

# Technologies of Visualization and Fabrication – Distributional Electives

## Description

Architectural design processes and techniques have been dramatically reorganized in response to advances in digital technologies over the past few decades, which have changed everything in the design practice, from data visualization, to project presentation, to building component fabrication and project delivery. The GSD has remained at the forefront of the critical thinking and use of these technologies through their study in core courses, studios, and electives. The distributional elective requirement asks students to investigate these technologies in greater depth by taking one or more selected electives in the 2000 or 6000 curriculum areas. These courses expose students to an ever expanding repertoire of computational media and techniques in the areas of both design visualization and conceptualization, and object fabrication.

## Archive of Past Approved Courses

*Note: For a course to count towards a requirement, it must be taken in the year that it was listed as valid.*

### Spring 2026

2232 Digital Media: Experiments in Formwork	Nancy Nichols
2233 Digital Media: Environmental Geometries	Carl D’Apolito-Dworkin
2234 Digital Media: Algorithmic Problems: Grasshopper as Medium	George Legendre
2314 Responsive Environments	Allen Sayegh
2473 Drawing Space / Marking Sensation	Karen Schiff
2475 Fortress of Solitude	Eric de Broche des Combes
2477 Forests and Fields: A Collective Guide to Scaling Agroforestry	Amy Whitesides
6317 Digital Material Systems: Ceramics	Nathan King
6486 BioFabrication	Daniel Tish
6487 Machine Aesthetics: The Structure of Form /The Form of Structure	Panagiotis Michalatos
6510 Modeling Light	Daniel Weissman
6511 Embodied Architectures: Signals, Data, and Perception	Katarina Richter-Lunn
6512 Spatial Intelligence: Designing the Future of Work	Charu Srivastava
6513 AI and the Physical Imaginary	Humbi Song

### Fall 2025

2121 Architectural Representation I [Module 1]	Iman Fayyad
2122 Architectural Representation II [Module 2]	Carl D’Apolito-Dworkin
2415 Paper or Plastic: Reinventing Shelf Life in the Supermarket Landscape	Teman Evans, Teran Evans
2446 Drawing for Designers: Techniques of Expression, Articulation, and Representation	Ewa Harabasz
6387 Digital Production: Design, Materials, Fabrication	Daniel Tish
6492 Quantitative Aesthetics: Introduction to Machine Learning and Perpetual Machines for Design	Panagiotis Michalatos

### Spring 2025

2232 Digital Media: Experiments in Formwork	Nancy Nichols
2233 Digital Media: Environmental Geometries	Carl D’Apolito-Dworkin
2234 Digital Media: Algorithmic Problems: Grasshopper as Medium	George Legendre
2314 Responsive Environments	Allen Sayegh
2473 Drawing Space / Marking Sensation	Karen Schiff
2475 Fortress of Solitude	Eric de Broche des Combes
2477 Forests and Fields: A Collective Guide to Scaling Agroforestry	Amy Whitesides

6317 Digital Material Systems: Ceramics	Nathan King
6478 Informal Robotics	Chuck Hoberman
6483 Procedural Fields: Functional Design of Discrete Hyperdimensional Spaces	Jose Luis Garcia del Castillo Lopez

**Fall 2024**

2121 Architectural Representation I [Module 1]	Iman Fayyad
2122 Architectural Representation II [Module 2]	Carl D'Apolito-Dworkin
2229 Digital Media: Not Magic	Michelle Chang
2368 Interior Residential Planning, Furnishings, and Materials	Benjamin Pardo
2415 Paper or Plastic: Reinventing Shelf Life in the Supermarket Landscape	Temam Evans
2446 Drawing for Designers: Techniques of Expression, Articulation, and Representation	Ewa Harabasz
6338 Introduction to Computational Design	Jose Luis Garcia del Castillo Lopez
6365 Enactive Design: Creative Applications through Concurrent Human-Machine Interaction	Jose Luis Garcia del Castillo Lopez
6387 Digital Production at Scale	Nathan King
6476 Transformable Design Methods	Chuck Hoberman
6492 Quantitative Aesthetics: Introduction to Machine Learning for Design	Panagiotis Michalatos

**Spring 2024**

2227 Digital Media: Writing Form	George Legendre
2228 Digital Media: Models	Hyojin Kwon
2229 Digital Media: Not Magic	Michelle Chang
2314 Responsive Environments	Allen Sayegh
4516 Computing Fantasy: Imagination, Invention, Radical Pedagogy (Munari / Rodari / Calvino) (at FAS)	Jeffrey Schnapp
6317 Digital Material Systems: Ceramics	Nathan King
6478 Informal Robotics	Chuck Hoberman
6483 Procedural Fields: Functional Design of Discrete Hyperdimensional Spaces	Jose Luis Garcia del Castillo Lopez

**Fall 2023**

2230 Digital Media: Errors and Omissions	Ian Miley
2231 Digital Media: Power Tools	Lexi Tsien
2458 Ecological Do-Nothing Landforms	Min Yeo
6476 Transformable Design Methods	Chuck Hoberman
6485 Introduction to Generative Artificial Intelligence	Sabrina Osmany

**Spring 2023**

2224 Digital Media: Neural Bodies	Andrew Witt
2227 Digital Media: Writing Form	George Legendre
2314 Responsive Environments	Allen Sayegh
2348 Representation First (!!!), Then Architecture	Jennifer Bonner
6384 Towards a new Science of Design?	Juan Ugarte
6385 Automation in Practice: Building the future of Architecture(s), Engineering, and Construction	Nathan King
6478 Informal Robotics	Chuck Hoberman
6483 Procedural Fields: Functional Design of Discrete Hyperdimensional Spaces	Jose Luis Garcia del Castillo Lopez
6485 Unsupervised Machine Learning for Designers	Sabrina Osmany

**Fall 2022**

2228 Digital Media: Models	Hyojin Kwon
2230 Digital Media: Errors and Omissions	Ian Miley
2458 Ecological Do-Nothing Landforms	Min Yeo
6317 Materials Systems: Digital Design and Fabrication	Nathan King, Zachary Seibold
6338 Introduction to Computational Design	Jose Garcia del Castillo Lopez

6476 Transformable Design Methods

Chuck Hoberman

**Spring 2022**

2224 Digital Media: Neural Bodies

Andrew Witt

2225 Digital Media: Design Systems

Sawako Kaijima

2227 Digital Media: Writing Form

George Legendre

2314 Responsive Environments: Poetics of Space

Allen Sayegh

2361 Discourse and Advocacy in the Spaces of Curation

Mark Pasnik

6368 Pre- and Post-

Hyojin Kwon

6384 Towards a new Science of Design?

Martin Bechthold, Juan Ugarte

6385 Automation in Practice

Nathan King

6478 Informal Robotics/New Paradigms for Design & Construction

Chuck Hoberman

6483 Artifacts as Media: Signals, Data, Information and Technology

Jose Luis Garcia del Castillo Lopez

6484 Data Science for Building Performance Simulation and  
Architectural Design Optimization

Ellie Han

6485 Introduction to Machine Learning for Designers

Sabrina Osmany

**Fall 2021**

2228 Digital Media: Models

Hyojin Kwon, Zachary Seibold

2229 Digital Media: Not Magic

Michelle Chang

6317 Materials Systems: Digital Design and Fabrication

Nathan King, Zachary Seibold

6338 Introduction to Computational Design

Jose Garcia del Castillo Lopez

6359 Interface Design: Integrating Material Perceptions

Sawako Kaijima

6476 Transformable Design Methods

Chuck Hoberman

**Spring 2021**

2225 Digital Media: Design Systems

Sawako Kaijima

2227 Digital Media: Writing Form

George Legendre

2229 Digital Media: Not Magic

Michelle Chang

6365 Enactive Design: Creative Applications through Concurrent Human-Machine  
Interaction

Jose Garcia del Castillo Lopez

6368 Pre- and Post-

Hyojin Kwon

6478 Informal Robotics/New Paradigms for Design & Construction

Chuck Hoberman

**Fall 2020**

2223 Digital Media: Telepresence, Empathy, and Spatial Immersion

Allen Sayegh

2228 Digital Media: Artifacts

Hyojin Kwon, Zachary Seibold

2314 Responsive Environments: Episodes in Experiential Futures

Allen Sayegh

2481 Public Projection: Projection as a Tool for Expression and  
Communication in Public Space

Krzysztof Wodiczko

6317 Materials Systems: Digital Design and Fabrication

Nathan King, Zachary Seibold

6338 Introduction to Computational Design

Jose Garcia del Castillo Lopez

6359 Interface Design: Integrating Material Perceptions

Sawako Kaijima

6476 Transformable Design Methods

Chuck Hoberman

**Spring 2020**

2223 Digital Media: Ambiance

Allen Sayegh

2227 Digital Media: Writing Form

George Legendre

2314 Responsive Environments: Episodes in Experiential Futures

Allen Sayegh

2349 MAKE/BELIEVE

Dan Borelli

6365 Enactive Design: Creative Applications through Concurrent Human-Machine  
Interaction

Jose Garcia del Castillo Lopez,

Zachary Seibold

6368 Pre- and Post-

Hyojin Kwon

6478 Informal Robotics/New Paradigms for Design & Construction

Chuck Hoberman

**Fall 2019**

2228 Digital Media: Manipulations  
 2229 Digital Media: Composition  
 2481 Public Projection: Projection as a Tool for Expression and  
 Communication in Public Space  
 6317 Materials Systems: Digital Design and Fabrication  
 6338 Introduction to Computational Design  
 6476 Transformable Design Methods

Hyojin Kwon, Zachary Seibold  
 Michelle Chang  
 Krzysztof Wodiczko  
  
 Nathan King  
 Jose Garcia del Castillo Lopez  
 Chuck Hoberman

**Spring 2019**

2223 Digital Media: Ambiance  
 2227 Digital Media: Writing Form  
 2314 Responsive Environments: Episodes in Experiential Futures  
 2352 Sections of Every Thing  
 6359 Interface Design: Integrating Material Perceptions  
 6432 Computational Design 2: Time/Design as Signal  
 6459 Mechatronic Optics  
 6478 Informal Robotics/New Paradigms for Design & Construction

Allen Sayegh  
 George Legendre  
 Sayegh / Andreani  
 Jungyoon Kim  
 Sawako Kajima  
 Panagiotis Michalatos  
 Andrew Witt  
 Chuck Hoberman

**Fall 2018**

2225 Digital Media: Design Systems  
 2226 Digital Media: Image  
 2349 MAKE/BELIEVE  
 2350 Graphic / Volume Conflations  
 2481 Public Projection: Projection as a Tool for Expression  
 and Communication in Public Space  
 6317 Material Systems: Digital Design and Fabrication  
 6338 Introduction to Computational Design  
 6360 Digital Fabrication and Robotics  
 6465 Deployable Surfaces: Dynamic Performance Through  
 Multi-Material Architectures

Sawako Kajjima  
 Zeina Koreitem  
 Dan Borelli  
 Viola Ago  
 Krzysztof Wodiczko  
  
 Nathan King  
 Sawako Kajjima  
 Stylianos Dritsas  
 Chuck Hoberman

**Spring 2018**

2224 Digital Media II  
 2346 Near Drawing  
 2453 Graphic Narratives  
 2483 Projection-Animation  
 6358 Computational Geometry  
 6425 Material Distributions: Digital Immersive Workflows for ...

Andrew Witt  
 Volkan Alkanoglu  
 Michael Rock  
 Krzysztof Wodiczko  
 Wu / Legendre  
 Panagiotis Michalatos

**Fall 2017**

2456 Experiments in Computer Graphics  
 2481 Public Projection: Projection as a Tool for Expression and Communication...  
 6317 Material Systems: Digital Design and Fabrication  
 6349 Mapping II: Geosimulation  
 6338 Introduction to Computational Design  
 6463 Hybrid Formations  
 6465 Deployable Surfaces: Dynamic Performance Through Multi-Material...

Zeina Koreitem  
 Krzysztof Wodiczko  
 Martin Bechthold  
 Robert Pietrusko  
 Michalatos / Kajima  
 Volkan Alkanoglu  
 Hoberman / Grinham