

# DIGITAL DESIGN AND FABRICATION (DDF)

## DDF205. Computer Aided Design I. 3 Credits.

Introduces 3D computer aided design and drawing, rapid manufacturing. Students become acquainted with the virtual spaces of CAD software and NURBS geometry with the intent to output tangible objects through 3D printing. COURSE FEE.

### Restrictions:

- Must have the following level: Undergraduate

### Prerequisites:

- Math Placement Level Minimum Score of 3 or MAT 153 Minimum Grade of C or MAT053 Minimum Grade of C

May be repeated for credit

## DDF210. Computer Aided Design II. 3 Credits.

This course furthers knowledge learned from DDF205, developing an advanced understanding of NURBS surfacing along with introducing organic modeling and mesh sculpting. Further application of 3D visualization technologies and advanced manufacturing will be emphasized. COURSE FEE.

### Restrictions:

- Must have the following level: Undergraduate

### Prerequisites:

- DDF205 Minimum Grade of C or ARS 337 Minimum Grade of C

May not be repeated for credit

## DDF220. Introduction to Computation for Media. 3 Credits.

This course focuses on fundamental concepts of programming (variables, conditional, iteration, functions, and objects) and then uses these concepts to create animations, graphics, sound and 3D-models. It also touches on more advanced techniques such as image processing, computer vision, data parsing and 3D graphics. COURSE FEE.

### Restrictions:

- Must have the following level: Undergraduate

### Prerequisites:

- DDF205 Minimum Grade of C
- DDF210 Minimum Grade of C

May not be repeated for credit

## DDF293. Dgtl Dsgn & Fab Selected Topic. 0 Credits.

Selected topics courses are regularly scheduled courses that focus on a particular topic of interest. Descriptions are printed in the Schedule of Classes each semester. Selected topics courses may be used as elective credit and may be repeated for credit, provided that the topic of the course changes.

May be repeated for credit

## DDF305. Advanced 3D Printing. 3 Credits.

This course takes students through preparing and printing files on professional level 3D printers. Students will develop the hands on technical skills needed to operate and maintain a variety of industrial grade printers in the work force. They will use critical thinking skills to identify the material, method and machine best suited for a particular application. Students will have an opportunity at the end of the course to take an exam to receive Stratasys 3D printing certification.

### Restrictions:

- Must have the following level: Undergraduate
- Must not be enrolled in the following class: Freshman
- Must be enrolled in the following field(s) of study (major, minor or concentration): Digital Design and Fabrication (DDF)

### Prerequisites:

- DDF205 Minimum Grade of C
- DDF210 Minimum Grade of C

May not be repeated for credit

## DDF310. Introduction to Designing with Microprocessors. 3 Credits.

This course introduces students to the integration of mechanical, electrical, and computer technologies into the design of computer controlled electro-mechanical systems. Students will learn the basics of component creation and part selection for practical use. Programming and interfacing an industry standard microcontroller will provide the intelligence needed to sense, control, actuate, and communicate. Emphasis will be placed on the use of additive manufacturing (3D Printing) as the output platform.

### Restrictions:

- Must have the following level: Undergraduate
- Must not be enrolled in the following class: Freshman
- Must be enrolled in the following field(s) of study (major, minor or concentration): Digital Design and Fabrication (DDF)

### Prerequisites:

- DDF205 Minimum Grade of C
- DDF210 Minimum Grade of C
- DDF220 Minimum Grade of C
- DDF305 Minimum Grade of C

May not be repeated for credit

## DDF320. Design Intents. 3 Credits.

This course introduces collaborative team research and interdisciplinary practices that approach real world challenges. Tenets of design practices include being human-centeredness, prototype-driven, and mindful of process. Topics include design processes/innovation methodologies, need finding, human factors, visualization, rapid prototyping, team dynamics, storytelling, and project leadership. COURSE FEE.

### Restrictions:

- Must not be enrolled in the following class: Freshman

### Prerequisites:

- DDF205 Minimum Grade of C
- DDF210 Minimum Grade of C
- DDF310 Minimum Grade of C

May not be repeated for credit

**DDF393. Dgtl Dsgn & Fab Selected Topic. 1-12 Credits.**

Selected topics courses are regularly scheduled courses that focus on a particular topic of interest. Descriptions are printed in the Schedule of Classes each semester. Selected topics courses may be used as elective credit and may be repeated for credit, provided that the topic of the course changes.

May be repeated for credit

**DDF495. Indep Study Digital Design Fab. 1-12 Credits.**

May be repeated for credit