Agenda

Computer Information Sciences

Advisory Committee

Lake Tahoe Community College

Wednesday May 15, 2019

2:00 – 3:30 PM

Aspen Room

- Welcome and Introductions
- Annual Program Review/Program Data
- Update/Demo IT Technician Pathway/Cyber Security
- Partnerships
- Perkins

Computer Science Advisory Committee Meeting Minutes
May 15, 2019

- **Welcome and Introductions**
  - Meeting called to order at 2:01 p.m.
  - LTCC Faculty & Staff Attendance:
    - Burba, Dave – IT Director
    - Deeds, Brad – Dean of Workforce Development and Instruction
    - Goligosky, Amber –Apprenticeship and Work-Based Learning Coordinator
    - Lukas, Scott – Interim Distance Education Coordinator
    - Rhone, Jamie – Career and Technical Education Program Specialist
    - Sears, Tony – Board Trustee
    - Thyfault, Betsy – Student Senate Vice-President
  - Workforce Partners, Stakeholders, Regional Collaborators:
    - Damman, Ben – Sacramento Area, California Digital Service
    - Fraizer, Lani Dr. – Scientist, Socratic Arts
    - Geissler, Markus – IT & DMA Deputy Sector Navigator California Community Colleges
    - Lehnert, Wendy Dr. – Senior Scientist, Socratic Arts
    - Nylander, Annette – CIS Faculty Sierra College
    - Roberts, Jason – IT Director, Barton Health
    - Skelly, Chris – Network/Telecomm Systems Administrator II, South Tahoe Public Utility District

- **Cyber Security Training Presentation – Socratic Arts**
  - The Cyber Academy, through Socratic Arts, is a progression of three courses designed to impart a strong foundation of defensive and offensive cyber security skills in 29 weeks of full-time study. Funded by the Department of Defense and designed in conjunction with DoD-recommended experts, this program enables students to learn and practice the skills essential for success in all areas of information security. The focus is on activity-based workshops using engaging hands-on experiences where participants do real work for their real jobs. Students learn to think like an attacker and perform "Penetration Testing", where students try to "break through", with permission of the target organization. The Cyber Security programs prepares students for entry-level positions in a government cyber operations center.
    - The Cyber Security: Immediate Immersion is designed to impart initial cyber security skills in three intense weeks of study at 25 hours per week. The initial cost for this course is approximately $1,500. Basic computer skills are required, with some knowledge of computer networks, protocols and the fundamentals of operating systems.
    - The Cyber Academy: Defense is designed to impart a strong foundation of defensive cyber security skills in 11 weeks of study at 25 hours per week, preparing students for entry-level careers as security operations center analysts and digital forensics analysts. The initial cost for this course is approximately $3,500. Students must successfully complete "Immediate Immersion" to enroll in this course.
    - The Cyber Academy: Attack focuses on key offensive skills. This 15-week program, requiring 25 hours of work per week, will start students on the path to becoming penetration testers or offensive cyber operations professionals. The initial cost for this course is approximately $4,500. Students must successfully complete "Defense" to enroll in this course.
  - Socratic Arts is working with other universities such as, Rutgers University, University of Boston, UC Davis, University of Texas and others, to offer post-graduate professional development. They are also

working with a community college in Washington State, which is offering credit courses in the fall. They also have a few international partners.

- **Program Biennial and Data Review**
  - Last year, Annette Nylander, Sierra College, revamped LTCC's CIS program. She reviewed the IT Technician Pathway for committee members:
    - **Business Information Processing and Systems (BSN 102)** is a broad overview of how technology is used by business today and covers a wide-variety of soft skills and a variety of topics.
    - **Information & Communications Technology Essentials - CompTIA A+ (CIS 104)** teaches students the knowledge to pass the CompTIA A+ certification test.
    - **Network Fundamentals - CompTIA Network + (CIS 105)** gives students a broad overview of networking and includes a wide variety of topics in the field of networks.
    - **Microsoft Client OS Administration - Microsoft MCSA Windows 10 (CIS 106)** teaches students how to install, configure and administer a windows client.
    - **Microsoft Server OS Administration - MCSA: Windows Server 2016 (CIS 107)** teaches about active directory, DHCP, ENS, Group Policies, and topics on how to manage servers.
    - **Introduction to Information Security Systems – CompTIA Security+ (CIS 108)** gives student a broad overview of system security and how to manage all of its components.
    - **Project Management Concepts and Software (BOT 122)** teaches students skills sets on how to efficiently manage projects.
  - This year, five of the seven IT Technician courses were offered, starting with **CIS 104** in the fall. **CIS 105** was offered In the winter and **CIS 106** and **CIS 108** in the spring. **CIS 107** will be offered this coming summer quarter. The series of five IT courses will be offered again, next fall. The Computer Programming series of three **CIS 120A/B/C** will also be offered next year.
    - The Computer and Information Sciences program is small and enrollments are low. LTCC has been promoting their IT program and letting students know their IT Pathway leads to industry certifications and job opportunities. Sierra College offers the same set of courses, along with a few others, for a Cyber Security certificate and degree; however, students are getting hired before they can finish the program. Some students are able to go back and finish the program but others are not.
    - Markus is working with three different colleges to develop an online Cybersecurity Certificate of Achievement, through the California Community Colleges Online Education Initiative. Students will earn a Certificate of Achievement in Cybersecurity that will prepare them for entry-level Cybersecurity jobs in less than one year. The certificate also serves as a strong foundation for those who wish to continue their training to achieve further certificates and degrees for higher-wage positions. The program includes four LTCC courses in the IT Pathway: **BSN 102, CIS 104, CIS 105** and **CIS 106**. It also includes three Cisco Academy courses **Routing and Switching Essentials (ITIS 151)**, **Cybersecurity Operation (ITIS 166) and Network Security (ITIS 167).** LTCC could create a "Step-up" certificate to include the Cisco courses, along with a programming or scripting course. This will allow the IT student to develop and grow into a Cyber Security professional. A "Python" course would also fit nicely with the networking and security courses. Adding the work-experience component will enable students to obtain the necessary training.

- **Member Reports**
  - Industry representatives discussed what types of jobs and skills are available in their profession.
    - **Barton Health** – Last year, two persons with little or no experience, were seeking employment in the IT Department at Barton. They were directed to take the IT Technician Pathway courses at LTCC and should be finished with the program soon. They need employees with a variety of skills. They also need persons with technical skills; such as, A+, Applied Path and some Switch

experience, especially if they want to work in Desktop Support. Barton will pay for additional schooling if the employee is interested in staying locally.

- **South Tahoe Public Utility District –** They have used BMR Technologies to upgrade their employees with a variety of skills, such as Virtual Desktop Administration. However, they are interested in hiring locally and LTCC's IT Technician Pathway gives students the core skills they need to work as Desktop Administrators.
- **California Digital Service –** IT Administration is distinct from Program Development and they need people with technical skills. Hiring locally and finding individuals that match their needs is a challenge. Cyber Security is an in-demand skill. Certifications are good for regionally employers but need people with working experience. There's money in Cyber Security and the Department of Defense is looking for organizations to help with training. It would make sense to offer something like that in the Lake Tahoe Basin.

- **Perkins**
  - Perkins funding helps the Career & Technical Education department provide a Quarterly Textbook Lending Program, which provides textbooks for eligible students who are pursuing a CTE degree or certificate.

- **Adjournment**
  - The meeting adjourned at 3:14 p.m.

- **Handouts**
  - Program Review/Biennial Review
    - Computer and Information Science Program Review/Biennial Review/Awards (2017-18)
    - AA/AS and/or Certificate of Achievement IT Technician Flyer (2017-18)
    - Online Certificate in Cybersecurity – California Community College (2018-19)

Respectively submitted,
Melissa Liggett
Career & Technical Education Technician

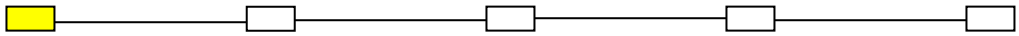
CTE PROGRAM BIENNIAL REVIEW

For all Career and Technical Education (CTE) Programs, please fill out the following worksheet as part of the required biennial review.

CTE Program: Computer Science **Date Reviewed:** May/2019

1. Purpose of this Program

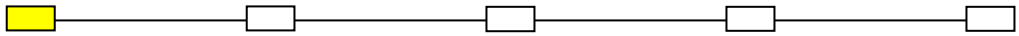
Significantly Changed Purpose in the Last Two Years | Minor Changes in Purpose in the Last Two Years | No Changes in Purpose in the Last Two Years



(Description, mission, target population, etc.)

2. Demand for this Program

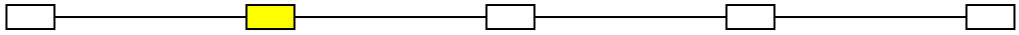
High Demand | Adequate Demand for our students | Low Demand



(Labor market data, advisory input, etc.)

3. Quality of this Program

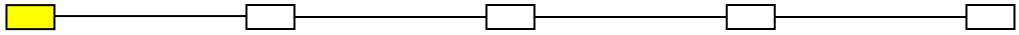
Highest Quality | Meets Student Needs | Needs Significant Improvement



(Core indicators, student outcomes, partnerships, certificates, degrees, articulation, faculty qualifications, diversity, grants, equipment, etc.)

4. External Issues

Benefits From and Contributes to External Issues | Complies with External Issues | Not Consistent with External Issues



(Legislation, CCCCO mandates, VTEA, Tech Prep, CalWORKs, WIA, BOG Career Ladders, etc.)

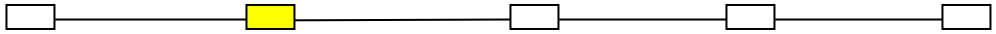
5. Cost of this Program

Income Exceeds Expenditures | Income Covers Expenditures | Expenditures Exceed Income

(Enrollment/FTEs generated & in-kind contributions of time/resources minus salaries/equipment/supplies, etc)

6. Projected Schedule (formerly Two Year Plan)

Significant Growth Anticipated | On Track for Next Two Years | Need Significant Changes and/or Increased Resources to Continue



(Recommendations, project future trends, personnel and equipment needs, etc.)

2017-18 ANNUAL PROGRAM REVIEW

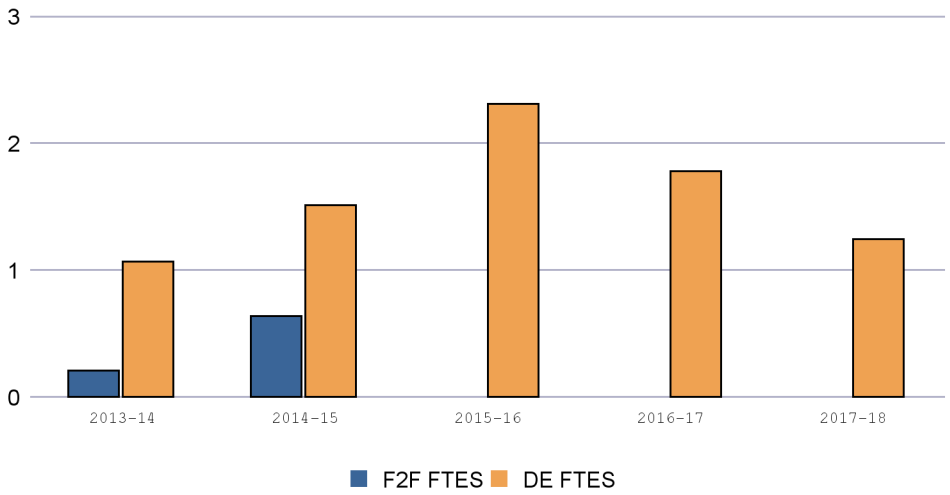
Computer & Information Science

COMPUTER & INFORMATION SCIENCE SUMMARY

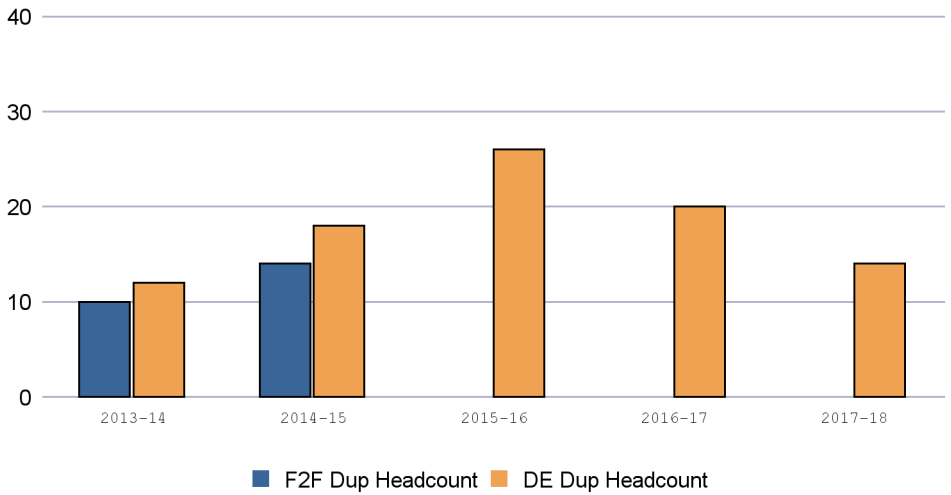
This report contains data from Academic Year (AY) 2013 to 2017. Information on program size based on full-time equivalent students (FTES), Student Success, and Student Achievement are presented below. Except for in the Awards section, students enrolled through the Incarcerated Students Program are excluded.

	Total Sections	F2F Sections	Dist Ed Sections	Total FTES	F2F FTES	Dist Ed FTES	Total Duplicated Headcount	F2F Duplicated Headcount	Dist Ed Duplicated Headcount
2013-14	**2**	1	1	**1.27**	0.21	1.07	**22**	10	12
2014-15	**2**	1	1	**2.15**	0.64	1.51	**32**	14	18
2015-16	**2**	0	2	**2.31**	0.00	2.31	**26**	0	26
2016-17	**2**	0	2	**1.78**	0.00	1.78	**20**	0	20
2017-18	**2**	0	2	**1.24**	0.00	1.24	**14**	0	14
4-Yr Chg (13-14 to 17-18)	**0.0%**	-100.0%	100.0%	**-2.2%**	-100.0%	16.7%	**-36.4%**	-100.0%	16.7%
1-Yr Chg (16-17 to 17-18)	**0.0%**	---	0.0%	**-30.0%**	---	-30.0%	**-30.0%**	---	-30.0%

RESIDENT FTES



DUPLICATED HEADCOUNT



2017-18 ANNUAL PROGRAM REVIEW

Computer & Information Science

DEMOGRAPHICS

	2013-14		2014-15		2015-16		2016-17		2017-18	
	N	%	N	%	N	%	N	%	N	%
Male	15	68.2%	22	68.8%	16	64.0%	13	72.2%	11	78.6%
Female	7	31.8%	10	31.3%	9	36.0%	4	22.2%	3	21.4%
Unknown	0	0.0%	0	0.0%	0	0.0%	1	5.6%	0	0.0%

	2013-14		2014-15		2015-16		2016-17		2017-18	
	N	%	N	%	N	%	N	%	N	%
African American	0	0.0%	1	3.1%	1	4.0%	5	27.8%	0	0.0%
Asian	0	0.0%	1	3.1%	3	12.0%	1	5.6%	0	0.0%
Hispanic	2	9.1%	8	25.0%	6	24.0%	2	11.1%	2	14.3%
Native Amer/Alaska Native	1	4.5%	1	3.1%	0	0.0%	0	0.0%	0	0.0%
White Non-Hispanic	14	63.6%	19	59.4%	14	56.0%	7	38.9%	11	78.6%
Two or more races	4	18.2%	2	6.3%	1	4.0%	3	16.7%	1	7.1%
Unknown	1	4.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

	2013-14		2014-15		2015-16		2016-17		2017-18	
	N	%	N	%	N	%	N	%	N	%
Age < 25	16	72.7%	14	43.8%	11	44.0%	10	55.6%	7	50.0%
Age 25 - 49	2	9.1%	10	31.3%	11	44.0%	8	44.4%	7	50.0%
Age 50 +	4	18.2%	8	25.0%	3	12.0%	0	0.0%	0	0.0%

	2013-14	2014-15	2015-16	2016-17	2017-18
Median Age	22	29	25	25	25
Youngest	13	14	17	13	18
Oldest	59	69	66	38	46

2017-18 ANNUAL PROGRAM REVIEW

Computer & Information Science

AWARDS

	Award Type	Award Title	Awards Conferred
2013-14	AA Degree	Web Development	5
	Certificate	Web Development	1
2014-15	AA Degree	Web Development	1
	Certificate	Web Development	2
2015-16	AA Degree	Web Development	1
2017-18	AA Degree	Web Development	1

2017-18 ANNUAL PROGRAM REVIEW

Computer & Information Science

COURSE SUCCESS

	2013-14		2014-15		2015-16		2016-17		2017-18	
	Enrollment	Success	Enrollment	Success	Enrollment	Success	Enrollment	Success	Enrollment	Success
Male	15	66.7%	21	81.0%	13	92.3%	14	57.1%	10	50.0%
Female	7	85.7%	9	88.9%	8	100.0%	3	33.3%	3	66.7%

	2013-14		2014-15		2015-16		2016-17		2017-18	
	Enrollment	Success	Enrollment	Success	Enrollment	Success	Enrollment	Success	Enrollment	Success
African American	0	0.0%	1	0.0%	1	0.0%	3	33.3%	0	0.0%
Asian	0	0.0%	1	100.0%	3	100.0%	1	0.0%	0	0.0%
Hispanic	2	50.0%	7	85.7%	3	100.0%	2	50.0%	2	0.0%
Native Amer/Alaska Native	1	100.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%
White Non-Hispanic	14	64.3%	18	83.3%	12	100.0%	7	57.1%	10	70.0%
Two or more races	4	100.0%	2	100.0%	2	100.0%	4	75.0%	1	0.0%
Unknown	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%

	2013-14		2014-15		2015-16		2016-17		2017-18	
	Enrollment	Success	Enrollment	Success	Enrollment	Success	Enrollment	Success	Enrollment	Success
Age < 25	16	68.8%	13	84.6%	7	100.0%	9	66.7%	7	71.4%
Age 25 - 49	2	50.0%	10	70.0%	11	90.9%	8	37.5%	6	33.3%
Age 50 +	4	100.0%	7	100.0%	3	100.0%	0	0.0%	0	0.0%

	2013-14		2014-15		2015-16		2016-17		2017-18	
	Enrollment	Success	Enrollment	Success	Enrollment	Success	Enrollment	Success	Enrollment	Success
Dist Ed	12	50.0%	16	68.8%	21	95.2%	17	52.9%	13	53.8%
F2F	10	100.0%	14	100.0%	0	0.0%	0	0.0%	0	0.0%

NOTE: Enrollment = duplicated headcount, excluding audits, noncredit, and drops w/ no record.

2017-18 ANNUAL PROGRAM REVIEW

Computer & Information Science

2017-18 COURSE STATISTICS

% FULL TIME INSTRUCTORS** (2017-18):	
% ADJUNCT INSTRUCTORS** (2017-18):	

FACE TO FACE	Sections Offered	Cancel %	FT % **	Adjunct % **	Avg Census Enroll	Avg End of Term Enroll	Retention % ***	Success % ***	FTES	WSCH	FTEF	Productivity
		---					0.0%					---
Total		**---**					**0.0%**					

DISTANCE EDUCATION	Sections Offered	Cancel %	FT % **	Adjunct % **	Avg Census Enroll	Avg End of Term Enroll	Retention % ***	Success % ***	FTES	WSCH	FTEF	Productivity
CIS-103A Computer Game Design I	1	0.0%	0%	100%	8.0	7.0	87.5%	28.6%	0.71	32	0.08	128.00
CIS-191AK ST: Python Programming	1	0.0%	0%	100%	6.0	6.0	100.0%	83.3%	0.53	24	0.08	96.00
Total	**2**	**0.0%**	**0%**	**100%**	**7.0**	**6.5**	**92.9%**	**53.8%**	**1.24**	**56**	**0.17**	

** Excludes Summer, noncredit, work experience, internship, and cancelled sections*
*** Excludes summer assignments. Based on instructional workload and the percentage of workload assigned under full-time contracts versus adjunct contracts*
**** Withdrawal and success statistics exclude noncredit classes.*

AA/AS and/or Certificate of Acheivement

Computer Information Sciences: Information Technology		
Department Number	**Course Name**	**Quarter Units**
BSN102	Business Information Processing and Systems	4
CIS104	Information & Communications Technology Essentials - CompTIA A	4.5
CIS105	Network Fundamentals - CompTIA Network +	4.5
CIS106	Microsoft Client OS Administration - Microsoft MCSA Windows 10	4.5
CIS107	Microsoft Server OS Administration - MCSA: Windows Server 2016	4.5
CIS108	Introduction to Information Security Systems – CompTIA Security +	4.5
BOT122	Project Management Concepts and Software	4.5
Total Quarter Units		**31**

Employable Skills Certificates

IT Technician Level I		
Department Number	**Course Name**	**Quarter Units**
BSN102	Business Information Processing and Systems	4
CIS104	Information & Communications Technology Essentials - CompTIA A	4.5
CIS105	Network Fundamentals - CompTIA Network +	4.5
CIS106	Microsoft Client OS Administration - Microsoft MCSA Windows 10	4.5
Total Quarter Units		17.5

IT Technician Level II		
CIS107	Microsoft Server OS Administration - MCSA: Windows Server 2016	4.5
CIS108	Introduction to Information Security Systems – CompTIA Security +	4.5
BOT122	Project Management Concepts and Software	4.5
Total Quarter Units		13.5

Sequence of core courses

Year 1 Fall		
BSN102	Business Information Processing and Systems	4
CIS104	Information & Communications Technology Essentials - CompTIA A	4.5
Year 1 Winter		
CIS105	Network Fundamentals - CompTIA Network +	4.5
Year 1 Spring		
CIS106	Microsoft Client OS Administration - Microsoft MCSA Windows 10	4.5
Year 1 Summer		
CIS107	Microsoft Server OS Administration - MCSA: Windows Server 2016	4.5
Year 2 Fall		
CIS108	Introduction to Information Security Systems – CompTIA Security +	4.5
BOT122	Project Management Concepts and Software	4.5