

Associate in Science (A.S.) Degree

Energy Management and Building Science

Program Description

The A.S. degree in Energy Management and Building Science will prepare students for new and emerging career opportunities in energy management technology, building energy audit, facilities management, building design and sustainability and renewable energy systems. Completion of the degree program provides students with a skilled knowledge of energy efficiency principles and prepares them for careers in managing and monitoring energy efficient buildings. The program curriculum is aligned with professional certifications offered by the International Facilities Management Association (IFMA), including Facilities Management Professional (FMP) and Sustainable Facilities Professional (SFP). Students will also be well prepared for the certification test for Renewable (Solar) Energy Professional offered by the North American Board of Certified Energy Practitioners (NABCEP).

Program Learning Outcomes

Upon completion, students will be able to

- Investigate and analyze energy use and its relationship to non-renewable energy extraction, production, distribution, consumption and greenhouse gas emissions
- Apply an understanding of energy management and building science principles, techniques and strategies, the laws of thermodynamics and the sustainable use of resources supporting the built environment
- Demonstrate knowledge of the above objectives and strategically conceptualize and implement efficient and sustainable energy management policies, procedures and systems in residential and commercial buildings
- Engage with key stakeholders in energy management and building science occupations including the public, government agencies, public industry, manufacturing and non profits to enhance, improve and advocate for global, cultural, social and environmental he

Associate Degrees (A.A. or A.S.) Requirements

- Completion of all requirements for one of the General Education (GE) patterns listed at deanza.edu/articulation/ge-requirements. Students using the De Anza GE or CSU GE pattern must earn an overall GPA of at least 2.0 for required GE courses. Students using the IGETC pattern must earn a grade of C or higher for each required GE course.
- Completion of all major courses with a C grade or higher. Major courses can also be used to satisfy GE requirements (except for Liberal Arts degrees). Note: A maximum of 22 quarter units from other academic institutions may be applied toward the major.
- Completion of at least 90 degree-applicable quarter units (GE and major units included). All De Anza courses must be completed with a minimum 2.0 GPA (C average). All De Anza courses combined with courses transferred from other academic institutions must be completed with a minimum 2.0 GPA (C average).
- At least 24 quarter units must be earned at De Anza College

Program Requirements

IMPORTANT NOTE: Some courses have prerequisites; see the college catalog for more information.

IMPORTANT NOTE: Some courses have a cross-listed and/or honors version. Students will receive credit for only one version of the course.

Required Core - Certificate of Achievement: (19 Units)

Course	Title	Units
E S 4	Energy, the Environment, and Society	4
E S 58	Introduction to Green Building	1
E S 69	Introduction to Energy Management	2
E S 70	Introduction to Energy Science	2
E S 71	Introduction to Sustainable Buildings	2
E S 78	Introduction to Energy Management Systems and Controls	2
E S 79	Introduction to Sustainable Energy	2

Course	Title	Units
E S 82	Project Management and Technical Report Writing for Energy Professionals	2
E S 83	Energy Management Return on Investment	2

Required Core - Certificate of Achievement-Advanced: (18 Units)

Course	Title	Units
E S 51A	Sustainable Energy Systems	4
E S 51B	Energy Efficient Buildings	3
E S 51C	Building Automation Systems	2
E S 69A	Introduction to Facilities Management	3
E S 81	Sustainable Building Assessments and Codes	3
E S 81C	Passive Solar Buildings	3

List A: (13 Units)

Course	Title	Units
CIS 3	Business Information Systems	4.5
CIS 79	Managing Technology Projects	4.5
E S 1	Introduction to Environmental Studies	4
E S 50	Introduction to Environmental Resource Management and Pollution Prevention	4
E S 61B	Environmental Resource Management and Pollution Prevention: Energy, Chemicals and Waste	4

Course	Title	Units
E S 62C	Environmental Management Tools: Environmental Site Assessments (ESAs)	4
E S 62D	Environmental Management Tools: Industrial Ecology and Sustainable Design Principles	4
E S 95	Introduction to Environmental Careers	1
ESCI 1	Environmental Science	4
MATH 114	College Math Preparation Level 3: Intermediate Algebra	5
MET 10	Weather and Climate Processes	5
PHYS 10	Concepts of Physics	5

Major Required: 50 Units

Additional completion of one of the following general education patterns: De Anza

General Education, CSU General Education Breadth (CSU GE) **Total Required: 90 Units**

Education Transfer Curriculum (IGETC) AND electives as needed to reach at least 90 units

