

LINC 401: BASIC MAKERSPACE SKILLS I

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	0
Hours:	60-360 hours laboratory total per quarter.
Advisory:	Basic computer skills and knowledge of operating systems; familiarity using web browsers, email, bookmarking, searching and downloading.
Degree & Credit Status:	Non-Degree-Applicable Non-Credit Course
Foothill GE:	Non-GE
Transferable:	None
Grade Type:	Non-Credit Course (Receives no Grade)
Repeatability:	Unlimited Repeatability

Student Learning Outcomes

- Demonstrate basic makerspace equipment functions and uses.
- Develop products from concept to drawing to prototype.

Description

Introduces students and other individuals to the tools and skills used in makerspaces. These skills include, but are not limited to: basic makerspace safety, basic tool safety, basic prototyping. Students will be able to learn independently and in groups to enhance their personal skills in using tools safely and effectively to create and build items for personal and educational uses. After completing the two-course sequence of LINC 401 and 402, students will receive training and badges to safely use each tool at a beginning level. Students will be more prepared for entering STEM and maker career paths in education, community centers, and libraries. This course cannot be taken for credit.

Course Objectives

The student will be able to:

- Demonstrate specific use cases and safe operation of specific tools/machines.
- Demonstrate tool/machine knowledge required to use the tool/machine effectively, including the creation of digital files required by the machine.
- Show documentation of work products and prototypes that clearly demonstrates safety and knowledge of specific tools/machines.

Course Content

This course will encompass several makerspace areas, focused on safety, basic machine usage, hand/power tool safety and prototyping.

- Basic makerspace safety
 - Basic makerspace functions and work products
 - Safety procedures and use processes
 - Sample project ideas and demonstrations

- Uses in hobby, prototyping, and industrial contexts
 - Acknowledgement of makerspace policies, procedures, and information
- Basic machine usage (laser cutter, vinyl/paper cutters, sewing/embroidery)
 - Knowledge of tool usage and work products that can be created
 - Basic safety precautions while operating the machine
 - Knowledge and ability to use digital tools and files to create work products
 - Demonstration of basic machine operation in the presence of makerspace staff
- Hand/power tool safety
 - Understanding the difference between hand/power tools and the appropriate usage the variety of tools available in the makerspace
 - Preparing the work area so that the hand/power tool can be used appropriately and safely
 - Knowledge of individual tool capabilities and uses
 - Demonstration of use of a hand/power tool in the presence of makerspace staff
- Prototyping
 - Development of work products from concept to drawing/digital file
 - Development of low/no cost prototype to develop a proof of concept
 - Transferring design concepts from analog to digital format, so that they can be shared
 - Documentation of products created demonstrating safety and proper techniques for usage

Lab Content

- Practice using basic makerspace machines and tools for different projects and purposes.
- Practice design thinking and prototyping to meet varying needs and goals.

Special Facilities and/or Equipment

Makerspace equipment, including, but not limited to: laser cutters, vinyl/paper cutters, power tools, hand tools, sewing/embroidery machines.

Method(s) of Evaluation

- Student participation in digital badging activities
- Demonstration of required tool/equipment knowledge and the use of digital tools to interact with tools and equipment
- Demonstration of required skill to appropriately and safely use tools and equipment
- Documentation of work products using digital tools, including desktop computers, software, and cameras

Method(s) of Instruction

- The student will be listening actively to lecture presentations delivered in student-centered learning style by taking notes, following demonstrations, or completing an activity
- The student will be participating in facilitated discussions of live presentations, readings or video presentations
- The student will be presenting in small group and whole class situations

Representative Text(s) and Other Materials

Dougherty, Dale, and Ariane Conrad. [Free to Make: How the Maker Movement is Changing our Schools, our Jobs, and our Minds](#). 2016.

Hirshberg, Peter, Dale Dougherty, and Marcia Kadanoff. Maker City: A Practical Guide for Reinventing our Cities. 2017.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

A. Example reading assignment: Students will read, both in print and online, manuals and instructions relating to the appropriate and safe operation of a tool. Additionally, there will be written material which will accompany either video or direct instruction.

B. Example writing assignments: Students will write responses to questions regarding the appropriate use of a tool, as well as describing specific use cases in hobby, prototyping, and industrial settings.

Discipline(s)

Interdisciplinary-Basic Skills: Noncredit