

# DIGITAL DESIGN & FABRICATION (DDF)

## DDF502. Introduction to Computation for Media. 3 Credits.

The course focuses on the fundamental concepts of programming (variables, conditionals, 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.

### Attributes:

- Liberal Arts

### Restrictions:

- Must have the following level: Graduate

May not be repeated for credit

## DDF510. Computer Aided design 1. 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.

### Restrictions:

- Must be enrolled in the following class: Graduate

May not be repeated for credit

## DDF512. Computer Aided Design 2. 3 Credits.

Further the student knowledge and skills taught in DDF510 CAD1, developing an advanced understanding of 3-dimensional modeling and fabrication. Parametric modeling and further application of 3D visualization technologies and advanced additive manufacturing process will be emphasized.

### Restrictions:

- Must be enrolled in the following class: Graduate

### Prerequisites:

- DDF510 Minimum Grade of C

May not be repeated for credit

## DDF555. 3D Computational Design. 3 Credits.

This course serves as an introduction for designing 3D objects using a parameter-based computational approach. Students will be guided through using the fundamentals of programming variables, conditionals, loops and iteration) to explore software-based 3D modeling.

### Restrictions:

- Must have the following level: Graduate

### Prerequisites:

- DDF510 Minimum Grade of C-
- DDF502 Minimum Grade of C-

May not be repeated for credit

## DDF560. Introduction to Designing with Microprocessors. 3 Credits.

Making Things Move is the integration of Science, Technology, Engineering, Art, and Math (STEAM). and computer technologies into synergic design of computer controlled electronic mechanical systems. The instructors approach to this course will be project based.

### Restrictions:

- Must have the following level: Graduate

### Prerequisites:

- DDF510 Minimum Grade of C
- DDF502 Minimum Grade of C

May not be repeated for credit

## DDF593. DDF 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.

### Restrictions:

- Must be enrolled in the following class: Graduate

May be repeated for credit

## DDF595. Independent Study DDF. 1-12 Credits.

### Restrictions:

- Must have the following level: Graduate

May be repeated for credit

## DDF701. Advanced Computer Aided Design. 3 Credits.

This course will expand upon skills developed in CAD I and CAD II and introduce alternative tools and techniques for the development of complex designs. Students will gather and manipulate 3D scan information, reverse engineer from scan data, develop an understanding of tri, quad, and n-gonal mesh topologies, and model multiple part assemblies.

### Restrictions:

- Must have the following level: Graduate

### Prerequisites:

- DDF512 Minimum Grade of C-

May not be repeated for credit

## DDF705. 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: Graduate

### Prerequisites:

- DDF512 Minimum Grade of C-

May not be repeated for credit

### **DDF710. Fabrication Processes. 3 Credits.**

Fabrication process is concerned with the production of products and the manufacturing processes used to shape materials. Students will be exposed to rapid prototyping technologies that exist beyond 3D printing such as subtractive milling, laser cutting, and CNC.

#### **Restrictions:**

- Must have the following level: Graduate

#### **Prerequisites:**

- DDF512 Minimum Grade of C-

May not be repeated for credit

### **DDF790. Thesis Digital Design & Fabric. 1-6 Credits.**

May be repeated for credit

### **DDF794. Fieldwork/Digital Design & Fab. 1-6 Credits.**

May be repeated for credit

### **DDF795. Independent Study. 1-12 Credits.**

May be repeated for credit