

SUSTAINABLE DESIGN

Course Load: 80 hours

Course Description:

Sustainable product design. Green design principles, methods and materials. Life cycle assessment tools. Product service system strategies. System perspective.

Objective:

The student will be able to:

- 1) Learn about the impacts people are having on the natural environment
- 2) Analyze environmental impact of different products and activities
- 3) Learn and apply principles that govern sustainability to hands-on practical case studies
- 4) Propose recommendations and strategies to decrease environmental impact of activities or products

Program Content:

- 1) Understanding environmental impacts: ecological damage, human health damage, resource depletion
- 2) Understanding an activity or experience: delineate user experience, describe needs addressed, quantify usage patterns
- 3) Assess activity's impact: Life-cycle assessment, consumption behavior, product reverse engineering
- 4) Reimagining activity: generate ideas for redesigning activity or experience and develop systems concepts approaches for new ideas
- 5) Sustainability Strategies: eco-design strategies, framing strategies
- 6) Systems Strategies: leverage points, product-service systems
- 7) Communicating sustainability

Basic Bibliography:

Books:

WHITE, P., **Okala Practitioner: Integrating Ecological Design**, ^a ed., Okala Team, 2013
CARSON, R., **Silent Spring**, ^a ed., Houghton Mifflin Company, 2002
MANZINI, E., VEZZOLI, C., **Product-Service Systems and Sustainability**, ^a ed., United Nations, 2000

Articles:

HARDIN, G.. The tragedy of the commons. **Science**, v. 162, n. 1243-1248, 0. ; Available at: <http://www.sciencemag.org/content/162/3859/1243.full.pdf>. Access in: 23 may 2019.

Complementary Bibliography:

Books:

McDONOUGH, W.; BRAUNGART, M., **Cradle to Cradle: Remaking the way we make things**, 1^a ed., North Point Press, 2002
BROER, M., LEON, W., **The Consumer's Guide to Effective Environmental Choices: Practical Advice from The Union of Concerned Scientists**, ^a ed., Harmony, 1999
RANDERS, J., **2052: A Global Forecast for the Next Forty Years**, ^a ed., Green Publishing, 2012
BENYUS, J.M., **Biomimicry: Innovation Inspired by Nature**, ^a ed., Harper Perennial, 2002
MEADOWS, D.H., RANDERS, J., MEADOWS, D.L., **Limits to Growth: The 30-Year Update**, ^a ed., Chelsea Green Publishing, 2004

Articles:

WORLD WIDE FUND FOR NATURE. Living planet report. . , 2016. ; Available at: http://awsassets.panda.org/downloads/lpr_living_planet_report_2016.pdf. Access on: 23 may 2019.