

PROGRAM OF STUDY

BUILDING & ENERGY SYSTEMS PROFESSIONAL AS Degree for Employment Preparation

The Building Energy Systems Professional Associates of Science Degree is developed to offer students a broad overview of the advanced energy industry and includes cross-disciplinary courses in Energy Systems Technology, Environmental Control Technology (HVACR), Electrical Systems and Power transmission, Architectural Technology, Construction Crafts Technology, Electrical, Construction Management Technology, Computer Information Systems, Welding Technology, and Construction Inspection. The completion of the Building Energy Systems Professional AS degree is especially advantageous for the student who has the goal to obtain leadership positions. Electives are selected to support a concentration on industry specialties. Students will have the option to focus on particular energy sectors by choosing from various depths of study: Renewable Energy and Battery Storage Systems, Building Control Systems, Advance Lighting Systems, or Environmental Control Systems. The student may choose their elective based on their immediate energy educational needs and goals. The student may also continue completing additional elective courses, combining other defined degrees within the Energy, Construction, and Utilities (ECU) industry. Students will have the technical background that can lead to multiple industry-recognized credentials and careers as an Energy Auditor, Energy Consultant, Commissioning Technician, Zero Net Energy Technician, Green HVAC Technician, Building Operator, Construction Manager, Building Inspector, Advanced Lighting Technician, Construction Specialist, and Solar PV/Battery Storage Technician (aka Alternative Energy).

Degree Specialties

1. Control Systems Specialist 2. Building Commissioning Technician 3. Building Energy Consultant 4. Building Inspection Technology 5. Construction Management 6. Green HVAC Residential 7. Building Operator 8. Advanced Lighting Technician 9. Residential Solar 10. Zero Net Energy Technician 11. Power Generation and Distribution (In development: 12. HVACR Technician 13. Energy Auditor 14. Applied Construction Technology 15. Alternative Energy Technician 16. Welding Technology)

Core Courses: 17 units

ESYS 004	Industrial Calculations	3
ESYS 005	Zero Net Energy Building Science	4
BIT 024	California Energy Codes	3
ARCH 011	Architectural Blueprint Reading	3
CIS 012	Professional Office Procedures (Soft Skills)	1
ESYS 095A	Energy Systems Technology Work Experience	3

Electives/Specialty: Choose a min of 23 units from below. Students may choose a specialty by taking selected grouped courses.

Units

Required Courses for Specialty in Control Systems Specialist

Units

ACR 060	Air Conditioning & Refrigeration I	3
ACR 064	Air Conditioning & Refrigeration Electricity I	3
ACR 065	Air Conditioning & Refrigeration Electricity II	3
ACR 076	Facilities Maintenance - Chillers	3
ACR 090	Building Automation Fundamentals	3
ACR 091	Advanced Building Control Networks	3
ACR 092	Advanced Building Automation Networks and Programming	3

Required Courses for Specialty in Building Commissioning Technician

Units

ACR 075	HVACR Systems Design	3
ACR 084	Boiler and Hydronic Heating	3
ACR 090	Building Automation Fundamentals	3
ACR 091	Advanced Building Control Networks	3
BIT 020	California Mechanical Codes	2
BIT 040	California Electrical Codes	2
ESYS 002	Electricity and Electrical Theory	3
ESYS 006	Fundamentals of Building Commissioning	3
ESYS 035	Advanced Lighting Controls	3

Required Courses for Specialty in Building Energy Consultant

Units

ACR 075	HVACR Systems Design	3
ACR 077	Energy Conservation Methods for HVACR	3
ARCH 011	Architectural Blueprint Reading	3
BIT 020	California Mechanical Codes	2
BIT 024	California Energy Codes	3
ESYS 004	Industrial Calculations	3
ESYS 005	Zero Net Energy Building Science	4
ESYS 021	Residential Energy Modeling	3
ESYS 022	Residential Energy Modeling Design Project (ESYS-Res2)	2

Required Courses for Specialty in Building Inspection Technology

Units

BIT 001	California Building Codes	3
BIT 002	Building & Mechanical Codes	3
BIT 003	Building & Plumbing Codes	3
BIT 004	Building & Electrical Codes	3
BIT 024	California Energy Codes	3
BIT 025	California Residential Codes	3
BIT 026	California Fire Codes	3
ARCH 002	Materials Of Construction	4
ARCH 011	Architectural Blueprint Reading	3
CIS 010	Computer Literacy	4

Required Courses for Specialty in Construction Management

Units

ARCH 001	Introduction to Architectural Professions	3
ARCH 002	Materials Of Construction	4
ARCH 003A	Architectural Practice I	3
ARCH 011	Architectural Blueprint Reading	3
BIT 001	California Building Codes	3
BIT 026	Building II & Fire Codes	3
CM 001	Introduction To Construction Management	2
CM 002	Intro To Urban Planning	3
DRA 002	AutoCAD	4

Required Courses for Specialty in Green HVAC Residential

Units

ACR 060	Air Conditioning & Refrigeration I	3
ACR 061	Air Conditioning & Refrigeration II	3
ACR 064	Air Conditioning & Refrigeration Electricity I	3
ACR 065	Air Conditioning & Refrigeration Electricity II	3
ACR 075	HVACR Systems Design	3
ACR 077	Energy Conservation Methods for HVACR	3
ACR 078	Safe Refrigerant Handling & Management	3
ACR 080	Gas Heating	3
ACR 083	All Weather Heating & Cooling Systems	3

Required Courses for Specialty in Building Operator

Units

ACR 060	Air Conditioning & Refrigeration I	3
ACR 064	Air Conditioning & Refrigeration Electricity I	3
ACR 065	Air Conditioning & Refrigeration Electricity II	3
ACR 076	Facilities Maintenance - Chillers	3
ACR 078	Safe Refrigerant Handling & Management	3
ACR 083	All Weather Heating & Cooling Systems	3
ACR 084	Boiler and Hydronic Heating	3
ACR 090	Building Automation Fundamentals	3

ARCH 011	Architectural Blueprint Reading	3
ACT 030	Plumbing Fundamentals	3
Required Courses for Specialty in Advanced Lighting Technician		Units
ESYS 001	Introduction to the Power Industry	3
ESYS 004	Industrial Calculations	3
ESYS 002	Electricity and Electrical Theory	3
ESYS 033	Residential House Electrical Wiring	3
ESYS 034	Lighting Efficiency Technology	3
ESYS 035	Advanced Lighting Controls	3
ESYS 095A	Energy Systems Technology Work Experience	1
Required Courses for Specialty in Residential Solar		Units
ACT 024	Roofing Applications	2
ESYS 001	Introduction to the Power Industry	3
ESYS 002	Electricity and Electrical Theory	3
ESYS 004	Industrial Calculations	3
ESYS 011A	Module 1 Residential Solar Surveying and Planning	1
ESYS 011B	Module 2 Residential Solar Surveying and Planning	1
ESYS 011C	Module 3 Residential Solar Surveying and Planning	1
ESYS 011D	Solar Site Planning Project	1
ESYS 011E	Introduction to Energy Storage	1
ESYS 012A	Module 1 Residential Solar Installation	2
ESYS 012B	Module 2 Residential Solar Installation	2
ESYS 012C	Module 3 Residential Solar Installation	0.5
ESYS 033	Residential House Electrical Wiring	3
ESYS 095A	Energy Systems Technology Work Experience	1
Required Courses for Specialty in Zero Net Energy Technician		Units
ACR 075	HVACR Systems Design	3
ACR 077	Energy Conservation Methods for HVACR	3
ARCH 002	Materials Of Construction	4
ESYS 001	Energy Generation and Distribution Industry	3
ESYS 002	Electricity and Electrical Theory	3
Required Courses for Specialty in Power Generation and Distribution		Units
ESYS 001	Energy Generation and Distribution Industry	3
ESYS 002	Electricity and Electrical Theory	3
ESYS 003	Energy Systems Technology	3
ESYS 004	Industrial Calculations	3
BUMA 032	Human Relations In the Workplace	3
NR 001	Conservation Of Natural Resources	3
ACR 077	Energy Conservation Methods for HVACR	3
COD General Education : 18 Units		Units
Kinesiology Activities: 2 Units		Units

Total Units

60 - 69

PID 361