

# LINC 484F: VINYL CUTTER FUNDAMENTALS NONCREDIT

## Foothill College Course Outline of Record

| Heading                            | Value                                                                                                                                         |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Effective Term:</b>             | Fall 2026                                                                                                                                     |
| <b>Units:</b>                      | 0                                                                                                                                             |
| <b>Hours:</b>                      | 1 lecture per week (12 total per quarter)                                                                                                     |
| <b>Advisory:</b>                   | Experience with basic computer and internet functions; experience with vector-based graphic design software is recommended, but not required. |
| <b>Degree &amp; Credit Status:</b> | Non-Degree-Applicable Non-Credit Course                                                                                                       |
| <b>Foothill GE:</b>                | Non-GE                                                                                                                                        |
| <b>Transferable:</b>               | None                                                                                                                                          |
| <b>Grade Type:</b>                 | Non-Credit Course (Receives no Grade)                                                                                                         |
| <b>Repeatability:</b>              | Unlimited Repeatability                                                                                                                       |

## Description

Intended for makerspace educators and interested makers, this course provides an overview of the safe use and maintenance of vinyl cutter machines, ranging from hobbyist to industrial capacities. Students will design and produce projects on the vinyl cutter, working with a variety of materials, blades, tools, and mats to address different functional needs while applying safe, accessible, and equitable makerspace practices that serve diverse user needs. Students will use design software to create and import images, separate layers, and determine outcomes based on both hardware and media. Products developed include stickers, pop-up art, t-shirts, mixed media projects, boxes, and large-format vinyl pieces. Special emphasis will be placed on reinforcing design thinking concepts and the development of vinyl cutter makerspace projects to meet the needs of a variety of users.

## Course Objectives

The student will be able to:

1. Identify the major parts and functions of a vinyl cutter and explain the role of each part in the machine's operation.
2. Correctly determine which settings to use, including blade-type, speed, mat-type, and special tools in order to cut, draw, and score a variety of material types.
3. Use design software to create and cut projects, determining outcomes based on both hardware and media.
4. Perform machine cleaning and maintenance routines to ensure ongoing machine performance and safety.
5. Use design thinking concepts to design and create mixed media projects that address specified user needs.
6. Design and produce three-dimensional objects by cutting, scoring, and assembling flat materials.
7. Embed designs into cloth by demonstrating safe procedures for using a heat press.

## Course Content

1. Parts and functions
  - a. Frame
  - b. Rollers
  - c. Blades
  - d. Blade housing system
  - e. CNC system
  - f. Bed
  - g. Mats
  - h. Control platform
    - i. Model diagram of parts in operation
2. Settings
  - a. Material identification
  - b. Mats
    - i. Grip strength
    - ii. Dimensions
    - iii. Media requirements
  - c. Blades
    - i. Precision
    - ii. Deep cutting
    - iii. Rotary
  - d. Alternative tools
    - i. Pens
    - ii. Scoring wheel
    - iii. Embosser
  - e. Weeding tools
    - i. Weeder
    - ii. Tweezers
    - iii. Pick
    - iv. Transfer tape
  - f. Power
  - g. Speed
  - h. Z-axis
3. Design software
  - a. Text tools
  - b. Line and shape tools
  - c. Object manipulation
    - i. Weld
    - ii. Attach
    - iii. Flatten
    - iv. Slice
    - v. Contour
  - d. Importing graphics
    - i. Converting designs
    - ii. Identifying and separating layers
  - e. Mat separation
4. Cleaning and maintenance
  - a. Blade loading and unloading
  - b. Blade maintenance and replacement procedures
  - c. Mat loading and unloading
  - d. Mat grip maintenance procedures
  - e. Mat grip testing

- f. Weeding tool safety procedures and maintenance
- g. Troubleshooting issues
- 5. Mixed media
  - a. Inclusive, empathy-driven design thinking (user-centered, culturally responsive)
  - b. Media-specific cutting considerations
    - i. Vinyl
    - ii. Paper
    - iii. Craft board
    - iv. Leather
    - v. Cloth
  - c. Adjusting design elements based on media
  - d. Mat selection and media placement
  - e. Design placement and adjustment
  - f. Weeding procedures
  - g. Design transfer
- 6. Three-dimensional design
  - a. Pop-up design functions and features
  - b. Kirigami
  - c. Material thickness accommodations
  - d. Notches and dividers
  - e. Scoring
  - f. Single-piece box design
- 7. Heat transfer
  - a. Function and process
  - b. Heat-transfer vinyl properties
  - c. Image and design reversing
  - d. HTV weeding procedures and considerations
  - e. Design placement
  - f. Heat press
    - i. Timing and temperature settings
    - ii. Preparing media
    - iii. Silicone sheeting
    - iv. Safe operation and maintenance

## Lab Content

Not applicable.

## Special Facilities and/or Equipment

When taught via the internet: Students must have current email accounts and/or ongoing access to internet-capable computers or tablets.

## Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Designing and developing makerspace projects and products  
 Presenting the product or project to peers, capturing feedback with attention to inclusivity and accessibility, and using it to revise the product or project  
 Making constructive contributions to class discussions and peer review feedback

## Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

The student will engage with course concepts through multimodal instructional materials offered in accessible formats, supplying multiple means of representation

The student will observe instructor-guided demonstrations and then apply skills using a modality of their choice (e.g., digital, visual, or written), providing multiple means of action and expression

The student will co-construct knowledge by participating in synchronous or asynchronous discussions, peer feedback, and collaborative activities that honor diverse cultural and linguistic assets, ensuring multiple means of engagement

## Representative Text(s) and Other Materials

Molenaar, Jean-Michel, and Daniele Ingrassia. Mastering Digitally Controlled Machines: Laser Cutters, 3D Printers, CNC Mills, and Vinyl Cutters to Make Almost Anything. 2024.

Instructor-assigned notes, materials, and resources, including instructional materials, open education resources, multimedia, and websites.

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

1. Writing assignments include a major course project and multiple developmental projects, online discussion response, and critical analysis of peers' educational projects.
2. Outside assignments include conducting project development, planning, reading, and developing the project through an iterative process.
3. When taught online these methods may take the form of video, audio, animation, and webpage presentations. Writing assignments are completed online.

## Discipline(s)

Instructional Design/Technology