The Next 40: Keeping Orange County on the Leading Edge of Technology

South Orange County Community College District

Report to the Community

Saddleback College • Irvine Valley College
Advanced Technology & Education Park
The South Orange County Community College District is at the forefront of change. With much of the future growth of jobs shifting to South County, our Colleges are playing a critical role in keeping Orange County competitive. With a focus on technology, we have a direct impact on Orange County’s ability to attract, cultivate and retain the region’s workforce.

According to the economic and workforce projections of the Orange County Business Council, at least one third of future jobs will demand skills in the disciplines of science, technology, engineering, and mathematics. The biggest numerical growth projected to occur is in business and professional services and health services. There is also a need to increase English proficiency.

Saddleback College in Mission Viejo, Irvine Valley College in Irvine and the Advanced Technology & Education Park (ATEP) in Tustin are ready to help Orange County meet these challenges.

The Board of Trustees of the South Orange County Community College District has demonstrated visionary leadership with approval of an unprecedented investment in capital construction, building renovation and technology. In the fall of 2007, the Board gathered with the community to dedicate ATEP, Orange County’s newest higher education campus. Over the past year, both Saddleback College and Irvine Valley College have accomplished astounding growth in online education courses, high transfer rates, and increasing enrollments.

We celebrate Saddleback College as it marks 40 years of excellence in education, from 1968 to 2008. We salute Irvine Valley College for its dedication to students since 1985. Also, we congratulate the Advanced Technology & Education Park (ATEP) as it takes the first steps toward becoming a full-fledged campus. We are proud to feature leading edge technologies as part of the educational experience of our students at all three campuses. Investment in technology ensures that we prepare students for the highly competitive, global workplace.

The Vision of the South Orange County Community College District is to be an educational leader in a changing world.

The Mission of the South Orange County Community College District is to provide a dynamic learning environment and diverse opportunities to foster student success and contribute to the global community.

Change is becoming a constant in American society, and as educational leaders we must keep up with our students and our communities. Our three campuses are advancing change with new construction, new technology, new courses and more online educational opportunities. At the same time, we continue to provide our students with the solid educational foundation they need to succeed in the world of work, in transferring to baccalaureate institutions, and in life.

–Chancellor Mathur
Innovation, transformation, constant change—having just celebrated our 40th anniversary by looking to the past and embracing the present, South Orange County Community College District is now looking forward to the next 40 years—to a future where a growing and diverse workforce meets the challenging needs of tomorrow's global economy.

Strongly committed to strengthening Orange County's competitive edge, we see our three campuses advancing positive change with new technology, new construction, new courses and more online educational opportunities for our students and our communities.

Meeting the Challenges of a Global Economy

Taking It Apart... and Putting It Back Together Again

Irvine Valley College professor Roopa Mathur’s CIM 206.1 A+ Hardware Concepts class demonstrate their hands-on preparation for the A+ hardware certification exam. During the course of the semester, students learn how to build a PC from component parts. They also learn how to install, configure and troubleshoot PC hardware and peripherals.

...We showed them many curiosities and the air gun which they were much astonished at...
—William Clark, August 1804

Saddleback College’s Advanced Technology Center was asked by a virtual museum of the famous 19th century Lewis and Clark expedition to use rapid prototyping technology to create a three-dimensional reproduction of a .50 caliber air rifle that was brought along on the epic trek. The original 200-year-old plans for the weapon were recently discovered in the Tower of London. By using the digital and rapid prototyping models of the weapon developed by Saddleback College, visitors to the virtual museum will be able to study the complexity of the weapon and its historical significance.

One highly educated employee in the computer-manufacturing industry generates enough value in the economy to support 3.7 other employees.
—Keeping California’s Edge, CSU Sacramento, Applied Research Center, 2006

Electronic Technology Students Lauded by Local Company

Irvine Valley College electronic technology students Chakapol Chandsawangbhuwan and Dhanalaxmi Ganji were recently honored with $1,000 scholarships from Grainger, a facilities supply company located in the Irvine Spectrum. Chakapol and Dhanalaxmi were recognized for their 3.0 + GPAs in electronic technology. Grainger also supported the electronic technology faculty with a grant in 2007.
Since Orange County is one of California’s leading technology regions, it is vital that SOCCCD students, faculty and staff stay competitive in an economy and marketplace that extends well beyond our county, state and national borders.

According to a recent report issued by the Orange County Business Council and the Orange County Workforce Investment Board, the Orange County economy will substantially change over the next few decades. The Workforce 2006 report says that “several key industry clusters will generate rapid growth in employment because of key demographic changes and competitive advantages…”

**TRENDS**

- Business and professional services employment will grow by 105%, health services will grow by 72%, and the communications and computer software clusters will also grow by over 70%.
- Other sectors, such as the computer software industry and energy and environmental clusters, are projected to see sizable increases over the next two decades.
- By 2025, whites will constitute only 34% of the county’s population, while Latinos will make up 43%.
- The average Orange County resident will be older. By 2025, people 45 years and older will constitute about half of the county’s population.

**What Does the Future Hold in Store for Orange County’s Economy and Workforce?**

The Workforce 2006 report goes on to predict that the top ten highest literacy career paths (and thus higher wage paying) in Orange County by 2025 will include:

1. math/computer scientists
2. health-related professionals (e.g., pharmacists)
3. accountants/auditors
4. architects/surveyors
5. natural scientists (e.g., life scientists)
6. health diagnostics (e.g., physicians)
7. engineers (e.g., civil engineers)
8. teachers (e.g., secondary school teachers)
9. registered nurses
10. miscellaneous management (e.g., management analysts)

**Clean Technology Project Awarded $100,000**

Jim Seidel, a student of Saddleback College computer information management instructor Larry Moore, was the proud winner of $100,000 in the California Clean Tech Open. Using technology he learned at Saddleback College, Jim's company is able to save hundreds of thousands of dollars each year for his clients. Jim is a partner in EDC Technologies in Aptos, California, which uses the Internet to control and monitor energy consumption in large domestic hot water systems.

**SOCCCD Is the Link to Surviving and Thriving in These Highly Competitive Occupations**

The Colleges of the South Orange County Community College District are a vital link in cultivating and preparing students to survive and thrive in these competitive, high educational requirement, high wage-paying occupations. Both Saddleback College and Irvine Valley College, as well as the new ATEP campus, provide numerous opportunities for university transfer education and workforce training that is flexible, affordable and convenient.

From photonics to rapid prototyping to computer-aided design to the latest in digital automotive technology—the Colleges of SOCCCD offer students of all ages the latest technological advances in state-of-the-art classrooms and labs. Learn more about these and other exciting technology programs, including class schedules for Saddleback College, Irvine Valley College and ATEP, by visiting www.socccd.edu and clicking on the appropriate College logo.
Post-secondary education featuring training in the technological skills required by an industry or career choice is an increasingly important necessity for Orange County’s workforce. Saddleback College and Irvine Valley College, as well as our campus at AT&EP, enable students to obtain specialized training and/or certification, including tech skills, in their chosen field or to complete up to two years of coursework that will easily transfer to a four-year college or university.

Integrating education with the technology that students need to ultimately succeed in a career starts with the first class a student takes at our Colleges. In fact, many local Orange County students are introduced to the exciting world of science, technology and innovation even before they graduate from high school by College programs such as Tech Prep and the annual Astounding Inventions competition. Irvine Valley College even has a special “Early College” program that allows Tustin Unified School District students to enroll in College courses, provided they have met course prerequisites. And the Cooperative Work Experience (CWE) programs at Saddleback College and Irvine Valley College allow students to earn college credit for what they learn and contribute on the job under actual “real world” working conditions.

Creativity, flexibility, adaptability, curiosity, effective communication skills—along with digital-age skill sets—equal a student well prepared for tomorrow’s challenges.
Addressing the Needs of the Present While Looking to the Future

South Orange County Community College District has pledged to create sustainable campuses that meet the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable practices on each campus include: hazardous waste management, building insulation, waste recycling, cogeneration, energy-saving lighting, reclaimed water, solar panels and cool roofs.

Cogenerating Savings at Saddleback College

Saddleback College Director of Facilities John Ozurovich reports that since installing a 1.5 megawatt cogeneration plant that produces over 8.5 million kilowatt hours per year, the College has saved approximately $480,000 per year on its energy bills. The heat generated by this process is utilized to supply thermal energy to the College’s swimming pool and building interiors. Through the use of other energy-savings methods, the utility budget is reduced by another $150,000 per year, bringing annual energy savings to $630,000. The College is currently planning for additional energy conservation measures that are projected to save another $250,000 per year in the near future.

Irvine Valley College Looks to the Sun

IVC taps into renewable energy through its use of 420 solar energy panels on the roof of Hart Gymnasium. The panels, which cover the 12,000 square-foot south roof, produce an average of 66 kilowatts of electricity, and are capable of producing up to 165 kilowatts of energy under ideal conditions. The gymnasium is one of the biggest consumers of power on the campus, according to IVC Facilities, Maintenance and Operations Manager Philip Brittain. Along with additional heating, air-conditioning and ventilation improvements that have been made campus-wide, the solar panels save the College up to $1,000 a day in cooling costs alone.

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Instant Connection

Cell phones, instant messaging, iPods/wireless laptop and notebook computers—Saddleback, IVC and ATEP students, faculty and staff can connect anywhere on campus at any time thanks to a district-wide technology and infrastructure upgrade in 2006-2007. An increased emphasis on online learning, e-learning and virtual classrooms also means that all three SOCCC campuses can respond to a growing number of student needs for non-traditional training and education.

Rapid advances in technology now make it possible for education to be delivered anytime and anywhere. This creates new opportunities to reach individuals who cannot easily access campus-based postsecondary education as well as others for whom traditional courses are a poor match with their education or training needs.

—California Community Colleges Chancellor’s Office, Workplan for Distance Education

Designing Sustainability

Saddleback College architecture students Aaron Angeles (right) and Serhino Espinosa (left) took first and second place prizes, respectively, at the Orange County American Institute of Architects International Possibility Contest. Aaron and Serhino are students of Saddleback professors Lauren Watson and Lem Chin.
In light of Hurricane Katrina, the Virginia Tech tragedy and other campus emergencies, including the recent fire storms in Southern California, colleges and universities around the nation are taking a good look at their current campus emergency plans and making improvements. SOCCCD is no exception.

Solar powered emergency call boxes, defibrillators with trained response teams and Cisco® office phones with emergency broadcast capabilities are only a part of the new, updated emergency preparedness processes being installed on all three campuses to enhance student, faculty and staff safety.

Campus police officers are now equipped with new 800 MHz. radios that keep them in constant contact with the Orange County Sheriff’s Department and Orange County Fire Department. Each officer is provided with a new, powerful tazer for better non-lethal responses to emergency situations. Campus patrol cars carry their own portable defibrillators (AEDs) and chemical response equipment, as well as extensive first aid kits.

Most importantly, campus emergency responders undergo constant specialized training in emergency response tactics and procedures that meet and exceed all state requirements. Much of this training is done on highly sophisticated interactive simulators that put officers in “real-world” scenarios that gauge their decision-making abilities and physical responses to threats and challenges. “Our campus police officers have been preparing for all kinds of crisis situations and will continue to prepare into the future,” says Saddleback College Chief of Police Harry Parmer.
South Orange County Community College District takes pride in providing state-of-the-art technology to students, faculty and staff. In 2006-07, SOCCCD invested over $7 million in technology projects and infrastructure district-wide.

Some projects that benefited from this funding included campus-wide wireless access at both Saddleback College and Irvine Valley College, wireless Voice-over Internet Protocol (VoIP), student kiosks, classroom multimedia installations, instructor desks and equipment, new emergency call boxes, business continuity and disaster-recovery solutions, additional computer labs, video conferencing solutions, including Tandberg® and Cisco®, and new disabled stations in every lab.

The district has launched new online registration capabilities to better serve students. In addition, students now have the ability to go through college orientation online, develop their education plans online, and obtain their parking permits online. Combined, the three campuses have over 3,000 computers available for students and employees.

My Academic Plan (MAP)

The District Information Technology Department was recently awarded the California Community College Chancellor’s Technology Focus Award for its My Academic Plan (MAP) web application. MAP, a joint project of the SOCCCD IT Department, Irvine’s Neudesic Corporation and a team of counselors and students from Saddleback College and Irvine Valley College, is a unique program designed to guide students through the process of creating their own personal academic plan based on their educational goals. Student oriented and student centered, it is now a valuable tool for students in planning their college experience.

New Student Web Portal

Launched in 2007, “MySite 2.0—The Next Generation,” SOCCCD’s student information/student registration system, touches every single person in the district now (and into the future) in important ways. Admissions and Records (A & R) staff members from Saddleback College and Irvine Valley College, working with the District information technology team, consultants, students and faculty, are behind the launch of this new Web-based system for students and employees. The new 2.0 system features customization options, improved handling, more trustworthy email forwarding, easy navigation, simplified registration and smoother admissions and records processes.

SOCCCD is a leader in developing educational technology solutions. It’s all happening because the Colleges and District IT staff are working together to provide the very best in services to students, faculty and staff.

– Dr. Andreea Serban, Vice Chancellor, Technology and Learning Services
Saddleback College is one of Southern California’s most popular community colleges, known for its well-equipped high tech learning centers and laboratories, challenging academic curricula, strong student support services and high transfer rate to universities around the country. Students at Saddleback College can earn an associate degree or certificate in over 300 academic and career programs, including a rapid prototyping program that is recognized across the nation by both academics and industry executives. Consistently ranked in the top ten percent of California community colleges in transferring students to four year colleges and universities, the number of transfer students continues to increase. Saddleback College also offers extensive professional technical certificate programs, whose graduates quickly discover that their state-of-the-art training makes them highly competitive leaders in the job market.

3-D Technology Recognized by National Science Foundation

“This is the first time we have seen a community college leading an industry—Saddleback College’s sustainability model is stronger than at any National Science Foundation (NSF) National Center”—NSF statement to Business Science Division Dean Ken Patton, and Advanced Technology Center Director Ed Tackett when they were recently awarded $4 million in NSF funding to establish a National Rapid Prototyping and Additive Manufacturing Center at Saddleback College. (Rapid prototyping refers to technologies that take virtual designs from computer aided design [CAD] to fabricate physical objects that correspond exactly to the virtual model.)

The iPod® Provides Learning For All

Health Sciences nursing instructor, Dr. Terri Whitt, uses her ubiquitous iPod® along with a camera and her trusty Mac® to provide Saddleback College nursing students with a remote access learning library of 130 videos that contain didactic content and resource lists. These short 2-3 minute video reviews are available at a moment’s notice—for instance, if a nursing student is asked to perform a difficult IV insertion, she (or he) would simply do a quick review of the activity on their iPod before attempting the actual insertion. Nurses from as far away as Africa, Korea and the Philippines have utilized this digital video library which began in 2006 and continues to grow year by year.

The Arts Go Digital

Technological improvements and upgrades are not confined to business, technology and the sciences on our campuses. This photographic collage by Saddleback College student Mika Tran combines drawings and photographs assembled and manipulated on a Macintosh® G5 computer using Adobe® Photoshop® CS2. The digital art piece was created in Professor Ron Leighton’s Intermediate Photoshop and Digital Imaging class as part of an assigned project.

Automotive Technology Gets a Boost With New Dynamometer

The Saddleback College automotive technology program is helping to meet the workforce demands of the 21st century by providing highly trained automotive technicians proficient in the sophisticated service and repair techniques needed to keep modern cars and trucks operating at peak efficiency. A new state-of-the-art dynamometer helps students test repaired engines before they put them back into a vehicle. Saddleback has one of the few community college automotive technology departments with the ability to train students on this vital piece of high tech testing equipment.

"Saddleback College is a vibrant learning environment in which our students learn technologies and skills that position them to continue their baccalaureate degree and stay ahead of changes in the workplace. As we approach our 40th anniversary, we can look back and ahead to see that embracing technology is one of the reasons why our students are so successful in creating their futures." —Dr. Richard O. McCullough

Saddleback College President
Wireless Access To Research Tools

Full text, full image newspapers, medical journals, magazines, court briefs, reference books, indexes to scholarly and professional journals and e-books are now available to IVC students, faculty and staff from any computer with an Internet connection, thanks to campus-wide wireless technology. While the IVC Library Computer Commons and Computer Lab are still popular places to conduct research, it’s now possible to access the tools needed to write a research paper or midterm report from the comfort of home, car or nearby Internet café.

Located in the heart of Orange County, Irvine Valley College is proud to meet the ever-expanding technology needs of its students. The opening of the new $19 million Business Sciences, Technology and Innovation Center in 2008 will not only provide our students with state-of-the-art classrooms and labs, but also ensure that our students continue to receive the high-caliber instruction that leads to a successful transfer rate and overall quality educational experience.

—Dr. Glenn R. Roquemore
Irvine Valley College President

Irvine Valley College (IVC) is one of the most successful California community colleges in preparing students to make the transition to a four-year college or university. According to the California State Chancellor’s Office, IVC has one of the highest transfer rates to the UC system among Orange County community colleges. IVC earns this competitive advantage by providing a high quality, affordable education that emphasizes the overall student experience. An essential part of that experience is technology. “Staying at the forefront of technology is part of our main mission statement, which is very progressive for a community college,” says Tran Hong, Director of Technology for IVC. Students may choose among 59 associate degree majors and 32 career and technical certificate programs. Two new high tech facilities are bringing an added dynamic to the campus—the $32 million Performing Arts Center, which opened in Fall 2007, and the soon-to-be completed Business Sciences Technology and Innovation Center, which is slated to open in 2008.

Business Sciences Technology and Innovation Center

Building is underway on the new $19 million Business Sciences Technology and Innovation Center scheduled to open in 2008. This 53,000 square-foot two-story building will be home to state-of-the-art classrooms and labs that will enrich the IVC campus with wireless access and high-tech classrooms, where business faculty can link classroom theory with real-world practices in the areas of computer information systems and technologies, accounting, real estate, business management and marketing.

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Design Model Making and Rapid Prototyping
The design model making and rapid prototyping program teaches hands on model making and prototyping skills, essential to the 24 automotive design companies located in Southern California, as well as a wide array of product developers, aerospace companies and innovators. Rapid prototyping refers to technologies that take virtual designs from computer aided design (CAD) to fabricate physical objects that correspond exactly to the virtual model.

Center for Applied Competitive Technologies (CACT)
The CACT program at ATEP is one of 12 state-funded applied competitive technology programs dedicated to enhancing the strength and competitiveness of California’s small to medium-sized manufacturing companies. CACT @ ATEP promotes economic development locally by teaching various high tech skill sets in lasers, optics and photonics. Irvine is a hub for many of the optics companies in Orange County that use these skill sets.

CACT @ ATEP was recently designated a national Center of Excellence by the National Science Foundation, one of only 13 centers in the U.S.

Consultant Rong Sun teaches and volunteers his time with CACT students. He works for an advanced medical optics company and his special interest at ATEP is in testing a prototype multi-focal lens design for cataract patients.

Advanced Technology to Meet Market Demand
ATEP currently offers two advanced technology programs which train students in high demand design model making and rapid prototyping as well as beginning and advanced lasers, optics and photonics. Both programs support critical industries in Orange County.
### District at a Glance

**General Fund Revenues:**
- Local: $164,552,245 (76%)
- State: $26,494,100 (12%)
- Federal: $22,720,859 (11%)
- Total: $215,032,021

**General Fund Expenditures:**
- Instruction: $79,792,045
- Capital Outlay: $52,078,529
- Administration & Institutional Support: $23,458,113
- Student Support: $17,489,330
- Maintenance, Operations, Utilities: $11,794,783
- Security & Parking: $5,117,855
- Total: $189,739,255

**Accomplished Faculty**
- Full-time Faculty: 325
- Doctoral Degrees: 95
- Part-time Faculty: 824

**Employees**
- Administration: 31
- Classified Management: 66
- Classified Support Staff: 1,117

**Total Employees**: 2,363

**Semester Enrollment Figures**
- Saddleback College: 23,666
- Irvine Valley College: 13,046
- Total: 36,712

**Enrollment**
- Saddleback College: 23,666
  - Evening: 5,666
  - Day and Evening: 13,046
  - Day: 4,954
- Irvine Valley College: 13,046
  - Evening: 4,454
  - Day and Evening: 8,292
  - Day: 0

**Age**
- Saddleback College: 23,666
  - 20 or Younger: 4,290
  - 21 – 29: 8,572
  - 30 – 49: 6,886
  - 50+: 4,018
- Irvine Valley College: 13,046
  - 20 or Younger: 2,726
  - 21 – 29: 5,416
  - 30 – 49: 3,510
  - 50+: 794

**Educational Level**
- Saddleback College: 23,666
  - High School Diploma or Equivalent: 5,666
  - AA/AS/BA/BS/ or Higher Degree: 17,000
  - High School Concurrent Enrollment: 95
  - No High School Diploma: 15
- Irvine Valley College: 13,046
  - High School Diploma or Equivalent: 2,726
  - AA/AS/BA/BS/ or Higher Degree: 10,320
  - High School Concurrent Enrollment: 0
  - No High School Diploma: 0

**Gender**
- Male: 55%
- Female: 45%

**Ethnicity**
- Caucasian: 92%
- Hispanic: 6%
- Asian: 2%
- Middle Eastern: 2%
- African American: 2%
- Other/Unknown: 1%

**Saddleback College**
- Male: 55%
- Female: 45%
- Caucasian: 92%
- Hispanic: 6%
- Asian: 2%
- Middle Eastern: 2%
- African American: 2%
- Other/Unknown: 1%

**Irvine Valley College**
- Male: 55%
- Female: 45%
- Caucasian: 42%
- Hispanic: 10%
- Asian: 26%
- Middle Eastern: 4%
- African American: 2%
- Other/Unknown: 2%
Saddleback College and Irvine Valley College believe in and support a culture of evidence in which institutional reflection and action are prompted and supported by data about student learning and institutional performance. The assessment of overall measures of institutional effectiveness gauges past performance and identifies areas for future improvement and growth.

A key factor in ensuring educational quality is conducting an ongoing assessment of the Colleges’ effectiveness. The number of degrees and certificates awarded each year by Saddleback College and Irvine Valley College is one valuable measure of performance. It should be noted that the goals of many community college students are focused on ongoing professional development and personal enrichment, rather than degree/certificate completion.

Three groups of first-time freshmen who enrolled in the fall semesters of 1998, 1999 and 2000 were tracked over a six-year period to determine how many transferred to four-year institutions. Each student completed a minimum of 12 units and enrolled in a transfer level math or English course.

Out of 109 California community colleges, IVC had the 3rd highest transfer rate. Saddleback had the 12th highest rate. Like all California community colleges, the number of transfer oriented students enrolled is only a small percent of the entire student population.