ARCH A243: FRAMECAD WORKSHOP 3

Item	Value
Curriculum Committee Approval Date	12/08/2021
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
Grading Policy	Standard Letter (S)

Course Description

FrameCAD Workshop 3 is a project-based continuation of FrameCAD Workshop 2 that develops advanced level production skills needed to produce steel panel framing systems using FrameCAD software and a FrameCAD F325iT machine. Students will review FrameCAD machine operation and safety and be involved in coordinating production jobs, panel assembly, and fabrication workflow on the machine. ADVISORY: ARCH A104, ARCH A241 and ARCH A242. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Completers will demonstrate advanced level skills in producing steel frame panel projects on a FrameCAD machine in a safe maner and with minimal assistance.
2. Completers will be able to perform advanced level maintenance duties on the machine with minimal assistance.

Course Objectives

- 1. Apply advanced level of understanding of steel frame and panelization design and production.
- 2. Operate a FrameCAD machine and produce a structure using FrameCAD Factory software at an experienced level.
- 3. Modify a file in FrameCAD Structure and FrameCAD Detailer.
- 4. Design and produce a stick design and connection on the FrameCAD machine.
- 5. Redesign and recode a project in FrameCAD Detailer and export to FrameCAD Factory for production.
- 6. Perform advanced level of machine operation and maintenance on a FrameCAD machine and decoiler.
- 7. Safely produce a FrameCAD project, assemble the frames, and connect the panels and prepare the project for site delivery.
- 8. Safely use the hoist to assist in loading steel coil and thread coil into machine.

Lecture Content

Steel Frame Industry Practices Steel frame production Steel frame panelization Site visit to steel frame project or company using steel panels FrameCAD Software Applications - Experienced FrameCAD Structure FrameCAD Detailer FrameCAD Factory Project design workflow FrameCAD Machine - Advanced Machine safety Start up and power Decoiler checks Machine checks Maintenance schedule Machine Maintenance - Advanced Lubrication Cutting Fluid Ink priming Consumable supplies specifications, cut sheets, ordering Production Scheduling - Advanced File check Time, materials settings and monitoring Safe output and run speeds Coordinate work space and workers Project Assembly Workflow - Supervising assistant Production Work space organization safety Assembly of panels Panel connections Prepare project for transport to site

Lab Content

Project Production - Supervise a project Coordination of work flow and work stations Documentation and labeling Production on machine and reports Documenting project data Construction Safety - Help Supervise Machine and workspace area Tools and fasteners Reading panel diagrams Tool operation Panel Assembly - Help Supervise Workflow and staging Storage and moving Assembly of panels Transport preparation Documentation Coil Handling - Assist Inspect loading tools and check wear Loading decoiler Loading machine Check settings for new coil

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 prepare a project notebook with project data, budget, and supplier information.

Out-of-class Assignments

Students will research industry practices and target a potential future workplace. Students will collect material data sheets for safety and machine compatibility and add to Worksite Log. Students will be assigned to source supplies and cost out to create a budget. Students will be assigned to verify vendor data and ordering procedures. Outside reading, research, and assignments will take approximately 4 hours per week.

Demonstration of Critical Thinking

Students will analyze proejcts and coordinate and organize workflow. Advanced students will assist in training beginning and intermediate students.

Required Writing, Problem Solving, Skills Demonstration

Students will assess and solve inconsistencies and workflow issues. Students will demonstrate the ability to run jobs and operate the machine safely. Students will assist beginning and intermediate students. Students will document the project in a notebook that can be used for job interviews and for reference.

Eligible Disciplines

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

Manuals Resources

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

Software Resources

1. FrameCAD Factory. FrameCAD Limited, 2019 ed. Software located on the machine that schedules and runs projects.