INTRODUCTION TO 3D PRINTIG

CAD 170

Instructor: Alex Sanchez (ph 925-8716)

Office Hours:

Mon/Wed 3:15-4:00

Tues/Thur 1:00-3:30

COURSE DESCRIPTION: The purpose of the course is to introduce students to the current state of 3D printing technology. Students will learn about the cross-disciplinary nature of 3D printing as a cost-effective prototyping and manufacturing solution. The course is taught in a lecture/lab format. Students will learn how to use three different 3D print technologies and related software. You should schedule at least two hours per week (outside of class time) in the lab to complete assignments.

TEXT: the text is recommended but not required

Fabricated: The New World of 3D Printing, Hod Lipson ISBN-10: 1118350634

ATTENDANCE: Students are responsible for any missed classes. Unexcused absences will lower your grade 1% per unexcused absence (to a maximum of 10%).

GRADING: Students are graded on the basis of tests and drawing assignments.

Drawing assignments 60%

Mid-term and Final exams 40%

LIBRARY USE: A list of books and periodicals will be provided during the first week of class.

MAIN COURSE OBJECTIVES:

1. Introduce students to 3D printing and additive manufacturing

2. Learn how to create, edit and print 3D models

3. Learn efficient, organized approaches to 3D printing.

REQUIRED MATERIALS: You will need a ring binder and storage media for your files (flash memory devices).

Students with disabilities should notify me of special needs at the beginning of the semester.

e-mail address (alexs@unm.edu)

Introduction to 3D Printing

Course schedule

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Week 1 3D printing overview

Week 2 3D printing types, materials and applications

Week 3 Filament printers: components, settings and calibration

Week 4 Online model files sources. Model verification and repair

Week 5 Filament printing procedures and troubleshooting

Week 6) Hardware maintenance and repair

Week 7) Powder 3D printer components settings and calibration

Week 8 Printing using the Projet 460 powder printer. Mid-term review

Mid-term Exam

Week 9 Post processing powder printer prints

Week 10) Resin printer components settings and calibration

Week 10 Resin printer tips and traps.

Week 11 Resin printer model preparation: mesh verification and model slicing software

Week 12 3D scanning for 3D printing overview

Week 13 Scanning with the I-Sense scanner

Week 14) Scanning with the Artec 3D scanner

Week 15 Editing 3D scanned meshes. Final exam review

Week 16 Editing scanned models with Sculptris.

Final Exam