

PRGR 637
Green Building Basics and Building Rating Practices (2 credits)

Catalog description (2 credits):

Assessment of building design and construction operations: Project rating systems (LEED, BREEAM, QSAS, etc.). Embodied energy, carbon content, and emission of CO₂, SO₂, and NO_x of building materials, elements, and construction process. Water conservation, water management systems, water efficient landscaping, green roofing, rainwater harvesting, sanitary fixtures and plumbing systems, wastewater treatment and reuse, and process water strategies.

No pre-requisite courses are required.

Textbook:

Kibert, C. J. "Sustainable Construction: Green Building Design and Delivery," Second Edition, New York: John Wiley & Sons, Inc., 2008.

References:

McDonough, W. and Braungart, M. "Cradle to Cradle: Remaking the Way We Make Things," New York: Farrar, Straus and Giroux, 2002.

Coordinator:

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Prerequisite by Topic:

No pre-requisite courses are required for this course.

Educational Objectives/Learning Outcomes

Students that successfully complete this course will:

- Become familiar with green building resources, tools and references.
- Gain an understanding of the concepts of sustainability, carbon footprint, green building design and construction process, and high-performance buildings.
- Be able to know when and how to use the appropriate green building rating systems.

Topics covered

- Introduction: Rationale for High-Performance Green Buildings and Basic concepts (e.g., Ethics and Sustainability, Global Warming, Environmental impact of Building Construction, Operation, and Disposal)
- Green Building Assessment and The Green Building Process
- Green Building Systems: Sustainable Sites and Landscaping
- Green Building Systems: Energy and Atmosphere
- Green Building Systems: The Building Hydrologic System

- Green Building Systems: Materials and Resources
- Green Building Systems: Indoor Environmental Quality
- Construction Operations and Building Commissioning
- Economics of Green Buildings
- Building Information Modeling (BIM) & Green Buildings
- Field Trip

No lab experiments are required.

Assessment and grades

- Class Participation (10%)
- Term Project: Report and Presentation (40%)
- Term Exam (50%)

Resources for the course

- Course handouts and slides
- Case studies
- Web-based Material: e.g., Building Green for the Future: Case Studies of Sustainable Development in Michigan (Urban Catalyst Associates, 2005).
<http://theacuffs.com/urbancatalystassociates/>

Computer usage