

Drafting III - Engineering (2016): Grades 9, 10, 11, 12

Adopted 2016

Understand Requirements for Engineering & Manufacturing Employment 1.00

01. Understand the requirements of becoming a Professional Engineer 1.01
02. Understand Education and Professional qualifications for becoming employed in Engineering, Manufacturing or related fields
 - Engineering services: civil, electrical, mechanical
 - Machine tool designers
 - Machinist / CNC technician
 - Certified Welder
 - Marine engineering services
 - Petroleum engineering services
 - Aerospace Engineering
 - Industrial / Product Design
 - New and Emerging Technologies (Not to be tested on Postassessment)1.02

Apply Engineering Design Concepts and Principles to solve problems 2.00

01. Apply the concepts and principles of the Engineering Design Process 2.01
02. Apply the concepts to create an Engineering Notebook. Maintain for all class projects 2.02

Understand Advanced Manufacturing Processes 3.00

01. Understand the concepts of Advanced Manufacturing processes
 - Mechatronics
 - CNC
 - Robotics
 - New and Emerging Technologies (Not to be tested on Postassessment)3.01
02. Understand the concepts of Additive Manufacturing processes; file formats (.STL, etc.) design considerations, design intent 3.02
03. Understand the concepts of Threads and Fasteners used in Assemblies 3.03

Apply Advanced 3D Parametric-Solid Model and Assembly Creation Techniques 4.00

01. Apply Advanced techniques to complete a 2D sketch using the appropriate draw tools 4.01
02. Apply Advanced techniques of Adding Constraints; Geometric and Dimensional 4.02
03. Apply Advanced techniques of Creating 3D Parts from constrained sketches using; Extrude, Revolve, Sweep and Loft 4.03
04. Apply Advanced techniques of adding Placed Features: Hole, Fillet, Chamfer, Shell, Threads, and Pattern Features 4.04

	05. Apply Advanced techniques of Adaptive Features, parts and subassemblies 4.05
	06. Apply the techniques of Creating Assemblies 4.06
	07. Apply the techniques of creating Animations, renderings and presentation drawings 4.07
	08. Apply the techniques of using and annotating Threads and Fasteners in Assemblies 4.08
Apply Procedures to Create Working Drawings of a 3D Model and Assembly 5.00	01. Apply the concepts and techniques of creating working drawings - Assembly Drawings - Detail Drawings - Parts List - Balloons 5.01
	02. Apply multi-view projection and the various views that are needed to document a 3D model including: Base, Projected, Section, and Auxiliary Views 5.02
	03. Apply the techniques of adding Annotations, Dimensions, and Tolerances 5.03
Apply Procedures to Create Sheet Metal Parts 6.00	01. Apply the concepts used to Create sheet metal parts 6.01
	02. Apply the concepts used to Modify sheet metal parts 6.02
	03. Apply how to create a Flat Pattern 6.03
Understand Procedures to create Geometric Dimensions and Tolerances 7.00	01. Understand geometric dimensioning and tolerancing concepts 7.01
	02. Understand geometric dimensioning and tolerancing terms and symbols 7.02
Apply Procedures to create Geometric Dimensions and Tolerances 8.00	01. Apply geometric dimensioning and tolerancing techniques 8.01
Apply Procedures to create a professional Portfolio 9.00	01. Apply the methods used for creating a digital portfolio 9.01
	02. Apply the procedures to create Presentations, Rendered Images and Animated Assemblies 9.02
	03. Apply the process of creating a Professional Resume 9.03