

PROGRAM APPROVAL APPLICATION
NEW or SUBSTANTIAL CHANGE or LOCALLY APPROVED
(This application may not exceed 3 pages)

Fill In Form

Water Resources and Conservation

Proposed Program Title

Saddleback College

College

South Orange County Community College District

District

Fall 2015

Projected Program Start Date

Anthony Teng

Voting Member

Acting Dean Business Sciences/Econ
Workforce Dev & ATAS

Title

949.582.4895

Phone Number

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E-mail Address

Goal(s) of Program (Check all that apply):

Career Technical Education (CTE)

Transfer

Other

Type of Program (Check all that apply):

A.S. Degree

A.A. Degree

Certificate of Achievement:

18+ semester (or 27+ quarter) units

12-18 semester (or 18-27 quarter) units

Reason for Approval Request: (Check One)

New Program

Substantial Change

Locally Approved

Program Information

Recommended Taxonomy of Program (TOP) Code 0958

Units for Major-Degree 22

Total Units for Degree 60

Required Units-Certificate 22

Written Form

1. Insert the description of the program as it will appear in the catalog.

Water Resources and Conservation provides students with an integrated background and critical knowledge of water resources and conservation issues. Students will gain skills and practical application of those skills to design, implement and evaluate water conservation programs that address current and future water issues at a local, national, and global level. The program combines classroom, laboratory, and field study instruction providing students with a well-rounded preparation in the water resources and conservation field. The goal of the program is to train and prepare students for a career in the water field as water efficiency/conservation technicians, coordinators, or specialists, or as water resources specialists and technicians. The program will also prepare students for water conservation certification examinations administered by professional associations within the water industry.

2. Provide a brief rationale for the program.

Water is society's most valuable resource. At least 36 states currently face water shortages. Increased population growth in dry areas of the United States, such as the southwest, has made water an increasingly scarce resource in those areas. Therefore, water management and conservation is becoming more and more of a necessity. In addition to the increase need in conservation, within the next 5-10 years, over 50% of the current water industry workforce is set to retire. Given its focus on water management and conservation, the instructional content is unique and does not replicate content or learning objectives at this institution or create undue competition with existing programs at another college.

The industry driver for this program is based upon Advisory Committee Meetings and local industry conferences identifying the strong demand for a water management and conservation program at the community college level in Southern California.

3. List all courses required for program completion, including core requirements, restricted electives and prerequisites. (Push Enter after each entry to begin a new line)

Courses	Course No.	Course Title	Units
ENV	1	Introduction to Environmental Studies	3
ENV	6	Scarcity and Environment	3
ENV	40	Environmental Law and Policy	3
ENV	105	Environmental Studies Internship	2
ENV	123	Water and Soil Conservation	3
ENV	New	Water Resources and Management	4
ENV	New	Water Quality and Monitoring	3
CWE	180	Cooperative Work Experience	1

4. Summarize the Labor Market Information and employment outlook (including citation of the source of the data) for students exiting the program.

There is an expected 10% employment growth for hydrologists/water resource specialists between 2012 and 2022, which is as fast as average for all occupations (U.S. Bureau of Labor Statistics, Employment Projections program). Most of this demand will come from the need for energy, environmental protection, and responsible land and water management. In addition, the University of California, Irvine has a water program so the Environmental Studies Department would develop a relationship that would benefit the students pursuing both a certificate and potentially a higher degree in the field.

According to the "Environmental Scan of Water and Wastewater Occupations in Southern California 2011" by the Center of Excellence, employment opportunities for new graduates in water and wastewater industries will be plentiful in southern California (See table below)

Table 3 - Extrapolated 2011 Employment, 3-year Growth, and Replacement Jobs

Water/Wastewater Occupations	2011 employment	3-year employment (new jobs)	3-year growth rate	Eligible to retire in 3 years (replacement jobs)	Replacement job rate	New and replacement jobs
Water Treatment Operator	2,635	87	3.3%	419	15.9%	506
Water Distribution Operator	4,059	256	6.3%	702	17.3%	958
Wastewater Treatment Operator	3,399	92	2.7%	571	16.8%	663
Wastewater Collections Operator	2,551	161	6.3%	296	11.6%	457
Mechanic/Machinist	3,116	181	5.8%	710	22.8%	891
Electrician/Electrician Technician	1,344	78	5.8%	426	31.7%	504
Electronic Maintenance Technician/Instrument Technician	1,256	98	7.8%	293	23.3%	391
TOTAL	18,360	953	5.2%	3,417	18.6%	4,370

(Center of Excellence Environmental Scan of Water and Wastewater Occupations in Southern California 2011)

“Water Quality Analyst and Water Conservations Specialist were identified as two emerging occupations in water and wastewater industries. These occupations are not part of the Standard Occupational Classification (SOC) system and do not have occupational codes...To better assess the current employment in these occupations across Southern California, firms were asked to report whether or not they employed these two occupations. Thirty-seven percent (37%) of firms reported that they employed Water Quality Analysts and about 55% of firms stated that they employed Water Conservations Specialists. These responses demonstrate two emerging occupations in the water and wastewater industries that could create more job opportunities for qualified workers and new college graduates seeking employment.” (Center of Excellence Environmental Scan of Water and Wastewater Occupations in Southern California 2011)

- List similar programs at other colleges in the Los Angeles and Orange County Region which may be adversely impacted. (Push Enter after each entry to begin a new line)

College	Program	Who you Contacted	Outcome of Contact
Citrus College	Water Technology	Jim Lancaster	Supportive of program
Los Angeles Trade-Technical College	Water Systems Technology: Supply Water Technology	Xenia Wright	Sent email and waiting for a response
Mt. San Antonio College	Water Technology	Jemma Blake-Judd	Sent email and waiting for a response
Santiago Canyon College	Water Utility Science: Water Distribution; Water Utility Science: Water Treatment; Wastewater/Environmental Sanitation	Kari Irwin and Steve McLean	Met and is willing to work with Saddleback.

- Include any other information you would like to share.

The Central Arizona Project, Denver Water, the Metropolitan Water District of Southern California, Southern Nevada Water Authority and the U.S. Bureau of Reclamation will contribute \$11 million for pilot projects to conserve water for agricultural, municipal and industrial use in 2015 and 2016, which could provide future job opportunities.