

BUILDING AND CONSTRUCTION

SPRING 2012

Construction Management

*Sustainability Studies &
Green Building*

Renewable Energy

**UC DAVIS
EXTENSION**



CONTINUING AND PROFESSIONAL EDUCATION

Construction Management Certificate Program

Enhance your knowledge of the construction industry and expand your capacity for leadership with UC Davis Extension's *Construction Management Certificate Program*. Leverage today's opportunities and remain dynamic in spite of economic downside.

extension.ucdavis.edu/business

Green Building and Sustainable Design Certificate Program

Stay on the forefront of the design, planning and building industry with UC Davis Extension's *Green Building and Sustainable Design Certificate Program*. Gain practical knowledge to expand your career options, including techniques to address sustainability issues in construction, infrastructure, building design and implementation, and elements of landscape architecture.

extension.ucdavis.edu/greenbuilding

ONLINE

Sustainability and the Built Environment Certificate Program

UC Davis Extension's *Sustainability and the Built Environment Certificate Program* complements the highly successful *Green Building and Sustainable Design* classroom program. Acquire the skills necessary to integrate sustainable design principles and practices into long-range visions and the day-to-day development and management of the built environment.

extension.ucdavis.edu/greenbuilding

Renewable Energy Certificate Program

Add a new dimension to your career through UC Davis Extension's *Renewable Energy Certificate Program*. Learn to develop successful strategies for incorporating renewable energy systems into site planning and design, building design and construction, and building management practices.

extension.ucdavis.edu/greenbuilding

Professional Concentration in Solar Energy Systems and Design

Acquire a fundamental understanding and the practical skills for designing and installing solar energy systems with a *Professional Concentration in Solar Energy Systems and Design*. Learn to design photovoltaic and thermal solar systems, and explore the various aspects involved in utilizing them.

extension.ucdavis.edu/greenbuilding

Construction Management

You may take these courses individually or as part of the *Construction Management Certificate Program*.

R Integrating Construction Management Principles

3 quarter units academic credit, X415.4.

Discover how to take a holistic approach to the management of your construction projects. Learn to step back and take a look at the big picture and integrate all you know into the development of a comprehensive strategy. Improve your decision-making and your bottom line by increasing your efficiency and effectively guiding your team. Using case studies, explore the entire lifecycle of a construction project, including design development, budgeting, contracting methodologies and construction oversight. Guest lecturers join the instructor to provide additional depth and topic-specific expertise.

Required textbooks: *Fundamentals of Project Management*, 4th ed., by Joseph Heagney, ISBN 9780814417485. *Urban Construction Project Management*, by Richard Lambeck and John Eschemuller, ISBN 9780071544689. For textbook ordering information, see page 15.

Prerequisites: *Estimating and Bidding*, *Project Scheduling and Management*, *Construction Law and Contracts*, *Construction Accounting and Contract Management*.

TOM FAKNER, M.A., CCM, has worked as a construction program manager and director for more than 28 years. His professional experience encompasses program and construction management for such clients as the U.S. Postal Service, the U.S. Army, health care facilities, public works, schools, junior colleges and universities. He is a member of the LEAN Institute, American Society of Healthcare Engineers and California Hospital Association. He is employed as a program director and western regional operations manager for Parsons Corporation.

- 10 meetings.
- March 28–May 30: Wed., 5:30–8:30 p.m.
- Sacramento: Sutter Square Galleria, 2901 K St.
- \$740 (\$815 if postmarked after 03/14/12). Enroll in section 114CNM205.
- Special discounts: Groups. SBE, BES and BIA members. See page 15.

R Required course

E Elective course



R Project Scheduling and Management

3 quarter units academic credit, X402.4.

Learn a systems-based approach to project management as well as the historical development of planning methods. From preliminary design to final walkthrough, scheduling is critical for successful construction projects. Focus on the skills and knowledge necessary to effectively plan and control projects of any size. Gain an in-depth understanding of scheduling and how to control construction projects. Discuss project manuals; CPM and PERT scheduling techniques; network analysis by computer; resource allocation; claims management; and purchasing, monitoring and controlling long-lead items. Learn the ins and outs of fast-track processes from design through construction completion.

Required textbook: *Construction Management JumpStart*, 2nd ed., by Barbara J. Jackson, ISBN 9780470609996. For textbook ordering information, see page 15.

MATTHEW D. WHITE, P.M.P., is a senior engineer with more than 12 years of experience providing schedule and claim support to contractors, owners, architects, engineers and surety companies on more than 100 domestic and international projects, including a wide array of litigation involving mediation and arbitration. He has performed and led teams tasked with scheduling and claims evaluation, including delay analysis for projects associated with the construction of airports, highways, schools, correctional facilities, water treatment facilities, power plants, fiber networks, oil refineries and medical facilities worldwide.

- 10 meetings.
- April 5–June 7: Thurs., 6–9 p.m.
- Sacramento: Sutter Square Galleria, 2901 K St.
- \$740 (\$815 if postmarked after 03/22/2012). Enroll in section 114CNM202.
- Special discounts: Groups. BES, SBE and BIA members. See page 15.

ⓔ California Building Codes

3 quarter units academic credit, X406.24.

Anyone involved in construction projects—in the office or in the field—must be knowledgeable about the laws and codes regulating construction in California. Gain that crucial understanding as you examine the Uniform Building, Uniform Plumbing, Uniform Mechanical and National Electrical codes and their applications. Discover the scope and fundamental requirements for building design.

Improve your understanding of the regulations affecting egress, accessibility for the disabled and fire protection. Consider plumbing, electrical and mechanical systems standards. Explore how product standards are developed and how to investigate and verify approvals. Review the California Building Standard Code (Title 24) within the scheme of California's regulations, its basis in law, when and where it applies, and the code adoption process supervised by the California Building Standards Commission.

RICHARD TASH has worked as a building inspector, plans examiner and building official for the last 20 years and has experience with all aspects of residential, commercial and industrial buildings from the project management level to inspector of record. He is also an instructor for the California Association of Building Officials and for the International Code Council (ICC). Tash holds ICC certifications as a Building Inspector; Mechanical, Plumbing and Electrical Inspector; Combination and Residential Combination Inspector; Building Plans Examiner and Certified CREIA Inspector.

- 10 meetings.
- April 3–June 5: Tues., 6–9 p.m.
- Sacramento: Sutter Square Galleria, 2901 K St.
- \$740 (\$815 if postmarked after 03/20/2012). Enroll in section 114CNM213.
- Special discounts: Groups. SBE, BES and BIA members. See page 15.

“UC Davis Extension has a great staff and is always available for my educational needs. I really like this school and the instructors are wonderful!”

—Keri Ranney, structural steel division administrator,
LB Construction

Construction Management Certificate Program

Successful construction professionals must remain competitive during fluctuating economic cycles. Enhance your knowledge of the construction industry and expand your capacity for leadership with this program. Acquire the business and technical skills to thrive in the industry, and learn a comprehensive, systems-based approach to construction management.

REQUIRED COURSES

Estimating and Bidding

Project Scheduling and Management

Construction Accounting and Contract Management

Construction Law and Contracts

Integrating Construction Management Principles

ELECTIVE COURSES (6 UNITS)

Construction Blueprint and Plan Reading

California Building Codes

Estimating Tools and Techniques

Managing Public Works Projects,
Construction Change Orders and Claims

extension.ucdavis.edu/business

NEW ELECTIVE ADDED!

Estimating Tools and Techniques

Learn to develop a responsible estimate. Gain an understanding of the tools and techniques used in compiling, organizing and analyzing the various elements that influence the costs of construction projects.

Class starts April 2! Visit the website for more information.

extension.ucdavis.edu/business

THE HIRING RATE IN THE CONSTRUCTION SECTOR WAS AT A RELATIVELY HIGH LEVEL OF 5.8 PERCENT IN OCTOBER 2011, WITH CONSTRUCTION JOB OPENINGS ON PACE TO EXCEED TOTAL SEPARATIONS FOR THE FIRST TIME SINCE 2006.

—U.S. BUREAU OF LABOR STATISTICS

also of interest



Electrical Safety

1.5 quarter units academic credit, X431.38.
2.51 ABIH CEUs.
15 hours REHS credit.

Electricity is such a familiar part of our lives that it isn't always given the respect and caution it deserves. Learn how electricity can become a hazard and the most common causes of electrical injuries, including: contact with power lines, lack of ground-fault protection, path to ground missing or discontinuous, equipment not used in the manner prescribed, improper use of extension and flexible cords, and failure to lockout electrical circuits. Gain insight into OSHA regulations, lockout/tagout of machinery and equipment, and industry best practices that go beyond OSHA requirements. This course is an elective in the *Workplace Health and Safety Certificate Program*.

- May 3–4: Thurs.–Fri., 8:30 a.m.–5 p.m.
- Sacramento: Sutter Square Galleria, 2901 K St.
- \$550. Includes course materials and morning refreshments. Enroll in section 114HSD549.
- Special discounts: Groups. See page 15.

Excavation Safety

.75 quarter unit academic credit, X431.37.
1.25 ABIH CEUs.

Trench cave-ins represent a serious hazard to employees. This course gives an overview of state and federal standards and regulations related to trenching and excavation safety. Topics covered include inspection techniques and soil classification, as well as protective systems to prevent cave-ins such as shoring, sloping and trench shields. This course is an elective in the *Workplace Health and Safety Certificate Program*.

- May 11: Fri., 8:30 a.m.–5 p.m.
- Sacramento: Sutter Square Galleria, 2901 K St.
- \$390. Includes course materials and morning refreshments. Enroll in section 114HSP047.
- Special discounts: Groups. See page 15.

Partners in Education

These projects support grant #ES006173-20 from the National Institute of Environmental Health Sciences (NIEHS) to the Western Region Universities Consortium, of which UC Davis Extension is a member. For more information, call (530) 757-8607 or email extension@ucdavis.edu.

Get the skills you need for the job you want

UC Davis Extension is a premier provider of professional and continuing education, serving thousands of adult learners from more than 90 countries. With more than 200 courses to choose from each quarter, it is easy to learn new skills, prepare for a career change, keep up with career trends and explore new interests.

- Take a course online or in the classroom.
- Advance your career with a certificate program.
- Earn a master's degree in convenient, part-time programs.



Sustainability Studies & Green Building

Green Building and Sustainable Design



You may take these courses individually or as part of the *Green Building and Sustainable Design Certificate Program*.

R Energy Sources, End Uses and Impacts

2 quarter units academic credit, X421.6.
20 hours AICP credit.

End uses—the breakdown of how energy is used in its final stage—is a crucial component of a successful sustainable environment. Conservation and the effectiveness of renewable energy sources like solar power, biomass, hydroelectric and photovoltaic are key elements to achieving energy efficiency. Examine the energy issue from the macro perspective of the built environment to the micro approach of how heat flows throughout a building. Using the “whole building” perspective, discover some of the natural and mechanical means of heating, cooling and ventilation for improved indoor air quality and cost savings. From solar panels and exterior shades to lighting a space and painting a roof white, learn how to analyze energy use as an effective strategy to promote energy conservation in the built environment.

GEORGE B. TURNBULL, M.S., is a former faculty member within the building engineering section of the Department of the Built Environment, Northumbria University, UK, where he specialized in mechanical services (HVAC) and its design with software, CAD, internal climate science, energy and sustainability. Professionally, he has worked in architectural, engineering and building energy efficiency agencies.

- 4 meetings.
- April 13–May 4: Fri., 8 a.m.–1 p.m.
- Sacramento: Sutter Square Galleria, 2901 K St.
- Technical requirements: Certain elements of this class will be conducted online. You must have a computer with access to the Internet and an email account in order to complete this course.
- \$550. Enroll in section 114GBD106.
- Special discounts: Groups. BIA members and APACA section members. See page 15.

R Required course

E Elective course

DESIGN A SUSTAINABILITY CERTIFICATE PROGRAM THAT WORKS FOR YOU

UC Davis Extension’s Sustainability Studies program is designed to let you customize a certificate that meets your professional goals. This flexibility allows you to mix-and-match courses in renewable energy, green architecture, and sustainable community and infrastructure design. Some of our classroom and online courses do overlap, so to discuss how to create a certificate that meets your needs call Jeff Loux or Julia Lave Johnston at (530) 757-8878.

Ⓡ Sustainable Water Management in Site Design and Development

2 quarter units academic credit, X#21.3.

20 hours AICP credit.

20 hours REHS credit.

Incorporate a sustainable water resources approach into urban development and its related infrastructure at the planning, design and construction stages. Explore water use/demand, water conservation, water quality and wastewater treatment, use of recycled water and storm water drainage as they relate to the planning and design of urban communities and individual project sites. Learn to apply sustainability principles to natural or impacted sites, and gain a fundamental understanding of water resources policy issues and hydrologic processes as they apply to community design situations. Practice these skills including sustainable landscape design.

JEFF LOUX, Ph.D., is chair of the Science, Agriculture and Natural Resources Department, UC Davis Extension, and adjunct faculty in Environmental Design, UC Davis. He co-directs UC Davis Extension's Land Use and Natural Resources program and is responsible for more than 120 courses, seminars and conferences each year. Loux has authored two books and numerous articles, book chapters and papers on sustainable urban design, water resources, public participation and environmental and land use policy.

SARAH SUTTON, ASLA, is a principal with Design Community & Environment. She joined the firm in 1998 and is a licensed landscape architect, with more than 25 years of experience in public and private sector design including streetscapes, trails, parks, housing, green roofs, plazas and creek enhancements. Sutton is a LEED-accredited professional and has a strong background in public works design and construction.

- 4 meetings.
- April 18, May 2, 9: Wed., 9 a.m.–4 p.m., and May 23: Wed., 9 a.m.–1 p.m.
- Sacramento: Sutter Square Galleria, 2901 K St.
- See technical requirements at left.
- \$550. Enroll in section 114GBD105.
- Special discounts: Groups. BIA members and APACA section members. See page 15.

Ⓢ Practical Applications for Green Roofs and Green Walls

.6 CEU.

6 hours AICP credit.

6 hours MCLE credit.

Interest in green roofs and green walls is growing, and designers are increasingly incorporating them into their projects to reduce storm water runoff, improve energy efficiency, gain LEED points and create habitat. The benefits of green roofs and walls are well documented and easily understood, but how do you actually build them, and what components and materials are needed to get the job done?

Learn the basics of green roof and green wall design, from material and vendor selection to plant and growing medium considerations. Examine green roof and green wall systems for an in-depth understanding of the components and products utilized, as well as the applicable terminology. Construction details, specifications, growing medium blends and plant lists from real projects will provide you with practical knowledge that can be used at the drafting table and out in the field. Students will walk away with a thorough understanding of the major design principles, products and tools to create a green roof or green wall.

HAVEN KIERS, M.L.A., works part time as an instructor for the nonprofit organization Green Roofs for Healthy Cities. She has a green roof consulting firm in Davis, Calif., and is currently designing the green roof for a residential property in San Francisco. Kiers is also the design editor for Greenroofs.com and has written several articles profiling the top trends in green roof design.

- 2 meetings.
- May 31–June 1: Thurs.–Fri., 9 a.m.–4:30 p.m.
- Davis: Da Vinci Building, 1632 Da Vinci Ct.
- \$360. Enroll in section 114GBD121.
- Special discounts: Groups. BIA members and APACA section members. See page 15.

LEED for Existing Buildings: Operations + Maintenance

.6 CEU.

6 hours MCLE credit.

6 hours AICP credit.

6 hours GBCI credit.

Explore the fundamental concepts and application of LEED for Existing Buildings: Operations & Maintenance (LEED O&M) Green Building Rating System developed by the U.S. Green Building Council in this full-day course. Intended for building owners, facility managers and building engineers, as well as design, construction, real estate and other building industry professionals, this course will benefit anyone seeking to expand their knowledge of this area. Students will examine case studies of LEED-certified building projects, the concepts of continual improvement in building operations and maintenance, and review selected technical and administrative requirements of LEED O&M.

KELLY S. GEARHEART is a principal with Triple Green Building Group, a green building consulting firm. He is a LEED-accredited professional in both the Building Design + Construction and Operations + Maintenance programs, a USGBC LEED faculty member, instructor for the University of California and a former manager of Commercial Green Building Services at Southface Energy Institute, Inc. Gearhart has been involved with green building education, technical assistance and leadership since 2005.

LYNN N. SIMON, M.A., is president of Simon & Associates, Inc. Green Building Consultants. As a green building pioneer, she is a leading authority in the industry and has served on the board of directors for several building industry organizations. Simon is a LEED-accredited professional and a LEED faculty member, currently serving on USGBC's Education and LEED Steering committees. She received her AIA Fellowship in 2009 and was named one of 25 Environmental Champions by *EnvironDesign Journal* in 2005.

- 1 meeting.
- May 3: Thurs., 9 a.m.–5 p.m.
- Sacramento: Sutter Square Galleria, 2901 K St.
- See technical requirements on page 6.
- \$290. Enroll in section 114GBD201.
- Special discounts: Groups, BIA members and APACA section members. See page 15.

Green Building and Sustainable Design Certificate Program

By combining elements from landscape architecture, civil engineering, land use planning and more, this program will help you create successful strategies for implementing green building and sustainable design practices into your cities, neighborhoods, sites and buildings.

REQUIRED COURSES

Sustainability and the Built Environment

Sustainable Planning, Environmental Site Design and Development

Sustainable Water Resources Management in Site Design and Development

Green Architecture

Green Building Materials and Construction Methods

Energy Sources, End Uses and Impacts

Green Building Design Studio

YOU MUST ALSO COMPLETE THREE ELECTIVE COURSES

extension.ucdavis.edu/greenbuilding

“My interactions with students have shown that Sustainability Studies is very effective in helping students gain a sophisticated understanding of sustainability issues that allows them to integrate these practices into their professional lives or transition into a new career.”

—David Mogavero, senior principal, Mogavero Notestine Associates and Green Architecture instructor, UC Davis Extension



Join us on Facebook.
[facebook.com/ucdelunr](https://www.facebook.com/ucdelunr)

ONLINE

Sustainability and the Built Environment

You may take these courses individually or as part of the online *Sustainability and the Built Environment Certificate Program*.

ONLINE

R Sustainability and the Built Environment

1 quarter unit academic credit, X421.16.
10 hours AICP credit.
10 hours GBCI credit.

This overview of sustainability examines the built environment, from the economic, environmental and social-equity perspectives. Learn how researchers and analysts define sustainability and how they measure and track progress. Explore historical precursors of the current sustainability movement, and how it translates into planning, engineering, architecture, landscape architecture, construction and other fields. Examine planning, design and building problems holistically, and learn about life-cycle analyses. Analyze numerous case studies and specific technologies from around the world.

JEFF LOUX. See bio on page 7.

- Enroll now through May 15 and complete by June 22. Passwords issued starting May 15.
- Technical requirements: See page 15.
- \$395. Enroll in section 114SDD101.
- Special discounts: BIA and APACA section members. See page 15.

ONLINE

R Building Efficiencies: Low Carbon and Renewable Energy

2 quarter units academic credit, X421.17.

Examine the energy issue from the macro perspective of the built environment to the micro approach of how heat flows throughout a building. Using the “whole building” perspective, you will discover some of the natural and mechanical means of heating, cooling and ventilation for improved indoor air quality and cost savings. The breakdown of how energy is used in its final stage is a critical component of a successful sustainable environment.

Examine how conservation and the effectiveness of renewable energy sources like solar and solar thermal power, biomass, wind power, hydroelectric and photovoltaic are key elements to achieving energy efficiency. From solar panels and exterior shades to lighting a space and painting a roof white to the issues and technology of bio fuels, learn to analyze energy use as an effective strategy to promote energy conservation in the built environment.

GEORGE B. TURNBULL. See bio on page 6.

- Enroll now through April 4 and complete by May 18. Passwords issued starting April 4.
- Technical requirements: See page 15.
- \$650. Enroll in section 114SDD106.
- Special discounts: Groups. BIA members. See page 15.

ONLINE

Sustainability and the Built Environment Certificate Program

Based upon the highly successful classroom program, this online certificate offers comprehensive knowledge on how to plan, design, construct and manage communities from a more sustainable perspective. Acquire the skills necessary to integrate sustainable design principles into long-range visions and the day-to-day development and management of the built environment.

REQUIRED COURSES

Sustainability and the Built Environment: An Overview

Sustainable Planning, Environmental Site Design and Development

Sustainable Water Resources Management in Site Design and Development

Green Architecture

Green Building Materials and Construction Methods

Building Efficiencies: Low Carbon and Renewable Energy

LEED Building Certification

The Business of Sustainability

extension.ucdavis.edu/greenbuilding

Renewable Energy



You may take these courses individually or as part of the *Renewable Energy Certificate Program*.

ⓔ Geothermal Energy Systems: Overview

Noncredit.

Gain an overview of this unique renewable energy resource. Geothermal energy can be used to generate electricity, as a nonelectric energy source for specific industrial processes or for HVAC in buildings and homes. In California, the geothermal base for these applications is exceptionally large, and it has the potential to significantly contribute to meeting the state's goals of reducing greenhouse gas emissions and increasing the use of renewable energy resources. Discover the promise and limitations of geothermal heat pump installation and direct use applications.

LISA MELINE is the principal engineer and owner of Meline Engineering. She has 20 years of mechanical engineering experience and more than 25 years of experience in the construction industry. She has prepared HVAC and plumbing designs for commercial, educational, industrial, residential and government buildings throughout California, Nevada, Colorado and Kansas. She is a certified geosource designer by the Association of Energy Engineers.

- 1 meeting.
- April 14: Sat., 8 a.m.–5 p.m.
- Sacramento: Sutter Square Galleria, 2901 K St.
- \$250 (\$295 if postmarked after 03/30/2012). Enroll in section 114ENR604.
- Special discounts: Groups. AEE, BIA and AICP members. See page 15.

EARN YOUR AEE CREDIT HOURS TODAY!

By completing Energy Resource Management, Renewable Energy and Solar Energy Systems and Design courses, you earn continuing educational units (CEUs) toward your AEE Certified Energy Manager® (CEM) Certification and AEE's Renewable Energy Professional™ (REP) and Sustainable Development Professional® (CSDP) Certification programs.

For more information visit aeecenter.org/certification



E Geothermal Energy Systems Design

2 quarter units academic credit, X421.13.

Geothermal energy is a unique renewable energy resource. It can be used to generate electricity in cases where high temperature fluids are found, as a nonelectric energy source for specific industrial processes such as drying vegetables, or for HVAC in buildings and homes. With California's exceptionally large geothermal base for these applications, it has the potential to significantly contribute to meeting the state's goals of reducing greenhouse gas emissions and increasing the use of renewable energy resources. Focus on how to develop this low temperature resource, and cover both theoretical and practical information. Gain the necessary knowledge to understand the promise and limitations of geothermal heat pump installation and direct use applications.

Topics include:

- Heat pump technology
- System components
- Types of ground heat exchangers
- The heating and cooling process
- Costs and incentives

Also explore the theory, design and installation of ground source heat pump systems, the most energy-efficient heating and cooling systems available, with the potential to dramatically reduce electrical power consumption in California. Examine case studies that demonstrate how innovative uses of such systems can benefit your household, organization or community.

Required textbook: *Geothermal Energy: Utilization and Technology*, by Mary Dickson and Mario Fanelli, ISBN 9781844071845. For textbook ordering information, see page 15.

UC DAVIS EXTENSION FACULTY.

- 5 meetings.
- April 26–June 21: Thurs., 8 a.m.–noon (class meets every other Thursday).
- Sacramento: Sutter Square Galleria, 2901 K St.
- \$550 (\$595 if postmarked after 04/12/2012). Enroll in section 114ENR606.
- Special discounts: Groups. AEE, BIA and AICP members. See page 15.

BEFORE YOU BUY



Textbook information can change. Check the online course listing for the most current information.

Renewable Energy Certificate Program

Renewable energy and energy efficiency technologies are key to creating a clean energy future not just for our nation but for the world. Gain in-depth technical training in the treatment of renewable energy systems design. This program combines elements from architecture, civil engineering, environmental and land use planning, and construction management.

REQUIRED COURSES

Sustainability and the Built Environment

Energy Sources, End Uses and Impacts

Green Building Design Studio

AT LEAST 9 UNITS FROM THE FOLLOWING

Cogeneration and District Solutions

Bioenergy Systems Design

Geothermal Energy Systems Design

Small Wind Energy Systems

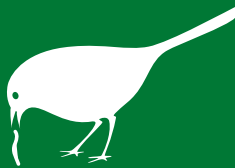
Solar Photovoltaic (PV) Energy Systems Design

Solar Thermal Energy Systems Design

YOU MUST ALSO COMPLETE THREE ELECTIVE COURSES

extension.ucdavis.edu/greenbuilding

ENROLL EARLY AND SAVE



Many courses offer an early enrollment discount that can save you money. Check the course listing for details.

Solar Energy Systems and Design



You may take these courses individually or as part of the *Professional Concentration in Solar Energy Systems and Design*.

ONLINE

Ⓡ Solar Photovoltaic (PV) Energy Systems: Overview

Noncredit.

Discover answers to your solar energy questions in this overview course. Find out what switching to solar could mean for your household or organization. Study the theory, technologies, applications, issues and benefits of solar energy at the consumer and local levels. Gain useful background information about the solar resources in California and the various federal and state government initiatives to promote solar energy as a mainstream power source, including the latest policies and legislation. Learn about the California Solar Initiative and its future implementation, utility interconnection and net metering issues.

Move from the theoretical to the practical by exploring the various steps to design a solar system and how to maximize its performance. Build your knowledge of: the effects of temperature, orientation, tilt and shading on the energy output; and how to utilize features of building design to minimize the energy demand and achieve a near “zero-energy” home. This course can be used as an elective for the *Renewable Energy Certificate Program*.

KEN BAKER. See bio at right.

- Enroll now through April 6 and complete by April 20. Passwords issued starting April 2.
- Technical requirements: See page 15.
- \$395 (\$495 if postmarked after 03/19/2012). Enroll in section 114REN205.
- Special discounts: Groups. AEE, BIA and AICP members See page 15.

“*Being at the forefront of solar photovoltaic energy systems design, the instructor has provided us with the most intuitive decision-making tools. I thoroughly enjoyed the course and learned so much.*”

—Solar Photovoltaic (PV) Energy Systems Design student

CALIFORNIA CONTINUES TO TOP THE LIST AS THE LEADER FOR SOLAR EMPLOYMENT, AND SOLAR EMPLOYERS ARE EXPECTED TO INCREASE HIRING BY 24 PERCENT BY 2012.

—SOLAR FOUNDATION

ONLINE

® Solar Photovoltaic (PV) Energy Systems Design

2 quarter units academic credit, X421.14.

Learn the basics of solar photovoltaic power systems for both residential and commercial use, as well as solar system physics and technology, design and implementation. Examine energy conservation, the economics of solar power systems, passive solar heating systems, the California Solar Initiative and LEED review. Work in teams to design a solar energy system for residential and commercial purposes. Gain the practical skills needed to design a solar power system for your home or business.

Required textbook: *Solar Power in Building Design: The Engineer's Complete Design Resource*, 2008, by Peter Gevorkian, ISBN 9780071485630. For textbook ordering information, see page 15.

Prerequisite: Ability to construct and solve algebraic equations.

KEN BAKER, M.S., is director of engineering for Premier Power Renewable Energy, Inc. He is responsible for the design and engineering of residential and commercial photovoltaic systems. He has more than 30 years of experience in electrical design and 10 years in the renewable energy field. He is a California-licensed professional electrical engineer and California-licensed C-10 electrical contractor.

- Enroll now through May 4 and complete by June 24. Passwords issued starting April 23.
- Technical requirements: See page 15.
- \$695 (\$795 if postmarked after 04/09/2012). Enroll in section 114REN200.
- Special discounts: Groups. AEE, BIA and AICP members. See page 15.

Professional Concentration in Solar Energy Systems and Design

Solar initiatives and incentive programs are fueling the need for photovoltaic and thermal solar designers. Acquire a fundamental understanding and application of solar energy systems design with this program, and explore the various aspects involved in utilizing solar energy systems for residential and commercial use.

REQUIRED COURSES

Solar Photovoltaic (PV) Energy Systems: Overview

Solar Thermal Energy Systems: Overview

Solar Photovoltaic (PV) Energy Systems Design

Solar Thermal Energy Systems Design

**Solar Photovoltaic (PV) Energy Systems:
Compliance and Code Overview**

extension.ucdavis.edu/greenbuilding

also of interest



ONLINE

Energy Resource Management Certificate Program

Competing demands for more energy use and the need for smaller energy footprints require a better understanding of the complex issues surrounding energy management. This program addresses the entire range of issues involved in understanding and managing energy in any industry, from heavy to light energy users.

Gain the tools to distinguish yourself as an expert in energy resource management. Explore practical, sustainable applications of energy management, and learn best practices and techniques to improve business competitiveness.

For more information, visit our website.

extension.ucdavis.edu/greenbuilding



CLIMB WITH US

UC DAVIS EXTENSION LEADERSHIP PROGRAMS

Whether you're a C suite veteran or new manager, UC Davis Extension's leadership programs will provide you with the skills, knowledge and confidence to improve productivity, boost morale and inspire innovation at your organization.

extension.ucdavis.edu/leadership

UC DAVIS EXECUTIVE PROGRAM

MARCH 8—MAY 10, 2012

Designed for senior managers and directors, the Executive Program combines practical tools, personal insights and meaningful class interaction to create a career-changing experience. This is not your standard leadership course. It will have a profound impact on how you lead, both inside and outside the office.

MANAGEMENT DEVELOPMENT PROGRAM

APRIL 4—MAY 2, 2012

For more than 20 years, new and experienced managers have attended this program, where they have improved their ability to lead, manage and empower others. Become more productive and results-oriented, and gain practical strategies that develop your management style.

Educating the leadership of today and tomorrow.

**UC DAVIS
EXTENSION**

GENERAL INFORMATION

SPECIAL DISCOUNTS

Groups: Enroll as a group or team of three or more, and receive a 10 percent discount on each enrollment. Team training allows you to share the learning experience with your co-workers, so concepts and techniques learned are even easier to apply on the job. All registrations must be submitted at the same time and fees paid with one check, credit card or purchase order.

Affiliation: AEE, AICP, BIA, SBE, BES and APACA section members may enroll in select courses (noted in course descriptions) at a 10 percent discount. Discounts must be applied when enrolling and cannot be combined or applied retroactively. Membership will be verified.

For more information on these discounts visit our website.

ACADEMIC CREDIT

Academic credit for UC Davis Extension courses is awarded in quarter units and represents graded, non-degree work. UC Davis Extension does not offer degrees; however, students may petition for acceptance of their Extension credit toward degree programs.

TAX DEDUCTIBILITY OF EDUCATIONAL EXPENSES

Educational expenses — including registration fees, travel, meals and lodging — may be deductible if they maintain or improve professional skills or meet the express requirement of an individual's employer. Contact a certified public accountant for more information, or visit www.irs.gov/taxtopics.

ONLINE COURSE REQUIREMENTS

You must provide your email address when enrolling to receive your password. If you do not receive your password in the time frame noted, please visit the Online Learning Campus Support Center at extensiondlc.net/helpdesk. Open a new ticket, and select "Password Issues" from the Help Topics.

TEXTBOOKS

Textbook information can change. Check the online course listing for the most current information before you buy.

IF YOUR PLANS CHANGE

Refunds, less a \$30 processing fee, will be granted if the request is received seven calendar days before the course begins. At that time, you can also discuss transferring your enrollment to another program or sending a substitute. Requests for withdrawal without a refund must be received before the last meeting of the course. Requests for withdrawals or refunds may be made by phone, fax or in writing. Please include the student's name, course title and course section number. For information about other alternatives, call UC Davis Extension at (800) 752-0881.

ENROLLING IS EASY!

BY MAIL complete the form* and send it to the Registration Office, UC Davis Extension, University of California, 1333 Research Park Drive, Davis, CA 95618-4852.

BY PHONE call toll free (800) 752-0881. From Davis or Woodland call (530) 757-8777. Please have your Visa, MasterCard, American Express or Discover account number handy.

BY FAX to (530) 757-8558. If you are enrolling with a company purchase order, please fax a completed enrollment form* along with a copy of the purchase order. For security purposes we can no longer accept credit card payments via fax.

IN PERSON at our Registration Office, 8:30 a.m.—4:30 p.m., 1333 Research Park Drive, Davis.

ONLINE at extension.ucdavis.edu.

*Enrollment form is available at extension.ucdavis.edu/apps/ecommerce/how_to_enroll.asp

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What is an online course?

An online course utilizes the Internet as a means of creating a learning environment outside of the traditional classroom. Lectures and discussions take place on our Online Learning Campus website. You will be able to access your course lectures (text-based) and communicate with your classmates and instructors through the use of a discussion forum (message board). Online courses follow a classroom structure paced at one lesson a week. You can access your course website anytime and from any place you have access to the Internet. In addition, you are also assured that you're getting the same UC-quality education that you receive from any of the regular UC Davis Extension courses.

Frequently Asked Questions and technical requirements:

extension.ucdavis.edu/dl

For more information about these courses, please visit our website.

extension.ucdavis.edu

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