
 - Has two major components:
 - Required 120 hrs. of IT work with an industry partner
 - two reviews by their immediate supervisor
 - Completion of class assignments to help students:
 - create a professional résumé and LinkedIn social media profile
 - research IT jobs and career pathways
 - research IT certifications
 - participate in mock-interviews
 - learn soft skills and practice professional etiquette

KapCC – IT Advisory Board

- The KapCC IT Program maintains an IT advisory board
 - Consisting of 40+ industry partners from
 - Government (US Federal and HI State), including the US military
 - IT and Cybersecurity
 - Hospitality and Tourism
 - Non-profits
 - Retail
 - Aviation
 - Healthcare
 - Finance
 - Insurance

KapCC – IT Advisory Board (cont)

- The IT advisory board meets with KapCC annually
 - The KapCC IT Program
 - reports changes to the curriculum to meet industry needs reported in the previous annual meeting
 - The IT Advisory board members
 - ask for new curriculum and certifications to meet their needs in the near future as their industry changes
 - participate in mock interviews for our IT students
 - provide feedback on interns they have hosted
 - suggest changes to professional skills training
 - communication (oral and written), teamwork, etc.

NIWC – something new

In 2019, the NIWC visited KapCC:

- Needed cybersecurity workers and asked if we could help

KapCC suggested a focused NIWC internship

- One semester long
- Focused on cybersecurity with NIWC instructors
 - 240 hrs. of NIWC instruction/research in cybersecurity
 - This would take the place of the 120 hrs. IT work requirement
- Classroom activities from the KapCC internship template

Planning and recruitment began in the Fall of 2019

NIWC Cybersecurity Internship – round 1

- In 2020, the US Navy funded the first UH NIWC Cybersecurity Internship
 - 17 students were initially accepted from 7 of the 10 University of Hawai'i campuses:
 - Kapi'olani Community College (KapCC)
 - Honolulu Community College (HonCC)
 - Leeward Community College (LeeCC)
 - University of Hawai'i Maui College (UHMC)
 - University of Hawai'i West O'ahu (UHWO)
 - University of Hawai'i Mānoa (UHM)
 - University of Hawai'i Hilo (UHH)
 - Students were paid \$20 per hour
 - 240 hrs. = \$4,800

The Candidates

- Application packets included:
 - Recommendation letters
 - Statement of purpose.
 - Resume
- Candidates evaluated on:
 - academic performance
 - participation in cybersecurity events
 - interest in a cybersecurity career

NIWC Cybersecurity Internship – rnd 2-4



3 more iterations with 32 more interns

Fall 2021 (hosted at Honolulu CC)
Spring 2023 (hosted at UHM)
Fall 2023 (hosted at UHM)



NIWC instructors guided students through a formal cybersecurity research project equivalent to an academic thesis.



The students presented projects at the end of the semester in “poster sessions”.

VIP visit from Sen. Mazie Hirono



VIP visit from Rep. Ed Case

BRINGING THE POWER OF
INFORMATION TO THE FIGHT!



NIWC Cybersecurity Internship – growth



The internship for 2024 will include recruiting from:

All 10 University of Hawai'i campuses
The University of Guam
Guam Community College



More hands-on cybersecurity activities:

Security Operations Center (SOC) tasks such as:

- monitoring secure network traffic for anomalies
- gathering data based on threat levels
- analyzing collected data
- creating reports to report on threat levels

Possible New Directions



Incorporate internships into all years of post-secondary education.

Using a model like the UHM School of Engineering Vertically Integrated Projects (VIP).

- Each year, projects are progressive and more complex.



Requiring students to obtain industry certifications before graduation.

Industry certifications related to cybersecurity:

- CompTIA – Net+, Sec+, CySA+, PenTest+

Research

- My research will be based on the outcomes of the NIWC cybersecurity internship.
 - I want to find out where the internship graduates ended up.
 - How long was it after graduation before they were employed?
 - What degrees did they earn?
 - Are they working in the cybersecurity field?
 - What companies are they working for now?
 - What is their current position/title?
 - What are their typical work duties?
 - Where did they end up geographically?
 - What is their salary (based on a range)?

Other Thoughts

- Should all academic majors require internships?
 - Students spend thousands of dollars on a degree.
 - Most accumulate significant student debt.
 - Still no guarantee of employment in their field of study.
- Academia can improve the job outlook of graduates.
 - Stats from slide 3 (NACE 2021)
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Questions?

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