

Contact: Diana Gonzalez

**REQUEST FOR A NEW PROGRAM AT IOWA STATE UNIVERSITY:
MASTER OF DESIGN PROGRAM IN SUSTAINABLE ENVIRONMENTS**

Action Requested: Consider approval of the request by Iowa State University to establish a new Master of Design Program in Sustainable Environments in the College of Design.

Executive Summary: The proposed program will offer sustainable design strategies, systems, and materials for environmental and product design. This proposal was reviewed by the Board Office and the Council of Provosts and is recommended for approval. No concerns were raised when it was presented to the Iowa Coordinating Council for Post-High School Education. The proposed program addresses the Board of Regents Strategic Plan priorities to “provide educational excellence and impact as well as economic development and vitality” and Goal #8 – “Iowa’s public universities and special schools shall be increasingly efficient and productive.”

Background:

- ◇ **Description of program.** The proposed program is an interdisciplinary program of study for students with degrees in art, architecture, landscape architecture, planning, interior design, graphic design, industrial design, and engineering. The proposed program addresses ways of envisioning, making and remaking art, landscapes, communities, buildings, and objects of everyday use that conserve resources, ameliorate ecological problems, and promote social, political, and economic justice. This three-semester, 35-credit program will offer opportunities for students to work in interdisciplinary teams on a variety of faculty-directed projects that may include funded basic and applied research, community-based design work, and theoretical investigations. The proposed program addresses issues of sustainable design at multiple scales, engaging both systems and artifacts.

Students will (1) gain an awareness of individual professional roles and responsibilities for new practices, technologies, and methods of design for sustainability; (2) learn to engage in critical reflection in a team-based, interdisciplinary design process; and (3) acquire new knowledge and skills in sustainable design that supports entrepreneurship and professional leadership in developing opportunities and markets for artists and designers.

- ◇ **Relationship to existing programs at ISU.** Sustainability studies are important components of many departments and programs at ISU. The College of Agriculture offers graduate programs in sustainable agriculture which are not available elsewhere in the country. A number of initiatives are underway in the Colleges of Liberal Arts and Sciences, Business, and Engineering to develop interdisciplinary courses and programs that address sustainability.

The College of Design has played a significant role in the emerging campus-wide interest in sustainability. The art, design, and planning disciplines will be central to new solutions for a sustainable planet. The proposed program will allow the College to assume leadership in the emerging discourse on campus, nationally, and internationally. The proposed program will create opportunities for engagement (teaching and research) across all programs at ISU and will likely lead to increased enrollment in courses available through the other colleges.

- ◇ Duplication. There are no other post-professional programs in sustainable design in Iowa. Other colleges and universities offer coursework that addresses various dimensions of sustainability; some offer certificate programs at the undergraduate and graduate levels to inform students of general issues and concepts of sustainability. Some institutions offer courses in sustainable design at the undergraduate level but none offers a graduate degree in sustainable design in the context of a professional degree program. While the University of Iowa offers programs in Geography and Planning that include coursework and potential emphases in sustainable planning issues, they do not address the broader concept of interdisciplinary design contained in the proposed program. The proposed program will be unique in the state.

- ◇ Student demand. Students in all programs in the College demonstrate a strong interest in sustainable practices. Elective courses related to sustainability are quickly filled. Students who graduate with professional degrees choose schools with graduate programs in sustainable design. LEED¹ certification is a common goal for many students during internships. International students request information about the College's sustainable design offerings more than any other professional concentration. Thesis topics in Architecture tend to focus on sustainable design issues. The demand is significant and the development of an interdisciplinary sustainable design program is anticipated to be highly marketable locally and globally.

- ◇ Unique features. ISU is uniquely positioned to offer an interdisciplinary, post-professional program in sustainable design. The College of Design is one of only a handful of colleges across the country to provide a broad array of design disciplines. The University also provides programs in engineering, business, agriculture, human sciences, science, and humanities which offer intellectual opportunities for students and for program collaborations. Students will be exposed to sustainable design through faculty members in diverse design disciplines. The proposed program will create an interdisciplinary community of scholars and students committed to sustainability and solving problems through design.

Students will have real-life experiences by visiting appropriate sites and engaging in community activities related to sustainable issues. In addition to existing programs on campus, such as the Leopold Center, Center for Building Energy Research, Institute for Physical Research and Technology, and Live Green! Initiative, design faculty members have established connections with other disciplines on campus, such as engineering and business, which will further enhance the educational and social outreach of the proposed program. Program students will have a unique opportunity to participate in ongoing research programs led by multi-disciplinary research groups. The proposed program will support and enhance student interest in green building, especially with respect to LEED.

- ◇ Resources. The proposed program can be implemented using existing faculty, staff, facilities, and equipment. One FTE will be reassigned to cover required coursework and administrative tasks. There will be additional resource needs as the program grows – (1) seminar and studio space to be used by 16 students as well as for in-class presentations and meetings with regional professionals; (2) a fabrication lab in the College for building mock-ups and full scale models; (3) specialized equipment, such as performance evaluation tools and thermal meters; (4) staff member responsible for recruiting and research administration functions; and (5) director of the program.

¹ Leadership in Energy and Environmental Design.

- ◇ Cost. The University projects that the cost for the proposed program will be \$114,000 in Year 1, increasing to \$129,000 by Year 7. The costs in Year 1 will include one additional faculty member, two graduate assistantships, and software and supplies. In Year 2, costs will include one additional faculty member, four additional graduate assistantships, and software and supplies. New tuition revenue from the proposed program (\$169,308) is expected to cover the cost of offering this program.
- ◇ Projected enrollment. The projected enrollment is eight students in Year 1, increasing to 16 students by Year 7. The likely sources of students will include students from universities in surrounding states; students from the ISU Colleges of Design and Engineering; professional planners, engineers, architects, interior designers, industrial designers and artists in Iowa and surrounding states; and international students and practitioners with professional degrees in art and design fields, planning, and engineering.
- ◇ Workforce Need/Demand. In June 2010, President Barack Obama stated that “the transition to clean energy has the potential to grow our economy and create millions of jobs.” Current trends identified by the U.S. Bureau of Labor Statistics (BLS), U.S. Green Building Council (USGBC), U.S. Council of Economic Advisors, and others indicate that “green” sustainability-related jobs are increasing. It is expected that the job market will continue to grow as environmental policy, government tax credit, other incentives, and public awareness continue to support sustainable design, manufacturing, and construction.

In March 2010, the BLS defined “green” jobs as either (1) jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources; or (2) jobs in which workers’ duties involve making their establishment’s production processes more environmentally friendly or use fewer natural resources. While green BLS data are not currently available, initial trends identified by the USGBC indicate that green/sustainability related jobs will continue to grow. Existing BLS analysis of green jobs by industry demonstrate potential for continued growth in green construction and green professional and business services but specific job opportunities have not yet been clearly identified (BLS, 2010).

A study conducted for the USGBC stated: “The results of this study show that the economic impact from green building construction is significant and will continue to grow as the demand for green buildings rises. Green construction spending currently supports more than 2 million jobs and generates more than \$100 billion in gross domestic product and wages. By 2013, green buildings will support nearly 8 million jobs across occupations ranging from construction managers and carpenters to truck drivers and cost estimators. LEED-related spending has already generated 15,000 jobs since 2000 and by 2013, the study projects that an additional 230,000 jobs will be created.”²

“Preparing the Workers of Today for the Jobs of Tomorrow” was a study conducted by the U.S. Council of Economic Advisors (2009). It stated that there is strong growth potential in “fields related to clean energy production and environmental protection...particularly for workers with technical skills” (pg. 7). “The environment-related jobs considered are environmental engineering technicians, environmental engineers, environmental scientists and specialists (including health), and environmental science and protection technicians (including health).

² Booze, Allen, and Hamilton (2009).

Clearly, the U.S. labor market is already becoming increasingly ‘green’ through the growth in these occupations. Jobs devoted to environmental improvement grew faster than other occupations from 2000-2006 and the BLS projects fast relative growth through 2016.”

Number and Percent of Businesses in Industries where Green Goods and Services are Classified, by Industry Sector, 2009

INDUSTRY SECTOR	NUMBER OF BUSINESSES	PERCENT
Construction	820,700	38.1
Professional and business services	779,100	36.2
Other services (repair and maintenance services, professional organizations)	183,300	8.5
Natural resources and mining	88,700	4.1
Information	77,000	3.6
Manufacturing	77,700	3.6
Trade, transportation, and utilities	49,300	2.3
Public administration	42,100	2.0
Education and health services	26,400	1.2
All other sectors	10,400	0.5
Total	2,154,700	100.0

- ◇ [Link to institutional strategic plan.](#) Sustainable practices are important features of the College’s and University’s strategic plans. The College’s 2005-2010 strategic plan identified a focus on environmental stewardship, community design, preservation, and growth. The strategic plan focuses on the capacity of the College to “become a necessary reference for its innovative approaches to multidisciplinary integration in its pedagogies, social and environmental impact activities, and scholarly inquiries.” The University’s strategic plan addresses sustainability by stating a desire to make the world a better place – “Iowa State will lead in developing more sustainable ways to produce and deliver safe and nutritious food, water, materials, and energy; integrate the protection of plant, animal, and human health; and care for our environment.”