"A human being should be able to change a diaper, plan an invasion, butcher a hog, conn a ship, design a building, write a sonnet, balance accounts, build a wall, set a bone, comfort the dying, take orders, give orders, cooperate, act alone, solve equations, analyze a new problem, pitch manure, program a computer, cook a tasty meal, fight efficiently, die gallantly. Specialization is for insects."

-Robert A. Heinlein, <u>Lazarus Long</u>

Course Description

Industrial Design is the activity of creating and humanizing the tools that help us to interface with our environment, expand our breadth of experiences, and deepen our relationship with the world around us. It couples the innate human activity of "making" with the desire to give meaning and purpose to what we create.

The Industrial Design Studio will introduce you to the fundamental concepts, ideas and methods involved with the human activity called Design as well as introduce you to the skills and tools needed to communicate them verbally, two-dimensionally and three-dimensionally. You will explore, analyze and give shape to the objects within the human ecology as well as challenge yourself and existing paradigms by searching unlikely places for insight and inspiration. In order to accomplish this you will need to be part artist, philosopher, sociologist, psychologist, ethnographer, anthropologist, inventor, craftsperson, engineer, scientist, researcher, writer, poet, salesperson and, most importantly, magician.

This semester we will engage in a series of exercises that will build upon each other and culminate in a final product. The exercises will vary in scale, duration, complexity and intent with the concentration on developing critical thinking skills and exploring creative problem-solving methodologies within a context of "making". By looking at the user's, as well as the designer's, point of view we aim to develop and nurture ideas and concepts into viable, necessary and beautiful designs within a general atmosphere of analysis and reflection. Feedback will occur in the form of lively intellectual discourse and critique.

There will be various prototyping demonstrations (both manual and digital), instruction on the conscientious use of generative AI tools as well as possible guest appearances.

Course Objectives

• Develop a depth and understanding of three-dimensional design
• Introduce you to lateral thinking and brainstorming techniques
• Develop 2D and 3D ideation skills
• Introduce you to prototyping methods, techniques and tools
• Hone research, critical thinking and presentation skills
• Produce a presentation and product that demonstrates these acquired skills

Your Responsibility

- Everyone will play the role of instigator, facilitator, agitator and objective observer. You will be required to present your research and experiments as well as discuss methodology and process throughout the semester and the rest of the class will be responsible to provide feedback and discussion. Your grade is heavily weighted on class participation, so come prepared to talk.
- You are responsible for **documenting your work** in the form of digital images uploaded to a Google Drive created by the professor. All work must also be posted on Kepler4 at the end of the semester. **This is mandatory – failure to do so may result in a failing grade for the class.**
- **Ask questions**…there is no dumb/bad question.
- **Respect** others opinions, and their social, cultural, political, moral and religious point of view.
- **Cell phones** shall be turned off / silenced during any presentations, demonstrations or class discussions unless you are emergency personnel on-call. Use of a cell phone during these times will not be tolerated unless it is an emergency call. In this case please excuse yourself from the class.
- **Headphone / ear buds** shall be removed during presentations, demonstrations, class discussions or desk crits.
- Take **individual responsibility** for completing and submitting assignments on time.
- **Participate in all team-related** activities, homework assignments, presentations and exercises.
- **Check e-mail and Canvas** frequently. Everyone must have an active e-mail address. You can receive a free e-mail address and access to the Internet from NJIT.
- **Regular attendance** is expected. When possible, please give advance notice of your absence. NJIT requires attendance for **ALL** students. After 3 recorded absences, your grade will be lowered by one-half (½) grade point for each additional absence, if you are not carrying a medical, school or religious related excuse. No excuses will be accepted without a written note from the Dean or a doctor. Students with particular needs and foreseen absences should present them to their instructor within the first week of class.
  Attendance for student athletes: No student athlete may miss any regularly scheduled classes for any practice activities. This means students can neither miss nor leave class early (or arrive late) to attend a practice. While student athletes may miss class when participating in intercollegiate competition, it is the responsibility of the student athlete to proactively inform the instructor well in advance to make appropriate arrangements to complete or make up any assignments or exams in a timely fashion.
- **Lateness** is inconsiderate and disruptive - and will not be tolerated. Five lates will lower your grade by one-half (½) grade point.
- **Academic Integrity** is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: *NJIT Academic Integrity Code.* Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at *dos@njit.edu*

- **Generative AI** will be used as a tool this semester for research, creative brainstorming, and ideation, however, it is only to be used under the permission and guidance of the professor and under specific circumstances. The student is not to use it to generate images or product designs that have not been directed by the professor or indicated in the project assignment.

You must have the following available to you in the studio at all times:
- a box of push pins
- an 18" x 24" newsprint sketch pad and drawing implements
- a bound journal / sketchbook of your thoughts, sketches, and research throughout the semester
- Non-hardening modeling clay
- cameras, video cameras, tape recorders, etc. (optional)
- a sense of humor

You will be asked throughout the semester to bring in project-specific supplies, materials and tools.

Grading

Final grade will be based on the following criteria: Level of effort and commitment, quality of work, reading assignment comprehension, class participation, project progress, timely submissions, personal growth, attendance and courage.

- All homework assignments must be completed and submitted on time in order to meet the requirements of the course.
- You are to upload all high-resolution digital images of <u>ALL</u> your work for the semester to the shared course Google Drive. It must be submitted to me at the end of the semester.
- All work must be posted on Kepler before the end of the semester as per Kepler upload requirements. Failure to do so will result in a failing grade.

Grade distribution:
- Participation in class discussions and critiques: 20%
- Ideation: 20%
- Project development: 20%
- Final project: 30%
- Documentation of Work: 10%

Required Reading

- There will be project specific reading assignments consisting of excerpts from books, periodicals, journals, and on-line articles handed out throughout the semester. You are expected to come prepared to engage in a round table discussion of the reading material in the following class.

- Register for *The New York Times Group Pass* through the NJIT Library https://researchguides.njit.edu/nytimes/register.

Contact Information

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Office Hours: Mondays and Thursdays 12:00 PM – 12:55 PM. Please make an appointment.