

PROGRAM REVIEW: COMPUTER AND INFORMATION SCIENCE
Fall 2014



CIS – COMPUTER AND INFORMATION SCIENCE

1.1 Introduction. The college’s CIS program was introduced during the early 80’s and has been around for over 30 years. The college initially offered three components: 1. Computer Programming, 2. Microcomputer Applications, and 3. Network Administration. The Network Administration program was renamed and modified around 1995 and is now known as Web Administration. The curriculum has been modified to enhance the programs and to keep up with the changes and new developments in technology. The Microcomputer Applications program is currently being changed and will be renamed Computer Information Technology. The Web Administration program is being changed and will be renamed Web Design and Administration.

We offer an Associate’s Degree of Science and a certificate in Certificate of Achievement. Many students come to the department with the goal of obtaining entry level employment in the field of Information Technology.

The Computer Programming major is designed to prepare the student for employment as a computer programmer trainee. A certificate of achievement can be obtained upon completion of the 33-unit major listed below. The Associate in Science Degree may be obtained by completing a total of 60 units, including the major, general education requirements and electives. Students obtaining a degree in this program demonstrate a proficiency in computer programming in at least three programming languages.

The college plans to begin offering the AS-T degree in programming once the modified curriculum is approved by the state chancellor’s office. The required changes were submitted and approved by the curriculum committee.

CIS 001 Introduction to Computer Science.	
BUS 092 Business Communication	
3	
CIS 022 Introduction to Programming	
. . . 3	
CIS 055 MS Windows Operating Systems	
. . . 3	
CIS 023 Data Structures and Algorithms	
. . . 3	
CIS 015 Programming in Visual Basic.NET	
. . . 3	
CIS 089 Essential Networking Technologies	
. . . 3	
CIS 078 Access -Database Management System	
. . . 3	
CIS 052 UNIX Operating System (UNIX OPERATING SYST).	
. . . 3	
CIS 020 Assembly Programming	
. . . 3	
Total Units	
33	
	Three (3) units from the following Recommended Electives:
	.Units
	ACCT 001 Principles of Accounting - Financial. 4
	ACCT 002 Principles of Accounting – Managerial . . .4
	BUS 005 Introduction to Business
	. . . 3
	CIS 035 Introduction to Java Programming
	. . . 3
	CIS 060 Introduction to the Internet
	. . . 1.5
	CIS 061 Creating Web Pages
	. . . 3
	CIS 066 Microsoft Word.
	. . . 3
	CIS 068 Object Oriented Game Programming with Flash
	3
	CIS 073 Microsoft Excel
	. . . 3

The Microcomputer Applications major is designed to prepare the student for employment as a microcomputer Applications specialist. The Associate in Science degree may be obtained by completion of 60 units, including the major, general education requirements, and electives. A certificate of achievement can also be obtained upon completion of the 30-unit major listed below. Students obtaining a degree in this program demonstrate proficiency in the use of word

processing, spreadsheet, personal information management, database, web authoring, operating systems and presentation software.

REQUIRED COURSES

Units

BUS 092 Business Communication	3
CIS 001 Introduction to Computer Science	3
CIS 015 Programming in Visual Basic.NET	3
CIS 055 MS Windows Operating Systems	3
CIS 061 Creating Web Pages	3
CIS 066 Microsoft Word	3
CIS 073 Microsoft Excel	3
CIS 078 Access -Database Management System	3
CIS 089 Essential Networking Technologies	3

CIS 090 Introduction to PowerPoint	1.5
CIS 091 Microsoft Outlook	1.5

Total Units
. 30

Recommended Electives

ACCT 001 Principles of Accounting – Financial
ACCT 002 Principles of Accounting - Managerial
BUS 005 Introduction to Business
CIS 020 Assembly Programming
CIS 022 Introduction to Programming
CIS 035 Introduction to Java Programming
CIS 060 Introduction to the Internet
CIS 066 Microsoft Word
CIS 080 SQL Database Management Systems
CIS 093 MS Publisher
OCED 090 Occupational Work Experience
OCED 091 General Work Experience

The Web Development and Administration major is designed to prepare the student for employment as a web site administrator and/or developer. The Associate in Science degree may be obtained by completion of 60 units, including the major, general education requirements, and electives. A certificate of achievement can also be obtained upon completion of the 33-unit major listed below. Students obtaining a degree in this program demonstrate proficiency in the use of word processing, spreadsheet, personal information management, database, web authoring, operating systems and presentation software.

CIS 001 Introduction to Computer Science	3
CIS 061 Creating Web Pages	3
CIS 062 Creating Web Interactivity with Flash	3
CIS 069 Multimedia for the Web	3
CIS 072 Extensible Markup Language (XML)	1.5
CIS 075 Client-Side Web Programming	3
CIS 080 SQL Database Management Systems	3
CIS 081 Server-Side Web Programming	3
CIS 083 Web Server Administration	3
CIS 089 Essential Networking Technologies	3
CIS 111 Web Design with Cascading Style Sheets	1.5
Elective(s) selected from the Recommended Electives	3

CIS 015 Programming in Visual Basic.NET	3
CIS 022 Introduction to Programming	3
CIS 023 Data Structures and Algorithms	3
CIS 035 Introduction to Java Programming	3
CIS 068 Object Oriented Game Programming with Flash	3
CIS 078 Access -Database Management System	3
CIS 120 Developing XML Web Services	1.5
CIS 121 PHP Programming with MySQL	3

Total Units
. 33

Recommended Electives (Select three units)

1.2 Relationship to College Mission and Strategic Goals. The CIS Department's mission mirrors that of the college. The department educates an ethnically diverse student population. We provide innovative instruction while also providing hand-on instruction in our computer labs. Our students have access to the latest software and hardware on the main campus as well as the Vacaville and Vallejo Centers. While providing excellent class room instruction the full-time CIS faculty also assist students by providing approximately 25 hours of support in the CIS labs every week. Our students not only learn the latest technological concepts but also learn how to use the latest software.. We are committed to help our students to achieve their educational, professional and personal goals. The majority of our classes in the respective CIS programs transfers to a CSU and some of the classes we offer our UC transferable.

1.3 Enrollment The last CIS program review was completed during the 2008-2009 academic year. CIS enrollments are down from a high of 1,009 in Spring 2009 to a low of 793 in Spring 2013. The number of sections offered in Fall 2008 was 55 and is now down to 44 in Spring 2013. This is due to a request from the administration to not offer as many sections and also the cancellation of summer school during the summer 2012. In the CIS 1 class which transfers to all UC's and CSU's the section count remained consistent and averaged 8.9 sections from Fall 2008 to Spring 2013. The CIS 1 class is the class that has the highest student enrollment. It is a required course for all the CIS programs and is a prerequisite for several other CIS classes. Enrollment in CIS 1 since 2008 has been consistent averaging 272.8 students per semester, with a high of 383 during the Fall 2012 semester. Unfortunately, many of the classes necessary to receive a degree or certificate such as CIS 20, CIS 23, CIS 35, CIS 61, CIS 78, and CIS 89 are now only offered one time each semester. The following table reflects course enrollments for all CIS courses from 2007 to 2011.

SECTION COUNTS

Table below shows the count of number of sections offered of a particular course within Computer & Info Science. Any courses that are part of a cross-list group are marked with an "x". Further information on scheduling patterns of cross listed courses can be found in section 2.9 "Fill Rates, Class Size and Efficiency".

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
Total	49	53	14	40	43	45	44	10	29	44	11	34
CIS 001	8	9	2	8	9	11	9	4	8	11	6	10
CIS 015	1	1		1	1	2	2		1	2		
CIS 020	1			1		1			1			2
CIS 022	2	1	1	1	1	2	2		2	4	1	2
CIS 023		1			1		1			1		
CIS 035					1		1					1
CIS 049		1		1	1	2						
CIS 050	6	5	2	5	5	5	4	1	3	6	1	5
CIS 052		1			1		1			1		
CIS 055		1			1		1			1		1
CIS 060		1										
CIS 061	3	1		2	1	1	1	1	1	2	1	1
CIS 062	2	1	1		1		1					
CIS 066	5	5	3	4	4	3	3	2	3	4		5
CIS 069	1		1									
CIS 070		1	1	1						1		
CIS 072		1										
CIS 073	4	5	1	4	4	4	5	1	3	4	2	2
CIS 075		1								1		
CIS 078	2	2	1	2	1	1	1		2	1		1
CIS 080	1			1		1						
CIS 081		1										

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
CIS 083	1											
CIS 085						1	2			1		
CIS 087		1				1			1			
CIS 089	1	1		1	1	1	1		1	1		1
CIS 090	2	2		2	2	2	2	1	2	2		2
CIS 091	1	1	1	1	1	1	1		1	1		1
CIS 093		1		1	1							
CIS 102						2						
CIS 102 x	2	2		1	2		2					
CIS 105						2						
CIS 105 x	2	2		2	2		2					
CIS 106						2						
CIS 106 x	2	2		1	2		2					
CIS 111		1										
CIS 172 x	1											
CIS 173 x		1										
CIS 174 x	1											

HEADCOUNTS

Table below shows the count of number of students enrolled in a particular course within Computer & Info Science. The total shows the number of students within the entire discipline.

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
Total	880	977	336	840	869	870	783	232	675	861	207	785
CIS 001	257	295	72	307	306	383	293	111	265	332	134	341
CIS 015	33	36		18	40	49	37		27	36		
CIS 020	24			28		30			31			32
CIS 022	51	44	24	43	38	58	53		53	78	13	61

CIS 023		16			16		23			20		
CIS 035					22		12					12
CIS 049		1		2	1	2						

	Fa ll	Spri ng	Sum mer	Fa ll	Spri ng	Fa ll	Spri ng	Sum mer	Fa ll	Spri ng	Sum mer	Fa ll
CIS 050	168	169	85	137	163	151	118	39	103	150	11	148
CIS 052		21			27		20			18		
CIS 055		28			30		33			27		24
CIS 060		19										
CIS 061	70	29		51	28	25	27	24	25	40	25	21
CIS 062	41	23	20		18		19					
CIS 066	99	115	57	84	94	73	69	47	77	88		112
CIS 069	17		22									
CIS 070		28	21	29						19		
CIS 072		26										
CIS 073	107	133	36	92	105	75	107	22	64	81	30	58
CIS 075		20								12		
CIS 078	47	31	30	46	26	25	22		44	19		15
CIS 080	20			23		12						
CIS 081		18										
CIS 083	18											
CIS 085						17	32			10		
CIS 087		27				27			33			
CIS 089	24	19		27	22	22	30		28	23		25
CIS 090	39	32		41	39	37	28	13	43	35		38
CIS 091	20	15	17	24	23	25	19		23	28		24
CIS 093		31		22	26							
CIS 102						12						
CIS 102 x	24	31		19	15		11					
CIS 105						9						
CIS 105 x	28	33		31	11		7					

CIS 073	14.1	17.7	3.6	12.3	14.2	10.5	15.5	2.9	6.3	8.0	2.7	5.8
CIS 075		2.7								1.2		
CIS 078	6.3	4.0	3.9	6.1	3.5	3.3	2.8		4.2	1.9		1.5
CIS 080	2.7			3.1		1.6						
CIS 081		2.4										
CIS 083	2.4											
CIS 085						2.3	4.1			1.0		

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
CIS 087		3.6				3.5			3.3			
CIS 089	3.2	2.5		3.6	2.9	2.9	4.0		2.8	2.3		2.5
CIS 090	2.5	2.3		2.6	2.7	2.3	1.8	0.8	2.4	1.7		1.8
CIS 091	1.5	1.3	1.0	1.6	1.1	1.8	1.2		1.1	1.4		1.1
CIS 093		2.0		1.5	1.7							
CIS 102	0.4	0.5		0.3	0.2	0.2	0.2					
CIS 105	0.4	0.5		0.5	0.2	0.1	0.1					
CIS 106	1.1	0.8		1.3	1.2	0.9	1.1					
CIS 111		1.6										
CIS 172	1.2											
CIS 173		1.7										
CIS 174	1.2											

Table 1. SCC's Strategic Directions and Goals

<i>Goal 1: Foster Excellence in Learning</i>	<i>Program Evidence</i>
<i>Obj. 1.1 Create an environment that is conducive to student learning.</i>	CIS faculty provide innovative ways to teach the technology. We are accessible in the classroom. Our classrooms have a computer workstation for every student. We also have CIS computer labs on the main campus, and at the Vallejo and Vacaville Centers. Students know most of the full-time CIS faculty very well. For several years the department has hired several CIS majors as tutors and as computer lab assistants. Each full-time CIS instructor is scheduled to assist students in the computer labs for at least four hours per week each semester.
<i>Obj. 1.2 Create an environment that supports quality teaching.</i>	We utilize technological resources via Perkins funding. Each CIS classroom contains at least 30 computer workstations. Our students also have access to free software and software that is substantially reduced in price via Dreamscape and also MSDN (Microsoft Digital Subscriber Downloads)
<i>Obj. 1.3 Optimize student performance on Institutional Core Competencies</i>	CIS faculty conduct SLO assessments to evaluate student performance. Faculty meet regularly (at least once a month) to discuss pedagogy, curriculum and various testing methodologies. Faculty also attend presentations, workshops, and seminars on the latest technologies to improve the CIS curriculum.
<i>Goal 2: Maximize Student Access & Success</i>	<i>Program Evidence</i>
<i>Obj. 2.1 Identify and provide appropriate support for underprepared students</i>	Full-time instructors have provided special Friday afternoon study sessions for students who are having difficulty making the programming concepts a reality. For the Fall 2013 semester we have a dedicated CIS programming tutor. We also have lab student aides in rooms 504 and 507 who help students with the Microsoft Office programs as well as the Adobe software programs.
<i>Obj. 2.2 Update and strengthen career/technical curricula</i>	The department is currently looking to add a mobile applications class to its curriculum. It is also looking into the possibility of adding two new programs: Data Mining and Game Programming. Added to new courses since the last review CIS 112 – Introductions to Robotics Programming, and CIS 113 – Introduction to Programmable Logic Controllers.
<i>Obj. 2.3 Identify and provide appropriate support for transfer students</i>	We currently have articulation agreements with the UC's and CSU's. Our classes numbered 1-49 transfer to the UC's and our classes numbered 50-99 transfer to the CSU's The new AS-T transfer degree has been approved by the curriculum committee and is waiting on approval by the state chancellor's office.

<p><i>Obj. 2.4 Improve student access to college facilities and services to students</i></p>	<p>Students have access to instructor's files and folders via the web. Datafiles as well as course syllabi can be easily downloaded. We now have specialized CIS tutors for programming and microcomputer applications major who work in the computer labs on the main campus (504, 507) and also at the Vacaville center by appointment.</p>
<p><i>Obj. 2.5 Develop and implement an effective Enrollment Management Plan</i></p>	<p>Three of the instructors Mark Berrett, Kevin Anderson, and John Urrutia currently serve as advisors to the Gamers Club. There were 42 students at the recent meeting (9/20/13) of the gamers club. We believe by assisting this campus club CIS enrollments will increase.</p>
<p>Goal 3: Strengthen Community Connections <i>Program Evidence</i></p>	
<p><i>Obj. 3.1 Respond to community needs</i></p>	<p>We are currently looking to visit with representatives from two temp employment agencies; Office team and Adecco. We need to determine the needs that local employers have with respect to information technology. At the last Advisory committee meeting we developed a relationship with one of the employers (see minutes of CIS Advisory committee meeting) to better address their needs and concerns. We are looking to provide students interns for this employer.</p>
<p><i>Obj. 3.2 Expand ties to the community</i></p>	<p>The CIS faculty would like to visit the local high schools at least once per semester to learn what technologies are currently being taught in the high schools and inform the high school students of our CIS programs and the college's CIS curriculum. We currently have an articulation agreement with Vanden High School for our CIS 50 Microcomputer Applications class. Our contact person at Vanden High School is Business instructor Lisa Leone.</p>
<p>Goal 4: Optimize Resources <i>Program Evidence</i></p>	
<p><i>Obj. 4.1 Develop and manage resources to support institutional effectiveness</i></p>	<p>The CIS department is in dire need or more physical space. We need a meeting room where students can come and discuss the latest technologies as well as the hardware and software to test the latest technologies. The faculty believes with the additional space and hardware, we would be an excellent candidate to become a Beta test site for new software releases. Additionally we need a room where we can house computers that we are currently working on (i.e., software upgrades, new hardware, etc...). This would enable the department to be on the leading edge of technology rather than waiting months if not years to utilize the technological advances being made in the industry.</p>
<p><i>Obj. 4.2 Maximize organization efficiency and effectiveness</i></p>	<p>Currently, the CIS faculty has no meeting place to discuss program changes, curriculum revisions, and hardware upgrades. Two of the full-time instructor's offices are in Vacaville and Vallejo respectively. We need all faculty input to discuss class scheduling (online, face to face, Vallejo, Vacaville and the main campus). We3 need to develop a matrix to determine who can teach what classes.</p>

% Enrollment by Ethnicity

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Am. Indian or Alaskan Native	1%	2%	2%	3%	2%	2%	2%	3%	3%	3%	5%	2%
Asian or Pacific Islander	15%	13%	17%	17%	16%	18%	19%	21%	20%	20%	23%	23%
Black Non-Hispanic	23%	20%	16%	19%	20%	17%	16%	17%	19%	17%	15%	18%

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
Hispanic	15%	12%	21%	15%	19%	20%	17%	21%	19%	18%	19%	22%
Other	14%	26%	11%	13%	11%	9%	6%	5%	5%	4%	3%	3%
White Non-Hispanic	31%	27%	32%	33%	32%	33%	40%	33%	34%	38%	35%	31%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

% Enrollment by Student Type

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
Continuing	66%	69%	56%	65%	73%	60%	70%	66%	65%	65%	35%	54%
First Time Student	13%	10%	7%	15%	7%	14%	6%	5%	11%	7%	12%	17%
First Time Transfer	8%	7%	11%	6%	6%	7%	9%	9%	8%	10%	21%	10%
Returning	11%	12%	13%	12%	11%	17%	14%	15%	13%	15%	22%	15%
Special Admit	2%	2%	13%	2%	2%	3%	1%	6%	2%	3%	10%	4%
Uncollected /Unrep	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

5. Status of Progress toward Goals and Recommendations.

Over the past five years the College has awarded 22 CIS degrees in Microcomputer Applications and 9 certificates; 9 degrees in Computer Programming and 5 certificates; and finally 4 degrees and 6 certificates in Web Administration and Design.

Table 2. Educational Master Plan

Educational Master Plan Goals	Status
<ul style="list-style-type: none"> • Continue to provide courses online using Canvass LMS • Develop programs to respond to emerging technology needs • Expand course offerings 	<p>One of our CIS adjunct instructors has completed the Canvas training. Another faculty member is currently developing the Excel for online instruction.</p> <p>The Microcomputer Applications program is being revised and will now become the Computer Information technology program, based the latest labor market data.</p> <p>We have recently added the CIS21 course, discrete structures for computer science to enhance the computer programming major.</p>

Table 3. Program Review Recommendations

Recommendation	Status
<p>1. Recruit and hire a new full-time CIS programming instructor for the Spring 2014 semester.</p>	<p>Professor Mark Berrett was hired as the new CIS programming Instructor. He began Spring 2014..</p>
<p>2. . Develop a new Mobile Applications programming course in Java.</p>	<p>The student’s enthusiasm for this particular project has waned and we are revisiting this in light of the program changes we are making.</p>
<p>3. Develop an IT Technician Pathway and Business Information Worker program. (see Attached -Appendix B - Program Information)</p>	<p>The Business Information Worker program has been completed, but has not yet been submitted to the curriculum committee. The IT Technician Pathway program is being developed by the faculty in the CIS department. Both programs will be submitted to curriculum committee before the end of the Spring 2016 semester.</p>
<p>4. Design and develop a new CIS student resource area.</p>	<p>This recommendation is part of the Measure Q Facilities Master Plan.</p>

1.6 Future Outlook.

The outlook for jobs in the area of Computers and Information Technology looks excellent. The need for people entering into said occupations or professions changes rapidly as evidenced by the most recent data from the U.S. Department of Labor Bureau of Labor Statistics the information provided in the link listed here: <http://www.bls.gov/>

The chart below displays the employment trends for workers in computer related occupations for ten years (2012-2022).

Over the next 10 years the projected annual job openings for Application Software Developers is more than 23%, and Web Developers more than 20%. (See Chart below)

Occupation code	Occupation title (click on the occupation title to view its profile)	Level	Employment	Employment RSE	Employment per 1,000 jobs	Median hourly wage	Mean hourly wage	Annual mean
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	detail	24,960	2.4%	0.185	\$22.84	\$24.13	\$
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	detail	148,040	1.7%	1.096	\$17.52	\$18.23	\$
51-4010	Computer Control Programmers and Operators	broad	172,990	1.6%	1.280	\$18.15	\$19.08	\$
49-2011	Computer, Automated Teller, and Office Machine Repairers	detail	110,940	2.2%	0.821	\$17.58	\$18.49	\$
43-9071	Office Machine Operators, Except Computer	detail	66,530	2.3%	0.492	\$13.71	\$14.52	\$
43-9011	Computer Operators	detail	58,060	2.1%	0.430	\$19.03	\$19.83	\$
25-1021	Computer Science Teachers, Postsecondary	detail	35,410	2.2%	0.262	(4)	(4)	\$
25-1020	Math and Computer Teachers, Postsecondary	broad	89,420	1.6%	0.662	(4)	(4)	\$
17-2072	Electronics Engineers, Except Computer	detail	133,990	1.9%	0.992	\$46.05	\$47.91	\$
17-2061	Computer Hardware Engineers	detail	76,360	4.2%	0.565	\$52.13	\$53.20	\$1
15-1199	Computer Occupations, All Other	detail	212,510	1.0%	1.573	\$40.10	\$41.12	\$
15-1152	Computer Network Support Specialists	detail	174,490	1.3%	1.291	\$29.72	\$31.80	\$

Occupation code	Occupation title (click on the occupation title to view its profile)	Level	Employment	Employment RSE	Employment per 1,000 jobs	Median hourly wage	Mean hourly wage	Annual mean wage
15-1151	Computer User Support Specialists	detail	563,540	0.8%	4.170	\$22.89	\$24.76	\$
15-1150	Computer Support Specialists	broad	738,030	0.7%	5.462	\$24.22	\$26.42	\$
15-1143	Computer Network Architects	detail	140,080	1.4%	1.037	\$47.32	\$48.42	\$1
15-1142	Network and Computer Systems Administrators	detail	365,430	0.8%	2.704	\$36.44	\$38.35	\$
15-1131	Computer Programmers	detail	302,150	1.4%	2.236	\$37.28	\$39.75	\$
15-1121	Computer Systems Analysts	detail	528,320	0.9%	3.910	\$39.76	\$41.98	\$
15-1120	Computer and Information Analysts	broad	608,500	0.9%	4.503	\$40.13	\$42.25	\$
15-1111	Computer and Information Research Scientists	detail	24,210	4.2%	0.179	\$52.09	\$54.42	\$1
15-1100	Computer Occupations	minor	3,692,980	0.5%	27.329	\$38.17	\$40.31	\$
15-0000	Computer and Mathematical Occupations	major	3,834,180	0.5%	28.374	\$38.18	\$40.37	\$
11-3021	Computer and Information Systems Managers	detail	330,360	0.8%	2.445	\$61.37	\$65.52	\$1

In California the projected annual job openings for Application Software Developers should reach 4,020 by 2022. The number of workers employed as Application Software Developers in California should exceed 123,000 by 2022. California expects to have over 28,000 Web Developers by 2022, with an expected growth rate from 2012 to be more than 32%. In conjunction with State Chancellor's, we expect the new BIW and IT Technician programs to provide an effective balance of training, certifications and experience to develop Business and IT professionals without a 4-year degree.

<http://www.careerinfonet.org/>

United States	Employment		Percent Change	Projected Annual Openings
	2012	2022		
Computer Programmers	343,700	372,100	+8%	11
Database Administrators	118,700	136,600	+15%	4
Software Developers, Applications	613,000	752,900	+23%	21
Software Developers, Systems Software	405,000	487,800	+20%	13
Web Developers	141,400	169,900	+20%	5

California	Employment		Percent Change	Projected Annual Openings
	2012	2022		
Computer Programmers	39,900	44,700	+12%	1
Database Administrators	10,900	13,200	+21%	
Software Developers, Applications	95,100	123,100	+29%	4
Software Developers, Systems Software	79,300	98,300	+24%	2
Web Developers	21,500	28,300	+32%	1

* Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

National Data Source: [Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections](#)

State Data Source: [California Employment Development Department, Labor Market Information](#)

Program Level Outcomes

2.1 The PLOS listed below are for the CIS Associate's degree and certificate (Computer Programming, Microcomputer Applications and Web Development and Administration). The assessments are based on the cumulative work completed in the core curriculum for the degree/certificate. The department will need to come to agreement about whether the PLOs will remain the same and how they will be assessed once the new CIS AS-T degree has been approved anticipated in Fall 2014. The CIS faculty plans to discuss this at the CIS Advisory Committee meeting scheduled for November 20, 2013 and then finalize our plans and decisions by Spring 2015.

Table 4.a Program Level Outcomes (Programming)

<i>Program Level Outcomes</i>	<i>ILO (Core 4)</i>	<i>How PLO is assessed</i>
1. Students will be able to construct applications that use GUI (graphical user interface) components and access databases for data permanence.	(I C; <u>II A,B,D</u> ,III A,C)	Score of 70% or higher on cumulative programming exercises. The outcomes are being measured over multiple courses and sections.
2. Students will be able to develop a programming solution to a data structure problem using object-oriented methodologies and appropriate data structures and algorithms.	(I C; <u>II A,B,D</u> ,III A,C)	Score of 70% or higher on cumulative programming exercises. Again the outcomes are being measured over multiple courses and sections.
3. Students will be able to implement a well-designed, properly normalized relational database after analyzing user requirements and business rules.	(I C; <u>II A,B,D</u> ,III A,C)	Score of 70% or higher on cumulative programming exercises. Again the outcomes are being measured over multiple courses and sections.

Table 4.b Program Level Outcomes (Microcomputer Applications)

<i>Program Level Outcomes</i>	<i>ILO (Core 4)</i>	<i>How PLO is assessed</i>
<p>1. Demonstrate knowledge of application software such as word processing, spreadsheets, personal information management, database management systems, networking, presentation and web authoring software.</p>	<p>(I C; <u>II A,B,D</u>,III A,C)</p>	<p>Score of 70% or higher on cumulative programming exercises and microcomputer applications exercises. Score of 70% or higher on written exams. The outcomes are being measured over multiple sections and courses.</p>
<p>2. Demonstrate programming skills, at beginning level, in at least one programming language and be proficient in using the programming development tools</p>	<p>(I C; <u>II A,B,D</u>,III A,C)</p>	<p>Score of 70% or higher on cumulative programming exercises. Score of 70% or higher on written exams. Again the outcomes are being measured over multiple courses and sections.</p>
<p>3. Effective oral and written communication skills.</p>	<p>(I C; <u>II A,B,D</u>,III A,C)</p>	<p>Grade of C or better in Business 092 (Business Communication).The outcomes are being measured over multiple sections of the Business 92 course.</p>

Table 4.c Program Level Outcomes (Web Development and Administration)

<i>Program Level Outcomes</i>	<i>ILO (Core 4)</i>	<i>How PLO is assessed</i>
<p>1. Properly use web authoring software design elements and an HTML editor in creating web pages.</p>	(I C; <u>II A,B,D</u> ,III A,C)	Score of 70% or higher on cumulative web page development assignments and exams.
<p>2. Describe and explain the use of a database in a website utilizing input forms, queries and database results.</p>	(I C; <u>II A,B,D</u> ,III A,C)	Score of 70% or higher on cumulative database interface exercises and exams.
<p>3. Develop a project incorporating cascading style sheets, search forms, tables, photo galleries, shared borders, themes, interactive components, dynamic web pages and publishing to a web site.</p>	(I C; <u>II A,B,D</u> ,III A,C)	Score of 70% or higher on cumulative web assignments and exams.

2.2 Report on how courses support the Program Level Outcomes at which level (introduced (I), developing (D), or mastered (M))

Table 5.a Program Courses and Program Level Outcomes

Please bear in mind that the mastery indicated with respect to PLO 3 is the mastery for an entry-level programmer/analyst, web designer, or software engineer. Students acquire the skills but most of them do not have the requisite experience that would demonstrate their mastery.

CIS Computer Programming Associate’s Degree

	PLO 1 Demonstrate an understanding of the computer science industry both from the hardware, software, and networking perspective	PLO 2 Demonstrate programming skills, at beginning level, in at least two programming languages and be proficient in using the programming development tools.	PLO 3 Effective oral and written communication.
CIS 001	I		
BUS 092			M
CIS 022	I	D	I
CIS 055	D		I
CIS 023	I	M	I
CIS 015	I	M	I
CIS 089	D		I
CIS 078	M	D	I
CIS 052	D	D	I
CIS 020	D	M	I

Table 5.b Program Courses and Program Level Outcomes

CIS Computer Web Development and Administration Associate’s Degree

Table 5.c Program Courses and Program Level Outcomes

	PLO 1 Properly use web authoring software design elements and an HTML editor in creating web pages	PLO 2 Describe and explain the use of a database in a website utilizing input forms, queries and database results.	PLO 3 Develop a project incorporating cascading style sheets, search forms, tables, photo galleries, shared borders, themes, interactive components, dynamic web pages and publishing to a web site.
CIS 001	I	I	
CIS 061	M	D	M
CIS 062	D		D
CIS 069	D		D
CIS 072	I	D	D
CIS 075		M	
CIS 080		M	
CIS 081		M	
CIS 083		D	
CIS 089			
CIS 111	M	I	M

CIS Computer Microcomputer Applications Associate's Degree

	<p>PLO 1 Demonstrate knowledge of application software such as word processing, spreadsheets, personal information management, database management systems, networking, presentation and web authoring software.</p>	<p>PLO 2 Demonstrate programming skills, at beginning level, in at least one programming language and be proficient in using the programming development tools.</p>	<p>PLO 3 Effective oral and written communication skills.</p>
BUS 092	I		M
CIS 001	I		M
CIS 015	I	M	
CIS 055	D	D	
CIS 061	D	I	I
CIS 066	M	D	M
CIS 073	M	D	
CIS 078	M	D	I
CIS 089	D	D	I
CIS 090	M	D	I
CIS 091	M	D	I

Table 6 - Program Level Assessments – Computer Programming

<i>Program Level Outcomes</i>	<i>Dates Assessed</i>	<i>Results</i>	<i>Action Plan</i>
Students will be able to construct applications that use GUI (graphical user interface) components and access databases for data permanence.	June 2013	85% of successful students received a grade of 70% or better on the assessment. The drop rate for these courses was 32% and was primarily due to students being unprepared for the time required to be successful.	Work on developing a mechanism so that when a deficit is noticed in students, instructors teaching the foundational courses can better support the development of time management skills.
Students will be able to develop a programming solution to a data structure problem using object-oriented methodologies and appropriate data structures and algorithms.	June 2013	71% of successful students received a grade of 70% or better on the assessment. The drop rate for these courses was 38%. CIS 020 accounted for most of the drops because of the level of effort required.	Provide better reasoning skills in the introductory courses. Consider adding a separate lab component for CIS 020.
Students will be able to implement a well-designed, properly normalized relational database after analyzing user requirements and business rules.	December 2012	77% of successful students received a grade of 70% or better on the assessment.	Students need additional lab time/assignments to become proficient. Reading comprehension is a factor in successfully completing the class. Instructor provides outside reading material to students.

Table 7 – Program Level Assessments Web Development and Administration

<i>Program Level Outcomes</i>	<i>Dates Assessed</i>	<i>Results</i>	<i>Action Plan</i>
Properly use web authoring software design elements and an HTML editor in creating web pages	May 2013	Students were able to publish a 5-8 page original web site which was an ADA and replete with 20 of the latest technologies *(rubric located on the shared BUS & CTE drive).	Provide more tutoring in the CIS 61 (Web Design).
Describe and explain the use of a database in a website utilizing input forms, queries and database results.	May 2013	Of the 46 students enrolled in the CIS 78 Course (Access Database) over the past two semesters only 3 were Web Design majors. 65% of the students received a grade of C or better.	Utilization of an embedded tutor in the CIS 61 and CIS 111 classes will significantly improve the success rate.
Effective oral and written communication skills.	December 2012	Students Passed BUS 92 course, Business Communications..	None at this time.

Table 8 – Program Level Assessments - Microcomputer Applications

<i>Program Level Outcomes</i>	<i>Dates Assessed</i>	<i>Results</i>	<i>Action Plan</i>
Demonstrate knowledge of application software such as word processing, spreadsheets, personal information management, database management systems, networking, presentation and web authoring software.	May 2013	Students successfully passed the following courses CIS courses 1, 15, 55, 61, 66, 73, 78, 80, 90 and 91.	Offer more sections in the program. Hire a full-time CIS instructor for Spring 2014 semester who can teach the required classes.
Demonstrate programming skills, at beginning level, in at least one programming language and be proficient in using the programming development tools	May 2013	A total of 33 CIS majors students enrolled in CIS 15, CIS 22 and CIS 35 received 70 % or better on coursework and Exams.	Utilization of embedded tutors in the CIS applications classes will significantly improve the success rate.
Effective oral and written communication skills	December 2012	CIS majors passed the BUS 92 course, Business Communications.	None at this time.

Student Learning Outcomes

2.4 Many of our SLOs were updated during this program review cycle. Any new/updated SLOs will go through the process established by the district and will be reflected in Curricunet. One of our short term goals is to create a departmental schedule for reviewing SLOs. At this time it was our understanding that courses were to be reviewed every 2 years, and just one SLO at a time. One difficulty with the reviews is getting courses assessed that were taught by adjunct faculty. We need to increase training on which forms to use and where to input data semester.

2.5 In terms of scheduling, all CIS courses were initially assessed during the summer of 2012. All even-numbered courses that were taught during the fall 2012 semester were assessed at the end of the Fall 2012 semester and all odd-numbered CIS courses that were taught were assessed at the end of the Spring 2013 semester. We will follow the aforementioned assessment schedule until instructed otherwise by administration.

2.6 Currently, our course-level SLOs are almost entirely up to date. There are few outstanding from Spring 2013, and the instructors have been contacted to complete them. We would like to meet as discipline faculty to discuss how we are measuring the SLOs and find greater consistency across sections. We also want to make sure faculty are not working in isolation, so that we can discuss together the strengths and weaknesses of the assessments and ensure we are linking this analysis to the PLOs and resource allocation. It would be ideal if we had more time during flex to do this collaborative work. Currently, one full-time faculty member teaches 50% of their course load at the Vacaville Center. Another full-time CIS faculty member teaches at least 40% of their load at the Vallejo Center where they have a permanent office. Because of this, it has become increasingly more difficult for CIS faculty to meet and collaborate on SLOs.

2.7 The goal of every faculty member including adjunct instructors completing SLOs every year is new to Solano. The college administration needs to make sure adjuncts know this expectation and provide support if necessary.

2.8 After reviewing the CIS SLOs, instructors have made changes to their curriculum and syllabi. CIS instructors provide students with a plethora of resources which can be located on the School's server (bcs.students.solano.cc.ca.us/workarea) Drive H. Students can access the H drive from the internet as well as the computer labs on the main campus, and the Vallejo and Vacaville centers. Each instructor has a folder and generally will have a sub-folder for each class that they teach which contains course syllabi, class handouts, PowerPoints, tutorials, and sample computer programs. CIS instructors are now looking to move from paper textbooks to an all-digital format which should be less costly. Based on recent SLO assessments more programming exercises such as developing a computer program to calculate a car's miles per gallon are done in the classroom, where students can actually develop and execute the code from the student workstation. The instructor workstation can display the code and necessary resources students need to develop and execute the solutions to the programming exercises they have been given. This hands-on technique has enhanced the students ability to understand and answer the programming problems they have been assigned.

2.9 Course offerings.

Our department continues to make changes to the curriculum. We have recently added the CIS AS-T degree which will add a new course CIS 021 - Discreet Structures for Computer Science. The current listing for the CIS Computer Programming Degree consists of the following core courses:

REQUIRED COURSES -----	Units
CIS 001 Introduction to Computer Science-----	3
BUS 092 Business Communication -----	3
CIS 022 Introduction to Programming -----	3
CIS 055 MS Windows Operating -----	3
CIS 023 Data Structures and -----	3
CIS 015 Programming in Visual Basic.NET -----	3
CIS 089 Essential Networking Technologies-----	3
CIS 078 Access -Database Management System-	3
CIS 052 UNIX Operating System -----	3
CIS 020 Assembly Programming-----	3
Total -----	30

One of these Electives:----- Units

ACCT 001 Principles of Accounting – Financial-	4	
ACCT 002 Principles of Accounting – Managerial	4	
BUS 005 Introduction to Business -----	3	
CIS 035 Introduction to Java Programming -----	3	
CIS 060 Introduction to the Internet-----	1.5	
CIS 061 Creating Web Pages-----	3	
CIS 066 Microsoft Word -----	3	
CIS 068 Object Oriented Game Programming with Flash	3	3
CIS 073 Microsoft Excel -----	3	
CIS 080 SQL Database Management Systems----	3	
OCED 090 Occupational Work Experience -----	1 - 8	
OCED 091 General Work Experience -----	1 - 6	
Total -----	3	

Additionally we are attempting to offer this degree program at our Vacaville center. We have successfully taught 40% of the core requirements at the center and intend to increase this in the future.

Our department continues to make changes to the curriculum. We have recently added the CIS AS-T degree which will add a new course CIS 021 - Discreet Structures for Computer Science. The current listing for the CIS Computer Programming Degree consists of the following core courses.

The department would also like to add a computer Mobile Applications class. Currently, CIS students primarily from the Gamers Club are circulating a petition to have this course added to the spring 2014 class schedule. Also, a new CIS Data Mining program is being proposed and at the CIS advisory committee meeting scheduled for November 20, 2013, the committee will discuss this item.

2.10 Instructional Quality

High quality instruction is one of our program’s greatest strengths. Due to the nature of the discipline our faculty must be continually updating their skills to keep up with both hardware and software technology. We make a concerted effort to keep our classrooms up to date with the computer technology currently used by industry. Class sizes are limited to 40 students and the specific course instructor provides laboratory instruction and one on one help outside of the scheduled class.

2.11 Teaching Methodologies

We teach courses to a variety of different learning styles. While instructors have different methodologies, all include a mixture of lecture, group work, and hand-on use of hardware and software in the classroom and laboratories. While teaching, we include demonstrations, follow-on exercises and group collaboration. Special accommodations are made in the classroom for students with disabilities and those that may need extra help. We use imbedded tutors to aid all students in learning the complex concepts of the discipline.

2.12 Fill rates/Class size

Our introduction to Computer Science course typically fills well, particularly on-line offerings, and has maintained an average 82% since fall 2010 even with decreasing enrollments campus-wide. Over the last 2 academic years the enrollment for classes offered has trended higher than in the previous 2 years and overall program enrollment is historically higher over the past 5 years by approximately 5%. The average fill rate across the program is 62% and 76% when we exclude the low enrollment in follow-on courses for the discipline.

2.13 Course sequencing

Course sequencing has not been a significant problem during this cycle, however, due to faculty retirements we anticipate this may be a problem in the near future.

Students are encouraged to follow this sequence of computer programming courses within the degree program:

- CIS 001 – Introduction to Computer Science
- CIS 015 – Programming in Visual Basic .NET
- CIS 022 – Introduction to Programming
- CIS 023 – Data Structures & Algorithms
- CIS 020 – Assembly Language Programming

2.14 Basic Skills (if applicable)

The CIS program does not offer basic skills courses, but students benefit greatly when their reading, writing and problem solving skills are at the college level.

2.15 Student Survey

CIS instructors have conducted informal surveys regarding when and where they would like CIS courses to be offered. Based on the results of the informal surveys, we increased our course offerings at the Vacaville center.

2.16 Four-year articulation (if applicable)

Currently, we have three courses that meet District requirements for General Education: CIS 001, CIS 020 and CIS 022. All of our Programming courses meet the CSU General Education criteria. We need to revisit our articulation agreements with both the CSU and UC systems. Many of the core programming courses should be accepted into their programs but currently only CIS 022 and CIS 035 have articulation with the UC system. CIS 023 – Data Structures and Algorithms does not articulate with the UC systems. The units transfer, however the student may have to repeat the comparable UC course because we do not yet have an articulation agreement with the UC's for this course. With the introduction of the CIS AS-T degree a complete review will be a top priority in the coming year.

2.17 High School articulation (if applicable)

The following CIS course articulate with the local high schools.

College Course Number	College Course Title	Discipline	High School Name	High School Course Title	SCC Instructor
CIS 001	Intro to Computer Sc.	CIS	Benicia HS	Intro to Computer Sc	Berrett, M.
CIS 050	Micro.C. App.	CIS	Sem Yeto HS	Comp. Applications	Anderson, K.
CIS 050	Micro.C. App.	CIS	Vanden HS	Intro.C. App.	Anderson, K.
CIS 061	Creat. Web. P.	CIS	Vanden HS	Creat. Web. P.	Anderson, K.
CIS 069	MM for Web	CIS	Rodriguez HS	Comp. Art & MM	Anderson, K.
CIS 069	MM for Web	CIS	Fairfield HS	Comp. Art & MM	Anderson, K.
CIS 069	MM for Web	CIS	Fairfield HS	Comp. Art & MM	Anderson, K.
CIS 070	Adobe Photoshop/Web	CIS	Benicia HS	Digital Design	Callison, K.

2.18 Distance Education (if applicable)

Currently our program offers five courses online: CIS 001, 015, 055, 078, and CIS 089. Unfortunately, due to limited staffing and the inability of faculty to teach more than three online sections per semester, we have been unable to offer these classes as frequently as we would like. We typically offer at least one course each semester. It is our hope that with the addition of new faculty to our department, we will be able to expand our online offerings.

In regards to successes, the online classes seem to fill quickly and there are often long waiting lists for the few spaces we have available. The multiple requests for add codes is consistent from semester to semester, indicating the continued high demand for online classes. Additionally, our online classes allow us to reach students who may otherwise be unable to take classes at Solano, including active and deployed military members, people who have work schedules that do not fit with our traditional schedules, or people who are otherwise homebound.

The challenges that arise are mainly a result of switching from eCollege to the Canvas online Platform. This will require all of our courses to be retooled to match the platform requirements.

When offering classes online we adapt the materials and assignments that are used in our face-to-face classes so that they may be properly delivered in an online setting, thereby providing students with an equally excellent learning experience. The primary difference between the two methods of delivery is that our online classes allow students the convenience to

access course materials at a time and place that works best for them. We ensure that our online courses are comparable to in-class offerings by doing the following:

- Strictly adhering to the Section K's
- Using the same texts and course materials as those used in face-to-face classes
- Assigning the same or similar assignments as the face-to-face classes
- Ensuring that students engage in classroom discussion on relevant and timely topics much as they would in a face-to-face class

2.19 Advisory Boards/Licensing (CTE) (if applicable)

CIS advisory committee meetings are held once a year. We held a meeting during the Fall 2014 semester and have plans to hold another meeting in April 2015. In attendance were Solano College full-time and adjunct CIS and Business faculty members, students, CTE Dean, IT and Office Technology professionals, and representatives from local agencies and the community. We have three IT professionals on our advisory board, Mr. Rick Smith, IBM, Mr. Guy Gray, Genetech, and Mr. Rick Llewelyn, North Bay Healthcare. (*See appendix*)

3.1 Course Completion and Retention. (This is only for classes needed for the CIS degree or certificate)

Success Rates

The tables below show the success rates by various student demographics within the discipline. The first number (in grey) shows the number of students, following that is the success rate for that group of students. Red values denote a success rate below the group average while green values denote a success rate above the group average. Finally, the third number shows the percentage point difference in success rate between those in the program and the average for all students across the institution for that measure. Color coding shows if the percentage point difference is 10 percentage points higher (green), within 10 percentage points (yellow) or 10 percentage points less (red) that the institution average.

The CIS department has gone through significant changes since Fall 2010 to the present that has had an impact on the success of students enrolled in CIS classes as well as CIS majors. The department lost four full-time computer science instructors (those possessing a FSA to teach programming classes) via retirement and or separation. This reduced the number of computer science classes that could be offered. Even though some of the classes could have been taught by adjunct instructors, the college was experiencing a financial crisis during this period as evidenced by the cancellation of the 2012 summer session and the drastic reduction of classes offered campus wide. Also, during this period one of the full-time computer science instructors was permanently moved to the Vacaville Center.

Another significant factor was that another full-time CIS instructor was scheduled to teach two Business classes each semester for the Business department, which also limited the CIS department's ability to schedule more computer science/programming classes on the main campus. Before the hiring of Professor Mark Berrett, there were only two full-time CIS instructors on the main campus who possessed the requisite FSA to teach CIS courses numbered 1-49. The college offers eight such classes. If you include the classes required for Microcomputer Applications and the Web Development and Administration degree the number is thirty.

Another reason for a decline in enrollment is because of scheduling. Most CIS classes are taught in a class room that has 40 workstations, however the admin assistants can no longer schedule the class rooms, thus classes that should be scheduled in a room that contains 40 workstations have consistently been scheduled in class rooms that contain only 30 workstations. Not only that, the department has experienced significant technical problems with new hardware and software upgrade including the installation of a 50 inch video monitors in the largest classroom, however students sitting in the last row cannot view the information the instructor is displaying on the monitor.

It appears more students are successful in obtaining the CIS certificates rather than the CIS AS degree in all of the programs. One of the reasons is some of the courses that are needed, have not been offered in over three years because there are no instructors to teach them and in some cases where the class is offered it is cancelled due to low enrollment. Another factor significant factor is room scheduling. It is not surprising to have an English, Photography, Statistics or some other non-IT class scheduled in a room that was previously dedicated to CIS courses. This has been problematic because IT must install additional software on the workstations in these classrooms which has significantly slowed the performance of the workstations. Instructors have reported to the school coordinator and the Dean that it has taken well over 10 minutes for the workstation to boot in a 50 minute class. Much time is wasted.

The CIS instructors have met and discussed ways and developed strategies that will help to increase the success rates. One of the things that is being done in the current semester is to combine both the lecture and the lab component of the class together rather than the lab being TBD. Students will be assigned into the lab component of the class with the instructor who is teaching the lecture component of the class. This is being done in CIS classes numbered 1 to 49. The department is diligently seeking more CIS tutors in the area of Programming and Web Development. The CIS department is also actively seeking more minority and female tutors. The department has participated in the planning with the campus group that is designing new class room configurations for classes that utilize technology.. One of the suggestions that will be implanted soon is that the students will now have two monitors at their respective workstations. This should fix the problem of not being able to see what the instructor is displaying on the class monitor. Another step that is being taken is to utilize Netlab (a resource offered by a consortium of Community Colleges at Cabrillo College) whereby students via remote login can utilize technologies not currently available on Solano College workstations.

Lastly, very few CIS instructors are taking advantage of upgrading their technical skills via workshops and classes. There have been significant hardware and software changes in the past few years in areas of programming, web design and development, operating systems, mobile apps, digital media, game programming, and computer forensics. The college offers little financial assistance in this regard. If significant improvements are to be seen this has to change. The CIS department must also hire additional instructors who have broad knowledge of today's emerging technologies.

SUCCESS RATE (GENDER)

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
Total	880 55.0%	977 54.4%	336 62.5%	840 54.6%	869 55.8%	870 59.8%	783 61.6%	232 63.7%	675 64.7%	861 60.2%	207 62.4%	785 60.2%
Female	451 57.2% -11.4%	491 56.1% -11.7%	165 62.0% -13.2%	385 53.6% -14.9%	411 56.1% -12.3%	360 69.2% -0.1%	362 62.4% -6.1%	123 60.4% -13.9%	294 63.3% -5.8%	388 59.5% -10.7%	103 57.4% -21.3%	354 60.0% -7.9%
Male	421 52.7% -11.5%	469 53.5% -11.7%	162 62.4% -14.2%	427 55.7% -10.1%	447 55.4% -11.2%	477 52.3% -13.3%	412 61.3% -5.0%	105 67.8% -9.0%	374 66.0% 0.0%	454 61.4% -6.1%	100 67.3% -12.2%	417 60.3% -4.9%
Not Reported	12 52.9% -14.9%	17 31.8% -32.3%	5 83.3% -0.9%	10 45.5% -23.8%	11 61.5% -8.7%	13 61.1% -4.3%	9 46.7% -19.3%	4 50.0% -20.0%	7 57.1% -14.0%	19 48.0% -18.4%	4 75.0% -6.1%	14 60.0% -6.4%

Success Rate (Major)

For this field the comparison is the institution average.

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
Total	880 55.0% 0.67	977 54.4% 0.67	336 62.5% 0.76	840 54.6% 0.67	869 55.8% 0.68	870 59.8% 0.68	783 61.6% 0.68	232 63.7% 0.75	675 64.7% 0.68	861 60.2% 0.69	207 62.4% 0.79	785 60.2% 0.67
Undeclared	134 56.8% -9.9%	149 50.3% -16.3%	57 59.7% -16.1%	128 59.4% -8.0%	127 57.2% -10.4%	124 66.7% -1.0%	108 65.6% -2.0%	41 74.4% -0.8%	87 67.4% -0.4%	114 72.3% 3.2%	40 70.7% -8.4%	108 61.7% -5.0%
CIS-Computer Programming	120 57.1% -9.6%	131 55.4% -11.2%	46 63.6% -12.2%	114 51.4% -16.1%	124 61.1% -6.5%	137 50.3% -17.4%	119 61.0% -6.6%	34 71.1% -4.1%	115 64.2% -3.5%	133 58.8% -10.3%	36 75.7% -3.4%	137 65.4% -1.3%
Business General : Transfe	40 48.9%	39 65.3% -1.3%	21 82.6% 6.8%	46 55.8%	57 47.5%	85 59.4% -8.3%	76 66.3% -1.3%	35 71.1% -4.1%	71 59.0% -8.7%	89 50.5%	23 58.3%	96 56.1%

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
Registered Nursing	49 55.7%	58 43.2%	16 68.8%	54 52.2%	39 57.4%	29 55.2%	33 57.9%	10 60.0%	28 80.0%	31 66.7%	7 85.7%	28 46.7%
			-7.1%				-9.7%		12.2%	-2.4%	6.6%	
Accounting	45 66.1%	47 72.6%	21 69.2%	32 62.2%	45 63.8%	49 76.5%	50 67.9%	19 59.1%	39 73.5%	47 75.8%	7 57.1%	35 65.1%
			-6.6%	-5.3%	-3.8%	8.8%	0.3%		5.7%	6.7%		-1.6%
Business General, Transfer	60 52.4%	67 38.0%	19 65.2%	44 44.9%	31 50.0%	9 80.0%	15 70.6%	0	0	0	0	0
						12.3%	3.0%					
CIS-Web/Net Administration	41 63.4%	45 63.8%	17 47.6%	38 54.0%	35 66.1%	35 58.0%	27 75.0%	9 54.5%	24 65.7%	32 46.8%	7 42.9%	20 58.6%
					-1.5%	-9.7%	7.4%		-2.1%			-8.1%
OT:Med Office Spec	12 73.7%	13 68.0%	5 60.0%	17 88.9%	27 41.3%	26 81.4%	20 62.5%	4 25.0%	18 57.7%	31 61.0%	7 85.7%	23 74.2%
				21.5%		13.7%	-5.1%			-8.0%	6.6%	7.4%
OT: Admin Assist	18 80.0%	21 64.1%	3 33.3%	17 56.5%	23 76.5%	27 77.3%	27 46.7%	7 55.6%	31 56.9%	40 57.1%	2 50.0%	32 68.0%
					8.9%	9.6%						1.3%
Biology	15 50.0%	16 56.3%	3 100.0%	13 76.9%	23 36.0%	27 63.0%	18 59.1%	7 57.1%	14 80.0%	20 75.0%	7 85.7%	10 80.0%
	16.7%	10.4%	24.2%	9.5%	31.6%	-4.7%	-8.5%	18.0%	12.2%	6.0%	6.6%	13.3%
Others	346 49.3%	391 53.2%	128 59.6%	337 51.6%	338 53.1%	322 54.9%	290 58.7%	66 56.8%	248 63.7%	324 57.1%	71 48.6%	296 56.1%
							-8.9%	18.4%	-4.1%		30.4%	

SUCCESS RATE (ETHNICITY)

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
Total	880 55.0%	977 54.4%	336 62.5%	840 54.6%	869 55.8%	870 59.8%	783 61.6%	232 63.7%	675 64.7%	861 60.2%	207 62.4%	785 60.2%
	2 100.0%	1 0.0%	0	1 100.0%	2 50.0%	1 100.0%	0	0	1 100.0%	1 0.0%	0	3 0.0%
Am. Indian or Alaskan Native	12 76.9%	17 52.6%	6 20.0%	22 48.1%	18 45.0%	18 63.2%	19 59.4%	8 90.9%	21 51.7%	22 55.9%	11 63.6%	19 59.1%
	7.8%	16.0%	57.9%	21.0%	21.0%	-3.5%	-4.3%	11.3%	14.5%	16.5%	20.9%	12.9%

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
Asian or Pacific Islander	134 58.0%	126 52.8%	58 73.1%	143 64.3%	143 68.4%	156 60.3%	149 64.0%	48 70.9%	135 70.8%	176 66.5%	47 65.3%	182 60.6%
			-9.2%	-6.9%	-2.7%		-6.2%	-7.4%	0.7%	-6.1%		
Black Non-Hispanic	204 34.1%	195 40.6%	55 49.3%	161 43.2%	170 33.7%	148 44.8%	125 46.1%	40 45.5%	130 52.5%	150 40.9%	31 28.6%	144 49.1%
							-8.2%		-5.1%			-4.9%
Hispanic	131 60.4%	120 53.3%	70 68.0%	129 53.7%	168 52.6%	178 55.8%	130 64.7%	49 60.4%	125 61.5%	155 65.9%	39 66.7%	170 61.0%
	-5.5%		-4.9%			-9.4%	-2.7%		-4.7%	-1.4%		-5.0%
Other	120 59.4%	254 51.5%	38 57.8%	108 47.4%	92 55.1%	81 68.8%	50 69.7%	11 83.3%	33 71.7%	32 54.8%	7 100.0%	25 76.7%
			20.0%		17.7%	-3.4%	-3.5%	6.8%	-1.9%	21.9%	13.6%	8.7%
White Non-Hispanic	277 63.2%	264 68.5%	109 65.8%	276 60.6%	276 65.0%	288 66.1%	310 64.1%	76 64.2%	230 70.5%	325 64.2%	72 70.8%	242 64.9%
	-8.4%	-4.6%			-8.6%	-7.0%	-8.7%		-2.3%			-6.9%

Success Rate (Age)

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
Total	880 0.55 0.68 -0.13	977 0.54 0.68 -0.13	336 0.63 0.76 -0.14	840 0.55 0.69 -0.14	869 0.56 0.69 -0.13	870 0.60 0.68 -0.08	783 0.62 0.68 -0.07	232 0.64 0.75 -0.11	675 0.65 0.69 -0.04	861 0.60 0.70 -0.10	207 0.62 0.79 -0.16	785 0.60 0.67 -0.07
	0	0	0	0	0	0	1 0.0%	0	0	0	0	0
0-17	24 64.0%	20 29.2%	44 67.4%	42 60.5%	19 61.9%	33 58.8%	10 63.6%	14 86.7%	21 65.2%	22 77.3%	18 77.8%	62 80.6%
	-6.5%	-42.4%	-12.4%	-11.4%	-16.8%	-11.1%	-1.3%	2.7%	-3.2%	-1.3%	-3.5%	8.6%
18-25	456 49.4%	491 49.8%	130 65.7%	434 49.3%	475 53.8%	499 54.3%	433 59.5%	107 65.2%	353 64.3%	444 59.5%	94 62.1%	421 57.6%
	5.2%	5.3%	-9.9%	-16.0%	-11.8%	2.5%	-7.0%	-10.0%	-2.1%	-8.2%	-17.0%	-7.6%
26-30	101 50.3%	115 54.3%	42 51.0%	107 50.4%	110 50.4%	94 59.8%	87 58.4%	28 66.7%	89 63.9%	134 66.3%	31 75.0%	108 61.8%
	7.3%	2.7%	-23.9%	-18.5%	-19.5%	-7.3%	-9.9%	-5.3%	-3.5%	-3.2%	-4.7%	-4.9%

31-35	62	86	26	66	58	60	70	32	52	61	19	49
	50.0%	53.7%	42.9%	60.9%	71.1%	67.9%	65.9%	60.0%	62.9%	55.2%	73.7%	68.9%
			-29.8%	-8.7%	-1.5%	-0.1%	1.6%	-11.4%	-6.7%	-14.9%	-4.2%	-2.9%

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
36-40	57 73.1% 0.8%	78 57.7% -12.8%	24 75.0% -5.1%	47 58.6% -16.3%	54 60.3% -11.8%	47 61.5% -8.0%	41 52.2% -17.9%	14 37.5% -31.3%	45 55.6% -15.9%	40 54.0% -16.6%	12 21.4% -52.0%	32 57.8% -9.8%
41-45	54 63.0% -8.5%	53 57.4% -13.3%	18 81.0% 9.0%	42 57.7% -15.4%	54 62.3% -9.8%	39 70.8% -2.2%	32 66.7% -4.3%	8 77.8% -2.9%	23 65.5% -6.9%	51 63.1% -13.3%	17 63.2% -14.6%	37 62.2% -4.3%
46+	126 67.5% -7.9%	134 69.7% -6.7%	52 59.7% -16.7%	102 71.3% -3.8%	99 54.0% -18.7%	98 75.2% 2.0%	109 71.1% -4.2%	29 57.6% -20.2%	92 72.1% -3.6%	109 56.6% -16.0%	16 43.8% -36.0%	76 49.4% -24.4%

Success Rate (Instruction Method)

	Fall 2010	Spring 2011	Summer 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Summer 2013	Fall 2013	Spring 2014	Summer 2014	Fall 2014
Total	880 55.0%	977 54.4%	336 62.5%	840 54.6%	869 55.8%	870 59.8%	783 61.6%	232 63.7%	675 64.7%	861 60.2%	207 62.4%	785 60.2%
Directed Study/Independ. Study	0 0.0%	1 100.0% 0.0%	0 0.0%	2 100.0% 3.3%	1 100.0% 0.0%	2 100.0% 5.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Lecture and/or discussion	28 55.8% -12.3%	33 46.9% -20.2%	0 0.0%	31 56.0% -11.9%	56 64.1% -3.4%	12 95.2% 27.2%	25 65.6% -2.4%	0 0.0%	0 0.0%	140 67.9% -1.5%	41 61.0% -22.4%	276 62.4% -4.8%
Lecture/Lab	613 55.5% -13.5%	643 56.2% -13.1%	176 73.9% -4.2%	497 54.8% -13.6%	636 54.3% -14.6%	666 54.9% -12.5%	515 59.1% -10.2%	51 76.5% -3.1%	485 64.4% -3.2%	489 57.4% -11.9%	66 69.7% -11.0%	357 57.8% -8.5%
Online	318 54.0% -6.1%	363 52.6% -7.4%	172 52.5% -16.7%	359 53.9% -7.0%	235 57.7% -5.6%	233 71.7% 7.6%	289 65.9% 4.6%	185 60.5% -5.3%	217 65.5% 2.2%	296 60.7% -5.2%	101 58.5% -13.2%	190 60.8% -2.9%

3.2 Degrees/Certificates Awarded.

Below are the program results for the Microcomputer Applications program for the past 4 years:

	2008/2009	2009/2010	2011/2012	2012/2013
Associate in Science	7	7	4	5
Certificate of Achievement	4	3	1	1
Total	11	10	5	6

Below are the program results for the Computer Programming Major for the past 4 years:

	2008/2009	2009/2010	2011/2012	2012/2013
Associate in Science	1	1	5	0
Certificate of Achievement	0	1	2	2
Total	1	2	7	2

Below are the program results for the Web Administration for the past 4 years:

	2008/2009	2009/2010	2011/2012	2012/2013
Associate in Science	1	1	1	1
Certificate of Achievement	1	1	4	0
Total	2	2	5	1

3.3 Transfer.

Once the new AS-T degree in Computer programming is approved by the Chancellor's office Computer programming majors will be University of California as well as California State University transfer ready. To provide the students with more marketable skills the CIS program is currently being changed to offer a certificate or degree in Information Technology, which will replace the current Microcomputer Applications program, and the Web Administration program is being revised and renamed to Web Design and Development.

3.4 Faculty Training.

The department has recently allocated more monies for faculty training. One instructor recently attended a CIT symposium in Santa Barbara, and is now using all digital textbooks in his CIS courses as well as revolutionary software program for the Microsoft applications such as Word, Excel Access and PowerPoint. He is also collaborating with and networking with another community college instructor from American river College who co-authored two books he has adopted. The response from students has been excellent.

3.5 Career Technical Programs.

See Section 1.6 Future Outlook.

PROGRAM RESOURCES

4.1 Human Resources.

The CIS Department currently has six full-time instructors Kevin Anderson, Mark Berrett, Adrienne Cary, Marylou Fracisco, Mark Taylor and John Urrutia. Of the six, only Professors Anderson, Berrett and Urrutia have the FSA to teach computer programming. The department also has several adjunct instructors: Joanne Strickland, Earl Wylie, Grant Lee, Bill Schwarz, Carl Ogden, Zhen Chen, and Kathleen Callison.

Professor Adrienne Cary recently was recently granted sabbatical leave where she attended several Adobe classes and is now certified to teach any course requiring the use of the Adobe Software programs such as InDesign and Photoshop.

4.2 The college administration has recently hired a full-time CIS instructor. The instructor began teaching in spring of 2013. We are still in need of additional adjunct CIS instructors.

4.3 Equipment. The CIS computer labs and classrooms on the main campus and the centers are in need of technological upgrades. Unfortunately we now share these classrooms with other disciplines and additional software has been installed on student workstations whereby CIS students are expiring a significant degradation in the workstations' performance. We need new computers that are faster and have greater memory capacities with the ability to run on multiple platforms such as Windows, UNIX and Linux. We have upgraded our application software to Microsoft Office 2013, and programming software to Visual Studio 2012 and the we are now using the latest version of Adobe Suite. However, if the CIS programs are to remain viable, we must offer the latest technologies. It appears the current college budget for equipment and software upgrades cannot keep up with the technological upgrades the CIS program desperately needs.

4.4 Facilities. We have a need for a computer lab area with sufficient storage space so students can work on semester projects (i.e. building a PC, etc...) and be able to store items so they can be worked on at a later date and time. The department also has the need for more meeting space. We currently have our staff meeting in a class room where faculty must sit at a computer workstation or at a desk. We need a room that has a conference table. The CIS students need a room for collaboration. Currently they use the computer labs in rooms 504 and 507, however, it can get rather loud which interferes with other students working on computer lab assignments.

4.5 Budget/Fiscal Profile. For the past four years the college's budget has been unstable. If the college budget would stabilize we could plan better. We have provided the CIS departmental hardware and software needs to the dean of Applied Technology and Business, however there does not appear to be adequate funding for new developments or major projects.

5.1 Program Strengths

The greatest strength of the CIS program is its stability. The program has been in existence for over 30 years and we are still able to offer courses that are relevant and meet the necessary UC and CSU transfer requirements. We teach students the latest developments in technologies with limited funding and limited human resources. We would like to offer more courses at our centers, particularly Vacaville. We would like our students to be able to take all of the courses required to obtain the degree or certificate at the Vacaville center. In order to do this we need more course offerings at the Vacaville center as well as more than one full-time CIS faculty member.

Table 8. Short-Term and Long-Term Goals

<i>Short-Term Goals</i>	<i>Planned Action</i>	<i>Target Date</i>	<i>Person Responsible</i>	<i>Source</i>
1. Implement Business Information Worker Program	Submit Program to Curriculum Committee	Fall 2016	Kevin Anderson	NR
2. Develop new programming courses to articulate with CSU East Bay, Sacramento and San Francisco	Meet with representatives from the CSU's	Fall 2016	Kevin Anderson, Mark Berrett	NR
3. Develop new IT program to develop mobile apps.	Meet with Dean to obtain necessary information to proceed.	Spring 2017	Mark Berrett	NR
<i>Long-Term Goals</i>	<i>Planned Action</i>	<i>Target Date</i>	<i>Person Responsible</i>	<i>Source</i>
1. Develop a CIS Excel online class	CIS 73	Fall 2017	Kevin Anderson	NR
2. Hire two full-time programming instructor	Discuss with Dean	Fall 2017	Dean of CTE & Business	DB
3. Hire additional CIS application instructors	Discuss with Dean	Fall 2017	Dean of CTE & Business	DB

In the source column denote “SP” for Strategic Proposals, “DP” for Department Budget, “P” for Perkins or “NR” for No Additional Resources Needed.

SIGNATURE PAGE

Please include all full-time faculty and as many part-time faculty as possible.

Faculty chose not to sign this report.

Ferdinanda Florence, APCR Coordinator, 4/25/17

Appendix A
CIS AND OT ADVISORY
COMMITTEE MEETING MINUTES

(Redacted to include only the CIS meeting information)

DATE: October 21, 2014 4:00 p.m. to 6:00 p.m.

ATTENDEES:

Donna Anderson, SCC Instructor, retired	Kathleen Callison, SCC Instructor
Kevin Anderson, CTE School Coordinator	Patricia Ceja, OT Instruction Assistant
Harriet Strickland, CEO, Altrian (AMG)	Zhen Chen, SCC Instructor
Debra Berrett, SCC Instructor	Catherine Choe, Sutter Health Care
Mark Berrett, SCC Instructor	Marylou Fracisco, SCC Instructor
Dawn Carpenter, SCC Instructor	Geff Freire, SCC Student
Adrienne Cary, SCC Instructor	Rebecca Lacount, SCC Counselor
Emily Lane, SCC Instructor	Linda McKee, RN, Kaiser
Maire Morinec, SCC Dean	Brenda Jaye, Manager Nelson Staffing
Lavonne Slaton, SCC Instructor	Alex Kiaman, SCC Student
Berta Lloyd, SCC	Sylvia Cross, Health Info Consultant
Alison Bolton, SCC Instructor	Patricia Young, SCC Career Coordinator
Rick Llewelyn, IT Director, NorthBay Healthcare Senator	Ziyun He (Helen), SCC ASSC Bus.
Marsh Ellis, Center Director, Lifelong Medical Care	

MINUTES:

Meeting called to order by Kevin Anderson, CTE School Coordinator at 4:00 p.m. Kevin stated that we are trying to get innovative and creative with our programs and would like to thank everyone for coming

Kevin announced the plan to have a meeting in the spring as a follow up to decisions made during this meeting. What can we do to enhance our programs for the students and what did we implement from the plans made.

The group introduced themselves

Kevin introduced Dean Maire Morinec to the group:

Dean Morinec discussed that she and some others would be going to a conference focusing on the \$50 million dollars in enhancement funds that the colleges will be receiving of that amount we will be receiving approximately \$320,000. We received the second highest award in funds. Focus for the funds will be on Information Technology; Allied Health and Health Services; Advanced Manufacturing; Drafting; Megatronics; etc. Office Technology and Medical Front Office will be in Allied Health; Computer Coding in Information Technology. Remaining amount for regional projects, such as standardized programs.

What is Measure Q –a 340 million dollar bond –we will have a building for companies to come and train their people. Tell us what you need so the equipment can be paid for out of Measure Q monies.

OVERVIEW OF CIS PROGRAM—KEVIN ANDERSON

Kevin Anderson & John Urrutia are working on migrating CIS Computer Programming to a Computer Programming Transfer Degree

Microcomputer Applications Program to an Information Technology Program

Web administration Program to migrate to a Web Development Program such as Word Press.

We want to offer classes that will meet the industries needs and standards. We will be very responsive to your input. The plan is to meet at least twice a year to keep on top of what is going on in the industry.

BREAKOUT SESSION: COMPUTER AND INFORMATION SCIENCE

Kevin Anderson, Zhen Chen, Adrienne Cary, Mark Berrett, Ricardo Llewelyn, Kathleen Callison

Guest

Alison Bolton, Ricardo Llewelyn

Student Guest

Geff Freire, Ziyun (Helen) He, Alex Klaman

Agenda Items that were discussed during the meeting

1. **CIS AS-T Transfer degree** – All the work has been completed but it has not yet been approved by the curriculum committee. The committee is backlogged. Hopefully they will review the modifications to the CIS programming degree so the transfer degree can be awarded May 2015.
2. **Web Administration and Microcomputer Application programs**– We discussed modifying both of these programs and making the Web Admin program a Web development program. The Microcomputer Applications program will be changed to an Information technology program. The committee believes that we should see an increase in CIS course enrollment and an increase in the number of students receiving a CIS degree or certificate. Professors Cary and Anderson will be leading out in this effort. We are currently looking at Information Technology and Web Development programs at other community colleges such as American River, Sacramento City, Napa Valley, Diablo Valley, Sierra and Monroe Colleges.
3. **CIS 1 Course Changes** -We discussed the changes made to the CIS 1 course to comply with the requirements for the AS-T transfer degree in Business. The course will now include exercises in spreadsheets and databases.
4. **Current Student Workstation Performance Issues** -Ricardo Llewelyn, IT Network Director of NorthBay healthcare shared with us a different concept for our student workstations; Virtual Desktop. He thought that using virtual desktop software on our student workstation would improve the speed and performance of the workstations. We will discuss this with our IT department and report back at the next CIS department meeting and at the next Advisory committee meeting scheduled for spring semester 2015.
5. **Mobile Apps and Gaming classes** – the students at the meeting asked about the possibility of the CIS department offering course on computer gaming and mobile applications. Geff Freire is doing the research and once complete, the department will look at the viability of offering the classes.

Meeting adjourned at 5:45 p.m.

Appendix B

CALIFORNIA COMMUNITY COLLEGES

Business Information Worker

PATHWAY TO SUCCESS





In just two semesters gain marketable skills to get hired or advance within your company.

Solano Community College

Business Information Worker Pathway Courses

Course Title	Course Number	Skill Sets Achieved
Beginning Keyboarding	OT 54 A & B	Keyboarding
Computer Literacy	CIS 106	Microsoft Windows
Microsoft Word	CIS 66	Microsoft Word
Microsoft Excel	CIS 73	Microsoft Excel
Microsoft Outlook	CIS 91	Microsoft Outlook
Introduction to PowerPoint	CIS 90	Microsoft PowerPoint
Computer Literacy	CIS 106	Information Systems, Basic
Business Communications	BUS 92	Business Communications
Human Relations	MGMT 191	Human Relations/Customer Service

The Business Information Worker is a job readiness pathway or certificate for office workers, developed in conjunction with local employers.

Enrolled students are prepared in a broad range of entry-level office skills and applications which promote success in a variety of office environments.

With a solid foundation in Microsoft Windows and Office as well as strong digital and web literacy skills, the Business Information Worker brings efficiency and productivity to the workplace.

Completion of the Business Information Worker pathway also brings indispensable critical thinking, problem solving, and interpersonal skills to the workplace, essential components of the curriculum.



The Information and Communication
Technologies & Digital Media
Sector Resource Team
ONE WORLD VALLEY COLLEGE



DOING WHAT MATTERSSM
AT SMALL BUSINESS



4000 Suisun Valley Rd.
Fairfield, CA 94534
707-864-7000
www.solano.edu

Appendix C



It All Links Together for a Career in IT

Training ■ Certifications ■ Experience ■ Engagement



Entry-level jobs in computer support or network information technology (IT) don't always require a 4-year degree. With the combination of Training, Certifications, Experience, and Peer Engagement, you can start your IT career in a matter of months.

The IT Technician Pathway will help you navigate your way from an entry-level job to working as an in-demand, well-paid IT Technician. Follow the pathway stages to obtain the knowledge and skills you need to acquire 3rd party industry certifications and employment in the IT field. As you build upon your work experience and engage in the IT community, you'll be well on your way to a successful career.



Computer Retail Sales

Learn fundamental IT, business and customer service skills by taking the first 5 IT Technician Pathway courses and the CompTIA A+ Certification exam.

STAGE ONE



Help Desk/User Support

Build on the IT Technician Pathway by completing additional networking and security coursework along with the suggested industry certifications.

STAGE TWO



IT Technician

Further your career by taking IT courses that teach advanced concepts, including CyberSecurity (Ethical Hacking), and become certified.

STAGE THREE

Learn More

For more information about the IT Technician Pathway, including local college contacts, visit

www.ict-dm.net/ittp

“The California Community College IT Technician Pathway program describes an effective balance of training, certifications and experience to develop IT Professionals without a 4-year degree...”

James Brady, PhD, FRMSS, Chief Information Officer,
Kaiser Permanente Orange County, Information Technology

