Merritt College
DevOps - Development and Operations Automation

Overview

College	Merritt - Division II
Originator	Courtney Brown
Award Type	MC A.S. Degree

Codes and Dates

State Approval Date	10/04/2022
Curriculum Committee Approval Date	3/10/2022
Board of Trustees Date	4/26/2022
Current Effective Date	1/01/2023
Program Control Number	42571
Top Code	0707.30* - Computer Systems Analysis

Description

The DevOps – Development and Operations Automation Associate Degree program prepares students for a career in Computer Information Systems (CIS) or transfer for continued study. A graduate of this program is able to improve efficiency in Information Systems, CIS operations, and create software products. They are able to monitor and manage many information systems operations and software development processes by creating reusable scripts and software modules.

DevOps is the use of software **DEV**elopment tools to automate Information Systems **OP**erations. It requires Knowledge Skills and Abilities (KSA) of Information Technology (IT) components, configuration and programming that integrate IT components into Information Systems (IS), and the ability to automate the activities through use of the Application Programming Interfaces (API) published by equipment and service providers. The main characteristic of DevOps is to strongly advocate and implement automation and monitoring at all steps of software and infrastructure construction, from integration, testing, and releasing, to deployment and infrastructure management. DevOps aims at shorter development cycles, increased deployment frequency and more dependable releases in close alignment with business objectives.

Students who are interested in continuing their studies after completion of the two-year associate degree should consult with the departmental chair, read the "Transfer Information" section of the college catalog, and discuss their plans with their program advisor or counselor. Four-year universities may have additional or different course requirements for completion of lower division courses. The website www.assist.org can provide additional information about applicable courses for transfer.

Career Opportunities

Computer Systems Engineers/Architects (15-1199.02): • Computer Systems Analysts (SOC 15-1121) • Computer Programmers (SOC 15-1131 • Computer Occupations, All Other (SOC 15-1199) PMI Agile Certified Practitioner (PMI-ACP) exam. https://www.pmi.org/certifications/types/agile-acp Apprenticeships: DOL IT Generalist O*NET Code: 15-1151.00 RAPIDS Code: 1059CB California Department of Industrial Relations (CA-DIR) IT Project Manager https://www.dir.ca.gov/databases/das/results_aiglist.asp?varCounty....=&offset=130 Information Security Analysts (SOC 15-1122): • Computer and Information Systems Managers (SOC 11-3021) • Computer Systems Analysts (SOC 15-1121) CA-DIR Cybersecurity Technician Apprenticeship - https://www.dir.ca.gov/databases/das/results_aigdetail.asp?varOccId=9266 DOL Apprenticeship ONET Code:15.112 RAPIDS Code: 1059CB Military Crosswalk Advanced Information Operations (IO) Planner (Marine Corps - Commissioned Officer only) Aviation Logistics Information Management System (ALIMS) Specialist (Marine Corps - Enlisted) Cyberspace Operations, Cyber Command and Control Mission System (Air Force - Commissioned Officer only) Cyberspace Operations, Cyber Security and Control System (Air Force - Commissioned Officer only

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

1. Plan control of IT Components using Application Programming Interface (API)

2. Select operations to automate in an IT project.
3. Design Operations information flow for operations automation monitoring
4. Select Key Performance Metrics and that define baselines and norms.

Degree Requirements:

Required Major Courses: 24 - 26 units   **Credit Hours:**   (0 Required)

CIS 005 or	Introduction to Computer Science	5
CIS 006 or	Introduction to Computer Programming	5
CIS 007 or	Control Structures and Objects	4
CS 020 and	Python Application Programming	3
CIS 035	Microcomputer Operating Systems	4
CIS 051	Introduction to Information Technology Project Management	4
CIS 072	Systems and Network Administration	3
CIS 107	Administering Cloud Services and Containers	3
CIS 108	Scripting for Systems Automation and Data Analysis	3
CIS 110	Information and Communication Technology Essentials	4

Restricted Electives: 9 - 12 units   **Credit Hours:**   (0 Required)

  Select one group of electives from the list below:

Group A - Social Media and Online Community Management   **Credit Hours:**   (0 Required)

SOC 001	Introduction to Sociology	3
PSYCH 001A	Introduction to General Psychology	3
PSYCH 006	Social Psychology	3

Group B- Cybersecurity Operations   **Credit Hours:**   (0 Required)

CIS 053	Intrusion Detection In-Depth: Compliance, Security, Forensics and Troubleshooting	3
CIS 055	Hacker Techniques, Exploits, and Incident Handling	0
CIS 060	Computer Forensics Fundamentals	3
CIS 247	Information Systems Skills Challenge	1 - 4

Group C - Software Engineering Automation and Continuous Integration   **Credit Hours:**   (0 Required)

CS 080	Software Engineering	3
CIS 178	Build Automation for DevOps and QA	4
CIS 179	Agile Software Management and Project Automation	3

Group D - Mobile Applications Build and Test Automation (Group D requires selection of CIS 6 or CIS 7 as the programming   **Credit Hours:**   (0 Required)

CIS 033	Software Architectures and Algorithms	4
CIS 093	Cross Platform Mobile Application Development	4
CIS 178	Build Automation for DevOps and QA	4

Group E - Cloud Systems and Services   **Credit Hours:**   (0 Required)

CIS 062	Introduction to Systems Analysis and Design	3
CIS 052	Cloud Security Fundamentals	3
CIS 058	Hacker Guard – Baseline Training for IT Administrators and Operations	3

Group F -Site Reliability and Scaling (Group F requires selection of CIS 6 or CIS 7 as the programming course.)   **Credit Hours:**   (0 Required)

CIS 008	Introduction to Parallel and Cloud Programming	4
CIS 100	Introduction to Blockchain, Cryptocurrencies, and Identity	3
CS 060	Applications of Artificial Intelligence and Deep Learning	3

Major Requirements   **Credit Hours:**   (0 Required)

Total Major Requirements   33 - 38

General Education Requirements   **Credit Hours:**   (0 Required)
  General Education Requirements (Local AS Degree)   19

Degree Electives   **Credit Hours:**   (0 Required)
  Degree electives   3 - 8

Minimum Total Units Required for the Degree   **Credit Hours:**   (60 Required)
  Total Units   60

                                                                             Total: 60

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