Miami Dade College

Course Description

ARC2681| Environmental Technology | 3.00 credits

An introduction to technological aspects of building design, which relates to human comfort, safety, and building performance. Includes a survey of the fundamentals of water supply, waste lines, plumbing equipment, heat and air conditioning, solar applications, and electrical components and equipment in the design and construction of buildings. Prerequisite: ARC1126C

Course Competencies:

Competency 1: The student will analyze and evaluate building systems, including water supply, waste lines, plumbing equipment, heating and air conditioning, solar applications, and electrical components, to ensure human comfort, safety, and optimal building performance by:

1. Analyzing and evaluating building systems to optimize human comfort, safety, and building performance through an in-depth understanding of water supply, waste lines, plumbing equipment, heating and air conditioning, solar applications, and electrical components
2. Applying sustainable design principles to integrate renewable energy sources, energy-efficient heating and cooling technologies, and water conservation practices into building systems for enhanced human comfort, safety, and environmental impact
3. Implementing building technology concepts to design and construct buildings prioritizing human comfort, safety, and efficiency by leveraging knowledge of water supply, waste lines, plumbing equipment, heating and air conditioning, solar applications, and electrical components

Competency 2: The student will integrate sustainable design principles using renewable energy sources, energy-efficient heating and cooling technologies, and water conservation practices to enhance building performance while considering environmental impact and human well-being by:

1. Integrating sustainable design principles by incorporating renewable energy sources, energy-efficient heating and cooling technologies, and water conservation practices to optimize building performance while prioritizing human comfort and the building's environmental impact
2. Implementing energy-efficient strategies to reduce the environmental impact of building operations and enhance human well-being through the utilization design
3. Incorporating sustainable technologies used in design to improve building performance and promote human well-being while considering environmental impact

Competency 3: The student will apply fundamental concepts of building technology to address real-world challenges, utilizing knowledge of water supply, waste lines, plumbing equipment, heat and air conditioning, solar applications, and electrical components to design and construct buildings that prioritize human safety and comfort along with building performance and efficiency by:

1. Applying fundamental concepts of building technology to address challenges in the real world to create buildings that prioritize human safety, comfort, and building performance and efficiency by utilizing knowledge of plumbing equipment, heating and air conditioning, water supply, waste lines, solar applications, and electrical components
2. Implementing building technology principles to mitigate real-world challenges, leveraging design knowledge to efficiently use water supply, waste lines, plumbing equipment, heating and air conditioning, solar applications, and electrical components
3. Utilizing building technology concepts to construct buildings that emphasize human safety, comfort, and efficiency and tackle real-world environmental challenges

Learning Outcomes:

- Use quantitative analytical skills to evaluate and process numerical data

- Solve problems using critical and creative thinking and scientific reasoning
- Describe how natural systems function and recognize the impact of humans on the environment