

Course Title	3D PRINTING AND DESIGN OR: PUSHING 3-D DESIGN BOUNDARIES WITH FUSED DEPOSITION MODELING
Semester:	Winter semester 2023
Course director:	Professor Matthias Rebhan
Course teacher(s):	Professor Matt Burnett
Language of instruction:	English
Level of curriculum:	Bachelors
Teaching methods/ Hours per week (SWS):	Lecture, Class Discussion, Demonstrations, Supervised Studio Development Individual and Group Projects Up to 20 participants (including 10 international students) 3 SWS
Additional hours of effort:	Pre-readings, Preparations Between Classes and Project Work. Field Trip(s) For Project Development (optional)
ECTS credits:	4 ECTS
Prerequisites:	Previous Design Courses Recommended
Course objective:	Students: <ul style="list-style-type: none"> • Deepen their knowledge on the technical aspects of FDM • Expand their ability to develop projects from concept to sketch to software to actualization • Develop iterative design acumen through creative problem solving • Build hands on skills in 3-D fabrication including FDM, protoyping, layout sketching and post production • Apply critical design terminology and concepts to problems and analysis • Complete designs for individual problems solving and group projects with interdependent components

<p>Course content:</p>	<p>Through weekly analysis and primarily through hands on problem solving, students will develop their 3d conceptual problem solving as they develop competency with the software, equipment and process of Fused Deposition Modeling.</p> <p>The course will build on weekly readings and analysis, with students developing and applying their knowledge of analytical design concepts. A weekly digital journal of sketching and analysis from real world examples (from internet, from text, from direct observation) will provide the opportunity to share and critique ideas as we are working on long term assignments.</p> <p>Much of class time will be devoted to work time, where student teams will be supervised as they develop sketches and digital models, then print them on FDM printers.</p> <p>The projects will begin with individual and conclude with group component works, with final presentations during exams week.</p> <p>Weekly Design Analysis 25% Projects 50% Final Project/Presentation 25%</p> <p>Assignments:</p> <ul style="list-style-type: none"> • Iterative assignment (buttons, figurines, game pieces, etc) • Classwide cooperative assignment---(for example:Chess Set) • Biomimicry assignment (based on observation of nature and design analysis research) • Final Assignment –Functional Mechanism(In small groups a mechanism consisting of 3 or more interconnected/working parts addressing a chosen design problem) • Free Choice—this will be a “bonus” assignment fitted in if and when students are caught up with other course work.
<p>Assessment method(s):</p>	<p>Weekly Design Analysis, Project Work, Group Critiques and final Presentations</p>
<p>Core reading:</p>	<p><u>Weekly Design Analysis</u> (Students are Required to Keep a Digital Journal and Do Weekly Analysis, Writing and Sketching on Given Topics (Multiple Sources) (25% Grade)</p> <p>Rick Beech The Origami Handbook</p> <p>Lidwell, Holden & Butler Universal Principles of Design</p>

	Roth/Pentak	Design Basics 3D
	Singh, Sandeep	Beginning Google Sketchup for 3D printing
	Zelanski, Fischer	Shaping Space –The Dynamics of Three Dimensional Design
	Voon, Claire	Artists Covertly Scan Bust of Nefertiti and Release the Data For Free Online
	The Technology House ---3D Printing Glossary	