PMET 132: ADDITIVE MANUFACTURING

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2023
Credits:	3
Total Contact Hours:	90
Lecture Hours :	36
Lab Hours:	54
Hours Arranged:	0
Outside of Class Hours:	72
Total Student Learning Hours:	162
Prerequisite:	PMET 131.
Strongly Recommended:	ENGL 101, BUS 130.
Transferable to CSU:	No
Transferable to UC:	No
Grading Method:	Standard Letter

Catalog Course Description

This course explores and practices rapid prototyping principles and applications with the background knowledge of CAD design and production processes. 3D printing and scanning will be covered in depth with industrial grade 3D printers, scanners, and CAD software. Final 3D prints may be used for fitment checks, problem solving and research, or as a final product for the end-user. The concept of lean production and management is encouraged and realized in the area of material usage and waste management. 36 lecture hours, 54 lab hours.

Course Objectives

- 3D printing with industrial grade 3D printers and CAD software, Solidworks for professional grade prints \\n

Major Course Content

- Read and analyze CAD engineering drawings and develop a plan to 3D print the part on the drawing
- Analyze the production economics, end user data, lean production, and waste management
- 3D scanning and digital imaging process used when appropriate and accessible
- 3D prints made with industrial grade 3D printers and materials for proof of concept or final product

Lab Content

- 3D CAD engineering drawings developed or read for the use of creating a 3D printer file, i.e., STL or GCode files
- 3D scanning and digital imaging process used when appropriate and accessible
- 3D printer set up and waste management process
- Printed part report, proof of concept and quality control checks completed
- Final testing and data recording

Suggested Reading Other Than Required Textbook

Design for 3D Printing: Scanning, Creating, Editing, Remixing, and Making in Three Dimensions by Samuel N. Bernier

Examples of Required Writing Assignments

A technical lab report of with industrial design data gathered will be used in their final report as an attachment, addendum, or annex

Examples of Outside Assignments

Students are encouraged to look in their environment for design ques, attributes, and trends as part of their lab report for industrial design ideas for their data

Instruction Type(s)

Lab, Lecture

IGETC Area 1: English Communication

1A. English Composition, 1C. Oral Communication, 1B. Critical Thinking/ English Comp