



COLTON REDLANDS YUCAIPA
REGIONAL OCCUPATIONAL PROGRAM
Inspiring Possibilities

2016-2017
ICT Regional Annual Advisory



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2016-2017 ICT Annual Regional Advisory (10/19/2016)

CRY-ROP piloted a regional advisory in which industry professionals from the ICT industry, educators from the community college district and k-12 educators gathered to discuss current industry trends. The meeting also focused on the necessary employability and interpersonal skills, technical advances, and certification requirements for networking, information support services and software and systems development sectors within the ICT industry.

Industry Advisors

Robert R., Solutions Architect, Sigma Net

Jim O., Director, Enterprise Services and Technology Support, CSUSB

Monique P., Director of Technology, Advance Imaging Systems

Steven H., Web Applications Administrator, LLUH Web Center

Faisal S., Division Director, Robert Half Technology

Felix Z., CSUSB, Director Project Management & Assessment

Daniel U., Ersi, Technical Analyst

Melissa Q., Ersi, GIS Recruiter

Brian M., IE Web Services, Owner/Ceo

Prajesh P., Microsoft Consultant, Microsoft Consultant

Doug M., Statistical Research Inc., Director of GIS

Lloan A., Voice Marketing, Creative Director, Web Developer

Claire J., IT Education Account Manager

Community College Representatives

Margaret Y., CIS and Computer Science Instructor; Department Chair of Business, Economics and IT, Crafton Hills College

Steve S., CIS, Networking and Cyber Security Instructor, Chaffey College

Alan B., Deputy Sector Navigator, Technical systems provider for K-1, San Bernardino Community College District

Susan M., Mt. San Jacinto Community College Director, CTE Projects & Regional K12 Career Pathways TAP

Wendy Z., San Bernardino Valley College, CTE Project Manager

Rick H., San Bernardino Valley College, Director, Campus Technology Services

Lisa K., Victor Valley Community College, Deputy Sector Navigator

Information & Communication Technologies



Industry Professional Panel

Question 1: Based on current trends, what Entry Level jobs could students leaving high school or community college be hired for at your company?

Networking:

- Technician- Device and imaging provisioning
- Tier 1 Deployment Engineer- Cabling, rack & stack, mounting & closet networking
- Assessment Desk
- Inside Systems Engineer- Mid-Level position

Information Support Services:

- Computer Technician
- Help Desk Support
- IT Technician
- Systems Administrator
- Network Administrator
- VCIO
- Subject Matter Expert
- Solutions Architect
- Warehouse Clerk
- Parts Department
- Logistics Driver
- Account Executive (Sales)
- 3D Printing Design Support
- Receptionist
- Student Assistants
- GIS
- Fieldwork
- GPS and Mapping
- Data Entry/Processing
- Engineers (with Certs)

Software and Systems Development:

- Web/Game Development
- Developer/Designer Apprentice
- Content Writer
- Video/Audio Technicians
- Assistants

Question 2: What new technology and/or equipment should we be aware of and incorporate into our courses?

Networking:

- CISCO Academy
- Dedicated IT manufacturer curriculum w/ networking lab
- STEM and STEAM
- Project based learning with technology
- WunderBar for IOT
- Biometrics
- Robotics

Information Support Services:

- Active directory
- DNS
- DHCP
- Virtualization
- Application packaging
- 3D/4D printers
- Cloud services
- Data centers
- Unified threat management
- VoIP
- GIS Technologies: Arc GIS Desktop, server, online software
- DBMS
- Mobile App development

Software and Systems Development:

- Responsive web design
- PHP
- Cryptology
- RSA calculation

- Agile and Scrum methodology
- Adobe creative cloud

Question 3: Which industry certifications do you value in current and prospective employees?

Networking:

- A+
- ACE
- MS Office
- MS MTA
- Windows Server MTA
- MCSA
- MCSE
- CCNP
- JNCIE-ENT
- N+
- CCNA
- AD

Information Support Services:

- CompTIA-A+, Network+, Security+
- Microsoft-MCITP, MCTS, MCSA, MCSA, MCSD, MCSE, MCDBA,
- ISC2- CISSP, SSCP, CCSP
- ISACA- CISA, CISM
- EC-COUNCIL- CEH, CND
- PMP/PMI
- GIS
- MCP
- APA(AICP)
- CCENT
- CCIE
- CCNP

Software and Systems Development:

- Scrum certification
- A+
- Adobe certifications

- W3Schools certified
- Community college degree

Question 4: What skills/knowledge is being required of new employees to address the latest trends in technology, equipment, regulations, laws, etc.?

The advisors agreed that positions in the IT world are no longer back office positions. Anyone looking to get into IT to hide from customers' needs to polish their interpersonal skills and customer service, as this will be an integral part of their job. Employees wear multiple hats and need to be flexible.

Networking:

- Understand and follow policies and ethical practices
- Current industry standards
- Ability to complete research
- Certifications demonstrate technical skills to potential employers

Information Support Services:

- Teamwork
- Communication
- Technical skills
- Acquiring and installing software
- Understanding of cyber security
- Problem solving and critical thinking

Software and Systems Development:

- Understand technical jargon
- Ability to troubleshoot
- Database management
- Coding and scripting

Question 5: Does your company offer internships? If so, what type of work would they be doing?

Networking: Two of the networking representatives stated that due to legal and privacy issues they do not provide unpaid internships. The internships they do provide are for paid college level students who truly stand out. One firm is currently working with Chaffey College to develop a curriculum-based internship.

Information Support Services: A majority of the representatives stated that their companies offered some type of internship opportunities. Some catered to college students while others were open to high school students that had a high maturity and skill level. Some of tasks an intern would be responsible for are help desk triage, project coordinator shadow, computer start up, and office set up.

Software and Systems Development: Both representatives stated that they accept interns. ESRI mostly accepts paid college interns who would be responsible for tasks such as data entry, filing, learning and operating GIS, data clean up, and use of ARC software. The other representative said they are not accepting interns at this time, however suggested we look into content migration and web development services for potential student placements.

Question 6: Additional comments, recommendations or requests.

While technical skills are very helpful in gaining entry-level employment, industry can always train someone with exceptional interpersonal and customer service skills to be a technician.

Technicians need to have excellent communications skills and be able to explain technical issues in user-friendly language, in the end it is about pleasing the user.

Offering a communication and conflict resolution course or module to the courses may be extremely beneficial to students who will need to work in teams and collaborate on a daily basis.

Encourage students to understand the importance of staying current with trends, this industry changes very rapidly and can drastically affect one's ability to stay employable.

Community College Panel

Question 1: What is currently taking place in your programs on campus?

Crafton Hills College: CIS program offers multiple focuses/certificates in programming, web design and IT Technician. A new focus of Systems Network Administration will be offered in Fall of 2017. Crafton also offers an Associate's degree for those transferring in Computer Science.

Chaffey College: Offers CIS courses that include computer game programming, networking, an A+ program taught at the Fontana Campus, and a Cisco program that is at the Chino IT campus. This involves a full nine semesters for the Cisco program – CCNA, CCNP, including some varied specializations. This program has lots of student enrollment. It teaches primarily the CompTIA domain programs (Security +, Network+, A+). The CISCO program will be moving back to the Rancho Cucamonga main campus. There is also an electrical and industrial program. All courses are within the Business & Applied Technology division.

Question 2: What other community colleges offer ICT programs?

Deputy Sector Navigator (DSN): Most of the community college campuses have some sort of computer technology program. Norco with RCC have the most CIS programs. While, Moreno Valley College is very heavy in digital programming, as well as Mt. San Jacinto and College of the Desert, which is very strong in digital media. Victorville and Barstow each have these programs. Websites to reference are ICT-DM.net (statewide website for digital media) and desertcolleges.org the regional college's website for all of the community colleges.

Question 3: What competitions are the community colleges involved in that may also be available to high school students?

Crafton Hills College: Currently does not participate in any competitions. However, does have a robust offering of clubs such as app development, cyber security and robotics.

Chaffey College: The CISCO program offers competitions for students. We sent a team a few years ago and one of our students almost made national level. It is a strong program and teams fill every year for the competitions. There are also a lot at Cal Poly and Mt. San Antonio College.

DSN: CRY ROP (Colton, Redlands, and Yucaipa) filled three teams in the first year for Cyber Patriot. Last year over 50 teams participated and this year about 100 in our region. San Bernardino County Supt of Schools and Riverside County Office of Education have participated. Canyon Springs High School out of Moreno Valley fielded five teams and did very well on a very low budget. It was rewarding to see

the enthusiasm in the students' eyes, recognizing that they had found something to spark their interest. The Cyber course offered in our region gives students the opportunity to compete for a full-ride scholarship when they attend a 2-year program at either Cal State San Bernardino or Cal Poly. Students can receive \$26,000 to attend and do well in the Cyber Security Program. At completion, students must serve in a 2-year program with the Federal Government where they can start with a little over \$10,000 a year.

Question 4: How do the community colleges develop and maintain partnerships with industry? Are there any successes that can be shared as a model?

Crafton Hills College: Some of our programs currently offer internships, one regularly offered is Web Design Internship – student does this with the campus Web Designer. We hold Advisory Board meetings, which include local business professionals and educators. We want to work on building partnerships.

Chaffey College: We have a semi-formal internship and classes that lead up to internships on the campus. Ideally, students must have completed the A+ course, the Network+ course and the Cisco program to participate. It used to extend out to some of the local agencies; however, as of now we feed the interns into our internal IT department. Sigma Net is a strong supporter of our program, as they interact with us often and hire our students. We have advisory meetings every year in the CTE departments where businesses and business law people tell us what they are looking for in potential employees.

Question 5: How do the community colleges track completers and placements for funding purposes?

DSN: We were able to enter an agreement with EDD to use social security numbers to track community college students who have completed our programs and obtained employment.

Question 6: What are some of the current funding sources that are affecting CTE at the community college level?

Chaffey College: Previously our funding sources came under SB1070. The new program will be providing the community colleges \$200 million over the next three years for CTE improvements – \$20 million to the region, \$15 million to community colleges and \$7 million to each regional program. Updates to equipment and curriculum along with the development of new programs will be completed to meet the needs of industry, students and the community colleges.

Question 7: What advice would you give to ROP and high School teachers that would help them better prepare students for transition into Community College CTE programs?

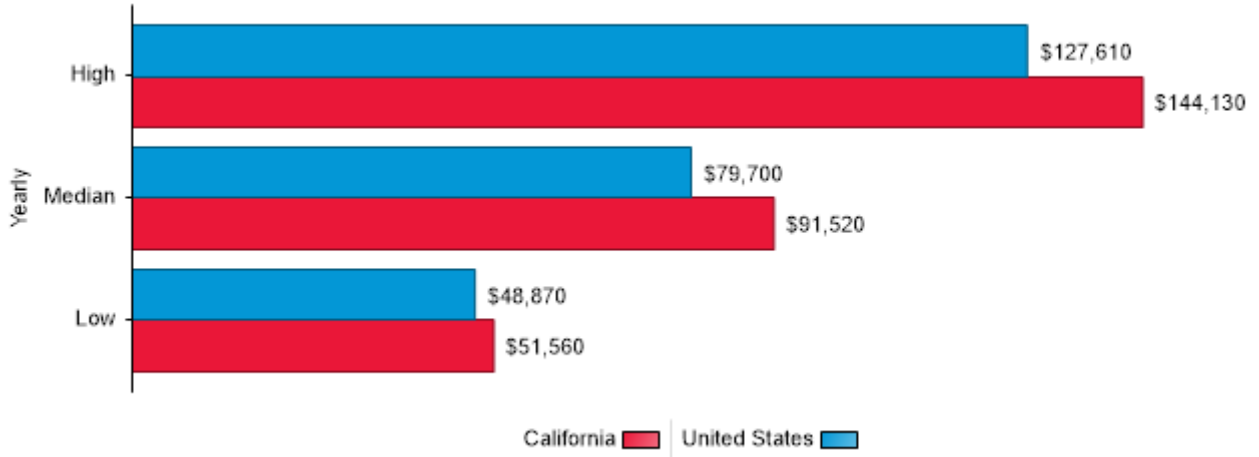
DSN: Generally, from the region we hear that students need to learn math and English. Beyond that, I would say providing certifications at the high schools- A+ for students interested in computer technology would better prepare them.

Chaffey College: Making sure that every student is up to the same level of understanding, at least to a minimum level. Math, A+ certification, basic computer hardware and software training is very important at a foundational level.

Labor Market Information: CISCO I & II

<https://www.onetonline.org/>

Yearly Wages for Network and Computer Systems Administrators in CALIFORNIA



Projected Employment for Network and Computer Systems Administrators in CALIFORNIA

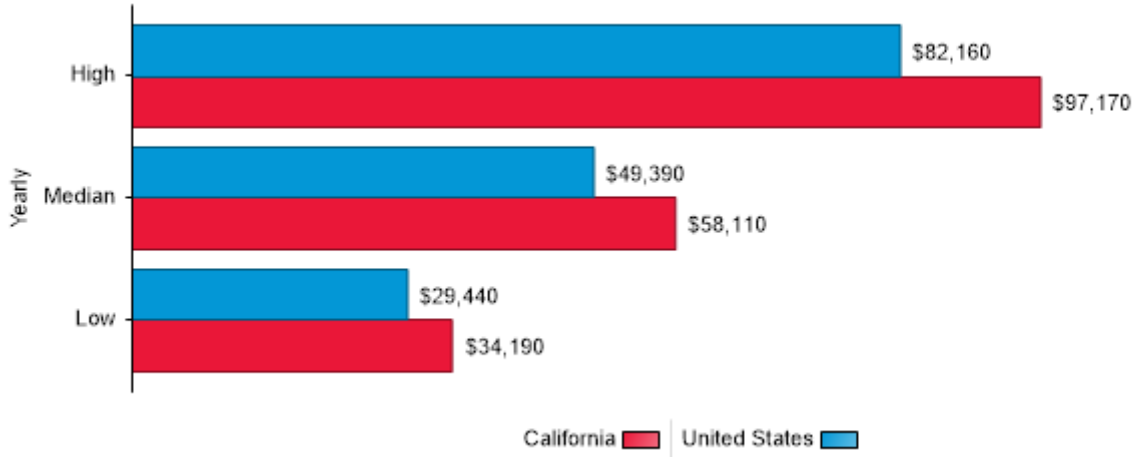
National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	382,600	412,800	8%	7,940

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	43,100	52,000	+21%	1,450

Labor Market Information: Cyber Security I & II

<https://www.onetonline.org/>

Yearly Wages for Computer User Support Specialists in CALIFORNIA

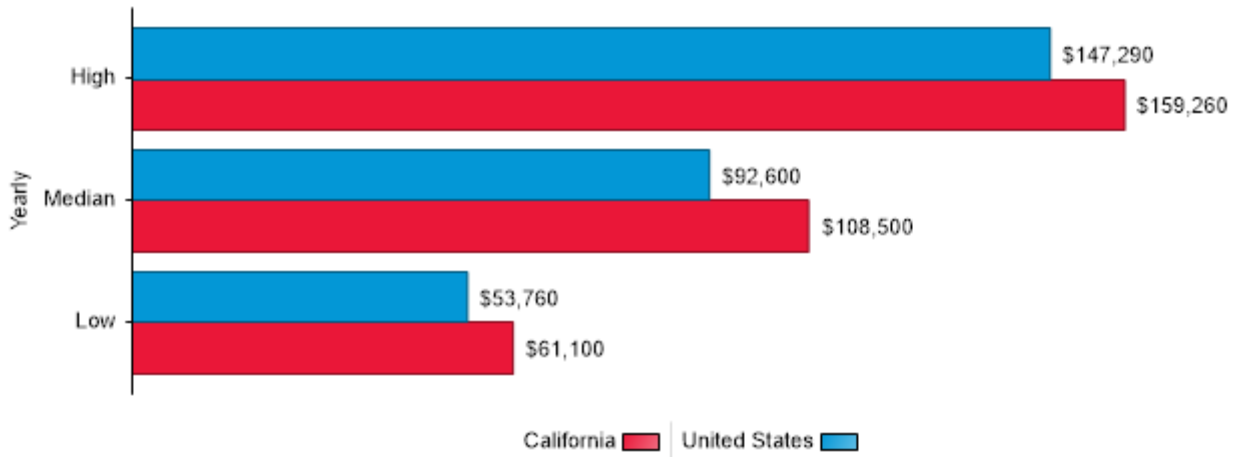


Projected Employment for Computer User Support Specialists in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	585,900	661,000	13%	15,050

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	62,200	77,500	+25%	2,330

Yearly Wages for Information Security Analysts in CALIFORNIA



Projected Employment for Information Security Analysts in CALIFORNIA

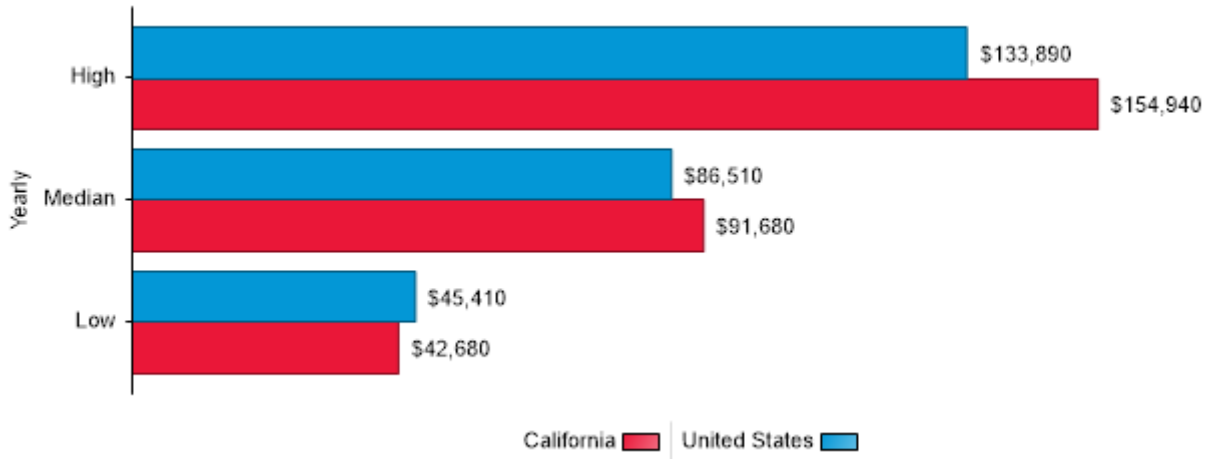
National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	82,900	97,700	18%	2,550

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	8,000	10,100	+26%	320

Labor Market Information: GIS Fundamentals

<https://www.onetonline.org/>

Yearly Wages for Computer Occupations, All Other in CALIFORNIA

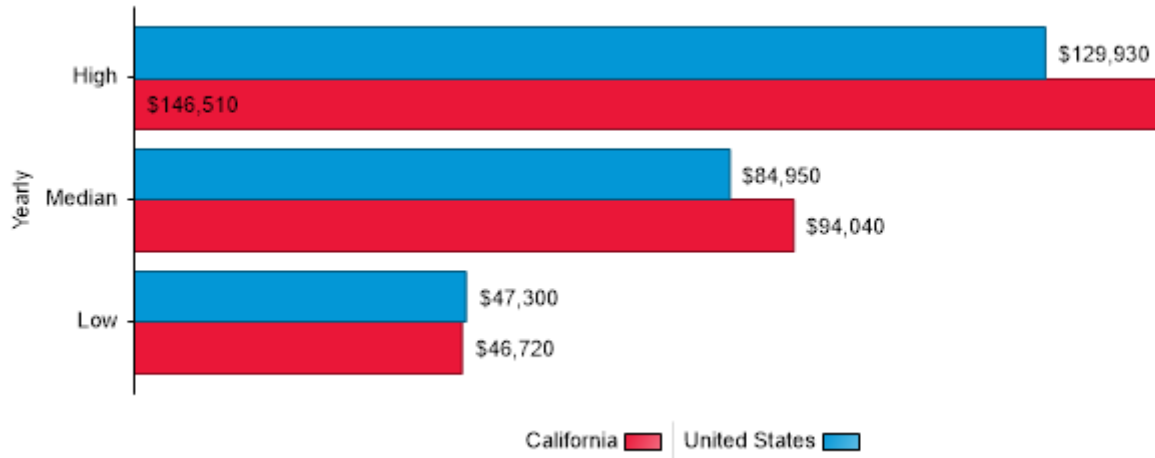


Projected Employment for Computer Occupations, All Other in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	233,000	240,800	3%	3,770

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	25,000	30,000	+20%	820

Yearly Wages for Database Administrators in CALIFORNIA



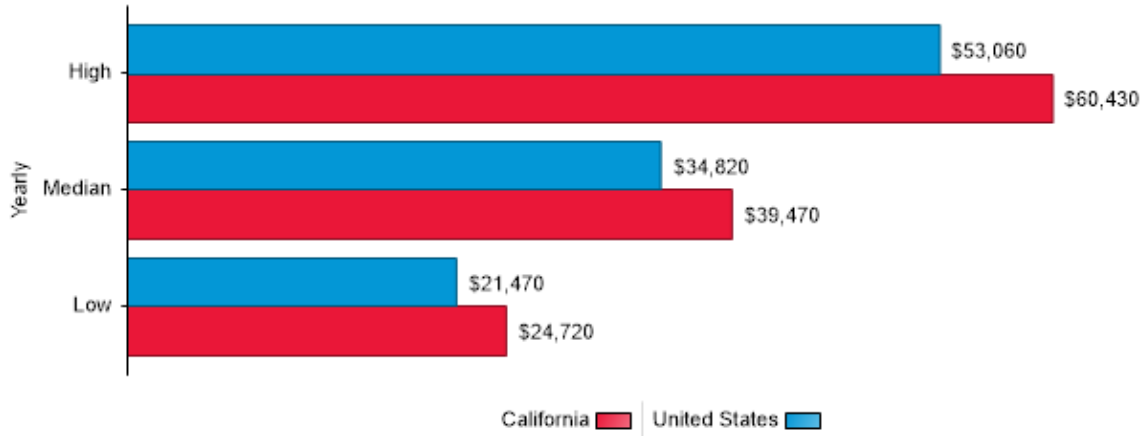
Projected Employment for Database Administrators in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	120,000	133,400	11%	3,920

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	12,100	15,000	+24%	560

**Labor Market Information: MS Office & Digital Business
Communications**
<https://www.onetonline.org/>

Yearly Wages for Secretaries and Administrative Assistants, Except Legal, Medical, and Executive in CALIFORNIA



Projected Employment for Secretaries and Administrative Assistants, Except Legal, Medical, and Executive in CALIFORNIA

National	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
United States	2,457,000	2,521,100	3%	32,310

State	Employment		Percent Change	Projected Annual Job Openings*
	2014	2024		
California	222,300	245,100	+10%	4,630