

§130.402. Engineering Design & Presentation II (Two Credits), Adopted 2015. – Abridged Version

DOMAIN 1 – PROFESSIONAL PRACTICE

(1D) demonstrate teamwork

(1E) use appropriate work habits

(1I) appropriate actions & consequences relating to discrimination, harassment, & inequality

(1H) demonstrate respect for diversity

DOMAIN 2 – OFFICE PRACTICE

(1J) present written and oral communication in a clear, concise, and effective manner

(2A) demonstrate an understanding of teamwork

(2B) apply teamwork to solve problems

(2C) Serve in various roles as a team member

(4E) identify intellectual and property rights

(4F) read and interpret drawings, manuals, and documentation

(5B) customize the software user interface

DOMAIN 3 – CAREER RESEARCH

(1A) compare and contrast engineering technician, engineering technologist, & engineer

(1B) identify employment & career opportunities

(1C) work toward industry certification

(1K) explore career prep opportunities

(8C) research CADD software

DOMAIN 4 – PROJECT ORGANIZATION

(3A) Implement project management methodologies

(3B) develop a project schedule and work according to established criteria

(3C) organize & operate a simulated engineering project

(3D) plan an individual plan to create a product

(4A) complete project documentation

(4B) identify cost factors and ways to minimize

(4C) create a project budget

(4D) create a production schedule

(5I) create and use custom templates

(7A) identify and describe the fundamental processes needed for a project, including the design process and prototype development and initiating, planning, executing, monitoring and controlling, and closing a project

(7B) use critical thinking techniques to develop technological solutions

(7C) use rational thinking to improve a system

(7D) use decision-making strategies to solve a problem

(7E) identify quality control issues

(7F) discuss perceptions of quality as applied to decision-making

8D) use software for presentations

(9B) identify quality, reliability, and safety in a system

(9C) improve a system

(9E) describe the patent process

(10A) identify the steps to produce a prototype

(10B) identify the tools, equipment, and machines to produce a prototype

(10C) present the prototype

DOMAIN 5 – INDUSTRY MATERIALS & METHODS

(1F) demonstrate knowledge of government regulations (incl. health and safety)

(1G) discuss the ethical issues of engineering & technology

(5A) prepare drawings per ANSI and ISO standards

(5C) create views, including auxiliary, section, and break-away

(5D) draft detailed parts and assemblies

(5E) indicate tolerances

(5F) demonstrate units, fonts, dimensioning, notes, and leaders

(5G) use layout techniques, including paper and model space

(5H) create and manipulate layers

(5J) create developments

(5K) use polar tracking and blocks

(5L) use XREF

(5M) create objects as a parametric model

(5N) render or animate an object

(6A) master relevant safety tests

(6B) follow lab safety guidelines as prescribed by instructor in compliance with local, state, and federal regulations

(6C) recognize the classification of hazardous materials and wastes

(6D) dispose of hazardous materials and wastes appropriately

(6E) perform maintenance on tools, equipment, and machines

(6F) correctly handle and store tools and materials

(6G) describe neglect

(7G) use an engineering notebook to record the process of the product

(7H) use an engineering notebook to record the final product

(9A) interpret engineering drawings

(9D) produce engineering drawings

DOMAIN 6 – MATHEMATICS & PHYSICS PRINCIPLES

(8A) use technology to design a system

(8B) demonstrate the use of precision measuring instruments