[X] **New Program Code**   [ ] **Modify Program Code**   Date: 3/8/2021

REQUESTOR CONTACT INFORMATION

Name	Michael Bauer	Campus	Leeward CC
Title	Professor	Email	mbauer@hawaii.edu
Office/Dept	Math & Science Division	Phone	(808) 455-0310

NEW PROGRAM CODE TO CREATE

Institution LEE - Leeward Community College   Campus LEE - Leeward Community College

Level UG - Undergraduate   Effective Term Fall 2021

	Code (Max. Characters)		Description	Check if requesting new code:
College	(2)	IN	Instructional	[ ] See Banner form STVCOLL
Department	(4)	ICS	Information& Computer Sciences	[ ] See Banner form STVDEPT
Degree/Certificate	(6)	AS	Associate in Science	[ ] See Banner form STVDEGC
Major	(4)	ICS	Information& Computer Sciences	[ ] See Banner form STVMAJR
Concentration	(4)	CSP	Cloud Security Specialist	[X] See Banner form STVMAJR
Minor	(4)			[ ] See Banner form STVMAJR

If a similar major/concentration code exists in Banner, please list the code: _____

Justification to warrant a new major/concentration code similar to an existing major/concentration code:

_____

Is this major/concentration code being used the same way at the other UH campuses?   [ ] Yes   [X] No

Should this program be available for applicants to select as their planned course of study on the online application? *If yes, student may select the code as their only program of study.*   [X] Yes   [ ] No

RULES PERTAINING TO FINANCIAL AID AND 150% DIRECT SUBSIDIZED LOAN LIMIT LEGISLATION

Is 50% or greater of the classes in this program offered at a location other than the Home Campus?   [ ] Yes   [ ] No

Is this program/major/certificate financial aid eligible?   [X] Yes   [ ] No

Does this certificate qualify as a Gainful Employment Program (Title IV-eligible certificate program)?
See http://www.ifap.ed.gov/GainfulEmploymentInfo/index.html   [ ] Yes   [X] No

Program Length
In academic years; decimals are acceptable. The length of the program should match what is published by the campus in any online and/or written publication.   2.0

Special Program Designations
See Special Program Designations Code Definitions on IRAO Program Code Request webpage
[ ] A   [ ] B   [X] N   [ ] P   [ ] T   [ ] U

Required Terms of Enrollment: [X] Fall   [X] Spring   [ ] Summer   [ ] Extended

IRAO USE ONLY: DATE RECEIVED

ADDITIONAL COMMENTS

This new program is created to respond to new trends in industry toward use of cloud computing.

ATTACHMENTS

BOR Approved: Sole-credential Certificates, Associate (excluding ATS), Bachelor and Graduate Degrees, and sole credential certificates

☐ BOR Meeting Minutes & Supporting Documents   ☐ Curriculum

Chancellor Approved: Concentrations, Certificates and Associate in Technical Studies (ATS) Degree

☒ Memo from Chancellor to notify Vice President for Academic Planning and Policy regarding program action.

☐ Curriculum

CERTIFICATES ONLY: Please check one (1) statement. This certificate is a...

☐ BOR approved certificate. BOR Meeting/Approval Date: _____

☐ Chancellor approved within an authorized BOR program. BOR Program: _____

☐ Chancellor approved CO in accordance with UHCCP 5.203, Section IV.B.10.

VERIFICATIONS

By signing below, I verify that I have reviewed and confirm the above information that is pertinent to my position.

Registrar
(Print Name)

Grant Helgeson
_____ 3/11/21
Signature   Date

Financial Aid Officer
(Print Name)

Gregg Yoshimura
_____ 3/12/21
Signature   Date

For Community Colleges, verification of consultation with OVPCC Academic Affairs:

Della Teraoka
_____ 5/3/2021
Signature   Date

UNIVERSITY *of* HAWAI'I®
LEEWARD
COMMUNITY COLLEGE

March 9, 2021

MEMORANDUM

TO: Debora J. Halbert
        Associate Vice President for Academic Programs and Policy

VIA: Kay Ono
        Interim Vice Chancellor for Academic Affairs

FROM: Carlos Peñaloza
        Chancellor

SUBJECT: Program Approvals

I have approved the following effective Fall 2021. The approvals can be found at:
https://leeward.kuali.co/cm

Modified
Academic Subject Certificate (ASC) – Writing
Associate in Science (AS) – Information and Computer Science
Associate in Science (AS) – Natural Sciences
Certificate of Achievement (CA) – Information Security
Certificate of Competence (CO) – Aquaponics Technician

Attachments

c: James Goodman
   Ron Umehira
   Division Chairs
   Lexer Chou
   Jiajia Garcia
   Pete Gross
   Adam Halemano
   Candy Hochstein
   Pearl Imada-Oboshi
   Janel Oshiro

Degree: Academic Subject Certificate

Title: Writing

Description: The Academic Subject Certificate in Writing provides a structured course of study for students interested in further developing their facilities with written language, critical thinking, and creativity. This Certificate will greatly enhance students' educational and career opportunities. As research has clearly demonstrated, writing offers an unparalleled opportunity for intellectual and creative development. Students who are extensively trained in writing have enhanced skills that will promote their educational and career success. At the same time, writing is also one of the best vehicles there is for intellectual and creative growth and development.

Effective Date: Fall 2021

Program Modifications:

Five-year review, with deletion of retired course (JOURN 205).

****

Degree: Associate in Science

Title: Information and Computer Science

Description: The curriculum leading to an Associate in Science degree in Information and Computer Science is designed to prepare individuals for employment as technical assistants to professional and administrative personnel using computers. Students may choose one of four areas of specialty: Network Support Specialist, Information Security Specialist, Software Developer Specialist, and Cloud Security Specialist. Skills in writing, speech, and mathematics complete the preparation for employment. In addition to training the student for work in the technical areas mentioned earlier, the program requirements are designed to facilitate transfer to the baccalaureate programs in Information and Computer Sciences at UH Manoa, UH Hilo, and UH West O'ahu for those students who wish to continue their education while working in the industry.

Effective Date: Fall 2021

Program Modifications:

1. Adding Cloud Support Specialty consisting of ICS 281 Ethical Hacking, ICS 215 Introduction to Scripting, and ICS 284 Cloud Security.

2. We are renumbering and retitling the required course ICS 240 Operating Systems to ICS 231 Introduction to Linux to better reflect the current content of the course.

3. We are adding a new course ICS 131 Introduction to Virtualization as an option to ICS 125 Personal Computer Maintenance and Repair.

The exponential increase in data use that has accompanied society's transition into the digital 21st century has made it more difficult for individuals and organizations to keep all of their vital information, programs, and systems up and running on in-house computer servers. The industry is transforming to use data storage and application access in the cloud. Organizations report over 90% reduction in costs and over 90% increase in security when offloading to the cloud. This cloud support specialty helps to maintain currency with trends in industry.

****

Degree:　　　　　Associate in Science

Title:　　　　　　Natural Sciences

Description:　　　The curriculum in this program will allow students to complete a two year degree while fulfilling the coursework for the first two years of study towards a baccalaureate degree in one of four STEM fields of study. Students will have the option of choosing from one of four concentrations -- Biological Sciences, Engineering, Information and Communications Technology, and Physical Sciences.

Effective Date:　　Fall 2021

Program Modifications:

The old program listed HORT and HORT 110L as electives and these courses are being renamed as AG 110 and AG 110L, respectively. With the modification, the new program will include the updated course alpha.

Updated PLOs to make assessment/ARPD easier to complete (not all courses in the program fit the old PLOs).

Added AG 122, EE 296, HWST 281 and HWST 281L as an electives.

Degree: Certificate of Achievement

Title: Information Security

Description: Provides students with entry-level skills or job upgrading for positions under direct supervision in information security.

Effective Date: Fall 2021

Program Modifications:

We are changing the number and title of ICS 240 Operating Systems to ICS 231 Introduction to Linux to better reflect the current curriculum of the course.

Updating the course requirement to better reflect the curriculum of the course.

****

Degree: Certificate of Competence

Title: Aquaponics Technician

Description: This is an industry aligned, entry-level commercial aquaponics certification of competency (CO) standardized and offered across the University of Hawai'i Community College system. The proposed technician certification of competency is slated to be the nation's first comprehensive third-party certified technician education and training program to address the need for a university-trained and properly prepared, entry-level aquaponics labor force in the commercial aquaponics industry.

Effective Date: Fall 2021

Program Modifications:

Updating the course offerings and LOs.

The name of the program has changed from Plant Biology and Tropical Agriculture to Sustainable Agriculture and this certificate has to be updated to reflect these changes. At the moment the Leeward catalog has the old name of the program associated with the certificate.
https://catalog.leeward.hawaii.edu/plant-biology-and-tropical-agriculture/plant-biology-and-tropical-agriculture-aquaponics-technician.

Program Learning Outcomes

Upon completion of the certificate, students will be able to:
- Demonstrate basic knowledge of aquaponics systems.
- Demonstrate an understanding of aquaponics standard operating procedures.
- Demonstrate current food safety policies and procedures related to aquaponics.
- Work in a professional setting through an experiential-learning environment.

Program Curriculum Plan

The program will provide comprehensive courses in plant science and aquaponics. The subjects included plants, aquaculture, pest management and aquaculture systems. Students will have an opportunity to pursue CA and AS degree, which build upon this program. The Aquaponics Technician Certificate of Competence is awarded to students who complete 10-13 credits of the following courses:

AG 104 Food Safety & Post Harvest Handling (1)
AG 170 Introduction to Commercial Aquaponics (3)
AG 170L Introduction to Commercial Aquaponics Lab (1)
AG 110 and AG 110L Hawaii Horticulture & Nutrition and Lab (4) or AG 112 Introduction to Organic Agriculture (4) or AG 200 and AG 200L Principles of Horticulture (4)
AG 293V AG Internship (1-4)

NOTE: Students will need to complete at least two 200 level AG courses to take AG 293V.

AS-ICS
Information and Computer Science
Future　|　Fall 2021 — Indefinite

1) GENERAL INFORMATION

1.1) Effective Term
Fall 2021

1.2) Program Title
Information and Computer Science

1.3) Degree Type
Associate in Science (AS)

1.4) Description
The curriculum leading to an Associate in Science degree in Information and Computer Science is designed to prepare individuals for employment as technical assistants to professional and administrative personnel using computers.

Students may choose one of four areas of specialty: Network Support Specialist, Information Security Specialist, Software Developer Specialist, and Cloud Security Specialist. Skills in writing, speech, and mathematics complete the preparation for employment.

In addition to training the student for work in the technical areas mentioned earlier, the program requirements are designed to facilitate transfer to the baccalaureate programs in Information and Computer Sciences at UH Manoa, UH Hilo, and UH West O'ahu for those students who wish to continue their education while working in the industry.

1.5) Division
Math & Science

2) PROGRAM LEARNING OUTCOMES

2.1) Outcomes
Demonstrate computing literacy.
Describe the functions and interrelationships of the building blocks of an operating system.
Develop object-oriented computer programs in at least two programming languages.
Apply mathematics to solve computing problems.
Effectively communicate, in written and oral form, a system solution, its documentation, and its implementation.
Use project management tools to manage information systems development projects.
Work effectively as part of a group/team.
Design a relational database with proper documentation.
Demonstrate proficiency in computer maintenance and networking.
Software Developer Specialist: Develop a foundation in computer programming, data structures, and discrete mathematics.
Network Support Specialist: Apply computer-networking principles to build and troubleshoot networks.
Information Security Specialist: Apply the tools and techniques of information security to secure physical and digital information.
Cloud Support Specialist: Utilize methodologies and tools that assist with discovering and securing data in the cloud.

3) BOR INFORMATION

3.1) Program Justification

Relationship to campus mission: The campus mission is: "At Leeward Community College, we work together to nurture and inspire all students. We help them attain their goals through high-quality liberal arts and career and technical education. We foster students to become responsible global citizens locally, nationally, and internationally. We advance the educational goals of all students with a special commitment to Native Hawaiians." The ICS AS supports all aspects of the campus mission. In particular, the ICS AS provides high-quality career and technical education to students. Projections of career opportunities for graduates: According to employment projections for 2016–2026 by the United States Department of Labor Bureau of Labor Statistics (https://www.bls.gov/emp/tables/emp-by-detailed-occupation.htm), job demand for computer specialists will continue to increase for the immediate future. Most of these jobs are increasing at a rate greater than the average for all occupations. For example, "Computer support specialists" jobs are increasing at a rate of 10.6%, while the national average for all jobs is 7.4%.

3.2) Program Mission and Objectives

The overall objective of the Leeward CC ICS Program is to prepare students (and to upgrade/retrain professionals) for employment as technical assistants to professional and administrative personnel using computers.

3.3) Program Curriculum Plan

All required ICS courses must be passed with a grade of "C" or better in order to be applied to the degree and certificates.

Core Requirements: 27 credits
- ICS 101 Digital Tools for the Information World (3) or ICS 103 Introduction to Computer Science Principles (3)
- ICS 110M Introduction to Programming (3) or ICS 110P Introduction to Programming or equivalent (3)
- ICS 111 Introduction to Computer Science I (3)
- ICS 125 Personal Computer Maintenance and Repair (3) or ICS 131 Introduction to Virtualization (3)
- ICS 129 Introduction to Databases (3)
- ICS 171 Introduction to Computer Security (3)
- ICS 184 Introduction to Networking (3)
- ICS 231 Introduction to Linux (3)
- ICS 270 Systems Analysis (3)

General Education Requirements: 24 credits
- ENG 100 Composition I (3)
- ENG 209 Business Writing (3) or ENG 225 Technical Writing (3)
- ICS 141 Discrete Mathematics for Computer Science I (3) or MATH 103 College Algebra (3), or MATH 135 Precalc: Elementary Functions (3) or higher than MATH 135
- ICS 170 Ethics for the Digital World (3)
- SP 151 (3) or SP 251 (3)
- One DS Course (3)
- One FG Course (3)
- One Elective: 3 credits (must be any ICS course 100 or higher not used for ICS program requirements)

Specialty: 9 credits Select One Specialty Below
Information Security Specialty (for UHWO ISA BAS transfer students)

- ICS 215 Introduction to Scripting (3)
- ICS 281 Ethical Hacking (3)
- ICS 282 Computer Forensics (3)

Network Support Specialty (for UHWO ISA BAS transfer students)
- ICS 215 Introduction to Scripting (3)
- ICS 273 Network Design and Administration (3)
- ICS 274 Advanced Network Design and Administration (3)

Software Developer Specialty (for UHM ICS BA or UHWO ISA BAS transfer students)
- ICS 211 Introduction to Computer Science II (3)
- ICS 212 Program Structure (3) or ICS 215 Introduction to Scripting (3)
- ICS 241 Discrete Mathematics for Computer Science II (3)

Cloud Support Specialty
- ICS 215 Introduction to Scripting (3)
- ICS 281 Ethical Hacking (3)
- ICS 284 Cloud Security (3)

MATH 103 transfers to UHWO. ICS 141 transfers to UH Manoa. ENG 209 transfers to UHWO. ICS 110P is recommended for students who plan to transfer to UHWO B.A.S Information Security and Assurance.

3.4) Program Rules

Semester 1   ## 12
                                      Total Credits

- Complete all of the following
  - Completed the following:
    - ICS170 - Ethics for the Digital World
    - ENG100 - Composition I (3)
    - ICS184 - Introduction to Networking (3)
  - Completed at least 1 of the following:
    - ICS110M - Introduction to Programming (3)
    - ICS110P - Introduction to Programming (3)

  - Complete 1 of the following
    - Completed the following:
      - ICS101 - Digital Tools for the Information World
    - Completed the following:
      - ICS103 - Introduction to Computer Science Principles (3)

Semester 2   ## 15
                                      Total Credits

- Complete all of the following
  - Completed the following:
    - ICS111 - Introduction to Computer Science I (3)
    - ICS171 - Introduction to Computer Security (3)
    - ICS231 - Introduction to Linux (3)

  - Complete 1 of the following
    - Completed the following:
      - ICS141 - Discrete Mathematics for Computer Science I (3)
    - Completed the following:
      - MATH103 - College Algebra (3)
    - Completed the following:
      - MATH135 - Precalculus: Elementary Functions (3)

  - Complete 1 of the following
    - Completed the following:
      - ICS125 - Personal Computer Maintenance and Repair (3)
    - Completed the following:
      - ICS131 - Introduction to Virtualization (3)

Semester 3   ## 15
                                      Total Credits

- Complete all of the following
  - Completed the following:

- ICS129 - Introduction to Databases (3)

- ○ Completed at least 1 of the following:
  - ENG209 - Business Writing (3)
  - ENG225 - Technical Writing (3)

- ○ Completed at least 1 of the following:
  - SP151 - Personal and Public Speech (3)
  - SP251 - Principles of Effective Public Speaking (3)

- ○ Complete 1 of the following
  - Completed at least 1 courses from the following:

    ▾ Information Security Speciality

  - Completed at least 1 courses from the following:

    ▾ Software Developer Speciality

  - Completed at least 1 courses from the following:

    ▾ Network Support Speciality

  - Completed at least 1 courses from the following:

    ▾ ICS Cloud Specialization

- ○ Earned at least 3 credits from ICS

Semester 4

9

Total Credits

- Complete all of the following

  - ○ Complete 1 of the following
    - Completed at least 2 courses from the following:

      ▾ Information Security Speciality

    - Completed at least 2 courses from the following:

      ▾ Software Developer Speciality

    - Completed at least 2 courses from the following:

      ▾ Network Support Speciality

    - Completed at least 2 courses from the following:

      ▾ ICS Cloud Specialization

  - ○ Any FG course.
  - ○ Any DS course.
  - ○ Completed the following:
    - ICS270 - Systems Analysis (3)

Grand Total Credits: 51

3.5) Program Target Group

This is a previously approved program. It is in the catalog as well as the Banner system.

3.6) Program Resources

This is a previously approved program. It is in the catalog as well as the Banner system.

3.7) Program Efficiency

This is a previously approved program. It is in the catalog as well as the Banner system.

3.8) Program Effectiveness

This is a previously approved program. It is in the catalog as well as the Banner system.

4) ATTACHMENTS