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EL CAMINO COLLEGE

Career & Technical Education (CTE)– Program Review Supplemental Questions

Submitted by the
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Caveat:

Observations and statements made within this document have been based upon data retrieved from several federal, state and private resources.

Although every effort has been made to compare “apples to apples”, some sources define occupational titles using TOP (taxonomy of programs) codes whereas others use CIP (classification of instructional programs), SOC (standard occupational classification) or NAIC (North American industry classification) codes.

Data taken from any of the sources that we have used all lead to the same conclusions stated herein. However, not every source provided numbers that combine the exact same occupational titles. Additionally, when comparisons are attempted, there is no exact correlation between all occupational codes. Because of this, the reader should be aware that an exact comparison of numbers or percentages is impossible due to the differences in the definitions used, and the collection methods employed by the different reporting agencies.

1. **How strong is the occupational demand for the program?**
2. **How has the demand changed in the past 5 years and what is the outlook for the next 5 years?**

California was not immune to the global economic downturn of the last six years. Statewide, the total number of jobs for all occupations decreased by 682,184 from 2007 through 2012.

Quarterly Census of Employment and Wages

Series Id: ENU0600010010
 State: California
 Area: California -- Statewide
 Industry: Total, all industries
 Owner: Total Covered
 Size: All establishment sizes
 Type: All Employees

Download: [.xls](#)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2002	14517563	14575666	14747323	14814060	14963319	15078486	14781005	14808350	14967652	14927842	14940221	14926518	14837334
2003	14541830	14605907	14717930	14794392	14922371	15020675	14714091	14730470	14890686	14925312	14916124	14912088	14807656
2004	14600341	14658079	14788351	14906326	15038553	15091705	14933509	14911312	15072117	15130153	15157175	15148645	14953022
2005	14754160	14881879	15012292	15178478	15289890	15360226	15199029	15213578	15426473	15476381	15517081	15500786	15234188
2006	15165254	15303585	15385235	15391851	15584832	15708079	15424590	15445937	15645321	15646092	15669811	15667139	15503144
2007	15319703	15418596	15548756	15571668	15719884	15831772	15590258	15596074	15742529	15770730	15786056	15790869	15640575
2008	15370056	15461059	15520966	15586992	15713130	15748201	15441697	15400851	15525880	15497934	15390510	15281705	15494915
2009	14841772	14755826	14728743	14707872	14812639	14801557	14418009	14381157	14512076	14571875	14546049	14481855	14629953
2010	14149182	14183021	14246983	14386737	14558836	14617913	14325003	14324738	14464954	14589136	14585437	14541592	14414461
2011	14262502	14346484	14382896	14522211	14648624	14692044	14466190	14492764	14696544	14762883	14796771	14735619	14567128
2012	14572823(P)	14648855(P)	14732436(P)	14812806(P)	15005461(P)	15118471(P)	14870962(P)	14935192(P)	15114556(P)	15212284(P)	15260552(P)	15216293(P)	14958391(P)

During the same time frame a proportionally higher decrease (222,934) in jobs was attributed to Los Angeles County alone.

Quarterly Census of Employment and Wages

Series Id: ENU0603710010
 State: California
 Area: Los Angeles County, California
 Industry: Total, all industries
 Owner: Total Covered
 Size: All establishment sizes
 Type: All Employees


Download: [.xls](#)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2002	3996421	4018640	4068679	4055383	4072184	4091200	4026539	4021053	4052705	4078387	4099239	4114992	4057952
2003	3983362	4009717	4036751	4032873	4042181	4041688	3975759	3950703	3998072	4041845	4046962	4074370	4019524
2004	4002395	4020315	4046395	4042600	4051533	4055342	4020806	3980664	4024183	4070879	4096004	4115130	4043854
2005	3992657	4015735	4046338	4072627	4079221	4088905	4055896	4033373	4100150	4145081	4168312	4192104	4082533
2006	4110549	4146308	4176390	4148282	4163338	4185994	4119931	4095481	4157833	4187096	4208827	4241106	4161761
2007	4134546	4172406	4205547	4180986	4200231	4226801	4169082	4145421	4191628	4235395	4255394	4294540	4200998
2008	4146385	4180344	4204916	4201169	4209390	4209889	4155109	4103437	4144016	4167849	4152391	4149487	4168699
2009	4006601	3996886	3995604	3958872	3956921	3948567	3869010	3821447	3865274	3904287	3915586	3929207	3930689
2010	3819446	3828809	3846887	3856639	3874417	3876586	3838529	3791764	3839145	3884250	3900311	3924685	3856789
2011	3839501	3860934	3876672	3886267	3894944	3895057	3852973	3812302	3873038	3913015	3936533	3955519	3883063
2012	3898735(P)	3925399(P)	3949250(P)	3964405(P)	3977120(P)	3990405(P)	3950889(P)	3930279(P)	3983107(P)	4024440(P)	4060521(P)	4082217(P)	3978064(P)

Fortunately, jobs in the information technology (IT) sector were not as adversely affected as many others, and there is a strong demand for trained IT professionals nationally, statewide and locally.

The chart on the next page indicates that the forecasted national percentage increases from 2010 through 2020 for all jobs is 14.3%. For the same time frame the forecasted percentage

increase for IT jobs ranges from 18.1% through 32.4%. All of these increases are slightly above, or in many cases well above the forecasted national average growth rate.

					
Occupation		Employment (in thousands)		Employment change, 2010-2020	
Title	Code	2010	2020	Number (in thousands)	Percent
Total, All Occupations	00-0000				14.3
Software Developers, Systems Software	15-1133	392.3	519.4	127.2	32.4
Database Administrators	15-1141	110.8	144.8	33.9	30.6
Network and Computer Systems Administrators	15-1142	347.2	443.8	96.6	27.8
Software Developers, Applications	15-1132	520.8	664.5	143.8	27.6
Computer Systems Analysts	15-1121	544.4	664.8	120.4	22.1
Information Security Analysts, Web Developers, and Computer Network Architects	15-1179	302.3	367.9	65.7	21.7
Computer Support Specialists	15-1150	607.1	717.1	110.0	18.1
Computer and Information Systems Managers	11-3021	307.9	363.7	55.8	18.1

3. What is the district's need for the program?

The data presented over the next few pages provides two different views of our district's need for the CIS program

Job Outlook For California Community College Occupational Education Programs			
Projections of Employment by Occupation, 2010 - 2020			
Computer and Mathematical Occupations			
Occupations Matched to TOP Code(s):			
070100	<i>Information Technology, General</i>	070720	<i>Database Design & Administration</i>
070200	<i>Computer Information Systems</i>	070730	<i>Computer Systems Analysis</i>
070210	<i>Software Applications</i>	070800	<i>Computer Infrastructure & Support</i>
070700	<i>Computer Software Development</i>	070810	<i>Computer Networking</i>
070710	<i>Computer Programming</i>	070820	<i>Computer Support</i>
Geography: Los Angeles County			
Counties: Los Angeles County			
Annual Job Openings by Occupation			
SOC Code	Occupation Title (Link to Occupation Profile)	2010 Employment	Annual Job Openings ¹
113021	Computer and Information Systems Managers	9,450	281
151111	Computer and Information Research Scientists	530	20
151121	Computer Systems Analysts	12,950	439
151132	Software Developers, Applications	13,880	464
151133	Software Developers, Systems Software	13,200	443
151141	Database Administrators	2,360	101
151142	Network and Computer Systems Administrators	9,490	369
151179	Information Security Analysts, Web Developers, and Network Architects	42,100	1660
251021	Computer Science Teachers, Postsecondary	1,610	52
Total		105,570	3,829
Table Generated on 6/30/2013 12:50:15 PM			
¹ Total Job Openings are the sum of new jobs from growth plus net replacements. Annual job openings are total job openings divided by the number of years in the projection period.			
Source:	http://www.labormarketinfo.edd.ca.gov/commcolleges/Projections.asp		

- A) The data above (supplied by the state of California's Employment Development Department) is only for Los Angeles County, and does not include every job title within IT that our students might be preparing for. Even so, demand is strong as the state is forecasting over 3,800 new jobs each and every year throughout 2020 for Los Angeles County for those job titles that are listed above.
- B) The 2013 Salary Guide for IT Professionals lists, among other things, IT professional's salary data for sixty-two different metropolitan areas with 100% being the national average.

The Los Angeles area (109.5%) is surpassed nationally only by New York, NY (114.5%), Newark, NJ (113.8%), Boston (110%), and Orange County (109.7%) indicating, in part, strong demand for people with IT skills.

4. What is the state's need for the program?

Job Outlook For California Community College Occupational Education Programs			
Projections of Employment by Occupation, 2010 - 2020			
Computer and Mathematical Occupations			
Occupations Matched to TOP Code(s):			
070100	<i>Information Technology, General</i>	070720	<i>Database Design & Administration</i>
070200	<i>Computer Information Systems</i>	070730	<i>Computer Systems Analysis</i>
070210	<i>Software Applications</i>	070800	<i>Computer Infrastructure & Support</i>
070700	<i>Computer Software Development</i>	070810	<i>Computer Networking</i>
070710	<i>Computer Programming</i>	070820	<i>Computer Support</i>
Geography: California			
Counties: Includes All Counties			
Annual Job Openings by Occupation			
SOC Code	Occupation Title (Link to Occupation Profile)	2010 Employment	Annual Job Openings¹
113021	Computer and Information Systems Managers	43,000	1,470
151111	Computer and Information Research Scientists	6300	250
151121	Computer Systems Analysts	61,200	2,250
151132	Software Developers, Applications	88,700	3,380
151133	Software Developers, Systems Software	75,500	3,200
151141	Database Administrators	11,200	550
151142	Network and Computer Systems Administrators	39,100	1,730
151179	Information Security Analysts, Web Developers, and Network Architects	42,100	1,660
251021	Computer Science Teachers, Postsecondary	3,700	120
	Total	370,800	14,610
Table Generated on 6/30/2013 12:50:15 PM			
¹ Total Job Openings are the sum of new jobs from growth plus net replacements. Annual job openings are total job openings divided by the number of years in the projection period.			
Source: http://www.labormarketinfo.edd.ca.gov/commcolleges/Projections.asp			

The state's need for IT professionals mirrors that of Los Angeles County.

- A) The data above (again supplied by the state of California's Employment Development Department) shows an equally strong demand for IT professionals throughout the state of California.
- B) The wage/salary data below demonstrates the numeric and percentage wage increases that California community college students experience from two years before they earn an IT degree/certificate, to a point in time that is two years, and then five years after they earn an IT degree/certificate. The increase in wages after receiving a degree or certificate is evident.

California Community Colleges Chancellor's Office
Wage Gains for Award Recipients Summary Report

Note: **ALL** Community Colleges

	Award Years 2002-2003 to 2006-2007	Award Years 2002-2003 to 2006-2007		Award Years 2002-2003 to 2006-2007	
	Median Wage 2 Years Before Award	Median Wage 2 Years After Award		Median Wage 5 Years After Award	
Computer Information Systems-070200					
AA/AS Degree Recipient	\$21,862	\$30,950	41.57%	\$42,341	93.67%
Chancellor's Office Approved Certificates Recipient	\$14,408	\$31,091	115.79%	\$43,111	199.22%
Locally Approved Certificates Recipient	\$15,930	\$30,750	93.03%	\$41,067	157.80%
Computer Infrastructure and Support-070800					
AA/AS Degree Recipient	\$37,975	\$38,993	2.68%	\$44,542	17.29%
Computer Networking-070810					
AA/AS Degree Recipient	\$23,849	\$47,449	98.96%	\$55,105	131.06%
Chancellor's Office Approved Certificates Recipient	\$24,045	\$46,780	94.55%	\$58,024	141.31%
Locally Approved Certificates Recipient	\$31,872	\$47,004	47.48%	\$56,233	76.43%
Computer Programming-070710					
AA/AS Degree Recipient	\$20,292	\$36,199	78.39%	\$52,038	156.45%
Chancellor's Office Approved Certificates Recipient	\$30,446	\$45,860	50.63%	\$42,590	39.89%
Locally Approved Certificates Recipient	\$33,340	\$46,811	40.40%	\$61,450	84.31%
Computer Science (Transfer)-070600					
AA/AS Degree Recipient	\$15,805	\$33,111	109.50%	\$55,099	248.62%
Computer Software Development-070700					
AA/AS Degree Recipient	\$48,942	\$54,055	10.45%	\$71,817	46.74%
Chancellor's Office Approved Certificates Recipient	\$40,545	\$26,863	-33.75%	\$62,184	53.37%
Computer Support-070820					
AA/AS Degree Recipient	\$27,739	\$30,144	8.67%	\$34,941	25.96%
Chancellor's Office Approved Certificates Recipient	\$20,144	\$35,197	74.73%	\$44,890	122.85%
Database Design and Administration-070720					
Locally Approved Certificates Recipient	N/A	N/A		\$57,550	
Information Technology, General-070100					
AA/AS Degree Recipient	\$20,862	\$31,245	49.77%	\$41,174	97.36%
Locally Approved Certificates Recipient	\$31,696	\$38,582	21.73%	\$54,078	70.61%
Other Information Technology-079900					
AA/AS Degree Recipient	\$24,330	\$36,534	50.16%	\$51,381	111.18%
Locally Approved Certificates Recipient	\$29,291	\$29,665	1.28%	\$42,409	44.79%
Software Applications-070210					
AA/AS Degree Recipient	\$16,847	\$26,401	56.71%	\$32,900	95.29%
Chancellor's Office Approved Certificates Recipient	\$13,847	\$21,725	56.89%	\$29,552	113.42%
Locally Approved Certificates Recipient	\$18,418	\$17,843	-3.12%	\$17,389	-5.59%

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5. How does the program address needs that are not met by similar programs in the region?

El Camino College is located within a major metropolitan area where IT skills are in great demand. As expected, every comparable institution in our immediate area also offers many of the same programs/courses. Each of the community colleges listed below draws its IT students based mainly on geographic distance from the students home or work location.

The table below (source; <http://nces.ed.gov/collegenavigator/>) lists all of the community colleges within fifteen miles of El Camino College, and whether they offer IT degrees and/or certificates.

	Miles From El Camino College	Degrees/Certificates Offered			
		< 1 yr. certificate	1, but < 2 yr. certificate	Associate's degree	2, but < 4 yr. certificate
El Camino College	0.0	Yes	Yes	Yes	Yes
Los Angeles Southwest College	5.1	Yes	Yes	Yes	No
Los Angeles Harbor College	7.9	Yes	Yes	Yes	No
West Los Angeles College	8.5	Yes	Yes	Yes	No
Santa Monica College	11.7	No	Yes	Yes	No
Long Beach City College	13.7	Yes	Yes	Yes	Yes

It should be noted that the CIS Department is currently in the process of updating the content and requirements for the Computer Information Systems Associate's degree and corresponding certificates based upon interaction with the state's Community Colleges Chancellor's Office, and input from our Advisory Committee.

6. Are the students satisfied with their preparation for employment?

The response to this section is taken verbatim from El Camino College's Career & Technical Education (CTE) Employment Outcomes Survey 2013. It should be noted that the student's responses relate to all CTE programs. As of the submittal date of this report, individual program level data was not available.

(Technical Education Employment Outcome Survey 2013)

Background

Skills-building students from El Camino College were surveyed if they met one of the following criteria in 2010-2011, and did not enroll in 2011-2012: earned a certificate of 6 or more units, earned a vocational degree, or earned 9+ CTE units. The survey was administered in early 2013 first by e-mail, then by US mail, then by telephone. The survey addressed student perceptions of their CTE program, employment outcomes, and how their coursework and training relate to their current career.

The sample consisted of 1,838 unduplicated students, 117 of whom responded by e-mail (6%), 135 by US mail (7%) and 183 by telephone (10%) for a total response rate of 24%.

Results

58% of former students were "very satisfied" with the education and training they received at El Camino College, and 33% were "satisfied" for an overall satisfaction rate of 91%.

Summary and Conclusions

The results of the survey showed that completing CTE studies and training – whether or not a credential is earned, whether or not a student transfers – is related to positive employment outcomes. The preponderance of respondents are employed, are working in the same field as their studies or training, and are working full time. Respondents overall posted a 26% increase in their hourly wage after completing their studies at El Camino College and the vast majority were satisfied with the education and training they received.

7. **Are the employers in the field satisfied with the level of preparation of our graduates?**

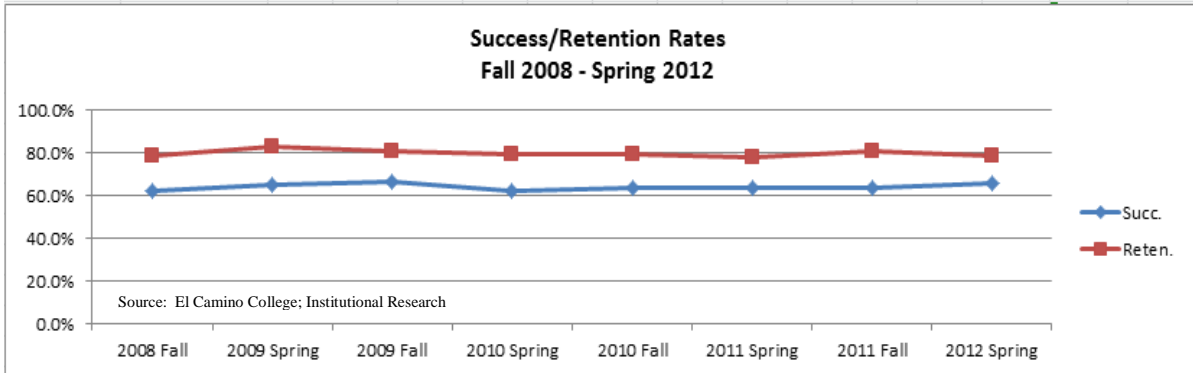
Currently, no data regarding employer satisfaction is available from any department at El Camino College, or the California Community Colleges Chancellor's office.

8. What are the completion, success, and employment rates for the students?

**Grade Distribution, Success, and Retention
Computer Information Systems
Fall & Spring 2008 to 2012**

Program Computer Information System
Session Fall & Spring

Year	Grade Distribution											Total	Succ.	Reten.
	'A'	'B'	'C'	'P'	'D'	'F'	'NP'	Inc P	Inc NP	'DR'	'W'			
2008 Fall	274	231	164		47	122		-	7	78	160	1,083	61.8%	78.0%
2009 Spring	260	290	177	1	60	139		-	7	35	157	1,126	64.7%	82.9%
2009 Fall	264	251	195		63	95		-		43	167	1,078	65.9%	80.5%
2010 Spring	259	281	160		75	109	4	2	2	54	185	1,131	61.9%	78.9%
2010 Fall	264	239	172		52	111		1	4	74	153	1,070	63.1%	78.8%
2011 Spring	285	299	213	1	66	102		2	9	65	213	1,255	63.6%	77.8%
2011 Fall	237	286	218		73	118		2	6	61	164	1,165	63.6%	80.7%
2012 Spring	264	283	195		58	82		3	7	67	181	1,140	65.1%	78.2%



The data for the last eight available semesters show:

- a) A fairly consistent success rate averaging 63.7% (high = 65.9% low = 61.8%)
- b) An equally consistent retention rate averaging 79.5% (high = 82.9% low = 77.8%)

As part of El Camino College’s Technical Education (CTE) Employment Outcomes Survey 2013, respondents were asked, if currently employed, how closely related their job is to their field of study at El Camino College. Half (52%) indicated they are working in the same field as their studies and training, followed by more than a fifth (21%) indicating they work in a field that is “close” to their studies and training, and 27% indicated their job is not related to their studies.

As mentioned in section 6 (page 8), the difficulties inherent in collecting follow-up data on graduated students did not yield large amounts of employment data. The paragraph above refers to numbers that represent all CTE students. As of the submittal date of this report, individual program level data was not available.

9. What is the role of the advisory committee and what impact does it have on the program?

El Camino's CIS Department is committed to assisting those students seeking employment in information technology occupations to be able to enter the workforce as competent employees with relevant and current technology expertise, and the job success skills required by employers.

To help ensure that our program is aligned with the local job market we have developed and meet with an advisory committee comprised of five business professionals from small, medium and large local businesses. With their advice, they help the CIS department ensure that our program consists of courses that:

- Are relevant to the community
- Address current industry standards
- Meet workforce needs
- Are designed with future industry and economic trends in mind

The CIS Department last met with our advisory committee on April 26th of this year. The following areas were discussed, and the committee gave validation to our objectives and/or shed new light on:

- The size of a company that might hire a person with only a two year AA degree
- The job titles that might be open to a person with only a two year AA degree
- Our AA/AS degrees should offer the respective transferrable courses to clearly guide the CIS major seeking transfer to a four year program
- A basic class in networking should be required of all CIS students
- The concept of breaking our course offerings into "tracks" such as Help Desk, Device/Desktop Support, Web Development/Management, and Programming

10. If there is a licensure exam for students to work in their field of study, please list the exam and the pass rate. If there are multiple licensure exams in the program, include them all.

There are no federal or state licensure exams required of our students to work in the information technology field.

There is, however, an industry certification exam. Students who want to become “CISCO certified” can arrange to take CISCO’s CCNA exam at an official testing center. We do not have access to the pass rates because the students can take the tests at any of the available testing centers. The testing centers are not affiliated with El Camino College, and do not make this data available.
