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SEER News

Steinbrenner Institute for Environmental Education and Research

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Chillin' Like China?

BROAD Air Conditioning Co., a Chinese manufacturer of absorption chiller equipment, donated the United States' first commercially available solar absorption cooling system to Carnegie Mellon. The installation of this system on the roof of the Robert L. Preger Intelligent Workplace follows on the heels of 11 systems already installed in China, where electricity demand is growing as migration continues from the country to the city, straining the country's urban electricity infrastructure. The solar air conditioning system replaces chlorofluorocarbons (CFCs) with water as the refrigerant and relies on solar energy, not electricity, to drive the cooling process. Like CFCs in conventional systems, water vapor absorbs heat and cools the ventilation air. If systems such as this were implemented on existing commercial buildings, they could eliminate the carbon dioxide emissions equivalent of five million cars in the United States, according to Volker Hartkopf, Director of the Center for Building Performance and Diagnostics. While the technology is promising, it may be a while before other US buildings are fitted. Professors at Carnegie Mellon will continue to study the efficiency and economic payback of the system, considering such factors as climate, building size and internal cooling requirements to determine whether so-called superstores with broad, flat roof expanses that become quite hot would benefit from such a system.

Hendrickson Earns Straight A's

A new acronym is following Chris Hendrickson, the Duquesne Light Professor of Civil and Environmental Engineering. Hendrickson has been recognized by the American Association for the Advancement of Science (AAAS) for his contributions to the field of engineering planning and management, including design for the environment, systems performance, construction project management, finance and computer applications.

Hendrickson, who also serves as... (Continued Page 5)



Chris Hendrickson



Gone to Texas

Applications are now being accepted for the Center for Sustainable Engineering's 2007 workshops, July 15-17 and July 18-20, hosted by the University of Texas at Austin. The workshops will include a number of interactive, hands-on sessions, conducted by leading faculty members in sustainable engineering. Several sessions will explore concepts of sustainable engineering and methods of incorporating these concepts into short modules for courses. A maximum of thirty participants will be selected, through a competitive application process, for each session. All lodging, food, and workshop expenses are covered for participants. Tenure-track faculty members in engineering departments employed full time at four-year colleges and universities with undergraduate engineering programs are encouraged to apply. Applications must be submitted on the Center for Sustainable Engineering website, <http://www.csengin.org/>, by January 31, 2007.

The Center for Sustainable Engineering, founded in 2005, is a joint venture between Carnegie Mellon University, the University of Texas at Austin, and Arizona State University and is supported by the National Science Foundation and the Environmental Protection Agency. Its mission is to encourage engineering that, in alignment with the Bruntland Commission's definition of sustainability, meets the needs of the present without compromising the ability of future generations to meet their own needs. In July 2006, Carnegie Mellon, and the Center's Carnegie Mellon representatives, Cliff Davidson, Chris Hendrickson, and Scott Matthews hosted the Center's first workshops, which were very well received and attended by more than 60 faculty participants from all over the United States.



Engineering Professionals

Environmental consultants can make major contributions to society and reap financial rewards but they must be trained in an interdisciplinary curriculum. These were the two messages of Dr. Richard Ellison, CEE '69, and former Chairman of TRC Companies. Ellison and his wife, Mary Ann, returned to Carnegie Mellon on October 13 for only the second time since his graduation. Upon graduation, Ellison and other 'Carnegie Tech' graduates worked with Dr. Elio D'Appolonia to create an internationally recognized geotechnical consulting company--and one of the first consulting companies to move into the environmental remediation market. Ellison found his technical training at Tech to be exceptional, but he felt as though he was not adequately prepared for the realities of the business world. He has learned many lessons since 1969 and he returned during homecoming 2007 to share his valuable experiences with faculty, students, and alumni. Ellison reports that the market is strong and creative environmental engineers are gaining more respect in the global market because of increased awareness as to the fragility and sustainability of our natural environment. Additionally, his message was that technical strength was not enough but rather one has to have business acumen and the ability to build an interdisciplinary team to ultimately realize the most appropriate solution. Faculty, students, and alumni were receptive to Ellison's remarks and Ellison was pleased to learn from the new Civil and Environmental Engineering (CEE) department head, Jim Garrett, that most departments in CIT, including CEE, have a very flexible undergraduate curriculum that allows the CIT students to take a variety of courses in other departments, to participate in departmental and college-level engineering design courses and to participate in interdisciplinary research.

Innovate or Bust

Pradeep K. Khosla, Dean of the College of Engineering, was steeped in corporate splendor October 11, 2007. Leading a panel whose participants included Andrew Towle, Vice President of Strategic Planning at HJ Heinz Co; Anuj Dhanda, Chief Information Officer of PNC Bank; Lisa Roudabush, General Manager of Processed Products for US Steel Corporation; and Mark Harshman, Director of Research and Technology at Siemens, Khosla and seminar attendees learned more about how companies systematize the innovation process and translate innovation into shareholder wealth. Despite the differences in the corporations that they represented, all of the panelists agreed that innovation in the corporate world must occur on multiple levels--in the products, processes, and people throughout the entire corporation, including the CEOs. Investment in a diverse workforce was deemed to be one of the keys to both differentiation and the maintenance of a competitive advantage. Ms. Roudabush of US Steel and a CM alumnus also noted that we need "radical innovation" with respect to energy and the environment.

NETL Environmental Collaborators

Carnegie Mellon (CM), the University of Pittsburgh, and West Virginia University (WVU) have formed a collaborative partnership with the US Department of Energy's National Energy Technology Laboratory (with facilities in Pittsburgh, PA and Morgantown, WV) to leverage the intellectual capabilities in the region and strengthen research in the realm of fossil energy, recognizing both its necessity and its impact on the environment. There are currently more than 40 collaborative research projects underway and the following are those projects in which SEER-related faculty are involved.

Market Analysis of Emerging Electric Energy Storage Systems

*Jay Apt, Tepper School of Business; Department of Engineering and Public Policy, CM
Lester Lave, Tepper School of Business; Department of Engineering and Public Policy, CM
Rahul Walakalkar, Department of Engineering and Public Policy, CM

An Engineering-Economic Analysis of Syngas Storage

*Jay Apt, Tepper School of Business; Department of Engineering and Public Policy, CM
Stratford Douglas, Department of Economics, WVU
Lester Lave, Tepper School of Business; Department of Engineering and Public Policy, CM

Models of Energy Futures and NETL's Local/Regional Economic and Environmental Impact

*Deborah Lange, Steinbrenner Institute, CM
Chris Hendrickson, Civil and Environmental Engineering, CM
David Martinelli, Civil and Environmental Engineering, WVU
Randall Jackson, Regional Research Institute, WVU

Assessing Future Supply Curves For Coal in Light of Economic, Technological, and Environmental Uncertainties

*Granger Morgan, Civil and Environmental Engineering; Heinz School; Engineering and Public Policy, CM
H. Scott Matthews, Civil and Environmental Engineering, CM

***For more information on a project please contact the lead principal investigator**

Upcoming Conferences

The Business of Brownfields, April 19-20, 2007

Sponsored by the Engineers' Society of Western Pennsylvania and
The Western Pennsylvania Brownfields Center
www.eswp.com/brownfields

Engineering Sustainability, April 15-18, 2007

Sponsored by the Mascaro Sustainability Initiative and co-sponsored by the
Steinbrenner Institute for Environmental Education and Research
www.engr.pitt.edu/msi/2007conference/confmain.htm

Something to Write Home About

“Can my grandmother understand this?” is the question Cheryl Hogue, Senior Editor, Environment, *Chemical & Engineering News*, asks herself as she considers how to present a story. Reporters offered such tidbits of life behind the media scene in our third [Media Bootcamp](#), held September 8. Three media specialists joined Hogue—David Templeton, Science Reporter at *The Pittsburgh Post Gazette*, Allison Heinrichs, Environmental Reporter for *The Pittsburgh Tribune-Review*, and Kevin Gavin, News Director at WDUQ—in the panel moderated by David Dzombak, Civil and Environmental Engineering Professor and Associate Dean for Graduate and Faculty Affairs in the College of Engineering, and gave hints to academics aspiring to be the subject of media stories. Templeton suggested that one of the most daunting tasks for academics packaging their work for reporters is reducing their life’s work to a 15-inch column. To do that, suggested Templeton, one needs to “pull out the slice that connects to everyday life.” Besides this parsing of work, the reporters recommended that researchers make sure their work comes up on “Google” searches and make clear to reporters how their work relates to individuals and to the local region. In conjunction with this bootcamp, Chriss Swaney, in Carnegie Mellon’s Public Relations Department, developed a communications toolkit for faculty. This “Getting Your Story Out” CD instructs faculty on how write press releases, develop press relations, pen an op-ed piece, and use photos to tell a story in an effort to help them package their stories to the press.

In the Name of Environmental Literacy

The Steinbrenner Institute for Environmental Education and Research is providing an additional \$30,000 to a program first funded by The Luce Foundation for environmental education at Carnegie Mellon. The Luce Foundation grant has promoted on-campus environmental literacy by funding elective and required courses with environmental themes or modules. The additional Steinbrenner funds will be used in part to support the creation of an environmental education website. The site will provide students with an overall picture of the curricular and non-curricular activities related to environmental issues; present the environmental history of Carnegie Mellon in education, research and environmental practice; provide a showcase of unique student work, including the Solar Decathlon House and the green roofs; list educational resources including books, videos, and websites; and provide faculty with assessments of campus environmental literacy. The balance of the funding will support the creation of an environmental library and the creation of a new course assessment tool. Please find a sampling of environmental courses offered for Spring 2007 on Page 6.

Hendrickson Award Cont'd

Faculty Director of the Steinbrenner Institute for Environmental Education and Research and Co-Director of the Green Design Institute at Carnegie Mellon expressed appreciation for the award. “This is a tremendous honor,” said Hendrickson, “and I welcome being part of such a time-honored tradition with such a group of distinguished peers.” The award will take Hendrickson to San Francisco this February where he will accept a rosette pin and officially join the ranks of the 449 AAAS members.

Environmental Courses for Spring 2007

CARNEGIE INSTITUTE OF TECHNOLOGY (CIT)

Civil and Environmental Engineering

Introduction to Civil and Environmental Engineering
Pittsburgh Brownfields: Where the Past and Future Meet
Water Resources Engineering
Life Cycle Assessment
Sustainability Case Studies
Fate and Transport of Organic Contaminants in Aquatic Systems

Engineering and Public Policy

Case Studies in Sustainability

HEINZ SCHOOL

Technology and Policy for Disaster and Humanitarian Response
Sustainable Community Development

MELLON COLLEGE OF SCIENCE

Introduction to Green Chemistry
Global Atmospheric Chemistry

**Mark Your
Calendar:
Rachel Carson
Centennial**



2007 marks the centennial of Rachel Carson's birth and Carnegie Mellon is hosting a kick-off event on Saturday, September 29, 2007. Please look to the Rachel Carson Homestead website, www.rachelcarsonhomestead.com, for more details.

CMU-WIDE STUDIES

Environment and Early Warnings
Urban Farming
Environmental Justice

COLLEGE OF FINE ARTS

Architecture

Architecture Design Studio: Systems Integration
LEED Buildings and Green Design
Sustainable Design Synthesis

Art

Concept Studio: Eco-Art
Advanced SIS: Environmental Sculpture

Design

Solar Decathlon
Design & Social Change

HUMANITIES AND SOCIAL SCIENCES

Economics

Economics of the Environment and Natural Resources

History

Disaster! Fires, Plagues, Hurricanes and Floods in
American History
History of Urban American Life
Environmental History and Politics Since Silent Spring

Visit www.cmu.edu/education/greening/index.html

Spring 2007 Environmental Lecture Series

The University Lecture Series, developed and nurtured by Dr. Indira Nair, Vice Provost of Education and EPP Faculty, will focus on three environmental themes for Spring 2007: Urban Farming, Endocrine Disruption, and Environmental Justice. All events are free and open to the public. Topics, speakers, dates, times, and locations are noted below.

Urban Farming

**Urban Farming lectures take place in Rangos 1 & 2, University Center
5:30 -7:00 pm.**

Thursday January 18, 2007

Pittsburgh: Urban Food Forest of the Future?

David Jacke, Author and Ecological Designer, Dynamics Ecological Design, Greenfield, MA

Tuesday, February 13, 2007

Creating Livelihoods from Greenhouses and Forest Gardens

Jerome Osentowski, Director of the Central Rocky Mountain Permaculture Institute

Tuesday, March 20, 2007

Urban Farming with Youth

Patricia Gray, Executive Director, The Food Project of Boston

Tuesday, April 24, 2007

High Tunnel Technology—A Tool for Economic Development, Job Creation, and Increased Quality of Life through Urban Agriculture

Dr. William James Lamont, Jr., Professor of Vegetable Crops, Department of Horticulture, The Pennsylvania State University, University Park, PA

Endocrine Disruption

**Endocrine Disruption lectures will be held in Adamson Wing, Baker Hall 136 A
4:30-6:00 PM**

Monday February 5, 2007

A Revolution in Environmental Health Sciences: New Opportunities to Prevent Genetic Diseases

Peterson Myers, CEO and Founder, Environmental Health Sciences

Monday February 12, 2007

From Silent Spring to Silent Night: Hermaphroditic Frogs, Breast Cancer, and Pesticides

Tyrone Hayes, Associate Professor, Integrative Biology, University of California-Berkeley

Monday, March 5, 2007

Environmental Challenges to Human Fertility: Three Case Studies

Shanna Helen Swan, Professor, School of Medicine and Dentistry, University of Rochester

Thursday April 12, 2007

Lessons from the Swamp: Contaminants, Alligators, & Your Reproductive Health

Lou Guillette, Distinguished Professor of Zoology, Associate Dean for Research, College of Liberal Arts and Sciences, University of Florida

Environmental Justice

**The Environmental Justice Lecture will be held in Adamson Wing, Baker Hall 136 A
4:30-6:00 PM**

Friday March 30, 2007

Nanotechnology, Environmental Ethics and Environmental Justice

Ronald Sandler, Assistant Professor of Philosophy and Senior Researcher in the Nanotechnology and Society Research Group, Northeastern University

Charting The Courses

Patricia Stallings, H&SS'06, wondered if Carnegie Mellon (CM) was incubating environmental leaders. Her senior thesis, *Carnegie Mellon: Undergraduate Environmental Education Programs*, "investigated current environmental education on campus in order to make improvements and suggest new initiatives. Stallings considered environmental courses and subjects, with the assumption that those who pursue higher education are often the world's decision makers and as such "directly or indirectly, affect the natural environment in many ways." Stallings took home the 2006 "Meeting of the Minds" Environmental Award for her efforts. Her work includes the below timeline of important events and initiatives.

1910-1918: Sanitary Engineering Department established

1965: Semester-long project courses on local environmental problems begin

1975: Wastewater history and engineering: Retrospective Technology Assessment, combining the work of Joel Tarr and Fran McMichael

1971: Founding of Engineering and Public Policy

1978: Cliff Davidson leads research on heavy metal pollution from populated areas impacting national parks and the Greenland Ice Sheet

1990: The Civil & Environmental Engineering department receives its Environmental Engineering accreditation to teach and house environmental engineering curriculum

1990: Recycling is established on campus

1992: The first environmental science course taught at The University, "Intro to Environmentally Benign Chemistry"

1994: Campus Chapter of Student Environmental Action Coalition is established

1995: Center for Integrated Study of the Human Dimensions of Global Change pioneered the creation of interdisciplinary analytical approaches to environmental programs with Carnegie Mellon at the hub of a 22-member network

1997: Environmental Policy minor and Environmental Studies Minor is established

1997: Robert L. Preger Intelligent Workplace established

1998: Environmental Practices (now Green Practices) established

2001: CM becomes the first institution in the nation to have 5% of its total energy from wind power

2002: CM participates in first Solar Decathlon National Competition

2003: Sustainable Students group established

2003: New House, the first LEED certified student residence hall in the country opens

2004: Steinbrenner Institute for Environmental Education and Research established

2004: Climate Decision Making Center established

2005: Center for Sustainable Engineering established

2005: Hamerslag Living Roof unveiled

2005: CM participates in the second Solar Decathlon National Competition



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