The mission of Merritt College is to enhance the quality of life in the communities we serve by helping students to attain knowledge, master skills, and develop the appreciation, attitudes and values needed to succeed and participate responsibly in a democratic society and a global economy

2020-2021
Annual Program Update

Computer Information Systems

I.   Introduction and Directions

The Peralta Community College District has an institutional effectiveness process which consists of the following components: a District-wide Strategic Plan which is updated every six years; Comprehensive Program Reviews which are completed every three years; and Annual Program Updates (APUs) which are completed in non-program review years. While there are individualized Program Review Handbooks for Instructional units, Counseling, CTE, Library Services, Student Services, Administrative units, and District Service Centers, there is one Annual Program Update template for use by everyone at the colleges which is completed in the Fall semester of non-program review years.

The Annual Program Update is intended to primarily focus upon planning and institutional effectiveness by requesting that everyone report upon the progress they are making in attaining the goals (outcomes) and program improvement objectives described in the most recent program review document. The Annual Program Update is therefore a document which reflects continuous quality improvement. The Annual Program Update serves a critical role in the Integrated Planning and Budgeting cycle of the college in that it provides a vehicle in which to identify and request additional resources that support reaching the stated goals (outcomes) and program improvement objectives in the unit's program review.

Throughout this document, the term "program" is used to refer to any of the following institutional structures: discipline, department, program, administrative unit, or unit.

If you have questions regarding data, please contact Nathan Pellegrin, Director of Research and Planning (npellegrin@peralta.edu).
If you have questions regarding SLOs, PLOs, SAOs or ILOs, please visit the SLOAC webpage, or contact the SLOAC committee member for your division:

> *Division 1 - Evan Nichols (anichols@peralta.edu)*
> *Division 2 – Laura Forlin (lforlin@peralta.edu)*
> *Division 3 – Heather Casale (hcasale@peralta.edu).*

If you have questions regarding the curriculum section, please contact Nghiem Thai (nthai@peralta.edu), chair of the Curriculum Committee.
If you have questions regarding other material in the APU, please contact your Dean or Manager.

This document contains hyperlinks to external documents, spreadsheets, and data dashboards. Some of the links will not work unless you are signed in to Office 365 through the Peralta Faculty & Staff Portal.

You will need the following items in order to complete the Annual Program Update document at the colleges:

- Program Review or APU document from AY 2019-20.
- Budget Information for the current and prior fiscal year.
- Any comments or feedback provided during the program review validation process.
- College Goals and Peralta District Goals (see below).
- Institution Set Standards.
- College 2018 Educational Master Plan Update.
- Guided Pathways Plan
- Student Equity Plan.
- Data drawn from program review dashboards and/or other sources relevant to your department, service area or administrative unit (see below).

Merritt College Institution-Set Standards 2020-2021

Institution-set standards are used to evaluate the quality of the institution as to success with respect to student achievement in relation to the institution's mission. The evaluation of student achievement performance may include different standards for different programs, as established by the institution.

Metric	Definition	Set Standard
Course Completion (Success)	the number of student completions with a grade of C or better divided by the number of student enrollments	66%
Certificates	Number of certificates earned in an academic year	222
Degrees	Number of associate degrees earned in an academic year	322
Transfer	Number of students who transfer to a 4- year college/university	187
Licensure (CE)	Examination pass rates in programs for which students must pass a licensure examination in order to work in their field of study	70%
Employment (CE)	The job placement rate of student completing a	Macro-Region

degree or certificate in a CE program in the year after graduation.	Employment Rate, by Program SOC	

College Profile

Student Body Demographics

	2017-18	2018-19	2019-20
Annual Unduplicated Count of Students	12,336	12,861	12,130
Gender			
Female	64%	64%	63%
Male	34%	34%	34%
Decline to State/ Unknown	2%	2%	3%
Race/Ethnicity			
American Indian	< 1%	< 1%	< 1%
Asian	19%	20%	19%
Black / African American	23%	23%	22%
Hispanic / Latino	31%	32%	33%
Pacific Islander	1%	< 1%	< 1%
Two or More	5%	6%	5%
Unknown / NR	4%	4%	5%
White	16%	16%	15%
Age			
18 and Under	15%	15%	16%
19-24	35%	35%	35%
25-29	16%	17%	16%
30-34	11%	11%	11%
35-54	17%	17%	17%
55 and Over	6%	6%	5%

Course Success Rates

	2017-18	2018-19	2019-20*
Total Enrollment (Duplicated Count)	33,288	33,637	32,928
Overall Success Rate	70%	70%	68%
Gender			
Female	70%	70%	69%
Male	69%	69%	66%
Decline to State/ Unknown	77%	74%	64%
Race/Ethnicity			
Black/African-American	62%	62%	60%
Asian	81%	80%	81%
Hispanic	68%	68%	64%
Native American	66%	72%	53%
Pacific Islander	61%	71%	63%
Two or More	65%	67%	68%
Unknown	72%	73%	66%
White	78%	78%	75%
Age			
Under 16	83%	91%	84%
16-18	73%	75%	69%
19-24	65%	66%	64%
25-29	70%	69%	68%
30-34	73%	73%	73%
35-54	74%	73%	71%
55-64	74%	71%	66%
65 and Over	77%	77%	60%

Includes 'EW' grades

II.   **Program Overview**

Mission Statement

Please verify the mission statement for your program. If your program has not created a mission statement, provide details on how your program supports and contributes to the College mission.

Merritt's Computer Information Systems (CIS) discipline prepares students to enter the technology workforce at the entry, medium, and high skill levels. We directly address one of the major entry barriers, loss of income while earning a postsecondary credential, by providing "earn and learn" opportunities including Work Based Learning (WBL), internships, special projects, and apprenticeships. We provide "stackable" programs where entry level awards count as program progress toward completion of higher level degrees and certificates. Through the East Bay Inter-Agency Training Council (EB/IATC) we link community support groups to Merritt student support groups to align preparation to each student's non-academic needs. Through EB/IATC we also coordinate with workforce development boards for job discovery and matching services. Our goal is to improve economic equity by having 100% of the students who receive their degree or certificate working in their chosen technology field.

Faculty and Staff

List your Faculty and/or Staff. Indicate if they are part-time or full-time. (If names are already listed, they were imported from last year's APU/PR. Add or remove persons as needed to reflect current personnel).

Name	Faculty/Staff	PT/FT
Courtney Brown	Faculty	Full-Time
Monte Hanrahan	Faculty	Full-Time
Anita Black	Faculty	Part-Time
Beverly Brooks	Faculty	Part-Time
Mark Egan	Faculty	Part-Time
Jason Hengels	Faculty	Part-Time
Omer Ayfer	Faculty	Part-Time
Tim Mather	Faculty	Part-Time
Marilyn Varnado	Faculty	Part-Time
Carole Bell Rogers	Faculty	Part-Time
Guy Yardeni	Faculty	Part-Time
Brian Zaugg	Faculty	Part-Time
Elise Bell	Faculty	Part-Time
James Kennedy	Faculty	Part-Time
Diane Johnson	Faculty	Part-Time
Kaliya Young	Faculty	Part-Time

Alan Williams	Faculty	Part-Time
Steve Sterns	Faculty	Part-Time
Ahsan Mir	Faculty	Part-Time
Denise Seymour	Faculty	Part-Time
Simon Chan	Faculty	Part-Time

III.   Program Goals

In this section, indicate programs goals, the status of each, and how they align with College and District strategic goals. Following are the strategic goals for Peralta CCD and Merritt College.

Peralta District Strategic Goals
P1.   Advance student access, equity, and success.
P2.   Engage and leverage partners.
P3.   Build programs of distinction.
P4.   Strengthen accountability, innovation, and collaboration.
P5.   Develop and manage resources to advance our mission.

Merritt College Strategic Goals
M1. **Completion** - Increase number of degrees and certificates by 20% over the next 5 years.
M2. **Transfer** - Increase transfers to CSU and UC by 6% annually. (Reach approx. 35% in 5 years).
M3. **Time to Completion** - Reduce the number of excess units earned by students.
M4. **Employment** - Maintain at least 82% of students attaining employment in the field of study.
M5. **Equity** - Reduce the achievement gaps for African-American, multiethnic, and male students.

Below are your Program Goals from your most recent Program Review or APU, if available. Indicate whether the goal has been completed (C), is in progress (IP), no longer applicable (NA), or new (NEW). Be sure to state goals which are *measurable* and *time-based*. Indicate which College and District goal your program goal aligns to. If your goal has been completed, what evidence supports completion of this goal? How did you measure the achievement of this goal?

Program Goal	Status (C, IP, NA, NEW)	Applicable College Goal(s)	Applicable District Goal(s)	If completed, describe supporting evidence, including measurements of achievements.
Improve on current attainment of 90% CIS students attaining employment in the field of study.	IP	M4	P1	
Increase the number of African-American male students in Computer Science through partnership	New	M5	P1, p2	

with community organizations.				
Improve tech program entry and completion by providing "earn and learn" opportunities to maintain income while completing post-secondary degrees and certificates such as internships and apprenticeships.	New	M4	P1	

IV.   <u>Facilities Utilization</u>

Describe your current utilization of facilities, including labs and other space. Confirm previously reported content.

Our laboratory classrooms are out of date and oversubscribed. The essential software and systems students need to master in order to enter the technology workforce are not available on Merritt Campus. Our students have become nomads because Merritt has not provided these students with suitable workstations, laboratories, or access to internet based cloud systems and services. The organization of classrooms and laboratory configurations do not support the collaborative small-team working groups that are the norm in industry. The workstations are old PCs with fixed software installation that does not support modern tools for CIS, Computer Science, or Cybersecurity. Students cannot use laboratory computers to complete coursework.

No initiatives in the 2019 APU have been completed due to the need to address deferred maintenance in classrooms and laboratories. Instructional infrastructure is managed by Peralta Information Technology (IT) and the essential facilities, Heating Ventilation Air Conditioning (HVAC) are due for upgrades as part of the Technology Master Plan for the District. This also reflects the fact that internet network speed to each of the 4 campuses in Peralta has been improved from 1 Gigabit per second to 10 gigabits per second, but he intra-campus network has not been upgraded to handle the this order of magnitude increase.

The updated plan is aligned with regional and statewide initiatives such as the California Cloud initiative which is intended to train students to work with cloud service providers such as Amazon Web Services (AWS), Microsoft Azure, IBM Bluemix, and open source technologies such as Docker and Kubernetes. The rate of change in technologies that students must master for Cybersecurity, Information Systems, and Software Development is greater than the ability of local IT to match. Successful instruction outcomes will require updates to local workstations, improved direct access to internet services and cloud services, and use of automation to manage configurations and laboratory scenarios.

V.   **Program Update Data**

In this section you will review and reflect upon the data for your program. Use data which measure performance on outcomes relevant to the mission and goals of your program, which will vary according to which area of the college your program is in.

In your response, refer to data applicable to your program obtained from the APU dashboards and/or other sources.

APU Data Dashboards:

- *Course Completion and Retention Rates Dashboard – Instruction*

- *Course Completion and Retention Rates Dashboard – Student Services*

- *Enrollment Trend and Productivity Dashboard*

- *Degrees and Certificates Dashboard*

For departments or programs in the Student Services area, refer to reports provided by institutional data systems (i.e., PeopleSoft or SARS), results of student surveys, or external reports (i.e. IPEDS or Launchboard).   Include the number of students served over an academic year and summarize their demographics.

For departments in the Business and Operations areas, use data which track the key function provided to the College, such as facilities usage for events, tickets received and closed, the number of invoices process or the time to disbursement.

Use historical data (3 years is recommended, if available) to estimate a baseline, then use this to project activity and inform requests for the coming year.

Describe any significant changes and discuss what the changes mean to your program. Consider whether performance or service gaps exist for disproportionality impacted students. Focus upon the most recent year and/or the years since your last comprehensive program review. Cite data points from the program review dashboards or other data sources relevant to your service, business, operations or administrative area to support your answer. If you wish, you may include screenshots of the dashboard to show filtered results containing the relevant figures. Instructions on taking screenshots for Windows and Mac)

Academic Year	Age	Headcount	Census Enrollment	Completion	Completion*	Retention	Retention*
2017-2018	16-18	49	51	49.0%	49.0%	68.6%	68.6%
2017-2018	19-24	379	441	57.3%	57.3%	75.1%	75.1%
2017-2018	25-29	213	271	63.5%	63.5%	77.9%	77.9%
2017-2018	30-34	140	224	69.5%	69.5%	83.9%	83.9%
2017-2018	35-54	205	284	55.8%	55.8%	69.6%	69.6%
2017-2018	55-64	30	57	68.4%	68.4%	77.2%	77.2%
2017-2018	65 & Above	10	23	69.6%	69.6%	78.3%	78.3%
2017-2018	Under 16	6	6	100.0%	100.0%	100.0%	100.0%
2018-2019	16-18	63	67	71.6%	71.6%	83.6%	83.6%
2018-2019	19-24	364	458	70.5%	70.5%	83.7%	83.7%
2018-2019	25-29	228	292	64.9%	64.9%	78.0%	78.0%
2018-2019	30-34	126	189	76.2%	76.2%	84.1%	84.1%
2018-2019	35-54	176	247	70.9%	70.9%	81.6%	81.6%
2018-2019	55-64	23	40	64.1%	64.1%	69.2%	69.2%
2018-2019	65 & Above	14	23	69.6%	69.6%	78.3%	78.3%
2018-2019	Under 16	9	15	93.3%	93.3%	93.3%	93.3%
2019-2020	16-18	39	46	45.7%	52.5%	73.9%	70.0%
2019-2020	19-24	379	487	60.0%	69.5%	85.6%	83.3%
2019-2020	25-29	166	251	64.7%	71.9%	86.7%	85.3%
2019-2020	30-34	107	165	65.2%	72.3%	84.1%	82.4%
2019-2020	35-54	177	272	59.4%	67.1%	82.7%	80.4%
2019-2020	55-64	24	34	50.0%	63.0%	82.4%	77.8%
2019-2020	65 & Above	8	15	60.0%	64.3%	73.3%	71.4%

CIS Completion and Retention – All Groups by Age. CIS completion and retention by and large exceeds that of Merritt College.

Academic Year	Term	Campus	Census Enrollment	FTES	FTEF	Productivity
2019-2020	Fall	Merritt	528	86.84	4.85	17.9
2019-2020	Spring	Merritt	590	98.61	5.87	16.8
2019-2020	Summer	Merritt	137	21.54	1.41	15.3
2018-2019	Fall	Merritt	552	88.94	6.38	13.9
2018-2019	Spring	Merritt	579	90.32	5.57	16.2
2018-2019	Summer	Merritt	181	27.82	1.95	14.3
2017-2018	Fall	Merritt	527	83.00	5.11	16.2
2017-2018	Spring	Merritt	597	96.75	5.67	17.1
2017-2018	Summer	Merritt	209	31.60	1.85	17.0
2016-2017	Fall	Merritt	495	79.44	4.79	16.6
2016-2017	Spring	Merritt	472	73.19	5.48	13.3
2016-2017	Summer	Merritt	200	35.85	1.76	20.3

Describe the program's progress on Service Area Outcomes and/or Administrative Unit Outcomes (AUOs) since the last Program Review or APU. For instructional programs, describe the program's progress on Student Learning Outcomes (SLOs) and, if your discipline offers a degree or certificate, please describe the department's progress on Program Learning Outcomes (PLOs).

The Program Learning Outcomes for the 2 active Cybersecurity programs in CIS with student completions are:
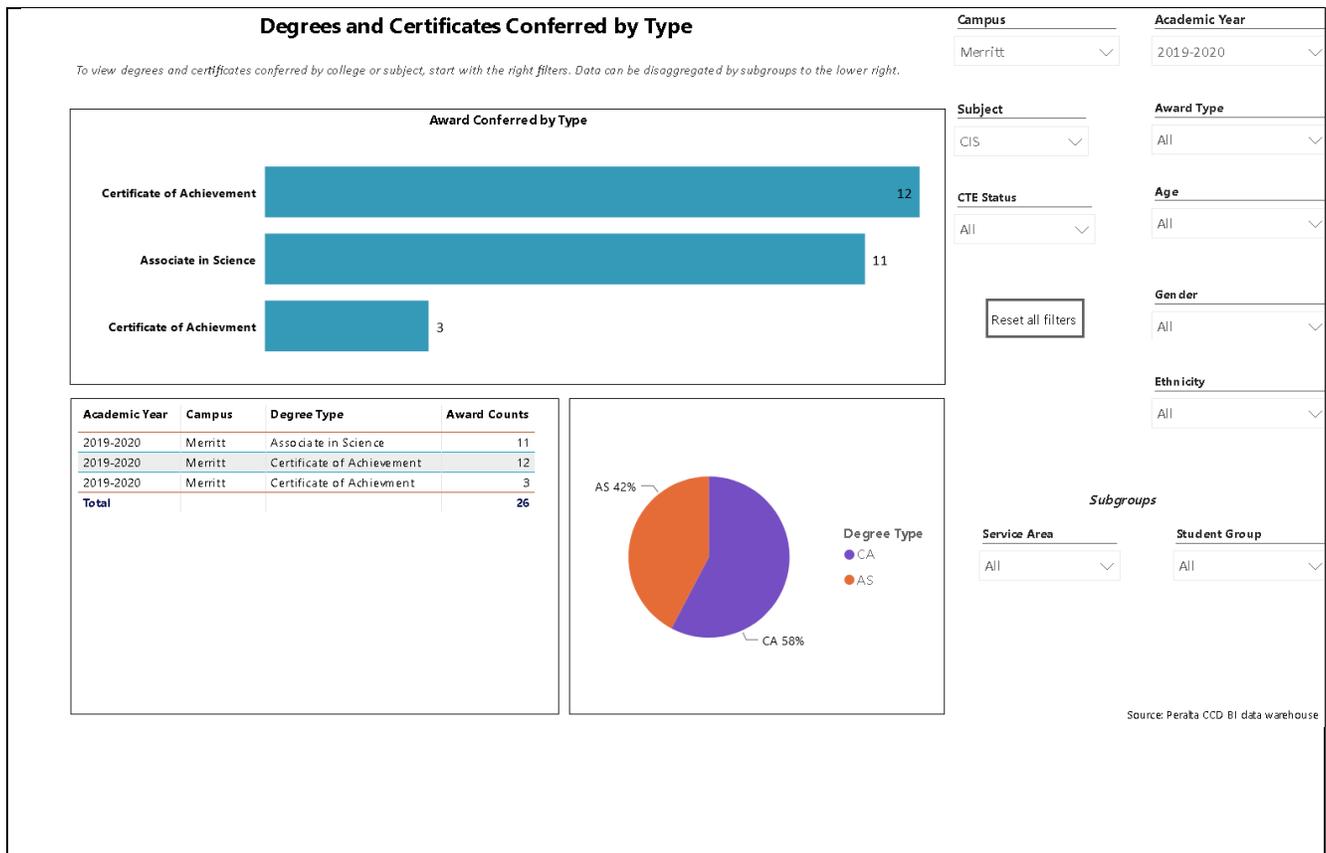
Application Security

1. Design and secure applications and services to protect critical assets.
2. Develop, test, and implement secure applications to safeguard critical information.
3. Manage ongoing maintenance and updates to applications and services to respond to changing security threats.

Infrastructure Security

1. Install and configure infrastructure, software, and upgrades.
2. Install, configure, and test network devices, servers, and workstations.
3. Troubleshoot hardware, network, and security problems.

Since the last APU the number awards granted have increased 37%

Degrees and Certificates Conferred by Type

To view degrees and certificates conferred by college or subject, start with the right filters. Data can be disaggregated by subgroups to the lower right.

Campus	Academic Year
Merritt	2019-2020

Subject	Award Type
CIS	All

CTE Status	Age
All	All

Reset all filters

Award Conferred by Type

Certificate of Achievement	12
Associate in Science	11
Certificate of Achievment	3

Academic Year	Campus	Degree Type	Award Counts
2019-2020	Merritt	Associate in Science	11
2019-2020	Merritt	Certificate of Achievement	12
2019-2020	Merritt	Certificate of Achievment	3
Total			**26**

Gender: All

Ethnicity: All

AS 42%

CA 58%

Degree Type
- CA
- AS

Subgroups

Service Area	Student Group
All	All

Source: Peralta CCD BI data warehouse

Describe the ***results of*** your department/program/service assessment of student and Program Learning Outcomes/AUO/SAO. Indicate when and where dialogue is occurring. Discuss **changes/updates/resource requests** made to your program based on the assessment of outcomes of the SLOs/PLOs/SAOs/AUOs assessed in the past year and discuss their alignment with the ILOs.

The majority of students in the program complete at least one round of National Cyber League (NCL) competition which provides individual and team (aggregate) scouting reports that cut across the Student Learning Outcomes (SLO) of all program courses. The individual rankings top 100 in a field of several thousand, and team rankings top 5, top 20, top 30 out of a field of approximately 750 provide the kind of summative assessment of students completing the program.

This complements individual course assessments completed by the instructors (see spreadsheet below) and comprehensive program review completed by Cybersecurity faculty, the industry advisory board, and Consortium of Information Executives (CISE)

Reporting on assessment is a challenge. The current repository Curricunet does not generate reports from the data that has been input. Below I provide one of the department assessment source tracking documents.

Course	Course Title	Course Status	# LOS	1	2	3	4	5	6	7	Assessed?	SLO NOTE	
CIS 001	INTRODUCTION TO COMPUTER I INFORMATION SYSTEM	Spring 2019 Active	5	16-17	0	0	0	0	X	X	Y		
CIS 005	INTRODUCTION TO COMPUTER SCIENCE	Spring 2019 Active	5	16-17	0	0	0	16-17	X	X	Y		
CIS 006	Intro Computer PRGM	Spring 2019 Active	2	16-17	16-17	x	x	x	x	x	Y		
CIS 040	DATABASE MANAGEMENT	Spring 2019 Active	5	0	0	16-17	0	16-17	x	x	Y	Two SLOs fully assessed: "data exchange, data retrieval" (-MB 5-11-17)	Can we number
CIS 042	SPREADSHEET APPLICATIONS	Spring 2019 Active	5	16-17	0	0	0	0	X	X	N		
CIS 51	INTRO TO INFO TECH PROJECT MGMT	Spring 2019 Active	3	16-17	0	0	x	x	x	x	Y		
CIS 52	CLOUD SECURITY FUNDAMENTALS	Active Fall 2017	6	0	0	0	0	0	0	X	N		
CIS 53	INTRUSION DETECTION	Active Fall 2017	6	0	0	0	0	0	0	X	N		
CIS 54	IT SECURITY GOALS	Spring 2019 Active	3	16-17			x	x	x	x	Y		
CIS 055	HACKER TECHNIQUES AND EXPLOITS	Spring 2019 Active	5	16-17	0	0	0	0	X	X	Y		

Code	Name	Status	#	C1	C2	C3	C4	C5	C6	C7	Y/N	Notes
CIS 56	SECURE CODING	Active Fall 2017	5	0	0	15-16*	0	0	X	X	N	* no results added
CIS 057	Web Application PEN Testing	Spring 2019 Active	3	16-17	0	0	x	x	x	x	Y	
CIS 058	Hacker Guard – Baseline Traini	Spring 2019 Active	3	16-17	0	0	x	x	x	x	Y	
CIS 59	APPLICATIONS IN INFO SECURITY	Active Fall 2017	5	15-16*	0	0	0	0	x	x	N	* no results added
CIS 060	Computer Forensics Fundamental	Spring 2019 Active	5	16-17	0	0	0	0	x	x	Y	
CIS 71	INTRO TO INFO SYSTEM SECURITY	Spring 2019 Active	7	0	0	0	0	0	0	0	0	Cancell in Spring 2017
CIS 072	SYSTEMS AND NETWORK ADMIN	Spring 2019 Active	5	0	16-17	0	0	0	X	X	Y	
CIS 205	COMPUTER LITERACY	Spring 2019 Active	5	16-17**	16-17**	16-17**	16-17	16-17*	X	X	Y	* no results added ** no a[d]
CIS 234A	WORLD WIDE WEB PUBLISHING		3			15-16	X	X	X	X	N	
CIS 234D	WEB AUTHORING		6							X	N	
CIS 234E	CREATING ECOMMERCE WEBSITE		6		15-16					X	N	

Discuss how your PLOs align with the ILOs.

CIS PLOs are well aligned with Merritt ILOs in that Critical Thinking, Quantitative Reasoning, Communication, Civic Engagement and Ethics are required to identify and mitigate threats to individual privacy, information, and organization integrity posed by Cybersecurity attacks. We have witnessed cybersecurity attacks on elections and voting systems and students in our programs are being trained with the technology skills to make a difference. The skills gained in our program exceed the Information and Computer Literacy ILO and improve equity by enabling students to enter the high tech workforce at or above the prevailing wage.

VI. **Curriculum**

Curriculum review is an integral part of the program review process. Instructional departments and programs must consider the state of their curricula (i.e., courses, certificates, and degrees) in order to engage in meaningful assessment, planning, and continuous quality improvement.

In accordance with the State Chancellor's Office Program and Course Approval Handbook (7th Edition), California community college curricula must meet five criteria:

1. Appropriateness to the mission of the California Community Colleges (as established in California Education Code § 66010.4)
2. Community, service area, or student need
3. Adherence to accreditation and higher education standards
4. Availability of adequate resources to maintain the course or program (including offering all required courses for a program at least once every two years)
5. Compliance with federal and state statutes and regulations (notably Title 5 of the California Code of Regulations)

PCCD Board Policy 4020 and Administrative Procedure 4020 require that curricula be evaluated regularly through program review and annual program updates on a three-year cycle. For Career Education programs, however, this policy is superseded by California Education Code § 78016(a), which requires reviews every two years.

This section of the APU requests information about the status of course and program updates, improvement plans based on curriculum review, and prospective curriculum development. The Curriculum Committee shall evaluate the responses as part of the validation of APU completion and the prioritization of resource requests.

Curriculum Review

Consult CurriQunet and the Course Curriculum Review Status or Program Curriculum Review Status spreadsheets to determine when a course or program was last updated or deactivated.

Courses that have not been offered in the past three years should be deactivated to ensure that the college catalog presents a current and accurate inventory of actual course offerings at Merritt. Likewise, if certificates and degrees have not been awarded in recent years, or the required courses have not been offered regularly enough for students to complete, consider the relevance and viability of those programs for potential deactivation.

Modifications

Indicate courses reviewed/updated in the past academic year (2019-2020), following the example in red. Add additional rows as needed in the table below.

Course Number	Course Title	Reviewer
CIS 052	Cloud Security Fundamentals	Timothy Mather
CIS 054	IT Security Goals, Strategy, Policy, and Leadership	Mark Egan
CIS 056	Secure Coding in Java and .NET	Jason Hengels
CIS 520	Setting the Stage for Technical Work	J. Kennedy & M. Varnado
CIS 521	Techniques and Language of Technical Communications	J. Kennedy & M. Varnado
CIS 522	Conflict Resolution in Technical Collaboration	J. Kennedy & M. Varnado
CIS 523	Time Management and Organization of Technical Projects	J. Kennedy & M. Varnado
CIS 524	Job Evaluation and Self-Assessment in Technology Careers	J. Kennedy & M. Varnado
CIS 525	Resume Writing for Technical Careers	J. Kennedy & M. Varnado
CIS 526	Preparing for the Technical Interview	J. Kennedy & M. Varnado
CIS 527	Technical Interview Patterns and Practice	J. Kennedy & M. Varnado
CIS 058	Hacker Guard – Baseline Training for IT Administrators and Operations	Mark Egan
CIS 107	Administering Cloud Services and Containers	Courtney Brown
CIS 053	Intrusion Detection In-Depth: Compliance, Security, Forensics and Troubleshooting	Brian Zaugg
CIS 055	Hacker Techniques, Exploits and Incident Handling	Timothy Mather
CIS 060	Computer Forensics Fundamentals	Brian Zaugg
CIS 005	Introduction to Computer Science	Beverly Brooks
CIS 059	Applications in Information Security	Jason Hengels
CIS 178	Build Automation for DevOps & QA	Courtney Brown
CIS 008	Introduction to Parallel and Cloud Programming	Courtney Brown
CIS 071	Introduction to Information Systems Security	Beverly Brooks
CIS 072	Systems and Network Administration	Omer Ayfer & G. Yardeni
CIS 093	Cross Platform Mobile Application Development	Courtney Brown

CIS 001	Introduction to Computer Information Systems	M. Varnado & K. Young
CIS 006	Introduction to Computer Programming	Courtney Brown
CIS 033	Software Architectures and Algorithms	Courtney Brown
CIS 073	Networking Concepts	Courtney Brown
CIS 035	Microcomputer Operating Systems	Courtney Brown
CIS 062	Introduction to Systems Analysis and Design	Courtney Brown
CIS 110	Information and Communication Technology Essentials	Courtney Brown
CIS 049	Independent Study in Computer Information Systems	Courtney Brown
CIS 469	Occupational Work Experience in Security Administration	Anita Black
CIS 007	Control Structures and Objects	Courtney Brown
CIS 011	Discrete Structures and Logic	Courtney Brown
CS 020	Python Application Programming	Courtney Brown
CS 043	High Performance Web Applications and Services	Courtney Brown
CS 060	Applications of Artificial Intelligence and Deep Learning	Courtney Brown
CIS 078	Digital Architectures for Computation	Courtney Brown
CS 080	Software Engineering	Courtney Brown
CIS 100	Introduction to Blockchain, Cryptocurrencies, and Identity	Courtney Brown
CIS 179	Agile Software Management and Project Automation	Courtney Brown
CIS 247	Information Systems Skills Challenge	Courtney Brown

Indicate programs reviewed/updated in the past academic year (2019-2020), following the example in red. Add additional rows as needed in the table below.

Program Title	Program Type	Reviewer
Applications Security	Certificate of Achievement	Courtney Brown
CodePath: Information Security	Certificate of Completion	Courtney Brown
Computer Project Management	Certificate of Achievement	Courtney Brown
Computer Science	Certificate of Achievement	Courtney Brown
Computer Science	A.S. Degree	Courtney Brown
Computer Science and Information Systems Career Readiness	Certificate of Completion	Courtney Brown
Information Technology (IT) And Help Desk Technician	Certificate of Achievement	Courtney Brown

Information Technology (IT) and Help Desk Technician	A.S. Degree	Courtney Brown
Infrastructure Security	A.S. Degree	Courtney Brown
Infrastructure Security	Certificate of Achievement	Courtney Brown
IT/Software Project Management and Automation	A.S. Degree	Courtney Brown
IT/Software Project Management and Automation	Certificate of Achievement	Courtney Brown
Swift Software Development	Certificate of Achievement	Courtney Brown
Swift Software Development	A.S. Degree	Courtney Brown

Deactivations

Indicate courses deactivated in the past academic year (2019-2020), following the example in red. Add additional rows as needed in the table below.

Course Number	Course Title	Reviewer
CIS 242A	Digital Animation with Flash	Courtney Brown
CIS 234C	Web Creation with Dreamweaver	Courtney Brown
CIS 209	Introduction to Windows	Courtney Brown
CIS 233	Introduction to the Internet	Courtney Brown
CIS 200	Computer Concepts and Applications	Courtney Brown

Indicate programs deactivated in the past academic year (2019-2020), following the example in red. Add additional rows as needed in the table below.

Program Title	Program Type	Reviewer

Curriculum Improvement

Based on ongoing curriculum review, describe plans for **program-level** improvement in terms of any of the following considerations:

- Advancing **student equity and achievement** for disproportionately impacted students.
- Fostering **intersegmental alignment** and **guided pathways** through articulation, course sequencing, and program mapping.
- Implementing innovative **pedagogies**, **delivery methods/modalities**, or **educational resources and technologies**.

CIS is improving its curriculum to create entry level programs closely aligned with the regional technology workforce needs to enable students to get their first job in tech. We are creating stackable pathways that enable students to build on their entry level degrees to reach middle skill and high skill tech jobs with corresponding wage gains. We are challenging the major equity barrier that required people to stop working in order to complete a degree or certificate by building "earn and learn" opportunities into our stackable degrees. These take the form of Work Based Learning (WBL), internships, and state and federal Registered Apprenticeships. We are leveraging multiple pedagogical models including Process Oriented Guided Inquiry Learning (POGIL), cohort based embedded support, and embedded tutors. The programs listed will add to the current inventory to make a complete stackable pathway.

Curriculum Development

Indicate new courses to be proposed and/or historical courses to be reactivated within the next academic year (2021-2022), following the example in red. Add additional rows as needed in the table below.

Title	Description	Justification	Anticipated Effective Term
Control Structures and Objects	Introduction to computer programming: Algorithm design through use of control structures, flow charting, and debugging; elements of good programming style; introduction to Object Oriented Programming (OOP) through the design and implementation of objects that interact using well-defined interfaces to solve a problem.	The first course in the Computer Science Major sequence defined by the Association for Computing Machinery (ACM), this is a requirement for Associate of Science in Computer Science. It is being placed in the newly activated Computer Science discipline as CS 001	Fall 2022
Software Architectures and Algorithms	Design and development of large programs: Systematic data abstraction, strongly typed data and data structures, object declaration models, inheritance and polymorphism, information hiding, managed frameworks and libraries such as the Standard Template Library (STL), object life cycles and garbage collection, recursion, well-defined algorithms, collections and iterator abstraction, strategies for code re-use, testing, UML and software engineering principles.	The second course in the Computer Science Major sequence defined by the Association for Computing Machinery (ACM), this is a requirement for Associate of Science in Computer Science. . It is being placed in the newly activated Computer Science discipline as CS 002.	Fall 2022
Discrete Structures and Logic	Discrete structures used in Computer Science with an emphasis on their applications: Functions, relations and sets; basic	The third course in the Computer Science Major sequence defined by the Association for Computing Machinery (ACM), this is a	Fall 2022

	logic; proof techniques; basics of counting; graphs and trees; and discrete probability. Not open for credit to students who have completed or are currently enrolled in MATH 11.	requirement for Associate of Science in Computer Science. . It is being placed in the newly activated Computer Science discipline as CS 003.	
Digital Architectures for Computation	Organization of digital circuits and computing architectures: Fundamentals of digital circuits, combinational logic and sequential logic; processor components and processing architectures such as Von Neumann and Harvard architecture; control unit instruction word decoding and Instruction Level Parallelism (ILP); high level, assembly, and machine code; memory addressing modes, performance, and memory models; Random Access Model (RAM) and Candidate Type Architecture (CTA); and analysis of single threaded code.	The fourth course in the Computer Science Major sequence defined by the Association for Computing Machinery (ACM), this is a requirement for Associate of Science in Computer Science. . It is being placed in the newly activated Computer Science discipline as CS 004.	Fall 2022
Internet Programming in JavaScript	Development of web-based interactive programs using JavaScript.	Internet scripting languages are essential in the development of interactive web pages. The current thrust of web activity would be impossible without two items: HTML and low-footprint programming languages tailored to the Internet. JavaScript/JScript and VBScript are the most widely used. Proposed to meet AA/AS area 4c requirements. CIS 064 is part of the eCommerce program.	Fall 2021

Indicate new programs slated for development within the next academic year (2021-2022), following the example in red. Add additional rows as needed in the table below.

Title	Description	Justification	Anticipated Effective Term
Business Analytics	The *Business Analytics Associate Degree* prepares the graduate to work as liaisons among stakeholders in order to understand the structure, policies, and operation of an organization and apply analytical tools to information systems to provide recommendations. Learners use techniques to gather and analyze *business* requirements, using best practices and relevant technologies to discover insights and opportunities for improvements.	Graduates should qualify for employment as data technicians, data scientists, business and data analytics engineers, and business analysts in the fields of finance, banking, logistics, marketing, healthcare, manufacturing, information technology, and government organizations.	Fall 2021
Cybersecurity – Ethical Hacking	Preparation in the Knowledge Skills and Abilities (KSA) required to attack systems (red team), defend systems (blue team), or combinations of the two (purple team.) Program includes participation in competitions such as the National Cyber League (NCL) or other industry recognized set of interactive cybersecurity scenarios where entrants are required to demonstrate these KSA. Competition reports provide an advantage to program participants in securing employment in the	This program certifies completion of instruction and hands-on practice in a set of Cybersecurity scenarios in computer safety awareness, identity management, and protection. It is an overview of the field of computers which includes an introduction to computers, the use of software, and connected interactive systems such as social networks. Online promotion through social media represents a vital pathway for branding and advertising. Certified proficiency in recognizing and managing identity in	Fall 2021

	field, serving as scouting reports for employers recruiting individuals into Information Security (InfoSec) careers. The hands-on assignments are intended to give students the experience with sophisticated intrusion efforts. This certificate indicates a candidate has studied security issues and participated in interactive scenarios and competition to sharpen skills in this area.	online networks represents a career opportunity for advancement. This demonstration of experience often enables the front-line employee, one who has not had as much training as their superiors to advance in wage or position.	
Information Assurance	This certificate indicates instruction in Information Security (Infosec) and completion of CodePath; a group of defense focused interactive scenarios in Information Security. These scenarios enables computer security professionals to hone their skills, gain vital experience, and demonstrate the Knowledge Skills and Abilities (KSA) used to identify candidates for recruitment into Information Security Careers. Aligned with ethical hacking scenarios, these interactive labs present industry-applicable real-world projects endorsed by major employers for students to solve. These projects cover the full spectrum of cybersecurity issues. In completing this course sequence, students gain practical training in application and hands-on demonstration of their knowledge in information security roles.	Currently named Cybersecurity -Information Security: CodePath, this program will be renamed. Employers increasingly use curated sets of exercises managed by a third party to assess their Knowledge Skills and Abilities (KSA) of job applicants. Several applicants will normally participate in a cohort and their performance is ranked against those of their peers. Tasks are required to be completed within the time constraints in an automated environment. These curated tasks represent skills employees are expected to demonstrate in professional practice. Codepath has distilled a broad range of scenarios from the common needs of many employers. This program provides preparation for and certifies completion hands-on tasks in a set of CodePath Information Security scenarios.	Fall 2021
DevOps - Development	DevOps is the use of software DEVelopment	Many of the components of Information Systems (IS)	Spring 2022

and Operations Automation	tools to automate Information Systems OPerations. It requires Knowledge Skills and Abilities (KSA) of Information Technology (IT) components, configuration and programming that integrate IT components into Information Systems (IS), and the ability to automate the activities through use of the Application Programming Interfaces (API) published by equipment and service providers. The main characteristic of DevOps is to strongly advocate and implement automation and monitoring at all steps of software and infrastructure construction, from integration, testing, and releasing, to deployment and infrastructure management. DevOps aims at shorter development cycles, increased deployment frequency and more dependable releases in close alignment with business objectives.	infrastructure that is used to enable business operations are now available through a subscription model. Companies such as Microsoft, Google, and IBM provide hosted solutions in the form of: Infrastructure-as-a-service (IaaS): a form of Cloud computing that provides virtualized computing resources over the internet. It provides high level Application Programming Interfaces (API) to control components such as Virtual Local Area Networks (VLAN) and Virtual Machines (VM) individually or as members of a pool. This permits creation of infrastructure that scales in response to usage. Software-as-a-Service (SaaS): A licensing and delivery model in which software is centrally hosted. It si sometimes referred to as "on-demand" for many business applications including office software, messaging software, payroll processing software, CAD software etc. Platform-as-a-Service (PaaS): A category of cloud computing that delivers pre-configured servers or resources permitting users to develop, run, and manage applications without the complexity of building, installing, configuring, and maintaining suites of information technology components.	
Information Systems Analyst	Information Systems Analysts maintain functioning information	The Information Systems Analyst is able to create, analyze, and troubleshoot	Spring 2022

| | technology equipment and networks, provide support to technology users, ensure security of information and IT infrastructure, and uphold company policies regarding use, security, and redundancy of data. | Information Technology components and integrate them into a purpose-built system. They are able to determine how well software, hardware and the wider IT system fit the business needs of their employer or of a client. They write requirements for new systems and may also help implement them and monitor their effectiveness. Typical responsibilities of the job include: examining current systems, talking to users (requirements gathering), producing specifications for new or modified systems, engaging with technical staff such as programmers to produce new systems, implementing new systems, user training and feedback.

This program aligns with Department of Labor (DOL) Information Technology Generalist Apprenticeship ONET Code: 15-1151.00RAPIDS Code: 1059CB . This is part of a national initiative in Competency Based Occupational Framework (CBOF) for Apprenticeships.

Information technology generalists perform various support functions, particularly if they work in a small-to-medium-size company that has a small IT department with few specialist positions. IT generalists set up technology for employees, maintain internal networks, support telework functions, | |

		and provide help desk support. Workers in this position work with IT colleagues, staff at all levels within an organization, external clients, and vendors. IT generalists maintain functioning information technology equipment and networks, provide support to technology users, ensure security of information and IT infrastructure, and uphold company policies regarding use, security, and redundancy of data.	
Cisco Certified Network Associate	The Cisco Certified Network Associate (CCNA) Certification of Achievement is the second level of Cisco's five-level career certification process. A CCNA certification certifies a technician's ability to install, set up, configure, troubleshoot and operate a medium-sized routed and switched computer network. Students completing this certificate program will be qualified for employment in entry-level positions in network administration and be able to prepare for the Cisco Certified Network Associate (CCNA) certification exam.	Cisco Certified Network Associate (CCNA) Routing and Switching is a certification program for entry-level network engineers. This is a four course sequence that includes Routing and Switching. The CCNA Routing and Switching course validates the ability to install, configure, operate, and troubleshoot medium-size routed and switched networks. In 2017 Cisco announced v3.0 of the Cisco CCNA Routing and Switching certification. It is not a routine refresh, but instead aims to address the major shifts in the industry during the past few years and provide network administrators with the training and skills validation that they need to evolve with these dramatically changing times. To achieve this certification the student must pass the designated exam. Both the exams and the course content have	Fall 2021

		been revised. This program updates the state registered program Computer Networks and Communications Certificate (control number 22021) and A.S. degree (Control number 1199) to apply to modern Cisco Computer Networks and Communication.	
IT/Software Project Management and Automation	The Information Technology (IT)/Software Project Management and Automation graduate is able to apply project management skills as part of an agile software development team, selecting among agile techniques for organizing work. They are able to support this work through build automation, version control of software artifacts, and documents of record including requirements documents and test plans. They are able to leverage issue tracking tools against defect reporting and feature delivery to identify project performance indicators and communicate with project stakeholders. The are able to apply Continuous Integration (CI) and automated testing techniques to support rapid iteration and delivery of software products.	Software and Information Technology (IT) are essential for modern businesses and require a systematic approach to implementation for successful deployment. Most IT and Software teams use an "Agile" form of team management. This certificate supplements cross-cutting project management skills applicable to any kind of project from construction through disaster recovery with training IT, software engineering, and project management organization. Graduates of this program will be able join an Agile software development team as a project manager and fulfill the necessary role to improve and automate delivery of software products, IT systems, and processes. A search for "Agile Project Management Automation" on indeed.com reported 2,909 jobs in the San Francisco Bay Area with an average salary of $139,702 based on a survey of 8,037 participants.	Fall 2022
Mobile Applications Development	Design and implementation mobile software applications. The use of	This program is the result of regional BACCC efforts tasking Peralta Community	

	object oriented programming to simplify implementation of complex designs while mapping into mobile device capabilities and software frameworks such as graphics, gaming, Audio/Visual media, Global Positioning Services (GPS) and digital imaging. Instruction in secure programming practices. Techniques of local and remote data persistence to deliver persistent context and enriched interactive experiences.	College District to develop curriculum to train a mobile applications development workforce. Mobile devices dominate modern computing and Mobile Applications (Apps) represent one of the fastest growing workforce sectors. Though these devices appear simple they are complex devices with many independent systems coordinated to deliver services to the user. The key skill required to participate in this workforce is the ability to write programs and to use frameworks that manage the complexity of the underlying device. This program represents a course sequence in both programming fundamentals and knowledge of software architectures and frameworks sufficient to create a working application for the iOS or Android operating systems. Applications platforms include mobile phone handsets, smart televisions, watches, Internet of Things (IoT), and other devices.	

The following diagrams illustrate how these programs fit together to form 3 complete pathways with stackable awards, internships, apprenticeships, and occupational certifications from entry level (top) through terminal workforce sector aligned degrees and certificates. These pathways also allow for lateral movement allowing students to adapt as they discover interests for which they are better suited.

1. IT/IS pathway
2. Cybersecurity Pathway
3. Software Developer Pathway

Computer Information Systems Stackable Information Technology/Information Systems (IT/IS) Degree and Certificate Pathways with Apprenticeship and Industry Occupational Certifications

IT and Help Desk Technician Certificate of Achievment or A.S. Degree (pending)	<------------> Students can start in either Path	Computer Project Manager Certificate of Achievement (pending)		BYTE - Believe in Your Technology Education recruitment prog.	GOAL: Get your first job in Tech
				Student Success and Support	SANKOFA
IT Help Desk Apprenticeship		Cert. Assoc. PM			PUENTE
Rightvarsity/Merritt LEA		PMI-CAPM		Community Events	
Alameda/Govt. IT		http://pmi.org/CAPM		Digital Literacy	
CA-DIR: 18 mos @ $13.00				Summer Bridge	
DOL				Coaching	
18yrs+ H.S./GED/Equiv.				Workshops	
CompTIA A+, Network+					

Information Systems Analyst	CoA or A.S.	Degree (pending)		Computer Science & Information	noncredit program
DOL IT Generalist Apprenticeship	ONET Code:	15-1151.00		Systems Career Readiness	building skills in:
CompTIA Security+	RAPIDS Code	1059CB		Communication	Resume
				Conflict Resolution	Tech Pro
Rightvarsity/Merritt LEA				Interview Practice	Reflection

		(pending) IT/Software	Project Mgr. Autom.
		CA-DIR	IT Project Manager
		H.S./GED/Eq.	24 mos @13.00/hr
		DOL IT. Genrl.	ONET: 15-1151.00
			RAPIDS: 1059CB
		PMI-ACP	PMI-PMP

Color Key	
Merritt Program	6
Industry Certificate	6
Apprenticeship	4

DevOps -Dev. & Ops. Automation	CoA or A.S.	Degree (pending)
DOL IT Generalist Apprenticeship	ONET Code:	15-1151.00
	RAPIDS Code	1059CB
DOL Cybersecurity Technician	ONET Code:	15-1151.00
	RAPIDS Code	1059CB
DOL IT Generalist Apprenticeship	ONET Code:	15-1151.00
	RAPIDS Code	1059CB

Computer Information Systems Stackable **Cybersecurity**
Degree and Certificate Pathways with Apprenticeship and Industry Occupational Certifications

Cybersecurity - Ethical Hacking Degree and Certificate of Achievement (pending)

EB/IATC - East Bay Inter Agency Training Council

GOAL: Community Benefit & Student Recruitment **IT/IS** & **Cybersecurity** Progs

Student Success and Support	SANKOFA
	PUENTE
Community Events	Hackathons
Digital Literacy	Cyber Bootcamps
Summer Bridge	K12 Cyber camps
Coaching	NCL/SANS Comp.
Workshops	CodePath

Certifications
- A+
- Network+
- Security+
- EC-EHA
- PMI-PMP
- PMI-ACP

Cybersecurity Technician
- Rightvarsity/Merritt LEA
- Alameda/Govt. IT
- CA-DIR: 18 mos @ $13.00
- 18yrs+ H.S./GED/Equiv.
- **DOL Cyber Support Tech.**
- ONET Code: 15.1112
- RAPIDS Code: 2050CB

Information Systems Analyst | CoA or A.S. | Degree (pending)

DOL IT Generalist Apprenticeship	ONET Code:	15-1151.00
	RAPIDS Code	1059CB

Rightvarsity/Merritt LEA

Cybersecurity - Information Security: CodePath (pending) | A.S. Degree or CoA | | | Application Security | Infrastructure Security | | (pending) IT/Software | Project Mgr. Autom.

CA-DIR Cyber Security Tech	H.S./GED/Eq.		CA-DIR Cyber Security Tech	CA-DIR IT Project Manager		CA-DIR	IT Project Manager
24 mos @13.00/hr		Shared LMI	H.S./GED/Eq.	24 mos @13.00/hr		H.S./GED/Eq.	24 mos @13.00/hr
DOL Cybersecurity Technician	ONET 15.1112		DOL IT. Genrl.	ONET: 15-1151.00		DOL IT. Genrl.	ONET: 15-1151.00
	RPDS: 1059CB			RAPIDS: 1059CB			RAPIDS: 1059CB
			DOL Cybersecurity Technician	ONET 15.1112			
				RPDS: 1059CB			

DevOps -Dev. & Ops. Automation | CoA or A.S. | Degree (pending) | | Computer Science & Information Systems Career Readiness | noncredit 8 course program building skills in:

DOL IT Generalist Apprenticeship	ONET Code:	15-1151.00			
	RAPIDS Code	1059CB		Communcation	Resume
DOL Cybersecurity Technician	ONET Code:	15.1112		Conflict Resolution	Tech Pro
	RAPIDS Code	1059CB		Interview Practice	Reflection
CA-DIR Cyber Security Tech	18yr H.S./GED	18mos @13.00/hr		Can be completed	repeatable for
CA-DIR IT Project Manager	18yr H.S./GED	24mos @13.00/hr		at any time incl.	tune-up before
Rightvarsity/Merritt LEA				Internship search.	apprenticeship.

Color Key

Merritt Program	8
Industry Cert.	6
Apprenticeship	6

Computer Science Stackable Degree and Certificate Pathways with Apprenticeship and Industry Occupational Certifications

Swift Software Developer (pending)		BYTE - Believe in Your Technology Education recruitment prog.	GOAL: Get your first job in Tech
Swift Developer		Student Success	SANKOFA
CA-DIR App Developer		and Support	PUENTE
Mobile Applications Development (pending)		Community Events	
		Digital Literacy	
CA-DIR App Developer		Summer Bridge	
DOL Developer		Coaching	
		Workshops	

Computer Science A.S. or CoA	No workforce elective selected		Computer Science & Information Systems Career Readiness	noncredit program building skills in:
DOL Developer	ONET Code:	15-1133.00	Communication	Resume
	RAPIDS Code	1129CB	Conflict Resolution	Tech Pro
CA-DIR App Developer			Interview Practice	Reflection

Restricted Workforce Electives		
(A) Secure Software	(C) Blockchain	(D) Build Autom. & CI
(F) Swift Software Dev	(E) HPC/AI/DL	

Color Key	
Merritt Program	11
Industry Certificate	1
Apprenticeship	5

(B) Dev/Sec/Ops.		
DOL Developer	ONET Code:	15-1133.00
	RAPIDS Code	1129CB
DOL Cybersecurity Technician	ONET Code:	15-1151.00
	RAPIDS Code	1059CB
DOL IT Generalist Apprenticeship	ONET Code:	15-1151.00
	RAPIDS Code	1059CB

The Curriculum Committee shall prioritize the review and approval of new courses and programs that are identified in this section of the APU.

VII. Funded Resources

For each resource allocation request from previous year's APU, indicate whether it was funded. Describe the outcomes and accomplishments for any requests which were funded.

Brief description of resource request	Was request funded? (Yes or No)	Funding Source (Specify Fund or Grant)	Total Award Amount	Outcome/Accomplishment
Cybersecurity Lab in isolated network "Sandbox" to provide instruction and resources while keeping malware and intrusion alarms separate from PCCD IT network.	Yes	SWP	51,750	Purchases were not processed
Equip a Computer Science lab suitable for instructing students in transfer level curriculum and Mobile applications development. Colocation service (Hurricane Electric) for access from all PCCD colleges.	Yes	SWP	43,250	Purchases were not processed
Update labs P103, P107, P218 to use Virtual Desktop Interface (VDI) appliances instead of computers to access instructional material and services,	Yes	SWP	75,000	Purchases were not processed
Local match for regional project such as Cyberpatriots Summer Camps and partnering with Cabrillo College on new ways to deploy updated scenarios	Yes	SWP	58,400	Summer camps for both beginner and advanced cohorts were hosted. Participated in regional Cyberpatriots instruction and competition scenarios.
Fix the toilets on the second floor of P building.	No	N/A	31,333	None

VIII. Resource Requests

In the tables below, please add resource requests for your program for the **2021-22 fiscal year**. Indicate if the request is being made as part of the response to the COVID-19 pandemic. If you are submitting multiple requests under the same category, prioritize them by assigning a rank to each request ('1' indicating the highest priority request). Include only one request per row; if additional rows are needed, insert new rows in the table (how to add rows).

Personnel Resource Requests

Personnel Sub-Category (Full-Time or Part-Time Faculty, Classified, Student Worker)	Description/Justification	Percent Time	Estimated Annual Salary Costs	Estimated Annual Benefits Costs	Total Estimated Cost	Priority Rank (1=Highest priority)	COVID-19 Related (Yes/No)
Administrative Assistant (Classified)	Support data collection, tracking, and analysis compliance and reporting aligned with 3 different certification/governing bodies 1) Information Systems, 2) Cybersecurity (NICE), 3) Computer Science (ACM, C-ID TMC.) Support grant administration and perform other budgetary and office operations necessary for the Strong Workforce Program.	100%	98,306	49,153	147,459	1	No
2 Full-time faculty & several Adjuncts to teach CS/CTE/Cybersecurity curriculum	CIS ability to meet growing instructional need is limited by availability of adjuncts due to their other work commitments. We need to have adequate staff to cover as substitutes, assist with program	100%	190,000	85,000	275,000	2	No

Personnel Sub-Category (Full-Time or Part-Time Faculty, Classified, Student Worker)	Description/Justification	Percent Time	Estimated Annual Salary Costs	Estimated Annual Benefits Costs	Total Estimated Cost	Priority Rank (1=Highest priority)	COVID-19 Related (Yes/No)
	development and alignment with national standards such as the Center for Academic Excellence for 2-Year institutions (CAE2Y)						
Student workers to (5)	Assist with Department needs through Work Based Learning (WBL), projects, and tutoring.	100%	30,000	15,000	45,000	3	No
IT Lab Director (Classified)	Instruction in technology programs Cybersecurity, Information Systems, Software Development will need to occur on network and equipment that is isolated from the Peralta IT network with its own internet access. This staff will manage the Tech network while providing mentorship for student workers who assist as part of Work Based Learning (WBL) in IT/IS.	100%	98,306	49,153	147,459	1	No

Resource Requests (Non-Personnel)

Resource Categories

- Professional Development (Department wide)
- Professional Development (Personal/Individual)
- Required Reasonable Accommodation
- Service Contract
- Supplies: Software
- Supplies: Books, Magazines, and/or Periodicals

- Supplies: Instructional Supplies
- Supplies: Non-Instructional Supplies
- Supplies: Library Collections
- Technology & Equipment: New
- Technology & Equipment: Replacement
- Other

Resource Category (select from above list)	Description/Justification	Total Estimated Cost	Priority Rank (1=Highest Priority)	COVID-19 Related (Yes/No)
Service Contract Technology Apprenticeships	Support placement of students in registered apprenticeships in technology through 1) Curriculum alignment with On-the-Job-Training (OJT) 2) Assessment and recruitment 3) equipment, soft-skills/career readiness	55,000	1	No
Service Contract Cloud Computers	Cloud Services and access to Virtual Machines (VMs) hosted on providers such as Amazon Web Services (AWS), Microsoft Azure, IBM Bluemix	60,000	2	No
Supplies: Software	Software licenses, Software Development Kits, Maintenance, upgrades and renewals	33,500	3	No
Technology & Equipment: New	Replacement of desktop computers in laboratories with Virtual Desktop Interface (VDI) appliances to allow direct connection to Virtual Machines running instructional software.	29,750	4	No
Technology & Equipment: Replacement	Storage, network switches, consumables, cables, fittings, and fixtures.	18,500	5	No

IX. <u>Participants</u>

Please provide the list of members who participated in completing this program review.

Courtney Brown, Anita Black, Mark Egan

Thank you for your time and effort in completing the Annual Program Update!