

STATE UNIVERSITY OF NEW YORK AT NEW PALTZ

The State University of New York at New Paltz is located in New Paltz, NY, a dynamic college town just 90 minutes from metropolitan New York City and 60 minutes south of the state capital of Albany. Our 257-acre campus in the stunning Hudson River Valley is settled next to the nation's oldest street. Our unsurpassed location offers not only an outstanding quality of life but also world-class connections.

Founded in 1828, New Paltz is the 99th oldest collegiate institution in the country. Rooted in our distinguished heritage is an intense spirit of imaginative inquiry. This spirit manifests as a creative environment of discovery that permeates campus. We provide one of the most open, diverse, and artistic places of higher learning in the nation and are committed to preparing our students to excel in the rapidly changing world of the 21st century.

New Paltz is a highly competitive, four-year college that delivers an extraordinary number of undergraduate majors in business, liberal arts, sciences, and engineering. We are particularly well known for our programs in fine and performing arts and education. Every program resonates with our fierce dedication to engagement through impassioned teaching. Students here develop close mentor relationships that help them succeed, and find the opportunities and encouragement to connect with the world in meaningful ways.

Our Graduate School serves as the region's foremost graduate school in the Hudson Valley, offering exceptional programs in education, computer science, fine arts, engineering, business, and the liberal arts.

In keeping with the tradition of the nation's great public universities, New Paltz is linked to the health and vitality of the region, state, and nation through the education of its citizens.



FOR PROGRAM INFORMATION CONTACT

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SCHOOL OF SCIENCE & ENGINEERING
SCHOOL OF FINE & PERFORMING ARTS

DIGITAL DESIGN & FABRICATION MINOR



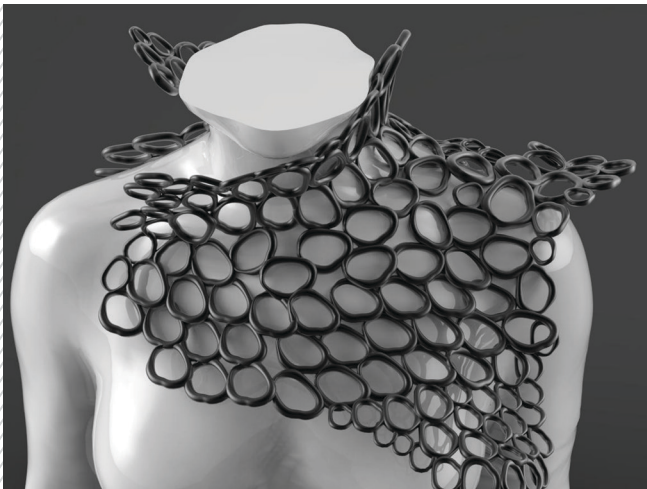
 **New Paltz**
STATE UNIVERSITY OF NEW YORK

DIGITAL DESIGN & FABRICATION MINOR

The Digital Design and Fabrication minor is a unique partnership between the Schools of Fine & Performing Arts and Science & Engineering which prepares students to conceptualize and design for 21st century manufacturing.

The minor combines expertise in the School of Fine & Performing Art to introduce Design theory, aesthetics, and 3D modeling skills along with expertise from the School of Science & Engineering to expose students to the study of material properties and constraints, while applying analytical approaches to problem solving. The interdisciplinary curriculum encourages research and communication across fields to provide students a foundation in design thinking for a modern world.

The Digital Design & Fabrication minor is an 18 credit plan of study focusing on processes and problem solving skills inherent in design by engaging in problem-formulations, iterations and solutions, as they are applied to advanced manufacturing technology. Computer Aided Design classes are augmented with specialized courses covering computer programming and the use of open source microprocessor boards providing students with the understanding of the application and the technological aspects of emerging processes and materials. The minor culminates with a design course focused on the application of human centered design for the manufacture of functional products that address real world problems.



COURSES

• DDF205 CAD 1

Introduces 3D computer aided design and drawing, rapid manufacturing. Students become acquainted with the virtual spaces of CAD software and NURBS geometry with the intent to output tangible objects through 3D printing.

• DDF210 CAD 2

This course furthers knowledge learned from DDF205, developing an advanced understanding of NURBS surfacing along with introducing organic modeling and mesh sculpting. Further application of 3D visualization technologies and advanced manufacturing will be emphasized.

• DDF220 Introduction to Computational Media

This course serves as an introduction for programming for the digital arts in a visual context. Students will be guided through an introduction to the fundamentals of programming (variables, conditionals, loops and iteration). Further exploration will build on these fundamentals of programming to explore software-based 3D modeling.

• DDF305 Material Studies

Inherent in the built world are materials and systems designed to aid the human condition. When designing for rapid manufacture and function the products that we use every day depend on material choices when considering mechanical properties and physical advantages. Through making and theory-based lectures this course will explore materials situated within the advanced manufacturing and 3D printing domains.

• DDF310 Making Things Move

Making Things Move is the integration of Science, Technology, Engineering, Art, and Math (STEAM) and computer technologies into the synergic design of computer controlled electro mechanical systems. The instructors approach to this course will be project-based.

• DDF320 Design Intents

This course introduces collaborative team research and interdisciplinary practices that approach real world challenges. Tenets of design practices include being human-centeredness, prototype-driven, and mindful of process. Topics include design processes/ innovation methodologies, need finding, human factors, visualization, rapid prototyping, team dynamics, storytelling, and project leadership.

HUDSON VALLEY ADVANCED MANUFACTURING CENTER EQUIPMENT

33 generation 4 and 5 Makerbot FDM 3D printers
Stratasys Dimension 1200ES FDM 3D printer
Stratasys Fortus 400mc FDM 3D printer
Stratasys Connex 2 PolyJet 3D printer
3D Systems ProJet 660 Color Jet 3D printer
3D Systems Sense hand held scanner

DIGITAL FABRICATION LAB EQUIPMENT

Laser Pro c180 40 Watt CO2 laser cutter
Shop Bot PRS Standard CNC router
2 generation 4 Makerbot 3D printers
Epson Stylus Pro 7900 large format printer
Roland GX 24 vinyl cutter
Next Engine 3D laser scanner
Structure Sensor mobile 3D scanner

DIGITAL DESIGN AND FABRICATION TEAM

Dan Freedman, *Dean, Science & Engineering*
Jeni Mokren, *Dean, Fine & Performing Arts*
Michael Gayk, *Director, Digital Design & Fabrication and Assistant Professor of Art*
Aaron Nelson, *Director of MakerBot® Innovation Center and Assistant Professor of Art*
Jared Nelson, *Assistant Professor, Division of Engineering Programs*
Kat Wilson, *Assistant Director, Hudson Valley Advanced Manufacturing Center*
Mike Otis, *Instructor, Division of Engineering Programs*
Chirakkal Easwaran, *Professor, Computer Science*
Ken Bird, *Adjunct Professor, Division of Engineering Programs*
Conor Landenberger, *Instructional Support Technician*

