# ARCH A241: FRAMECAD WORKSHOP 1

| Item | Value |
|---|---|
| Curriculum Committee Approval Date | 12/04/2024 |
| Top Code | 020100 - Architecture and Architectural Technology |
| Units | 2 Total Units |
| Hours | 54 Total Hours (Lecture Hours 27; Lab Hours 27) |
| Total Outside of Class Hours | 0 |
| Course Credit Status | Credit: Degree Applicable (D) |
| Material Fee | No |
| Basic Skills | Not Basic Skills (N) |
| Repeatable | No |
| Open Entry/Open Exit | No |
| Grading Policy | Standard Letter (S) |

## Course Description

FrameCAD Workshop 1 is a project-based course that develops beginning level production skills needed to produce a steel panel framing system using FrameCAD software and a FrameCAD F325iT machine. Students will be introduced to FrameCAD machine operation and safety and will be able to visit a steel frame project or production facility. Students will assist in running production jobs and gain experience in panel assembly and workflow. ADVISORY: ARCH A104. Transfer Credit: CSU.

## Course Level Student Learning Outcome(s)

1. Completers will demonstrate beginning level skills in producing steel frame panel projects on a FrameCAD machine in a safe manner.
2. Completers will be able to perform entry level maintenance duties on the machine.

## Course Objectives

- 1. Apply beginning level of understanding of steel frame and panelization design and production.
- 2. Understand how steel framing can be integrated into a prefabricated process.
- 3. Operate a FrameCAD machine and produce a structure using FrameCAD Factory software.
- 4. Modify a file in FrameCAD Structure and FrameCAD Detailer.
- 5. Adjust and recode a project in FrameCAD Detailer and export to FrameCAD Factory.
- 6. Perform beginner level machine operation and maintenance on a FrameCAD machine.
- 7. Assist in safely producing a FrameCAD project, assemble the frames, and connect the panels.
- 8. Assist in handling and loading steel coil safely.

## Lecture Content

Steel Frame industry practices Industry overview on steel frame production Overview on steel frame panelization Site Visit to steel frame project or company using steel panels FrameCAD software overview FrameCAD Structure FrameCAD Detailer FrameCAD Factory Project workflow FrameCAD Machine - Beginning Machine safety Start up power Decoiler Machine Maintenance schedule Machine Maintenance - Beginning Lubrication Cutting Fluid Ink Consumable supplies Production Scheduling - Beginning File uploading Time, materials Safe output Project Assembly and workflow Production Work space organization safety Assembly of panels Panel connection Tranport of project to site

## Lab Content

Project Production Coordination Documentation Production on machine Construction Safety Machine and workspace area safety Tools and fasteners Reading panel diagrams Tool operation Handling of panels - Assist Workflow Storage and moving Assembly Transport Coil Handling - Overview Delivery Storage Loading Insertion and reset

## Method(s) of Instruction

- Lecture (02)
- Lab (04)

## Instructional Techniques

Instruction methods will include: lecture-demonstrations, class discussions, hands-on demonstrations, supervised production and assembly of parts and connection of panels, safety and maintenance demonstrations, and a field study.

## Reading Assignments

FrameCAD Machine manuals will be provided for review and study.

## Writing Assignments

Students will summarize assigned research into a notebook.

## Out-of-class Assignments

Students will research industry practices and examples. Students will look up material data sheets for safety and machine compatibility. Students will be assigned to source supplies and cost out materials and supplies. Outside reading, research, and assignments will be appproximately 4 hours per week (total of 64 hours).

## Demonstration of Critical Thinking

Students will analyze projects and coordinate and organize workflow.

## Required Writing, Problem Solving, Skills Demonstration

Students will assess and solve inconsistencies and workflow issues. Students will demonstrate ability to run jobs and operate machine safely.

## Eligible Disciplines

Architecture: Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience. Construction management: Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience. Engineering: Master's degree in any field of engineering OR bachelor's degree in any of the above AND master's degree in mathematics, physics, computer science, chemistry, or geology OR the equivalent. (NOTE: A bachelor's degree in any field of engineering with a professional engineer's license is an alternative qualification for this discipline.) Master's degree required. Title 5, section 53410.1

## Manuals Resources

1. FrameCAD. FrameCAD Machine Operations Manual, FrameCAD Limited , 03-01-2017