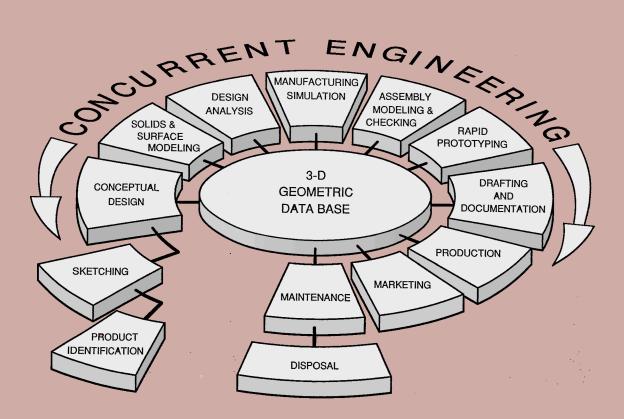
ENGINEERING & COMPUTER GRAPHICS WORKBOOK

Using SolidWorks 2009

Ronald E. Barr Thomas J. Krueger Theodore A. Aanstoos Davor Juricic





Schroff Development Corporation www.schroff.com

Better Textbooks. Lower Prices.

Table of Contents

	$\underline{\mathbf{P}}_{\mathbf{Z}}$	<u>ige</u>
1. Co	omputer Graphics Lab 1: 2-D Computer Sketching I	1-1
T F F	Introduction to SolidWorks; Screen Layout; Main Pull-Down Menu; Feature Managare; View Orientation; View and Display Toolbars; Sketching Toolbars; Sketching Planes; Line Colors; Starting a New Part; Setting Grids and Units; Using Basic 2 Primitives; Applying Basic Dimensions; Extruding and Revolving Simple Parts; Print a Hardcopy.	ing -D
H H H	Exercise 1.1: Metal Gasket Exercise 1.2: Cover Plate Exercise 1.3: Wall Bracket Exercise 1.4: Machine Handle Supplementary Exercises	l-14 l-19 l-22
2. Co	omputer Graphics Lab 2: 2-D Computer Sketching II	2-1
I	Review of All 2-D Sketch Entities; Advanced Sketching Tools; Sketch Editing Tools; Linear and Circular Repeats; Basic Dimensioning; Extruding and Revolving Simparts.	
H H S	Exercise 2.1: Metal Grate Exercise 2.2: Torque Sensor Exercise 2.3: Scalloped Knob Exercise 2.4: Linear Step Plate Supplementary Exercises	2-8 2-11 2-14 2-19
3. Co	omputer Graphics Lab 3: 3-D Solid Modeling of Parts I	3-1
(Adding Sketch Relations; 3-D Features Toolbar; Advanced Extrusion and Revolut Operations; Insert Reference Geometry; Mirror 3-D Feature; Create Linear and Circu 3-D Patterns; Building 3-D Solid Parts.	
H H H	Exercise 3.1 Clevis Mounting Bracket Exercise 3.2 Manifold Exercise 3.3: Hand Wheel Exercise 3.4: Toe Clamp Supplementary Exercises	8-8 8-12 8-16
4. Co	omputer Graphics Lab 4: 3-D Solid Modeling of Parts II	1 -1
	Creating Advanced 3-D Features: Draft, Shell, Dome, Loft, Sweep; Advanced Extrus and Revolution Operations; Building 3-D Solid Parts.	ion
H H	Exercise 4.1: Drawer Tray Exercise 4.2: Tap-Light Dome Exercise 4.3 Acme Thread Lead Screw Exercise 4.4 Jack Stand Supplementary Exercises	1-7 1-11 1-17
r)	supplementary Exercises .	τ−∠∪

	<u>Page</u>
5. Computer Graphics Lab 5: Assemb	ly Modeling and Mating5-1
Assembly File; Tiling the Screen Window	ing of Parts in an Assembly; Starting a New s; Assembly Toolbar; Drag and Drop Parts into Mate Parts with Different Mate Types; Print
Exercise 5.2: Swivel Eye Block Assembly	5-4 5-1: 5-2:
6. Computer Graphics Lab 6: Analysis	and Design Modification I 6-1
Units; Print Mass Properties Report; Desig	ion; Types of Mass Properties and Applicable in Modification of a Solid Model; Setting Up a Design Table; Configuration Manager; Print
Exercise 6.2: Socket Plug Design Table	6-4 6-12 6-17
7. Computer Graphics Lab 7: Analysis	s and Design Modification II7-1
Terms; Building a Solid Model for an FE Loads and Constraints; Creating a Mesh;	Using COSMOS/Works; Definition of FEA A Study; Beginning an FEA Study; Applying Analyzing the Model for Stress Distribution; Design Modification of a Solid Model Based
	Pillow Block 7-3 Piston 7-14
8. Computer Graphics Lab 8: Prototyping	Kinematics Animation and Rapid
Introduction to the SolidWorks Animate Exploding an Assembly; Creating the Animation; Saving an .AVI File; Introduction	ation Wizard; Loading an Assembly File; Animation; Animation Controller; Editing the action to Physical Simulation, Introduction to ample Solid Models for Rapid Prototyping.
Exercise 8.2: Exploded Animation of the S	Cerminal Support Assembly8-5wivel Eye Block Assembly8-10Model Part8-15

	<u>Page</u>				
9. Computer Graphics Lab 9: Section Views in 3-D and 2-D.	9-1				
Viewing 3-D Section Views of a Solid Model; Printing 3-D Section View; In Drawing Sheet; Setting Drawing and Hatch Pattern Options; Projecting Orthographic Views Onto a Drawing Sheet; Creating the Cutting Plane Line; M. D. Section View; Completing a Section View Drawing; Print Section View Drawing Drawing Drawing Drawing; Print Section View Drawing	ng Three aking a 2-				
Exercise 9.1: Rod Base Section Views Exercise 9.2: Tension Cable Bracket Section Views Exercise 9.3: Milling End Adapter Section Views	9-9				
Exercise 9-4: Plastic Revolving Ball Assembly Section ViewsSupplementary Exercises					
10. Computer Graphics Lab 10: Generating and Dimensioning Three-View					
Drawings	10-1				
Inserting a Drawing Sheet; Setting Drawing Sheet Options; Projecting Orthographic Views of a Solid Model Onto a Drawing Sheet; Adding Center Completing the Drawing Views; Setting the Dimensioning Variables; Dimensioning; Adding Title Block and Annotations; Print a Drawing.	lines and				
Exercise 10.1: Guide Block Drawing Exercise 10.2: Pipe Joint Drawing Exercise 10.3: Pedestal Base Drawing	10-9 10-15				
Exercise 10.4: Tooling Pad Drawing Supplementary Exercises					