

15 - 17 May 2026

Rome , Italy

Applied Mathematics for Student Designers

Dr. Marlo Ransdell

Florida State University, the United States

Abstract

This presentation examines how digital fabrication technologies support designers in creating 3D prototypes influenced by mathematical principles and material properties. Students employ CAD software to design furniture prototypes and generate iterations using subtractive manufacturing techniques available in the studio. The main goal is to convert 2D digital designs into physical models, emphasizing the integration of mathematics and materials. This method promotes experiential learning, enabling students to grasp the connection between mathematical concepts and material behavior, which enhances their design skills and problem-solving capabilities in real-world applications. The presentation will feature descriptions, process images, and small student-made prototypes. These examples will illustrate the practical use of digital fabrication in furniture design and underscore the educational benefits of combining digital tools with material experimentation to improve mathematical visualization and understanding among students.

Keywords: Interior Design, Creativity, Design Process, Digital Fabrication