



## CALIFORNIA CLOUD WORKFORCE

### Los Angeles | Orange County Regional Consortium

#### Program Application

##### Introduction

This program submission is on behalf of the participating colleges of the California Cloud Workforce, a Strong Workforce project in Los Angeles County. Santa Monica College is the lead college on the project and curriculum development in coordination with the members of the project. This submission is to support a collaborative certificate program across the partner colleges.

A Los Angeles/Orange County regional labor market report was compiled September 2018 showing 10,305 total annual openings with 83, 010 total job postings with occupations directly impacted by cloud based technologies.<sup>1</sup> Specifically the skill set with Amazon Web Services (AWS) appears on 4,876 job posting within the region. On average, regional community colleges conferred 974 awards (associate degrees and certificates) annually in information and computing technology programs between 2014 and 2017.

##### Section I: Program Information

**Program Title:** Cloud Computing

**Submission Type:** Is your submission a new program or are substantial changes being made to an existing program?

New Program

Substantial Changes

##### TOP Codes

**0707.30**

Computer Systems Analysis: Systems analysis and design, including the recognition, definition, and improvement of processes through the use of computer technology and methodologies.

**Projected Start Date** (09/01/2018)

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<sup>1</sup> [Cloud Computing - Amazon Web Services \(AWS\) Labor market supply and demand data](#). Center of Excellence, LA/OC Region. September 2018.

**Catalog Description** Catalog Description includes program requirements, prerequisite skills or enrollment limitations, student learning outcomes, and information relevant to program goal.

The Cloud Computing program prepares students to design solutions for Infrastructure as a Service (IaaS) architectures by provisioning computing instances, establishing virtual private networks, managing databases and storage within a secure online environment. Students produce dynamic solutions responsive to information and computing technology workloads with on-demand pay-as-you-go pricing allowing flexibility for small business, entrepreneurship and enterprise adoption. Industry certifications are embedded to prepare for occupations in Cloud Architect, Cloud Support Associate, Cloud Engineer or Cloud Technicians. Some preparation in information technology or computer programming is recommended.

**Student Learning Outcomes**

- Design Infrastructure as a Service (IaaS) solutions by provisioning computing instances, establishing virtual private networks, managing databases and storage within a secure online environment.
- Analyze performance metrics of a cloud architecture to respond dynamically to information and computing technology workloads and optimize service costs.
- Collaborate in a team designing business solutions in an industry aligned project.

**Enrollment Completer Projections** Enrollment Completer Projections are projections of number of students to earn certificate or degree annually.

As of this submission, there are 12 Los Angeles County Community Colleges (El Camino, ELAC, Glendale, Harbor, Mission, Pierce, LATTTC, LA Valley, Mt SAC, Rio Hondo, SMC, WLAC) pursuing the program with a projected enrollment of 1500-1800 and a completion rate of 75% or approximately 1,238 on a yearly basis. This value is tabulated by the approximation of the courses below with current enrollment levels in Fall 2018 (510) and the potential enrollment of upcoming colleges. With the inclusion of Orange County which is approximately ½ of Los Angeles in enrollment, an additional 619 completers are expected for a total of 1,857 yearly completers which would be an 91% increase in completion numbers for this general field of study. The completers would represent 38% of the annual job openings specific to AWS cloud technology and only 18% of the total openings in the field of information and computing technology within the Los Angeles/Orange County regions.

**Section II: Program Proposal Attributes**

**Program Award Type(s)**

Check all that apply

Type of Program

- Certificate of Achievement: 8 to fewer than 16 semester (or 16 to fewer than 24 quarter) units (B)
- Certificate of Achievement: 16 or greater semester (or 24 or greater quarter) units (C)
- Associate of Science Degree (S)
- Associate of Arts Degree (A)
- A.A. – T Degree (Y)
- A.S. – T Degree (X)
- Noncredit Program (NIL)

**Program Goal** Program Goals and Objectives must address a valid transfer, occupational, basic skills, civic education, or lifelong learning purpose. Regional recommendation is only needed for programs with an occupational goal.

The Cloud Computing program develops skills for the occupations of cloud architect and cloud technician using Amazon Web Services (AWS), the leading cloud computing provider. The program bridges traditional on-premises data center skills of server installation, database management, and networking set-up and cabling into virtualizations of these information and computing technologies over online services. Job preparation will include industry certifications of AWS Cloud Practitioner and AWS Solutions Architect Associate mapped to course work.

### Section III: Course Unit and Hours

Total Certificate Units (Minimum and Maximum) **16-18**

Units of Degree Major or Area of Emphasis (Minimum and Maximum) -

Total Units for Degree (Minimum and Maximum) -

### Section IV: Course Report

Program Requirements Narrative

The Cloud Computing program consists of four (4) core courses with a minimum of two (2) elective courses to accumulate the total certificate units. The core courses lay the foundational cloud technology knowledge with the initial course (Introduction to Cloud Computing) being a prerequisite for the other three. Colleges offering the program would select the elective emphasis with a minimum additional two courses.

Course	Title	Units	Semester
CS 79A	Introduction to Cloud Computing	3.0	1
CS 79B	Database Essentials in Amazon Web Services	3.0	1
CS 79C	Compute Engines in Amazon Web Services	3.0	2
CS 79D	Security in Amazon Web Services	3.0	2
ELECTIVES (2 of the following)			

CS 87A	Python Programming	3.0	1
CS 79E	Best Practices in Amazon Web Services	3.0	2
CS 81	Javascript Programming	3.0	1
CS 55	Java Programming	3.0	2
CS 41	Linux Network Administration	3.0	2

**Program Requirements** Program Requirements includes course requirements and sequencing that reflect program goals.

Requirement	Semester 1		Semester 2
Core	Introduction to Cloud Computing	Compute Engines in Amazon Web Services	Database Essentials in Amazon Web Services Security in Amazon Web Services
Elective Topics	Computer programming language, operating systems, web development, Information and Communication Essentials, Business fundamentals, Customer Service		Systems Administrator, DevOps, Cybersecurity, Big Data, Serverless Architecture
Certifications	AWS Cloud Practitioner		AWS Solutions Architect - Associate

## Section V: Supporting Documents

Please attach to the email

[Cloud Computing - Amazon Web Services \(AWS\) Labor market supply and demand data.](#)

Center of Excellence, LA/OC Region. September 2018.

[AWS Certified Cloud Practitioner](#)

[AWS Certified Solutions Architect - Associate](#)

## Section VI: Los Angeles/Orange County Region Specific Questions

District                    Santa Monica Community College District  
College                     Santa Monica College  
CRLC Member             Patricia Ramos, Ed.D.  
Email                        ramos\_patricia@smc.edu  
Phone                        (310) 434-4040

### Reason for approval request

- New Program  
 Substantial Change  
 Local Approved

**Place of program in college's curriculum/similar program.**

The Cloud Computing program is complementary to existing Information Technology Technician Pathways<sup>2</sup> where skill sets and background translate to cloud methods and allow for students to help companies with existing on-premises data centers transition to the cloud. Although complementary, many companies are cloud native especially in the start-up and small business utilizing web services.

In addition, the Cloud Computing program assist the practical implementation of computer science students' skills set to provide tangible coding packaged within a cloud infrastructure. Although students in computer science programs may transfer, leveraging a certificate to a part-time job to enter a position as a software developer with cloud implementation skills will increase job prospects.

### **List similar programs at other colleges in the Los Angeles and Orange County Region**

#### **Annual Enrollment projects (non-duplicative)**

See section **Enrollment Completer Projections**

#### **Advisory Minutes**

Please attach to the email.

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<sup>2</sup> [ICT DM IT Technician Pathway](#). Doing What Matters CCCC