# **DSGN 245 : 3D PRINTING: DESIGN & PRODUCTION**

#### **Transcript title**

3D Printing: Design Prod

## Credits

4

#### **Grading mode**

Standard letter grades

#### **Total contact hours**

80

#### **Other hours**

80

#### **Course Description**

Explores foundational design principles for 3D printing using industry-standard tools. Focuses on optimizing designs for additive manufacturing, emphasizing creativity and problem-solving through digital applications. Develops skills in conceptualizing, modeling, and preparing innovative designs ready for 3D printing. Repeatable for credit.

## **Course learning outcomes**

1. Optimize 3D models for successful additive manufacturing, incorporating design principles that minimize support structures and material waste.

2. Develop innovative designs that balance aesthetic choices with functional requirements, demonstrating understanding of material properties and manufacturing constraints.

3. Transform 3D designs into production-ready files by applying appropriate file preparation techniques, including slicing, orientation, and quality verification.

4. Evaluate how different 3D printing technologies and their limitations influence design decisions, using real-world case studies and industry examples.

# **Content outline**

- 1. Introduction to 3D Printing Technology
- 2. Principles of 3D Design for Printing
- 3. File Preparation and Print Settings
- 4. Creative Problem-Solving in Digital Fabrication
- 5. Aesthetic and Functional Considerations
- 6. Case Studies in Design for Additive Manufacturing

#### **Required materials**

Students will need access to a computer capable of running industrystandard CAD software.

# General education/Related instruction lists

Arts and Letters