

### Master of Design in Sustainable Environments

The Master of Design in Sustainable Environments (MDSE) at Iowa State University is a graduate degree that focuses on sustainable design strategies, systems and materials for environmental and product design. The program addresses ways to envision, make and remake landscapes, communities, buildings, objects and images that conserve resources, ameliorate ecological problems and promote social, political and economic justice.

This three-semester, 35-credit graduate course of study offers opportunities to work on a variety of faculty-directed projects that may include funded research, community-based design work and theoretical investigations. The program addresses sustainable design at multiple scales, engaging both systems and artifacts.

Through this degree program, students will:

- gain awareness of individual professional roles and responsibilities for new practices, technologies and methods of design for sustainability,
- learn to engage in critical reflection in a team-based, interdisciplinary design process, and
- acquire new knowledge and skills in sustainable design that support entrepreneurship and professional leadership in the development of opportunities and markets for artists and designers.

The interdisciplinary MDSE is geared toward students who hold professional degrees in art, architecture, landscape architecture, interior design, graphic design, industrial design, planning, and/or engineering.

### How to Apply

The Master of Design in Sustainable Environments graduate program is accepting applications for consideration for fall 2014 admission. For more information, contact:

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### Curriculum Outline for Full-time Students

#### Fall

SUS E 511. Sustainable Design Colloquium I. (Cr. 3)  
SUS E 521. Foundations of Sustainable Design. (Cr. 3)  
Electives. (Cr. 9)

#### Spring

SUS E 501. Sustainable Design Studio I. (Cr. 5)  
SUS E 512. Sustainable Design Colloquium II. (Cr. 1)  
SUS E 531. Human Dimensions of Sustainability. (Cr. 3)  
Electives (Cr. 3)

#### Summer

SUS E 502. Sustainable Design Studio II. (Cr. 5)  
Electives (Cr. 3)

### Electives

15 graduate credits total are required, with 6 credits determined by student and advisor; 9 credits chosen from each of three focus areas:

- social equity
- environmental stewardship
- economic viability

Courses approved for these categories are determined by program faculty and updated on a regular basis. Part time graduate students work with the program director for a degree study plan.

## Course Descriptions

### For the 2014-15 Catalog

#### SUS E 501. Sustainable Design Studio I

(0-10) Cr. 5. S. Prereq: 521

Addressing sustainable design at multiple scales of constructed and natural systems and artifacts, this studio engages multidisciplinary graduate students in a team-oriented, project-based learning environment. Faculty-directed projects will include theoretical investigations and applications of an interdisciplinary design process through brief readings and discussions.

#### SUS E 502. Sustainable Design Studio II

(0-10) Cr. 5. SS. Prereq: 501, 512, 531

This advanced studio provides a community-based context for an interdisciplinary design team to work on a variety of faculty-directed projects including funded, basic and applied research. Coursework addresses sustainable design at multiple scales, engaging both systems and artifacts. Field trips.

#### SUS E 511. Sustainable Design Colloquium I

(3-0) Cr. 3. F. Prereq: Admission to MDSE program

Study and discuss practices of sustainable design and design research. Investigate responsibilities, roles, technologies and methods for studying and advancing the art and science of designing sustainable environments.

#### SUS E 512. Sustainable Design Colloquium II

(1-0) Cr. 1. S. Prereq: 511

A graduate student-led seminar designed to foster the knowledge and skills to support innovation, entrepreneurship and leadership in the field of sustainable design. Invitation of outside speakers.

#### SUS E 521. Foundations of Sustainable Design.

(3-0) Cr. 3. F. Prereq: Graduate standing; senior classification with instructor permission

Introduction to the broad frameworks and tools for implementing sustainability among a variety of environments, industries and enterprises. Investigates the role and opportunity for sustainable design strategies.

#### SUS E 531. Human Dimensions of Sustainability

(3-0) Cr. 3. S. Prereq: Graduate standing; senior classification with instructor permission

This seminar provides students from multiple disciplines with a grounding in designers' interactions with clients, consumers, communities, cultures and biospheres. Through a review of literature and the production of new case studies in sustainable design, students discover and represent conditions in which products of design operate across scales, markets, social conditions, geographic domains, academic disciplines and zones of professional responsibility.

## Elective Courses

### Social Equity

- ARCH 529. Spatial Dialectics in the American Midwest. (3-0) Cr. 3.  
ART ID 551. Design Humanics. (3-0) Cr. 3.  
CDEV 503. Community Development I: Principles and Strategies of Community Change. (3-0) Cr. 3  
CDEV 505. Community Development II: Organizing for Community Change. (3-0) Cr. 3.  
CRP 529. International Planning. (3-0) Cr. 3.  
ENGL 355. Literature and the Environment. (Cross-listed with ENV5). (3-0) Cr. 3.  
ENGL 543. Environmental Literature. (3-0) Cr. 3.  
PHIL 430. Value Theory. (3-0) Cr. 3  
PHIL 535. Contemporary Political Philosophy. (Cross-listed with POLS.) (3-0) Cr. 3.  
PHIL 596. Ecology and Society. (Cross-listed with EEOB.) (3-0) Cr. 3.  
SOC 527. Seminar in Social Inequality. (3-0) Cr. 3.  
SOC 534. Race, Class and Gender Inequality. (3-0) Cr. 3  
SOC 549. Sociology of the Environment. (3-0) Cr. 3.

### Environmental Stewardship

- AE 511. Bioprocessing and Bioproducts. (Cross-listed with BSE, BRT, CE). (3-0) Cr. 3.  
ARCH 558. Sustainability and Green Architecture. (3-0) Cr. 3. F  
BIOL 381. Environmental Systems. (Cross-listed with ENV5, ENSCI, MICRO). (2-4) Cr. 4.  
BIOL 472. Community Ecology. (2-2) Cr. 3.  
CDEV 502. Community and Natural Resource Management. (3-0) Cr. 3.  
CRP 525. Growth Management. Dual-listed with 425. (3-0) Cr. 3.  
CRP 545. Transportation Policy Planning. (3-0) Cr. 3.  
CRP 591. Environmental Law and Planning. (Cross-listed L A.) (3-0) Cr. 3.  
ENSCI 522. Water Pollution Control Processes. (Cross-listed with CE). (2-2) Cr. 3.  
ENSCI 523. Physical-Chemical Treatment Process. (Cross-listed with CE). (2-2) Cr. 3.  
ENSCI 527. Solid Waste Management. (Cross-listed with CE). (3-0) Cr. 3  
ENSCI 529. Hazardous Waste Management. (Cross-listed with C ). (3-0) Cr. 3.  
ENSCI 531. Design and Evaluation of Soil and Water Conservation Systems. (Cross-listed with AE). (2-3) Cr. 3.  
ENSCI 574. Environmental Impact Assessment. (Cross-listed with CE). (3-0) Cr. 3.  
ENSCI 535. Restoration Ecology. (Cross-listed with EEOB, NREM). (2-3) Cr. 3.  
LA 517. Urban and Peri-urban Watershed Assessment. (2-3) Cr. 3  
PHIL 483. Philosophy of Biology. (3-0) Cr. 3.  
ME 433. Alternative Energy Conversion. (3-0) Cr. 3.  
ME 444. Elements and Performance of Power Plants. (3-0) Cr. 3.  
ME 540. Solar Energy Systems. (3-0) Cr. 3. Alt.  
ME 484. Technology, Globalization and Culture. Dual-listed with 584. (Cross-listed with WLC). (3-0) Cr. 3.  
ME 540. Solar Energy Systems. (3-0) Cr. 3.  
SOC/AGRON/ANTHR/SUSAG 509. Agroecosystem Analysis. (3-4) Cr. 3.

### Economic Viability

- CDEV 506. Community and Regional Economic Analysis I. (3-0) Cr. 3.  
CDEV 508. Ecological Economics. (3-0) Cr. 3.  
CRP 566. Values and Decision Making. (3-0) Cr. 3.  
CRP 568. Planning and Development. (3-0) Cr. 3.  
CRP 517. Urban Revitalization. Dual-listed with 417. (3-0) Cr. 3.  
CRP 555. Community Economic Development. (3-0) Cr. 3. Alt.  
ECON 385. Economic Development. (3-0) Cr. 3.  
ECON 480/580. Intermediate Environmental and Resource Economics. (3-0) Cr. 3.  
ECON 581. Advanced Environmental Economics. (3-0) Cr. 3.  
FIN 415. Business Financing Decisions. (3-0) Cr. 3.  
FIN 462. Corporate Risk Management and Insurance. (3-0) Cr. 3.  
FIN 472. Real Estate Finance. (3-0) Cr. 3.