



FAB LAB COURSE TRACKS

ORIENTATION

*General Orientation for the Melrose Center

This orientation is your key to accessing the creative and collaborative spaces in the Melrose Center. Get an overview of the Photography Studio, Video Production Studio, Audio Production Studio, FabLab and Simulation Lab. Explore upcoming classes and workshops and learn about the best practices to maximize your experience.

3D DESIGN AND PRINTING

3D Design and Printing with Moment of Inspiration Level 1

Create basic shapes and objects with Moments of Inspiration, a 3D design software. Develop 3D objects using common 3D design tools. Learn the skills you need to start developing your own prototypes.

3D Design and Printing with Moment of Inspiration Level 2

Up your 3D design skills with Moments of Inspiration, a 3D design software. Develop 3D objects using loft, revolve and array tools. Learn the skills you need to start developing your own prototypes.

3D Printing Techniques

Convert a virtual object into a 3D printable file with Flashforge. Become familiar with 3D print technologies and the technical specifications of consumer printers.

3D Printer Orientation

Learn 3D printing terminologies and concepts. Import a 3D object files and set up printing parameters on the Flashforge printers.

3D Printer Assessment

Prior to booking a 3D Printer users are required to successfully complete a machine specific assessment. Successful completion of the General Orientation for the Melrose Center, the 3D Printer Orientation and this session grants access to Fab Lab 3D printers during Open Lab hours.

CNC MILLING

2D Design for CNC Milling Level 1

Used by cabinet makers, wood workers and hobbyists, Cut2D Desktop provides a powerful CAD software solution for cutting parts on a CNC Router.

2D Design for CNC Milling Level 2

Customize your cuts and engraving on different materials. Cut2D Desktop provides a full set of tool path options to convert designs from simple graphics into CNC routing operations.

CNC Machine Orientation

Learn the layout and operation of the Shapeoko CNC machine, with hands on demonstration.

CNC Machine Assessment

Prior to booking the CNC Machine users are required to successfully complete a machine specific assessment. Successful completion of the General Orientation for the Melrose Center, the CNC Machine Orientation and this session grants access to the CNC Machine during Open Lab hours.

*This class is required to gain access to all Fab Lab Machines

SILHOUETTE CAMEO 4

- Silhouette Cameo Orientation**
Learn to create a cut file with the Silhouette Studio software, set up a test file and cut.
- Silhouette Cameo Assessment**
Prior to booking the Silhouette Cameo 4 users are required to successfully complete a machine specific assessment. Successful completion of the General Orientation for the Melrose Center, the Silhouette Cameo Orientation and this session grants access to a Silhouette Cameo cutter during Open Lab hours.

LASER CUTTING

- Laser Cutter Orientation**
Learn laser cutting and engraving concepts. Import vector files into laser engraving operations software. Successful completion of the General Orientation for the Melrose Center and this session grants access to the Laser Cutter during Open Lab hours.
- Laser Cutter Assessment**
Prior to booking the Laser Cutter users are required to successfully complete a machine specific assessment. Successful completion of the General Orientation for the Melrose Center, the Laser Cutter Orientation and this session grants access to the Laser Cutter during Open Lab hours.

ELECTRONIC ENGINEERING

- Introduction to Electronic Engineering Level 1**
Build a working circuit using common electronic components and a power source.
- Introduction to Electronic Engineering Level 2**
Build circuits using integrated circuits, power transistors and relays. create timers for various electronic applications.
- Introduction to Electronic Engineering Level 3**
Build a working circuit using relays, comparator integrated circuits and a power source. Learn to read common schematic diagrams and universal symbols.
- Introduction to Soldering Basics**
Build a simple circuit with a soldering iron and components. Learn to safely use a soldering iron correctly to join components and wires.

PROGRAMMING ELECTRONICS AND ROBOTICS

- Coding with Electronics Level 1**
Experience the potential of this inexpensive and accessible tool. Learn how to program an Arduino to customize control of electronic components, such as LEDs, sensors, and buttons.
- Coding with Electronics Level 2**
Make and program a dazzling multicolored ambient light display. Learn how to program an Arduino to fade LEDs and control RGB lighting.
- Coding with Electronics Level 3**
Make and program an automatic on/off night light, digital thermometer, and vibration security alarm. Learn how to interface an Arduino with a variety of external sensors.
- Coding with Electronics Level 4**
Make and program a digital button counter, and a dynamic light level sensing display. Learn how to interface an Arduino with a seven-segment digit display to show numbers and characters.
- Coding with Electronics Level 5**
Make and program a remote-controlled multicolored light, and a remote-controlled piano. Learn the essentials of using wireless infrared communication with an Arduino.