

BCAT PLOs 2025-26 from eLumen

De Anza College

09-20-2026

Applied Technologies
APRN - Auto. Apprenticeship
AAT_Associate in Arts in Communication Studies 2.0 for Transfer • Design, express, interpret, and relate verbal and nonverbal messages clearly and confidently to diverse audiences • Apply a range of speaking, listening, and collaboration skills in interpersonal, professional, and group settings • Utilize appropriate resources and technologies to identify, engage, and critically evaluate various forms of information and discourse across various contexts • Develop culturally responsive communication skills necessary to participate as an informed member of a global, multicultural society
ATMG - Automotive Technology Management
BS_Automotive Technology Management • Demonstrate the required skills for effective entry-level management in the automotive repair industry • Demonstrate knowledge of leadership, ethics, critical thinking, and all forms of communication in business and life • Recognize and value the intricacies of working and living in a multicultural world by demonstrating gratefulness of diversity
AUTO - Automotive Technology
AS_Advanced Engine Performance Technology • Identify the basic electrical circuits and diagnose automotive electrical systems • Apply the basic principles of physics as they work in the automotive industry • Interpret and analyze automotive ignition, fuel and ignition systems • Utilize appropriate diagnostic equipment, documentation and troubleshooting principles on various automotive systems
AS_Automotive Chassis and Powertrain • Perform undercar inspections and repair suspension, steering, hydraulic and active braking systems • Demonstrate overall operation of an automotive transmission and differential as it relates to service, diagnosis and repair • Identify basic electrical circuits and diagnose automotive electrical circuit systems • Apply the basic principles of physics as they work in the automotive industry • Use written and oral communication skills to write repair orders and speak with customers
AS_Automotive Chassis Technology • Perform undercar inspections and repair suspension, hydraulic and active braking systems • Diagnose vehicle alignment concerns • Identify the basic electrical circuits and diagnose automotive electrical systems • Apply the basic principles of physics as they work in the automotive industry
AS_Automotive Engine Performance • Diagnose basic electrical, engine performance and emissions systems • Identify basic electrical circuits and diagnose automotive electrical circuit systems • Apply the basic principles of physics as they work in the automotive industry
AS_Automotive Machining and Engine Repair • Demonstrate an application of four-stroke engine theory • Identify basic electrical circuits and diagnose automotive electrical circuit systems • Apply the basic principles of physics as they work in the automotive industry

- Demonstrate knowledge of the job procurement process in the automotive industry
- Demonstrate basic safe machining practices
- Demonstrate knowledge of estimates and repair orders
- Demonstrate knowledge of hazardous materials handling in the automotive industry

AS_Automotive Machining and Engine Repair Technology

- Demonstrate an understanding of four-stroke engine theory, basic safe machining practices, estimates and repair orders, and engine assembly
- Identify the basic electrical circuits and diagnose automotive electrical systems
- Apply the basic principles of physics as they work in the automotive industry

AS_Automotive Powertrain Technology

- Demonstrate knowledge of the overall operation of an automotive transmission and differential
- Identify the basic electrical circuits and diagnose automotive electrical systems
- Apply the basic principles of physics as they work in the automotive industry

AS_Automotive Service and Repair

- Demonstrate the required skills and abilities for an entry-level position in the automotive repair industry
- Apply the basic principles of physics as they work in the automotive industry
- Perform undercar inspections and repair suspension, hydraulic and active braking systems
- Demonstrate an understanding of four-stroke engine theory, basic safe machining practices, estimates and repair orders, and engine assembly
- Utilize appropriate diagnostic equipment, documentation and troubleshooting principles on various automotive systems

COAA_Advanced Engine Performance Technology

- Identify the basic electrical circuits and diagnose automotive electrical systems
- Apply the basic principles of physics as they work in the automotive industry
- Interpret and analyze automotive ignition, fuel and ignition systems
- Utilize appropriate diagnostic equipment, documentation and troubleshooting principles on various automotive systems

COAA_Automotive Chassis and Powertrain

- Perform undercar inspections and repair suspension, steering, hydraulic and active braking systems
- Demonstrate overall operation of an automotive transmission and differential as it relates to service, diagnosis and repair
- Identify basic electrical circuits and diagnose automotive electrical circuit systems
- Apply the basic principles of physics as they work in the automotive industry
- Use written and oral communication skills to write repair orders and speak with customers

COAA_Automotive Chassis Technology

- Perform undercar inspections and repair suspension, hydraulic and active braking systems
- Diagnose vehicle alignment concerns
- Identify the basic electrical circuits and diagnose automotive electrical systems
- Apply the basic principles of physics as they work in the automotive industry

COAA_Automotive Engine Performance

- Diagnose basic electrical, engine performance and emissions systems
- Identify basic electrical circuits and diagnose automotive electrical circuit systems
- Apply the basic principles of physics as they work in the automotive industry

COAA_Automotive Machining and Engine Repair

- Demonstrate an application of four-stroke engine theory
- Identify basic electrical circuits and diagnose automotive electrical circuit systems
- Apply the basic principles of physics as they work in the automotive industry

- Demonstrate knowledge of the job procurement process in the automotive industry
- Demonstrate basic safe machining practices
- Demonstrate knowledge of estimates and repair orders
- Demonstrate hazardous materials handling in the automotive industry

COAA_Automotive Machining and Engine Repair Technology

- Demonstrate an understanding of four-stroke engine theory, basic safe machining practices, estimates and repair orders, and engine assembly
- Identify the basic electrical circuits and diagnose automotive electrical systems
- Apply the basic principles of physics as they work in the automotive industry

COAA_Automotive Powertrain Technology

- Demonstrate knowledge of the overall operation of an automotive transmission and differential
- Identify the basic electrical circuits and diagnose automotive electrical systems
- Apply the basic principles of physics as they work in the automotive industry

COAA_Autonomous and Electric Vehicle Technician (Level 1)

- Utilize the appropriate diagnostic equipment, documentation and troubleshooting principles of various electric vehicle systems

COAA_Autonomous and Electric Vehicle Technology (Level 1)

- Utilize the appropriate diagnostic equipment, documentation and troubleshooting principles of various electric vehicle systems

COA_Advanced Automotive Technology

- Demonstrate understanding of general advanced automotive electrical/environmental concepts as they relate to automotive service, diagnosis and repair

COA_Advanced Engine Performance Technology

- Utilize the appropriate diagnostic equipment, documentation and troubleshoot principles on various automotive systems

COA_Automotive Chassis Technology

- Perform undercar inspections and repair suspension, steering, hydraulic and active braking systems

COA_Automotive General Service Technician

- Perform basic engine service, cooling system maintenance and battery testing
- Perform tire service including balancing, disc and drum brake service, and basic front and rear suspension service

COA_Automotive Machining and Engine Repair Technology

- Demonstrate an understanding of four-stroke engine theory, basic safe machining practices and engine assembly

COA_Automotive Powertrain Technology

- Demonstrate knowledge of the overall operation of an automotive transmission and differential

COA_Autonomous and Electric Vehicle Technician (Level 2)

- Utilize the appropriate diagnostic equipment, documentation and troubleshooting principles of various electric vehicle systems

COA_Basic Engine Performance Technology

- Identify the basic electrical circuits and diagnose automotive electrical systems
- Apply the basic principles of physics as they work in the automotive industry

COA_Intermediate Engine Performance Technology

- Interpret and analyze automotive ignition, fuel and ignition systems

COA_Smog Technician

- Perform a complete California state smog inspection

COCL_Advanced Engine Performance Technology

- Utilize the appropriate diagnostic equipment, documentation and troubleshoot principles on various automotive systems

COCL_Alternative Fuels Technology

- Understand and diagnose body-electrical systems, including electrical accessories

COCL_Automotive Body Electrical

- Understand and diagnose alternative fuels systems such as hybrid, EV, diesel and CNG

COCL_Automotive Chassis Technology

- Perform undercar inspections and repair suspension, steering, hydraulic and active braking systems

COCL_Automotive Machining and Engine Repair Technology

- Demonstrate an understanding of four-stroke engine theory, basic safe machining practices and engine assembly

COCL_Automotive Powertrain Technology

- Demonstrate knowledge of the overall operation of an automotive transmission and differential

COCL_Autonomous and Electric Vehicle Technician (Level 1)

- Utilize the appropriate diagnostic equipment, documentation and troubleshooting principles of various electric vehicle systems

COCL_Autonomous and Electric Vehicle Technician (Level 2)

- Utilize the appropriate diagnostic equipment, documentation and troubleshooting principles of various electric vehicle systems

COCL_Basic Engine Performance Technology

- Identify the basic electrical circuits and diagnose automotive electrical systems
- Apply the basic principles of physics as they work in the automotive industry

COCL_EV and Fuel Vehicle Safety

- Understand safety related to EV vehicles and gaseous fuel vehicles

COCL_General Service Technician

- Perform basic engine service, cooling system maintenance and battery testing
- Perform tire service including balancing, disc and drum brake service, and basic front and rear suspension service

COCL_Intermediate Engine Performance Technology

- Interpret and analyze automotive ignition, fuel and ignition systems

COCL_Smog Technician

- Perform a complete California state smog inspection

DMT - Design and Mfg. Tech.**AS_Advanced Manufacturing and Prototyping Technician**

- Create and manipulate designs for three-dimensional prototypes and models using CAD/CAM software.
- Differentiate and analyze the materials and processes used in subtractive and additive manufacturing.
- Utilize CAD software to produce and optimize design drawings for 3D printing/additive manufacturing, factoring geometric dimensioning and tolerancing (GD&T) considerations.
- Produce prototypes and models using 3D printing/additive manufacturing processes and materials as per ANSI/ISO Standards.
- Create tool paths for CNC machining using constructed and imported geometry in Mastercam.
- Construct machined projects using conventional and CNC equipment employing word address programming (G & M code).
- Inspect and test finished prototypes and parts.
- Recommend design and production modifications as necessary

AS_CNC Machinist

- Construct and inspect machined projects using CNC equipment with word address programs
- Apply geometric dimensioning and tolerance standards to inspect drawings and inspect parts using a coordinate measuring machine
- Differentiate and analyze the materials and processes used in manufacturing
- Produce tool paths with constructed and imported geometry using Mastercam
- Apply advanced machining skills by independently contracting projects

AS_CNC Research and Development Machinist

- Construct and inspect machined projects using conventional and CNC equipment using word address programs
- Apply geometric dimensioning and tolerance standards to inspect drawings and inspect parts using a coordinate measuring machine
- Differentiate and analyze the materials and processes used in manufacturing
- Analyze, construct and inspect diagrams to repair physical and electrical components
- Produce tool paths with constructed and imported geometry using Mastercam

COAA_Advanced Manufacturing and Prototyping Technician

- Create and manipulate designs for three-dimensional prototypes and models using CAD/CAM software
- Differentiate and analyze the materials and processes used in subtractive and additive manufacturing
- Utilize CAD software to produce and optimize design drawings for 3D printing/additive manufacturing, factoring geometric dimensioning and tolerancing (GD&T) considerations
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COAA_CNC Machinist

- Construct and inspect machined projects using CNC equipment with word address programs
- Apply geometric dimensioning and tolerance standards to inspect drawings and inspect parts using a coordinate measuring machine
- Differentiate and analyze the materials and processes used in manufacturing
- Produce tool paths with constructed and imported geometry using Mastercam
- Apply advanced machining skills by independently contracting projects

COAA_CNC Research and Development Machinist

- Construct and inspect machined projects using conventional and CNC equipment using word address programs
- Apply geometric dimensioning and tolerance standards to inspect drawings and inspect parts using a coordinate measuring machine
- Differentiate and analyze the materials and processes used in manufacturing
- Analyze, construct and inspect diagrams to repair physical and electrical components
- Produce tool paths with constructed and imported geometry using Mastercam

COA_Additive Manufacturing Technology: 3D Design and Production

- Apply knowledge of additive manufacturing (AM)/3D printing to analyze, compare, and utilize multiple 3D printing processes and materials to design, prototype, and fabricate components and products for industry
- Analyze AM/3D printing design and production considerations to evaluate and determine the optimal processes and materials to meet industry standards and client specifications
- Demonstrate the skills required for each of the different roles within an AM product development and production facility: CAD designer, AM technician, applications engineer, and quality control
- Produce prototypes and components for fabrication utilizing Design for Additive Manufacturing (DfAM) concepts based on current industry standards and practices

COA_CNC Machinist

- Setup and operate conventional and CNC machines safely
- Construct and inspect machined projects using conventional and CNC equipment
- Construct word address programs to machine projects

COA_CNC Programming - CAD/CAM

- Design and construct 2D, 3D, lathe, horizontal and multi-axis part geometry
- Select tools and produce tool paths with constructed and imported geometry
- Verify tool paths and create word address programs for CNC machines

COA_Computer Aided Design - Mechanical

- Solve basic and complex drafting and design application problems using industry standard two-dimensional and three-dimensional software and feature-based parametric design software
- Apply the fundamentals of computer-aided drafting and design to disciplines such as architectural, mechanical and industrial design and engineering
- Utilize industry standard microcomputer CAD software and the hardware, operating systems and peripherals used to facilitate it
- Create engineering notes and scaled drawings using ASME or International Standards Organization (ISO) specifications
- Satisfy a prospective employer with quality technical expertise in the use of two CAD tools (SolidWorks and Creo) at a level commensurate with entry- to mid-level usage in industry design and engineering

COA_Quality Control Technician

- Analyze, construct and inspect assigned machined projects using the introductory principles of machining
- Demonstrate the ability to interpret multi-view drawings and prints
- Demonstrate the ability to utilize common gauges, measurement instruments and calibration tools
- Apply geometric dimensioning and tolerancing standards to interpret drawings and inspect manufactured parts
- Demonstrate basic operation of the coordinate measuring machine (CMM) to inspect manufactured parts
- Demonstrate a working knowledge of calibration systems, inspection methodology, statistical process control indices and quality sampling techniques

Business/Computer Science**ACCT - Accounting****AA_Accounting**

- Demonstrate knowledge of double-entry accounting within financial and cost accounting systems for various business organizations
- Prepare financial statements and reports and analyze these statements to evaluate the financial structure of a firm and describe fundamental business concepts, while identifying ethical issues in accounting
- Identify and assess the theory and reporting differences between International Reporting Standards and U.S. Generally Accepted Accounting Principles
- Evaluate events which require research in the professional literature and formulate an organized, concise approach to a solution

COAA_Accounting

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BUS - Business**AA_Business Administration**

- Explain the interactions among the primary functions within business (such as marketing, management, operations, human resources, accounting, finance and business law) to achieve organizational goals

AA_Management

- Analyze management issues, develop solutions and compare leadership styles for a given organizational environment

AA_Marketing Management

- Develop an appropriate marketing plan for an organization in a given business environment

AST_Associate in Science in Business Administration for Transfer 2.0

- Explain the interactions among the primary functions within business (such as marketing, management, operations, human resources, accounting, finance and business law) to achieve organizational goals

COA_Business Administration

- Distinguish and explain the primary functions within business such as management, human resources, business law, operations, marketing, accounting and finance

COA_Business Information Worker

- Use computer input devices to properly and efficiently create and edit documents in word processing and spreadsheet programs, and in electronic communications systems such as email
- Work effectively, respectfully, ethically and professionally with people of diverse ethnic and cultural backgrounds, and diverse social affiliations and personalities, filling a variety of organizational roles
- Communicate effectively and professionally in business situations through writing, speaking and electronic media

COA_Entrepreneurship

- Critically evaluate business plans and describe the processes required to start, operate and measure the results of a small business

COA_Management

- Identify management issues and apply solutions and leadership styles

COA_Management Information Systems Support

- Communicate effectively with business professionals, understand fundamental programming concepts, and track computer systems problems related to a variety of technical areas, such as software applications, database management systems, web sites and comput

COA_Marketing Management

- Identify and distinguish the elements of the marketing mix for an organization in a given business environment

COCL_Nonprofit Management

- Examine the foundation, requirements, characteristics and elements of effective functioning nonprofit organizations
- Distinguish the roles, interdependence and impact of a nonprofit governing board as distinct from staff and volunteers
- Examine how nonprofits prepare for and implement the fundraising process successfully
- Design an effective fundraising plan for a nonprofit that targets promising donors and/or funding sources, considers organizational capabilities and strategic goals and includes relevant tracking and performance measures

CIS - Computer Sci and Info Systems**AA_Business Programming**

- Analyze business requirements and architect, design and develop distributed business applications that meet these requirements to the level of user interfaces, algorithms, design patterns, security and storage strategies

AA_Cybersecurity

- Describe network components, protocols, architectures and the application of current communication and networking technologies
- Define properties of all modern network types
- Determine, at a more advanced level, how to detect and stop security breaches in network and application layer
- Help organizations increase awareness of security policies and procedures

AA_Database Development Practitioner

- Demonstrate requirement analysis, design and coding skills in languages commonly used in data management with large scale databases
- Apply skills for business analysis to convert data into information in real time, allowing business owners to make effective just-in-time decisions

AA_Network Administration

- Use UNIX/LINUX utilities and shell features for file manipulation and communication
- Create algorithms and code, document, debug and test shell scripts that interact with the UNIX/LINUX OS
- Create algorithms to solve introductory-level problems using C programming and shell scripting or Perl languages
- Identify networking components and protocols in the context of architectures and technologies for LAN, WAN and Internet networks

AA_Network Programming

- Design solutions for advanced network problems creating distributed programs using Transmission Control Protocol and Internet Protocol
- Create algorithms and code, document, debug and test advanced-level C programs using multiple source and header files
- Use UNIX/LINUX utilities and shell features for file manipulation and communication

AA_Project Management Practitioner

- Demonstrate skills in initiating, planning, execution and control of a project with mindfulness to scope, quality, budget and resources
- Demonstrate skills with technical tools for effective project management
- Apply skills for business analysis, program management or portfolio management in real-world projects

AA_Systems Programming

- Create a design, implement and debug solutions for computing systems of different levels of complexity using C and C++
- Create, design, implement and debug solutions for embedded systems such as 8086/ IA32 processor using Assembly Language
- Use UNIX/LINUX utilities and shell features for file manipulation and communication

AST_Associate in Science in Computer Science for Transfer

- Create, design, implement and debug solutions for computing systems of different levels of complexity using an object orientated language
- Create, design, implement and debug solutions for low-level systems using assembly language

COAA_Business Programming

- Analyze business requirements and architect, design and develop distributed business applications that meet these requirements to the level of user interfaces, algorithms, design patterns, security and storage strategies

COAA_Cybersecurity

- Describe network components, protocols, architectures and the application of current communication and networking technologies
- Define properties of all modern network types
- Detect and stop security breaches in network and application layers
- Help organizations increase awareness of security policies and procedures

COAA_Database Development Practitioner

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- Create, design, implement and debug solutions for embedded systems such as 8086/ IA32 processor using Assembly Language
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COA_Cybersecurity

- Describe network components, protocols, architectures and the application of current communication and networking technologies
- Define properties of all modern network types
- Detect and stop security breaches in network and application layers
- Help organizations increase awareness of security policies and procedures

COA_Database Development Practitioner

- Prepare and review a database design that includes logical and system representations
- Design, code and debug SQL and PL/SQL programs
- Apply performance tuning techniques to large-scale database applications
- Create, design and debug intermediate level programs with basic C programming language
- Create a database that is optimized to meet defined technical requirements

COA_Information Technology Technical Support

- Perform IT support tasks including computer assembly, setting up wireless networking, installing programs
- Configure permissions and file systems, and provide for security on systems using Linux system, Windows system and Domain Name Systems
- Interact with users to diagnose and debug and where needed develop appropriate documentation to support the user

COA_Network Administration

- Identify computer hardware and networking components in the context of micro computers and various types of network operating systems, architectures and protocols
- Develop and present a business improvement plan using the business decision making model and utilizing software applications in word processing, spreadsheets or databases

COA_Network Basics

- Create algorithms to solve introductory-level problems using C programming language through the stages of coding, documenting, debugging, reading and testing with various tools
- Identify networking components and protocols in the context of architectures and technologies for LAN, WAN and Internet networks

COA_Programming in C/C++

- Read, analyze and explain advanced C/C++ programs
- Design solutions for advanced problems using appropriate design methodology incorporating advanced programming constructs
- Create algorithms and code, document, debug and test advanced level C/C++ programs using multiple source and header files

COA_Programming in Java

- Read, analyze and debug code using Core Java
- Design solutions using object-oriented programming constructs and advanced concepts in the Java Development Kit
- Design web applications using a three-tier architecture and applying advanced concepts for Java Enterprise Edition
- Design Java programs for the Android platform
- Create, design and debug advanced-level programs with Java language

COA_Programming in Perl

- Read, analyze and explain intermediate-level C programs
- Design solutions for intermediate-level problems using appropriate design methodology incorporating intermediate programming constructs
- Create algorithms and code, document, debug and test intermediate-level C programs
- Use the UNIX/LINUX Operating System utilities and shell features for basic file manipulation, networking and communication
- Design, code, document, analyze, debug and test advanced-level Perl programs that include object-oriented Perl modules and access to database, TCP/IP and system processes

COA_Programming in Python

- Create algorithms, code, document, debug and test Python programs that include Python modules for database, networking, graphics and extensions

- Read and analyze Python programs

COA_Project Management Practitioner

- Manage projects by applying project management theory as defined by the Project Management Institute's (PMI) Project Management Book of Knowledge (PMBOK)
- Lead the creation of a project plan for an organization's large-scale project with a large budget
- Apply risk management techniques to a project to balance scope, quality, budget, scheduling and team morale
- Write a vendor solicitation plan and use a collaborative approach for selecting vendors
- Successfully manage a vendor through a project's completion while providing all project participants with a clear picture of scope, quality, budget and schedule

COA_UNIX/LINUX Operating System

- Use UNIX/LINUX utilities and shell features for file manipulation, job control and communication
- Create algorithms and code, document, debug and test shell scripts that interact with the UNIX/LINUX Operating System

COA_Visual Basic Programming

- Develop and present a plan for improving a business using the business decision making model utilizing hardware and software applications such as word processing, spreadsheets or databases
- Design, create and debug an application incorporating class modules, bas modules, multiple forms and database updating
- Design, create and debug a Web application using ASP.NET 3.5

COA_Web Development

- Create algorithms and code, document, debug and test introductory-level programs in a high-level programming language
- Create web pages using Extensible Hypertext Markup Language (XHTML), Cascading Style Sheets (CSS), JavaScript and the Document Object Model (DOM), and demonstrate how they interact together within a web document

COCL_Business Software Applications

- Create complex business documents using word processing, spreadsheets and database
- Design brochures and graphics with Photoshop
- Microsoft Windows setup and file management
- Optimize workflow with cloud file sharing
- Protect computers for malware, scams and exploitation
- Identify and stop security vulnerabilities

COCL_Database Science Practitioner

- Demonstrate requirement analysis, design and coding skills in languages commonly used in data management with large-scale databases
- Apply skills for business analysis to convert data into information in real time, allowing business owners to make effective just-in-time decisions

COCL_Information Technology Technical Support

- Perform IT support tasks including computer assembly, setting up wireless networking, installing programs
- Configure permissions and file systems, and provide for security on systems using Linux system, Windows system and Domain Name Systems
- Interact with users to diagnose and debug and where needed develop appropriate documentation to support the user

COCL_Introduction to Computer Science

- Use the Unix/Linux Operating System utilities and shell features for basic file manipulation, networking, and communication
- Design, code, document, analyze, debug, and test introductory level Python programs

COCL_Project Management Practitioner

- Manage projects by applying project management theory as defined by the Project Management Institute's (PMI) Project Management Book of Knowledge (PMBOK)
- Lead the creation of a project plan for an organization's large-scale project with a large budget
- Apply risk management techniques to a project to balance scope, quality, budget, scheduling and team morale
- Write a vendor solicitation plan and use a collaborative approach for selecting vendors

- Successfully manage a vendor through a project's completion while providing all project participants with a clear picture of scope, quality, budget and schedule

REST - Real Estate**AA_Real Estate**

- Demonstrate knowledge of how real property is described, acquired, appraised, financed, encumbered and leased and how title to real property is held in California
- Demonstrate knowledge of the risks, returns, legal issues and ethical issues involved in the purchase, holding and sale of California real estate
- Qualify to take the California Department of Real Estate salesperson examination

COA_Real Estate

- Demonstrate knowledge of how real property is described, acquired, appraised, financed, encumbered and leased and how title to real property is held in California
- Demonstrate knowledge of the risks, returns, legal issues and ethical issues involved in the purchase, holding and sale of California real estate
- Qualify to take the California Department of Real Estate salesperson examination

COCL_Real Estate Salesperson

- Demonstrate knowledge of how real property is described, acquired, appraised, financed, leased and how title to real property is held in California
- Demonstrate knowledge of the risks, returns, legal issues and ethical issues involved in the purchase, holding and sale of California real estate
- Be prepared and qualified to sit for the California Department of Real Estate salesperson examination