**New York City College of Technology**
The City University of New York
**Department of Communication Design**

# COMD 3292- Three-Dimensional Design

## Course Description

Principles of 3D design. Topics include geometric solids, architectonic organization of space, light and shadow, relief, the modular unit, motion, form and structure in nature. Applications to packaging, architecture, sculpture, environmental graphics. Investigation of the relationship between material and form.

2 cl hrs, 2 lab hrs, 3 crs

## Prerequisites

COMD 1100, COMD 1123

## Course Objectives

| INSTRUCTIONAL OBJECTIVES | ASSESSMENT |
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| Define and explain the principles of three dimensional design and their applications to diverse disciplines including packaging, environmental graphics, industrial design, architecture, sculpture, and other formats in emerging media. | Students will demonstrate competency by using appropriate and accurate terminology in the class discussions. |
| Be familiar with contemporary examples from architecture, industrial and urban design and sculpture, use applied research and drawing as part of the design process. | Students will demonstrate competency by maintaining notes containing reference materials and sketches either electronically or in sketchbooks. |
| Design, construct and present a range of specified three-dimensional design projects. | Students will demonstrate competency by completing a variety of projects following specific guidelines, materials and deadlines. |

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| Analyze form and space and differentiate between materials and their inherent properties to create a three-dimensional design. | Students will demonstrate competency by choosing a theme and developing a final project. |

**General Education Outcomes:**

| General Education Outcome covered: | How the outcome is covered: |
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| Oral Communication<br>Prepare and deliver oral communication that promotes knowledge and understanding. | Questioning the group and individuals to reveal their comprehension of the project by speaking or drawing diagrams that illustrate the concepts presented on the board. Evaluate how well students absorbed and consequently applied the learning through oral critiques of projects in both class and individual discussions. |
| Written Communication<br>Write to express ideas clearly and concisely | Evaluate visually and in listening if students use appropriate vocabulary to defend creative, critical and technical decisions in project concepts and development. |
| Critical Thinking: Think critically to evaluate evidence and the perspectives of others before accepting or formulating an opinion. | Sharing the successful and unexpected results achieved through class critique to determine how well students were able to advance their project concepts through creative, critical and technical decisions. |
| Information Literacy: Research and evaluate information sources. | Assess through class critique to determine how well students synthesized and applied research to their project concepts and subsequent development. |

**Attendance (College) and Lateness (Department) Policies:**
The COMD BFA and AAS degrees are design studio programs. In-class laboratory activities and engagement

with other students is a significant portion of the courses. Absences more than 10% of the total class hours may result in a 10% drop from your grade due to an inability to meet the deliverables of participation. This may be in addition to other penalties that will be imposed for failure to complete in-class academic requirements. Missing more than 25% of total class meetings will not be permitted. Any 2 latenesses (15 minutes or more) will be equal to 1 absence.

**Academic Integrity Standards**
Students and all others who work with information, ideas, texts, images, music, inventions and other intellectual property owe their audience and sources accuracy and honesty in using, crediting and citation of sources. As a community of intellectual and professional workers, the college recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity. Accordingly, academic dishonesty is prohibited in The City University of New York and is punishable by penalties, including failing grades, suspension and expulsion. More information about the College's policy on Academic Integrity may be found in the College Catalog.

Student Projects 40%
Final Project & Oral Presentation 35%
Attendance and Additional Homework 25%

Students may redo any project or homework assignment and resubmit before the last class except for the Final Project. The Final Project has an Oral component that includes project concept, course topics selected, and materials chosen to convey idea presented to the class.

**Topics**

| Week | Lecture Topic | Laboratory Exercise | Homework Assignment |
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| 1 | - Introduction /Orientation. - Organization of class.<br>- Elements of three-dimensional design and key definitions.<br>Comparisons with two dimensional design.<br>Applications to packaging, environmental graphics, relief and free-standing sculpture, industrial design, architecture,<br>- Visual lecture perceiving form in space, student participation and discussion. | - Practice in transforming two-dimensional surfaces into three- dimensional forms using specified materials and techniques: cutting; scoring; folding.<br>-Richard Serra's Diary Handout<br>- Materials: paper, boards, cutting tools, glue gun | - Transform two dimensional surfaces into specific three dimensional forms.<br>- In class assignment response to demonstration. |

| Week | Lecture Topic | Laboratory Exercise | Homework Assignment |
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| 2 –3 | -Introduction to the Theory of **Geometric Hollow** Forms/ Solids and the **Patterning** of **Organic Forms** as sourced in nature.<br>-Tetrahedrons, cubes, spheres, cones, prisms, octahedrons, dodecahedrons. Referencing Platonic solids and demonstration of Triangulation techniques relevant geometries.<br>-Contrast of Man-made vs. Living/nonliving forms:plants, flowers, insects, seashells, skeletons, minerals.<br>-Visual perception of designing with or without a void<br>-Transporting, Activating External/Internal World | -Practice constructing and patterning hollow geometric and organic forms<br>- group participation using the compass to triangulate<br><br>-Students participate soaking board, paper, wood<br><br>- Referencing computer requirements for laser cut projects.<br>- Observations of materials responding to stress<br>- Joining or attaching materials | **Second Assignments** due 4th week: Constructing and combining patterning to create two three dimensional projects using geometric and hollow organic forms.<br><br>- Two-dimensional CAD Patterns for laser cutting optional but not required |

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| 4–6 | - Student presentation and class critiques (4th week)of hollow geometric and organic forms. - Introduction to Architectonics, Form and Structure in Nature, Modular Form.<br>- Relationship to architecture, sculpture and industrial design. Comparison of two-dimensional and three-dimensional spatial compositions. Use of an Axis and Unit form. Multiple grids using proportional systems. Environmental and site considerations : scale, function. Color and Form. Light and Shadow. Surface and Decoration | -Practice in constructing and designing with specific unit forms, materials and techniques.<br>-Show Images of Hollow and Modular Forms - viewing function, assembly, materials - Present Maya Lin's DVD Segment: Vietnam War Memorial with Design Analysis<br>- In class exercises in 3D gradation, size, space<br>rotation, progressions<br>-Materials: Object choices for modular form include: development of student's<br>personalized unit (choice in other materials wood, metal, plexiglas) or found objects | **Third Assignment** due 8th week: Modular Project<br>-<br>- Constructing and designing a free standing or suspended Modular Project using specific unit forms and a supporting (compositional) axis which may or not be visible. |

| Week | Lecture Topic | Laboratory Exercise | Homework Assignment |
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| 7–8-9 | - Introduction to the Solid Form: Creation of a Solid Spacial Void by Casting/ Creating of Solid Form by Modeling and Carving Clay<br>- studio preparations and group demonstrations of materials - Applications to furniture,<br>jewelry, pottery,<br>illustration, architecture, sculpture<br>- Week 8: Critiques of Modular Project | -<br>Demonstrations/Techniques for working, storing and surface finishing of plaster and clay - sanding, sealants, color and surface decoration<br><br>- Images of Solid and Linear Forms<br>- Computer translation of Clay puzzle is redefined to Modular form/3D printing<br>- Materials: board, plaster, clay, water newspapers, clay tools<br>- **Fourth Assignment**: Casting the cupped void of two hands in Plaster done in class as a group | **Fifth Assignment**:<br>Carving into Clay Solid to form 3D Puzzle<br>(due 13th week to accommodate drying)<br>Interested students may coordinate clay project as a file for optional 3D printing |
| 10-11 | - Introduction to the Linear Form with Rigid vs. Flexible Structures. Forms observed in nature with design evolving interpretations. Principles of growth and structure. Stability of a linear form.<br>Incorporating a membrane.<br>-Applications to furniture, jewelry, illustration,<br>sculpture, toys, architecture, industrial | - Practice in constructing and designing three dimensional forms using wire- class participation in wire stretching, demonstrations in bending and connecting wire using small hand tools.<br>- Materials: wire, optional personal choices | **Sixth Assignment**:<br>due 11th week<br>A free-standing linear structure, portrait or drawing in space of a living form based on nature |

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| 12 | - Introduction to Motion- Space, form, and time linear, cyclical, pendulum, and random motion. Rates of motion. Mechanical, electronic motion machines, Anemometers. Mobiles. Zoetropes. Humor. Applications to 3D animation, sculpture, toys. | - Calder Video and analysis of mobile design - relationship to weathervanes, surfaces responding to wind, paths of movement. -Materials:wire or other choices for arcs, and suspending elements, monofilament, thread | **Seventh Assignment**: 12th week Creating a mobile as designed by Calder and reinterpreted by students<br><br>Mobile Designs worked in class partnering to create mobiles |

| Week | Lecture Topic | Laboratory Exercise | Homework Assignment |
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| 13 | - Clay Project Due with Critique - Visit to Fabrication Lab in Voorhees for Demonstration in Laser Cutting of Geometric Patterned Shapes and 3D Printing of Computer Translation of Clay Project | - Two presentations with student participation and Computer Lab Technicians from Architectural Technology - Connections observed between the physical form and virtual reality image | - Students finalize theme for Final Projects and Choice of Materials |
| 14 | - Work Session and review | - Preliminary design and sketches reviewed with materials, themes and construction. - Oral passages reviewed. | - Mock-ups, studies encouraged. - Any incomplete work or project that the student chooses to resubmit is due today. |
| 15 | - - Student Oral Presentation and class critique of Final Project assignment. | Students present Final Projects both Orally and Visually. | **Final Project Due** |

Bibliography

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