SUSTAINABLE DESIGN (SDN)

SDN 601: Princ & Methods of Sust Design
Sustainability is a cultural phenomenon that is reshaping the way architects, engineers, designers and planners conceive of the built environment. This lecture/seminar course will explore changes in culture over the years that have led to the formation and adoption of contemporary sustainable design practices, technologies and processes. Current aspects of sustainability will be explored including the impact of the LEED rating system, legislation, environmental law, corporate culture evolution, integrated design process, energy modeling and economic impacts of land development. Students will complete a final paper on future directions in sustainable design at the end of the course.
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture, Lecture/On-Line, On-Line

SDN 601M: Sustainable Dsgn Methodologies
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture, Lecture/On-Line, On-Line

SDN 602: Adaptive & Resilient Dsgn Sdio
An introduction to quantitative criteria that define adaptive responses as instrumental characteristics of design based on human comfort, program, climate and site. Investigations will seek an understanding of the reciprocity between competing (and often contradictory) design forces, such as theoretical versus real, dynamic versus static, spatial and numerical, energy gain and loss. An awareness of the function of scientific instruments for measurements and performance assessments on buildings and outdoor spaces on real sites with the goal of achieving human comfort will be explored. Students will propose design interventions in accordance with their experimental data and use simulation tools to assess ultimate performance of the intervention.
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lab, Lecture, Lecture/Lab, Lecture/On-Line, Online Lab, On-Line, Studio

SDN 603: Sustainable Building Systems
This course will provide a thorough understanding of of sustainable building systems in order to optimize energy efficiency and minimize environmental pollution while maintaining human comfort resulting in a holistically designed building that is non-polluting and energy efficient. Students will complete a series of case studies and a final project.
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture, Lecture/On-Line, On-Line

SDN 604: Life Cycle Assess & Circ Ecnmy
A key requirement to completing a successful sustainable design project is a careful consideration of the environmental and energy performance impacts of construction materials. Students will begin the course by learning how to complete a life cycle analysis for materials as preparation for the design and creation of their own material/construction system. During the project, students will continue to discuss the pros and cons of different materials/construction systems in the context of trying to better understand the tenants of sustainable design. Students will complete a final "construction" as part of the requirements for the course.
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lab, Lecture, Lecture/Lab, Lecture/On-Line, Online Lab, On-Line, Online Studio

SDN 609: Building Info Modeling for SD
This lecture/lab course is divided into two parts. The first part establishes skills in utilizing BIM software as an effective tool for architectural graphic communication. The second part establishes skills for exploring, analyzing, refining, and presenting sustainable design projects.
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture, Lecture/On-Line, On-Line

SDN 613: The Green Program
Credits: 1.5
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lab

SDN 619: High Performance Bldg Envelop
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture, Studio

SDN 621: MS: Resilient Cities & Comms
Students will take a trans-disciplinary approach to developing a campus scale built environment project that integrates Socio-cultural, Experiential, Ecological and Performative design perspectives into a comprehensive design project. The first half of the semester will focus on the following: A comprehensive site inventory and analysis; comprehensive design requirements; guiding principles and resource benchmarks via the use of case studies. The second half of the semester focuses on the synthesizes of the work completed in the first half through the integrated sustainable design process that features collaborative design charrettes, periodic performance simulations, qualitative evaluations, calculations and costs estimates to insure a high level of performance from all design perspectives.
Credits: 4
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture, On-Line, Studio

SDN 622: MS: Living Buildings
This studio will emphasize interdisciplinary teaching and learning as a fundamental core concept of sustainable design. Students will be challenged to work collaboratively on a series of design projects that foster creativity, ingenuity and innovation as key components of effective sustainable design.
Credits: 4
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: By Appointment - 1 student, By Appointment - 2 students, Lecture, On-Line, Online Studio, Studio

SDN 623: SC: Eco Sys for Resilnt Cities
This studio companion course is about exploration, various points of view and transcending disciplinary boundaries. We will traverse the 'landscape' and examine it through the lens of the various disciplines to understand each perspective and how it shapes our environment and culture. Through readings from leading architects, landscape architects, geographers, and historians, we will dissect the ways in which culture influences human conceptions of landscape and the environment, the effect of humans on the environment and the impact the environment and landscape has on humans.
Credits: 2
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture, Lecture/On-Line, On-Line

SDN 624: SC: Sust Syst for Living Bldgs
This studio companion course will provide a thorough understanding of sustainable building systems in order to optimize energy efficiency and minimize environmental impact while maintaining human comfort resulting in a holistically designed building that is non-polluting and energy efficient.
Credits: 2
College: Jefferson Coll of Architecture & Built Environment
Prerequisites: SDN 622 [Min Grade: C]
Schedule Type: By Appointment - 1 student, Lecture, Lecture/Lab, Lecture/On-Line, On-Line

SDN 625: Env Imp Analysis and Sys Think
"This three-phase course will first introduce students to the facets of global environmental change, as well as emerging sustainability paradigms and frameworks. In-class discussions and activities will draw on readings by through-leaders and foundational studies in top journals (Economist, Forbes, Scientific American) and peer-reviewed scholarship (Science, Nature, PNAS). Subsequently, in phase II students will learn problem solving approaches in the form of systems thinking modeling and life-cycle analysis, and apply them to several contemporary socioecological challenges. These case-studies will provide students experience in quantitative analysis that can aid in problem-definition and decision-making. The final phase of the course will offer the opportunity to apply these tools and frameworks to their own real-world sustainability challenges, in order to visualize and alanyze complexity, and conduct a sustainability audit."
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture, On-Line

SDN 626: Models & Metrics for Sust Orgs
This lecture course builds upon work completed in SDN 625 Environmental Impact Analysis and Systems. Student will bring their problem identifications and research to this course for further development. This course will prepare working professionals to develop business models and use metrics to achieve high level sustainability goals for an organization. Students will use the Business Model Canvas to organize their entrepreneurship and intrapreneurship activities to achieve marketable and scalable sustainability initiatives. Students will learn how to use the Blab framework to develop and achieve the metrics commensurate with Bcorp certification for Sustainable Businesses.
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture, Lecture/On-Line

SDN 627: Sust Adv & Chg Mgmt
Master the concepts, tools, and practices needed to advance a sustainability initiative from an initial plan to tangible results. After training in topics that range from project management to intrapreneurship to behavioral economics, students develop a detailed implementation plan and a compelling pitch to gain the support of key stakeholders in their own organization or of the clients in their assigned project.
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture

SDN 628: Capstone in Sustainable Design
This is a culminating studio experience, which is a self-directed and faculty monitored. Students are challenged to synthesize knowledge and skills from their previous coursework in order to create a new sustainable design, and to demonstrate topic mastery. This course is an alternative to the thesis sequence, but still requires research, the creation of a well-reasoned argument, a research booklet, and a final design presentation. The final design must include a quantitative validation as part of the final requirements for graduation.
Credits: 6
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture, On-Line

SDN 702: Energy and Carbon Modeling
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lab, Lecture

SDN 710: Green Design Build
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Lecture, Studio

SDN 797: Special Topics in Sustainab.
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: By Appointment, Lecture

SDN 798: Ind Study in Sustainable Dsign
Independent Study in Sustainable Design
Credits: 3
College: Jefferson Coll of Architecture & Built Environment
Schedule Type: Independent Study