EL CAMINO COLLEGE

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

Submitted by the
Business Division’s
Computer Information Systems Department
August, 2013

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<td></td>
<td>12</td>
</tr>
</tbody>
</table>
**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.

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

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.

![Bureau of Labor Statistics Table]

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

<table>
<thead>
<tr>
<th>Occupations Matched to TOP Code(s):</th>
</tr>
</thead>
<tbody>
<tr>
<td>070100 <em>Information Technology, General</em></td>
</tr>
<tr>
<td>070200 <em>Computer Information Systems</em></td>
</tr>
<tr>
<td>070210 <em>Software Applications</em></td>
</tr>
<tr>
<td>070700 <em>Computer Software Development</em></td>
</tr>
<tr>
<td>070710 <em>Computer Programming</em></td>
</tr>
</tbody>
</table>

**Geography:** Los Angeles County

**Counties:** Los Angeles County

### Annual Job Openings by Occupation

<table>
<thead>
<tr>
<th>SOC Code</th>
<th>Occupation Title (Link to Occupation Profile)</th>
<th>2010 Employment</th>
<th>Annual Job Openings¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>113021</td>
<td><em>Computer and Information Systems Managers</em></td>
<td>9,450</td>
<td>281</td>
</tr>
<tr>
<td>151111</td>
<td><em>Computer and Information Research Scientists</em></td>
<td>530</td>
<td>20</td>
</tr>
<tr>
<td>151121</td>
<td><em>Computer Systems Analysts</em></td>
<td>12,950</td>
<td>439</td>
</tr>
<tr>
<td>151132</td>
<td><em>Software Developers, Applications</em></td>
<td>13,880</td>
<td>464</td>
</tr>
<tr>
<td>151133</td>
<td><em>Software Developers, Systems Software</em></td>
<td>13,200</td>
<td>443</td>
</tr>
<tr>
<td>151141</td>
<td><em>Database Administrators</em></td>
<td>2,360</td>
<td>101</td>
</tr>
<tr>
<td>151142</td>
<td><em>Network and Computer Systems Administrators</em></td>
<td>9,490</td>
<td>369</td>
</tr>
<tr>
<td>151179</td>
<td><em>Information Security Analysts, Web Developers, and Network Architects</em></td>
<td>42,100</td>
<td>1660</td>
</tr>
<tr>
<td>251021</td>
<td><em>Computer Science Teachers, Postsecondary</em></td>
<td>1,610</td>
<td>52</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>105,570</strong></td>
<td><strong>3,829</strong></td>
</tr>
</tbody>
</table>

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¹Total 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](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):

<table>
<thead>
<tr>
<th>SOC Code</th>
<th>Occupation Title (Link to Occupation Profile)</th>
<th>2010 Employment</th>
<th>Annual Job Openings¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>070100</td>
<td>Information Technology, General</td>
<td></td>
<td></td>
</tr>
<tr>
<td>070200</td>
<td>Computer Information Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>070210</td>
<td>Software Applications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>070700</td>
<td>Computer Software Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>070710</td>
<td>Computer Programming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>070720</td>
<td>Database Design &amp; Administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>070730</td>
<td>Computer Systems Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>070800</td>
<td>Computer Infrastructure &amp; Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>070810</td>
<td>Computer Networking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>070820</td>
<td>Computer Support</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Geography: California
Counties: Includes All Counties

Annual Job Openings by Occupation

Table Generated on 6/30/2013 12:50:15 PM

¹Total 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.

<table>
<thead>
<tr>
<th>Award Years</th>
<th>Median Wage 2 Years Before Award</th>
<th>Median Wage 2 Years After Award</th>
<th>Median Wage 5 Years After Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2003 to 2006-2007</td>
<td>$21,862</td>
<td>$30,950</td>
<td>41.57%</td>
</tr>
<tr>
<td>Chancellor’s Office Approved Certificates</td>
<td>$14,408</td>
<td>$31,091</td>
<td>115.79%</td>
</tr>
<tr>
<td>Locally Approved Certificates</td>
<td>$15,930</td>
<td>$30,750</td>
<td>93.03%</td>
</tr>
<tr>
<td>Computer Infrastructure and Support-070800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA/AS Degree Recipient</td>
<td>$37,975</td>
<td>$38,993</td>
<td>2.68%</td>
</tr>
<tr>
<td>Computer Networking-070810</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA/AS Degree Recipient</td>
<td>$23,849</td>
<td>$47,449</td>
<td>98.96%</td>
</tr>
<tr>
<td>Chancellor’s Office Approved Certificates</td>
<td>$24,045</td>
<td>$46,780</td>
<td>94.55%</td>
</tr>
<tr>
<td>Locally Approved Certificates</td>
<td>$31,872</td>
<td>$47,004</td>
<td>47.48%</td>
</tr>
<tr>
<td>Computer Programming-070710</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA/AS Degree Recipient</td>
<td>$20,292</td>
<td>$36,199</td>
<td>78.39%</td>
</tr>
<tr>
<td>Chancellor’s Office Approved Certificates</td>
<td>$30,446</td>
<td>$45,860</td>
<td>50.63%</td>
</tr>
<tr>
<td>Locally Approved Certificates</td>
<td>$33,340</td>
<td>$46,811</td>
<td>40.40%</td>
</tr>
<tr>
<td>Computer Science (Transfer)-070600</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA/AS Degree Recipient</td>
<td>$15,805</td>
<td>$33,111</td>
<td>109.50%</td>
</tr>
<tr>
<td>Computer Software Development-070700</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA/AS Degree Recipient</td>
<td>$48,942</td>
<td>$54,050</td>
<td>10.45%</td>
</tr>
<tr>
<td>Chancellor’s Office Approved Certificates</td>
<td>$40,545</td>
<td>$26,863</td>
<td>-33.75%</td>
</tr>
<tr>
<td>Locally Approved Certificates</td>
<td>$37,975</td>
<td>$21,862</td>
<td>-56.71%</td>
</tr>
<tr>
<td>Database Design and Administration-070720</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA/AS Degree Recipient</td>
<td>$27,739</td>
<td>$30,144</td>
<td>8.67%</td>
</tr>
<tr>
<td>Chancellor’s Office Approved Certificates</td>
<td>$20,144</td>
<td>$20,292</td>
<td>0.75%</td>
</tr>
<tr>
<td>Locally Approved Certificates</td>
<td>N/A</td>
<td>N/A</td>
<td>111.18%</td>
</tr>
<tr>
<td>Information Technology, General-070100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA/AS Degree Recipient</td>
<td>$20,862</td>
<td>$31,245</td>
<td>49.77%</td>
</tr>
<tr>
<td>Locally Approved Certificates</td>
<td>$31,696</td>
<td>$38,582</td>
<td>23.73%</td>
</tr>
<tr>
<td>Other Information Technology-079900</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA/AS Degree Recipient</td>
<td>$24,330</td>
<td>$36,534</td>
<td>49.77%</td>
</tr>
<tr>
<td>Locally Approved Certificates</td>
<td>$29,291</td>
<td>$29,665</td>
<td>1.28%</td>
</tr>
<tr>
<td>Software Applications-070210</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA/AS Degree Recipient</td>
<td>$16,847</td>
<td>$26,401</td>
<td>56.71%</td>
</tr>
<tr>
<td>Chancellor’s Office Approved Certificates</td>
<td>$13,847</td>
<td>$21,725</td>
<td>56.89%</td>
</tr>
<tr>
<td>Locally Approved Certificates</td>
<td>$18,418</td>
<td>$17,843</td>
<td>-3.12%</td>
</tr>
</tbody>
</table>
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/](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.

<table>
<thead>
<tr>
<th>Miles From El Camino College</th>
<th>Degrees/Certificates Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 1 yr. certificate</td>
</tr>
<tr>
<td>El Camino College</td>
<td>Yes</td>
</tr>
<tr>
<td>Los Angeles Southwest College</td>
<td>Yes</td>
</tr>
<tr>
<td>Los Angeles Harbor College</td>
<td>Yes</td>
</tr>
<tr>
<td>West Los Angeles College</td>
<td>Yes</td>
</tr>
<tr>
<td>Santa Monica College</td>
<td>No</td>
</tr>
<tr>
<td>Long Beach City College</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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?

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.