

Courses in English Course Description

Department	09 Engineering and Management
Course title	3D PRINTING AND DESIGN
Course number	
Hours per week (SWS)	3
Number of ECTS credits	4
Course objective	<p>Students:</p> <ul style="list-style-type: none"> - Deepen their knowledge on the technical aspects of FDM - Expand their ability to develop projects from concept to software to actualization - Develop iterative design acumen through creative problemsolving - Build hands on skills in 3-D fabrication including FDM, prototyping, 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
Prerequisites	Previous Design Courses Recommended
Recommended reading	<p>Weekly Design Analysis (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> <p>Roth/Pentak Design Basics 3D</p> <p>Singh, Sandeep Beginning Google Sketchup for 3D printing</p> <p>Zelanski, Fischer Shaping Space –The Dynamics of Three Dimensional Design</p> <p>Voon, Claire Artists Covertly Scan Bust of Nefertiti and Release the Data For Free Online</p> <p>The Technology House ---3D Printing Glossary</p>
Teaching methods	Lecture, Class Discussion, Demonstrations, Supervised Studio Development Individual and Group Projects
Assessment methods	Weekly Design Analysis, Project Work, Group Critiques and final Presentations
Language of instruction	English
Name of lecturer	Professor Matthias Rebhan Professor Matt Burnett
Email	matthias.rebhan@hm.edu
Link	

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Course content

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.

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.

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.

The projects will begin with individual and conclude with group component works, with final presentations during exams week.

Weekly Design Analysis 25%
Projects 50%
Final Project/Presentation 25%

Assignments:

- 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

Remarks