**California State University, East Bay**

**CERTIFICATE PROGRAMS**

1. HVAC Technician

HVAC Technician Certificate Program provides heating, ventilation, air conditioning, and refrigeration installers and technicians a comprehensive training program.

The program meets the educational recommendations of HVAC/R industry organizations such as The Air-Conditioning Refrigeration Institute (ARI), North American Technician Excellence (NATE), Refrigeration Service Engineers Society (RSES), and Air-Conditioning Contractors of America (ACCA) and NATE endorses our curriculum with "Recognized Training" status.

#### Program Objectives

* To give graduates a thorough grounding in the fundamentals of heating and cooling system design, installation, operation, and analysis.
* To provide graduates an understanding of proper safety practices and procedures, in the lab and the workplace, while installing, designing, troubleshooting, and servicing HVAC/R systems.
* To give graduates familiarity with work habits, communication practices and computation skills as they relate to the HVAC/R industry workplace.
* To provide graduates an understanding of fossil fuel combustion systems found in residential and light commercial applications.
* To give graduates competency in the area of refrigerant handling.
* To give graduates expertise in finding HVAC/R-related information on the Web.
* To prepare graduates to sit for ARI and NATE-administered Exams.
* To equip graduates with the skills and knowledge that will allow them to meet the highest standards of the HVAC/R profession and advance their careers.

#### Who Should Attend

* Individuals seeking to become HVAC/R technicians.
* HVAC/R technicians seeking to upgrade their skills.
* HVAC/R technicians seeking to prepare for industry certification exams.
* Any professionals involved in planning, designing, installing, and operating HVAC/R systems.

# Courses:

# HVAC Technician Certificate

Course Number: **EXSP 8107**

The modules cover specific HVACR concepts by incorporating a presentation that utilizes some or all of the following: text reading assignments, Web site tours, applied exercises, inline quizzes, industry terminology definitions, video clips, animations, images, handouts, and a 20-question module final exam. All courses include a midterm and a final exam. Students also will learn from a 28-year HVAC/R veteran who is a pioneer in online HVAC/R training and the project director of the industry web site HVACReducation.net.

1. Certified Green Supply Chain Professional

Gain the skills and knowledge you’ll need to “green” an organization’s supply chain. Global sourcing, material management, procurement/buying, transportation and logistics, and new product development require specialized knowledge to enable a company to achieve its environmental sustainability goals.

#### Program Objectives

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

* Establish and maintain a green procurement strategy.
* Apply the principles of environmentally preferred purchasing, design for environment, eco-control systems, and sustainable business practices.
* Identify Corporate Social Responsibility strategies to meet organizational needs.
* Develop and use Green Supply Practices (GSP).
* Select and use a variety of environmental accounting methods effectively.
* Improve logistics operations using the green efficiency principles.
* Organize and sequence carbon strategies for the greener supply chain.
* Improve operational sustainability through greening the logistics and supply chain.
* Align supply chain operations and business strategies to meet sustainability objectives.

#### Who Should Attend

This Green Supply Chain Professional Certification Program is essential for professionals working in or preparing for leadership roles tasked to support the sustainable business practices and goals of their organization.

* Professionals who need to create collaborative partnerships with management in order to improve sustainable business practices throughout the supply chain.
* Sustainability consultants who must analyze “green” challenges for their clients and develop supply chain strategies.
* Managers, directors, or vice presidents whose departments are within the operations or supply chain groups and have responsibility for implementing green supply chain practices.
* Professionals who need to develop collaborative supplier partnerships with OEM organizations they support as a Tier I or II supplier.

# Certified Green Supply Chain Professional

**Course Number: EXSP 8754**

This professional certification program will help you learn the essentials of green product standards and labeling, how to develop sustainability supplier programs, understand sustainable business practices, apply “lean” & “green” manufacturing strategies, and how to integrate green supply chain practices across the extended supply chain.

1. Wind Energy Professional

This entry level Wind Energy Professional Course prepares you for a career in the wind energy industry. Students will learn the basics of wind energy principles including wind technology, wind energy anatomy, wind farm design, wind business, and characteristics of energy sources. This course covers the fundamentals of hydraulics and basic theory and practice of electrical circuits, including calculations as applied to alternating and direct currents.

#### Program Objectives

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

* Describe the evolution of wind turbine technology.
* Identify and describe wind farm anatomy of general wind terminology, parts of the turbine, plant, and components of the team.
* Discuss air flow characteristics and blade efficiencies.
* Implement customer relationship and management (CRM) strategies.
* Discuss business planning process using various tools (six-sigma, root-cause analysis, and/or strengths- weaknesses - opportunities - threats (SWOT) methodology.
* Explain inventory control, materials, and supply chain management.
* Assess Human Resource policies, procedures, and documentation.
* Explain contract management, fulfillment, and liability to landowner and manufacturer.
* Discuss wind business policies and procedures.
* Explain atomic structure and basic values such as voltage, current, resistance and power.
* Determine electrical values for combination circuits in direct current (DC) and alternating current (AC) containing resistance, inductance, and capacitance.
* Summarize the principles of magnetism.
* Calculate voltage drop based on conductor length, type of material and size.
* Utilize electrical measuring instruments.
* Display competence in principles and operation of basic hydraulic systems.
* Use flow meters and pressure gauges to measure valves and make adjustments.
* Interpret schematics and troubleshoot both open and closed center hydraulic systems.
* Display a systematic approach to troubleshooting.
* Design a schematic drawing of a working hydraulic system with components, valves and sizes included.

#### Who Should Attend

The intended audience for this program is individuals seeking an entry-level technician position in the Wind Energy Industry.

# Wind Energy Professional

**Course Number: EXSP 8763**

**Courses treated as Full Time/Part Time in the field of Engineering.**

### Student Learning Outcomes

Students graduating with an M.S. in Computer Networks from Cal State East Bay will have acquired the knowledge and skills listed below.

1. Technical competence to:
   1. design and implement computer network programs running on multiple machines,
   2. manage network devices,
   3. use protocol and service design principles,
   4. design a solution to a consumer request using current technologies;
2. A fundamental understanding of Computer Networks theory including:
   1. mathematical basis for network traffic analysis,
   2. design and analysis of a wide variety of network algorithms,
   3. understanding of network architectures and protocols,
   4. network security concepts and applications;

### Career Opportunities

* Network Engineer
* Software Engineer
* Network Administrator
* Network Applications Programmer
* Web/Multimedia Manager
* Webmaster
* Network Security Administrator
* Programming Team Member, possibly specializing in Design, Testing, or Documentation
* Computer Network Support
* Computer Sales Representative
* Customer Support
* Technical Writer
* Teacher/Professor

CS 6591 Communications Network Analysis and Design

CS 4594 Broadband Networks and Communications

CS 6320 Software Engineering of Web-Based Systems

CS 6522 Advanced WWW Software Development

CS 6525 Network Securit

CS 6526 Security in Mobile, Wireless, Grid and Pervasive Computing

CS 6592 Network Management

CS 6596 Wireless and Mobile Networking Architecture

**Computer Engineering:**

<http://www20.csueastbay.edu/ecat/undergrad-chapters/u-engr.html>

CS 3590 Data Communication and Networking

CS 4310 Software Engineering I

CS 4590 Computer Networks

CS 4592 Network Operations and Administration

CS 4594 Broadband Networks and Communications

CS 4596 Wireless and Mobile Networking

ENGR 4300 Quality Engineering

ENGR 6200 Project Management

**Computer Science:**

<http://www20.csueastbay.edu/ecat/undergrad-chapters/u-cs.html#progdesc>

CS 3520 Web Site Development

CS 3560 Introduction to Systems Programming

CS 4311 Software Engineering II

CS 4320 Software Testing and Quality Assurance

CS 4330 Building Secure Software

CS 4525 Principles of Network Security

CS 4660 Database Architecture

CS 4835 Human-Computer Interaction

<http://www20.csueastbay.edu/ecat/graduate-chapters/g-cs.html#mscs>

6310 Advanced Software Engineering

6320 Software Engineering of Web-Based Systems

6330Secure Software Development

6520Cryptography and Data Security

6522Advanced WWW Software Development

6525 Network Security

6526 Security in Wireless, Mobile, Grid and Pervasive Computing

6591Communication Network Analysis and Design

6592 Network Management

6594 Broadband and Multimedia Networks

6596 Wireless and Mobile Network Architecture

6660 Database Systems

<http://www20.csueastbay.edu/ecat/graduate-chapters/g-majors.html>

**Others**

## Career Opportunities

* Administrator
* Energy Impact Assessor
* Environmental Auditor

<http://www20.csueastbay.edu/ecat/undergrad-chapters/u-envt.html>

ENVT/GEOG 4320 Energy and Society