Table of Contents

Dedication iii
Preface xxi

Chapter 1: Introduction to AutoCAD

AutoCAD Screen Components 1-2
Start Tab 1-2
CREATE 1-2
LEARN 1-2
Drawing Area 1-2
Command Window 1-3
Navigation Bar 1-5
ViewCube 1-6
In-canvas Viewport Controls 1-6
Status Bar 1-6
Invoking Tools in AutoCAD 1-10
Keyboard 1-10
Ribbon 1-11
Application Menu 1-12
Tool Palettes 1-13
Menu Bar 1-13
Toolbar 1-13
Shortcut Menu 1-13
File Tabs 1-14
AutoCAD Dialog Boxes 1-17
Starting a New Drawing 1-18
Open a Drawing 1-19
Start from Scratch 1-19
Use a Template 1-19
Use a Wizard 1-20
Saving Your Work 1-24
Save Drawing As Dialog Box 1-25
Automatic Timed Save 1-27
Creating Backup Files 1-28
Changing Automatic Timed Saved and Backup Files into AutoCAD Format 1-28
Using the Drawing Recovery Manager to Recover Files 1-28

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Closing a Drawing 1-29
Opening an Existing Drawing 1-29
Opening an Existing Drawing Using the Select File Dialog Box 1-30
Opening an Existing Drawing Using the Startup Dialog Box 1-32
Opening an Existing Drawing Using the Drag and Drop Method 1-33
Quitting AutoCAD 1-33
Creating and Managing Workspaces 1-33
Creating a New Workspace 1-34
Modifying the Workspace Settings 1-34
AutoCAD Help 1-35
Autodesk App Store 1-37
Save to Web & Mobile 1-39
Additional Help Resources 1-41
Self-Evaluation Test 1-41
Review Questions 1-42

Chapter 2: Getting Started with AutoCAD

Dynamic Input Mode 2-2
Enable Pointer Input 2-2
Enable Dimension Input where possible 2-3
Show command prompting and command input near the crosshairs 2-5
Show additional tips with command prompting 2-5
Drafting Tooltip Appearance 2-5
Drawing Lines in AutoCAD 2-6
The Close Option 2-7
The Undo Option 2-8
Invoking Tools Using Dynamic INPUT/Command Prompt 2-9
Coordinate Systems 2-9
Absolute Coordinate System 2-10
Relative Coordinate System 2-12
Direct Distance Entry 2-18
Erasing Objects 2-21
Canceling and Undoing Operation 2-22
Object Selection Methods 2-22
Window Selection Method 2-22
Crossing Selection Method 2-23
Lasso Selection Method 2-23
Drawing a Circle 2-25
Basic Display Commands 2-29
Zooming Drawings 2-29
Moving the view 2-30
Setting Units Type and Precision 2-30
Specifying the Format 2-31
Specifying the Angle Format 2-31
Setting the Direction for Angle Measurement 2-32
Specifying Units for the Drawing or Block to be Inserted 2-33
Sample Output 2-33

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Specifying Units for Lighting 2-33
Setting the Limits of a Drawing 2-35
Setting Limits 2-36
Limits for Architectural Drawings 2-36
Limits for Metric Drawings 2-38
Introduction to Plotting Drawings 2-39
Modifying AutoCAD Settings by Using the Options Dialog Box 2-41
Self-Evaluation Test 2-45
Review Questions 2-46

Chapter 3: Getting Started with Advanced Sketching

Drawing Arcs 3-2
Drawing Rectangles 3-10
Drawing Ellipses 3-14
Drawing Regular Polygons 3-18
Drawing Polylines 3-20
Drawing Donuts 3-26
Placing Points 3-27
Changing the Point Style and Size 3-28
Placing Multiple Points 3-28
Placing Points at Equal Distance 3-29
Placing Points at Specified Intervals 3-29
Drawing an Infinite Line 3-29
Drawing Construction Lines 3-29
Drawing Ray 3-32
Writing a Single Line Text 3-32
Working With Templates 3-33
Self-Evaluation Test 3-33
Review Questions 3-34

Chapter 4: Working with Drawing Aids

Introduction 4-2
Understanding the Concept and Use of Layers 4-2
Working with Layers 4-3
Creating New Layers 4-4
Making a Layer Current 4-5
Controlling the Display of Layers 4-6
Arranging Layers in Increasing Order 4-10
Arranging Layers in Increasing Order with Respect to First Digit 4-11
Merging Layers 4-12
Deleting Layers 4-13
Managing the Display of Columns 4-13
Selective Display of Layers 4-14
Layer States 4-16
Reconciling New Layers 4-17
Isolating and Unisolating Layers 4-17

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Controlling the Layer Settings 4-18
Toggle Override Highlight 4-19
Object Properties 4-23
Changing the Color 4-23
Changing the Linetype 4-23
Changing the Lineweight 4-24
Changing the Plot Style 4-25
Changing Object Properties using the PROPERTIES Palette 4-25
Changing Object Properties using the Quick Properties Palette 4-26
Global and Current Linetype Scaling 4-27
LTSCALE Factor for Plotting 4-27
Changing the Linetype Scale Using the PROPERTIES Palette 4-28
Working with the DesignCenter 4-28
Drafting Settings Dialog Box 4-29
Setting Grid 4-30
Setting Snap 4-31
Snap Type 4-31
Drawing Straight Lines Using the ORTHOMODE 4-32
Working with Object Snap 4-33
Running Object Snap Mode 4-45
Overriding the Running Snap 4-46
Cycling through Snaps 4-46
Setting the Priority for Coordinate Entry 4-47
Using AutoTracking 4-48
Object Snap Tracking 4-48
Polar Tracking 4-49
AutoTrack Settings 4-50
Function and Control Keys 4-50
Self-Evaluation Test 4-51
Review Questions 4-51

Chapter 5: Editing Sketched Objects-I

Creating a Selection Set 5-2
Editing Sketches 5-7
Moving Sketched Objects 5-7
Copying Sketched Objects 5-8
Creating Multiple Copies 5-9
Creating an Array of Selected Objects 5-9
Creating a Single Copy 5-10
Pasting Contents from the Clipboard 5-11
Pasting Contents Using the Original Coordinates 5-11
Offsetting Sketched Objects 5-11
Through Option 5-12
Erase Option 5-12
Layer Option 5-13
Rotating Sketched Objects 5-13
Scaling the Sketched Objects 5-15

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Filleting the Sketches 5-17
Chamfering the Sketches 5-20
Blending the Curves 5-23
Trimming the Sketched Objects 5-24
Extending the Sketched Objects 5-28
Stretching the Sketched Objects 5-31
Lengthening the Sketched Objects 5-32
Arraying the Sketched Objects 5-33
Rectangular Array 5-34
Polar Array 5-41
Path Array 5-47
Mirroring the Sketched Objects 5-49
Text Mirroring 5-50
Breaking the Sketched Objects 5-51
Placing Points at Specified Intervals 5-52
Dividing the Sketched Objects 5-54
Joining the Sketched Objects 5-55
Self-Evaluation Test 5-59
Review Questions 5-60

Chapter 6: Editing Sketched Objects-II

Introduction to Grips 6-2
Types of Grips 6-2
Adjusting Grip Settings 6-3
Editing Objects by Using Grips 6-5
Stretching the Objects by Using Grips (Stretch Mode) 6-5
Moving the Objects by Using Grips (Move Mode) 6-6
Rotating the Objects by Using Grips (Rotate Mode) 6-7
Scaling the Objects by Using Grips (Scale Mode) 6-9
Mirroring the Objects by Using Grips (Mirror Mode) 6-10
Editing a Polyline by Using Grips 6-11
Loading Hyperlinks 6-13
Editing Gripped Objects 6-13
Changing the Properties Using the PROPERTIES Palette 6-13
Matching the Properties of Sketched Objects 6-14
Quick Selection of Sketched Objects 6-15
Cycling Through Selection 6-17
Managing Contents Using the DesignCenter 6-17
Folders Tab 6-19
Open Drawings Tab 6-20
History Tab 6-20
Making Inquiries About Objects and Drawings 6-22
Measuring Area of Objects 6-23
Measuring the Distance between Two Points 6-26
Identifying the Location of a Point 6-27
Listing Information about Objects 6-27
Listing Information about all Objects in a Drawing 6-28

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Checking Time-Related Information 6-28
Obtaining Drawing Status Information 6-28
Displaying Drawing Properties 6-29
Basic Display Options 6-30
Redrawing the Screen 6-31
Regenerating Drawings 6-31
Zooming Drawings 6-31
Panning Drawings 6-39
Creating Views 6-41
New View 6-44
Understanding the Concept of Sheet Sets 6-44
Creating a Sheet Set 6-45
Adding a Subset to a Sheet Set 6-49
Adding Sheets to a Sheet Set or a Subset 6-50
Archiving a Sheet Set 6-50
Resaving all Sheets in a Sheet Set 6-51
Placing Views on a Sheet of a Sheet Set 6-51
Self-Evaluation Test 6-52
Review Questions 6-53

Chapter 7: Creating Texts and Tables

Annotative Objects 7-2
Annotation Scale 7-2
Assigning Annotative Property and Annotation Scales 7-2
Customizing Annotation Scale 7-3
Multiple Annotation Scales 7-3
Assigning Multiple Annotation Scales Manually 7-3
Assigning Multiple Annotation Scales Automatically 7-4
Controlling the Display of Annotative Objects 7-5
Creating Text 7-6
Writing Single Line Text 7-6
Entering Special Characters 7-11
Creating Multiline Text 7-11
Editing Text 7-29
Editing Text Using the TEXTEDIT Command 7-29
Editing Text Using the PROPERTIES Palette 7-29
Modifying the Scale of the Text 7-30
Modifying the Justification of the Text 7-31
Aligning Text 7-31
Combine Text 7-32
Inserting Table in the Drawing 7-32
Creating a New Table Style 7-38
Setting a Table Style As Current 7-41
Modifying a Table Style 7-41
Modifying Tables 7-42
Creating Text Styles 7-47
Creating Annotative Text 7-49

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Checking Spelling 7-50
Text Quality and Text Fill 7-51
Finding and Replacing Text 7-52
Creating Title Sheet Table in a Sheet Set 7-53
Self-Evaluation Test 7-55
Review Questions 7-56

Chapter 8: Basic Dimensioning, Geometric Dimensioning, and Tolerancing

Need for Dimensioning 8-2
Dimensioning in AutoCAD 8-2
Fundamental Dimensioning Terms 8-3
    Dimension Line 8-3
    Dimension Text 8-3
    Arrowheads 8-3
    Extension Lines 8-4
    Leader 8-4
    Center Mark and Centerlines 8-5
    Alternate Units 8-5
    Tolerances 8-6
    Limits 8-6
Associative Dimensions 8-6
Definition Points 8-7
Annotative Dimensions 8-8
Selecting Dimensioning Tools 8-8
Dimensioning a Number of Objects Together 8-9
Creating Linear Dimensions 8-10
Creating Aligned Dimensions 8-14
Creating Arc Length Dimensions 8-15
Creating Rotated Dimensions 8-16
Creating Baseline Dimensions 8-17
Creating Continued Dimensions 8-18
Creating Angular Dimensions 8-19
Creating Diameter Dimensions 8-23
Creating Jogged Dimensions 8-23
Creating Radius Dimensions 8-24
Creating Jogged Linear Dimensions 8-25
Generating Center Marks and Centerlines 8-25
Creating Associative Centermarks 8-26
Creating Associative Centerlines 8-27
Creating Ordinate Dimensions 8-28
Maintaining Equal Spacing between Dimensions 8-29
Creating Dimension Breaks 8-30
Creating Inspection Dimensions 8-32
Working with True Associative Dimensions 8-33
    Removing the Dimension Associativity 8-34

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Converting a Dimension into a True Associative Dimension 8-34
Drawing Leaders 8-35
Multileaders 8-39
Drawing Multileaders 8-39
Adding Leaders to Existing Multileader 8-42
Removing Leaders from Existing Multileader 8-42
Aligning Multileaders 8-42
Collecting Multiple Leaders 8-45
Geometric Dimensioning and Tolerancing 8-47
Geometric Characteristics and Symbols 8-47
Adding Geometric Tolerance 8-48
Complex Feature Control Frames 8-50
Combining Geometric Characteristics 8-50
Composite Position Tolerancing 8-51
Using Feature Control Frames with Leaders 8-52
Projected Tolerance Zone 8-53
Creating Annotative Dimensions, Tolerances, Leaders, and Multileaders 8-56
Self-Evaluation Test 8-57
Review Questions 8-57

Chapter 9: Editing Dimensions

Editing Dimensions Using Editing Tools 9-2
Editing Dimensions by Stretching 9-2
Editing Dimensions by Trimming and Extending 9-4
Flipping Dimension Arrow 9-5
Modifying the Dimensions 9-5
Editing the Dimension Text 9-7
Updating Dimensions 9-8
Editing Dimensions with Grips 9-8
Editing Dimensions Using the PROPERTIES Palette 9-8
Model Space and Paper Space Dimensioning 9-12
Self-Evaluation Test 9-14
Review Questions 9-14

Chapter 10: Dimension Styles, Multileader Styles, and System Variables

Using Styles and Variables to Control Dimensions 10-2
Creating and Restoring Dimension Styles 10-2
New Dimension Style Dialog box 10-3
Controlling the Dimension Text Format 10-11
Fitting Dimension Text and Arrowheads 10-16
Formatting Primary Dimension Units 10-19
Formatting Alternate Dimension Units 10-22
Formatting the Tolerances 10-24
Dimension Style Families 10-28

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Using Dimension Style Overrides 10-31
Comparing and Listing Dimension Styles 10-33
Using Externally Referenced Dimension Styles 10-33
Creating and Restoring Multileader Styles 10-34
Modify Multileader Style Dialog Box 10-35
Self-Evaluation Test 10-41
Review Questions 10-42

Chapter 11: Adding Constraints to Sketches

Introduction 11-2
Adding Geometric Constraints 11-2
- Applying the Horizontal Constraint 11-2
- Applying the Vertical Constraint 11-3
- Applying the Coincident Constraint 11-4
- Applying the Fix Constraint 11-4
- Applying the Perpendicular Constraint 11-5
- Applying the Parallel Constraint 11-5
- Applying the Collinear Constraint 11-6
- Applying the Concentric Constraint 11-6
- Applying the Tangent Constraint 11-6
- Applying the Symmetric Constraint 11-7
- Applying the Equal Constraint 11-7
- Applying the Smooth Constraint 11-8

Controlling the Display of Constraints 11-8
Applying Constraints Automatically 11-13
Applying Dimensional Constraints 11-14
Converting a Dimensional Constraint into an Annotational Constraint 11-15
Concept of a Fully-Defined Sketch 11-16
- Under-defined 11-16
- Fully-defined 11-16
- Over-defined 11-16

Controlling the Display of the Dimensional Constraint 11-17
Working with Equations 11-22
- Adding Equations while Applying Dimensional Constraints 11-22
- Adding Equations Using the Parameters Manager 11-22

Self-Evaluation Test 11-27
Review Questions 11-27

Chapter 12: Hatching Drawings

Hatching 12-2
- Hatch Patterns 12-2
- Hatch Boundary 12-2

Hatching Drawings Using the Hatch Tool 12-3
Panels in the Hatch Creation Tab 12-4
Creating Annotative Hatch 12-17

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Hatching the Drawing Using the Tool Palettes 12-18
Drag and Drop Method 12-18
Select and Place Method 12-18
Modifying the Properties of the Predefined Patterns available in Tool Palettes 12-19
Hatching Around Text, Dimensions, and Attributes 12-20
Editing Hatch Patterns 12-20
Using the Hatch Editor Tab 12-20
Using the Edit Hatch Tool 12-21
Using the Properties Tool 12-22
Editing the Hatch Boundary 12-24
Using Grips 12-24
Trimming the Hatch Patterns 12-25
Using AutoCAD Editing Tools 12-27
Hatching Blocks and Xref Drawings 12-27
Creating a Boundary Using Closed Loops 12-28
Other Features of Hatching 12-29
Self-Evaluation Test 12-30
Review Questions 12-31

Chapter 13: Model Space Viewports, Paper Space Viewports, and Layouts

Model Space and Paper Space/Layouts 13-2
Model Space Viewports (Tiled Viewports) 13-2
Creating Tiled Viewports 13-2
Making a Viewport Current 13-5
Joining Two Adjacent Viewports 13-5
Splitting and Resizing Viewports in Model Space 13-7
Paper Space Viewports (Floating Viewports) 13-7
Creating Floating Viewports 13-8
Creating Rectangular Viewports 13-9
Creating Polygonal Viewports 13-10
Converting an Existing Closed Object into a Viewport 13-11
Temporary Model Space 13-11
Editing Viewports 13-13
Controlling the Display of Objects in Viewports 13-13
Locking the Display of Objects in Viewports 13-13
Controlling the Display of Hidden Lines in Viewports 13-14
Clipping Existing Viewports 13-14
Maximizing Viewports 13-15
Controlling the Properties of Viewport Layers 13-16
Controlling the Layers in Viewports Using Layer Properties Manager 13-18
Paper Space Linetype Scaling (PSLTSCALE System variable) 13-20
Inserting Layouts 13-21
Importing Layouts to Sheet Sets 13-24

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Inserting a Layout Using the Wizard 13-24
Defining Page Settings 13-24
Working with the MVSETUP Command 13-26
Converting the Distance Between Model Space and Paper Space 13-30
Controlling the Display of Annotative Objects in Viewports 13-31
Self-Evaluation Test 13-33
Review Questions 13-34

Chapter 14: Plotting Drawings

Plotting Drawings in AutoCAD 14-2
Plotting Drawings Using the Plot Dialog Box 14-2
Adding Plotters 14-10
Editing the Plotter Configuration 14-11
Importing PCP/PC2 Configuration Files 14-13
Setting Plot Parameters 14-13
    Working with Page Setups 14-13
    Importing a Page Setup 14-16
Using Plot Styles 14-17
    Adding a Plot Style 14-17
    Plot Style Table Editor 14-19
    Applying Plot Styles 14-23
    Setting the Current Plot Style 14-24
Plotting Sheets in a Sheet Set 14-27
Self-Evaluation Test 14-28
Review Questions 14-28

Chapter 15: Template Drawings

Creating Template Drawings 15-2
Standard Template Drawings 15-2
Loading a Template Drawing 15-7
Customizing Drawings with Layers and Dimensioning Specifications 15-9
Customizing a Drawing with Layout 15-13
Customizing Drawings with Viewports 15-16
Customizing Drawings According to Plot Size and Drawing Scale 15-18
Self-Evaluation Test 15-22
Review Questions 15-23

Chapter 16: Working with Blocks

The Concept of Blocks 16-2
Converting Entities into a Block 16-2
Inserting Blocks Enhanced 16-5
Creating and Inserting Annotative Blocks 16-12
    Block Editor 16-15
Dynamic Blocks 16-16

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Adding Parameter and Action Simultaneously Using Parameter Sets 16-33
Inserting Blocks Using the DesignCenter 16-33
Using Tool Palettes to Insert Blocks 16-34
Inserting Blocks in the Drawing 16-35
Modifying Properties of the Blocks in the Tool Palettes 16-35
Adding Blocks in Tool Palettes 16-36
Drag and Drop Method 16-37
Shortcut Menu 16-37
Modifying Existing Blocks in the Tool Palettes 16-37
Layers, Colors, Linetypes, and Lineweights for Blocks 16-38
Nesting of Blocks 16-39
Inserting Multiple Blocks 16-41
Creating Drawing Files Using the Write Block Dialog box 16-43
Defining the Insertion Base Point 16-45
Editing Blocks 16-45
Editing Blocks in Place 16-45
Exploding Blocks Using the XPLODE Command 16-48
Renaming Blocks 16-50
Deleting Unused Blocks 16-51
Applying Constraints to Blocks 16-52
Self-Evaluation Test 16-58
Review Questions 16-58

Chapter 17: Defining Block Attributes

Understanding Attributes 17-2
Defining Attributes 17-2
Editing Attribute Definition 17-7
Using the PROPERTIES Palette 17-8
Inserting Blocks with Attributes 17-8
Managing Attributes 17-11
Extracting Attributes 17-17
Controlling the Attribute Visibility 17-35
Editing Block Attributes 17-36
Editing Attributes Using the Enhanced Attribute Editor 17-36
Editing Attributes Using the Edit Attributes Dialog Box 17-38
Global Editing of Attributes 17-40
Redefining a Block with Attributes 17-45
In-place Editing of Blocks with Attributes 17-45
Inserting Text Files in the Drawing 17-46
Self-Evaluation Test 17-47
Review Questions 17-48

Chapter 18: Understanding External References

External References 18-2
Dependent Symbols 18-2

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Managing External References in a Drawing 18-4
Attaching an Xref Drawing (Attach Option) Enhanced 18-6
Detaching an Xref Drawing (Detach Option) 18-10
Updating an Xref Drawing (Reload Option) 18-10
Unloading an Xref Drawing (Unload Option) 18-11
Adding an Xref Drawing (Bind Option) 18-11
The Overlay Option 18-12
Attaching Files to a Drawing 18-17
Working with Underlays 18-17
Editing an Underlay 18-18
Opening an Xreffed Object in a Separate Window 18-19
Using the DesignCenter to Attach a Drawing as an Xref 18-20
Adding Xref Dependent Named Objects 18-21
Clipping External References 18-22
Displaying Clipping Frame 18-24
Demand Loading 18-25
Editing References In-Place 18-27
Self-Evaluation Test 18-28
Review Questions 18-28

Chapter 19: Working with Advanced Drawing Options

Understanding the Use of Multilines 19-2
Defining a Multiline Style 19-2
Drawing Multilines 19-6
Editing Multilines by Using Grips 19-8
Editing Multilines by Using Dialog Box 19-8
Cross Intersection (CC/OC/MC) 19-9
Tee Intersection (CT/OT/MT) 19-10
Corner Joint (CJ) 19-11
Adding and Deleting Vertices (AV/DV) 19-11
Cutting and Welding Multilines (CS/CA/WA) 19-12
Creating Revision Clouds 19-15
Rectangular Revision Cloud 19-15
Polygonal Revision Cloud 19-15
Freehand Revision Cloud 19-15
Creating Wipeouts 19-16
Creating NURBS 19-17
Editing Splines 19-20
Editing Splines using 3D Edit Bar 19-24
DWG Compare Enhanced 19-24
Self-Evaluation Test 19-28
Review Questions 19-28

Chapter 20: Grouping and Advanced Editing of Sketched Objects

Grouping Sketched Objects Using the Object Grouping Dialog Box 20-2
Grouping Sketched Objects Using the Group Button 20-7

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Selecting Groups 20-7
Changing Properties of an Object 20-8
Exploding Compound Objects 20-14
Editing Polylines 20-15
Editing Single Polyline 20-16
Editing Multiple Polylines 20-29
Undoing Previous Commands 20-30
Reversing the Undo Operation 20-35
Renaming Named Objects 20-35
Removing Unused Named Objects 20-36
Purgeable items Tab 20-37
Find non-Purgeable items Tab 20-37
Setting Selection Modes Using the Options Dialog Box 20-38
Self-Evaluation Test 20-42
Review Questions 20-42

Chapter 21: Working with Data Exchange & Object Linking and Embedding

Understanding the Concept of Data Exchange in AutoCAD 21-2
Creating Data Interchange (DXF) Files 21-2
Creating a Data Interchange File 21-2
Information in a DXF File 21-3
Converting DXF Files into Drawing Files 21-3
Importing CAD Files 21-4
Other Data Exchange Formats 21-4
DXB File Format 21-4
Creating and Using an ACIS File 21-4
Importing PDF Files 21-5
Importing 3D Studio Files 21-7
Creating and Using a Windows Metafile 21-7
Creating and Using a V8 DGN File 21-8
Creating a BMP File 21-8
Raster Images 21-8
Attaching Raster Images 21-9
Managing Raster Images 21-10
Editing Raster Image Files 21-13
Clipping Raster Images 21-13
Adjusting Raster Images 21-14
Modifying the Image Quality 21-15
Modifying the Transparency of an Image 21-15
Controlling the Display of Image Frames 21-16
Changing the Display Order 21-16
Other Editing Operations 21-16
Scaling Raster Images 21-17
DWG Convert 21-17
Conversion Setup Options 21-18

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Working with PostScript Files 21-21
Object Linking and Embedding (OLE) 21-24
Sharing Drawing Views 21-32
Self-Evaluation Test 21-36
Review Questions 21-37

CHAPTERS AVAILABLE FOR FREE DOWNLOAD

In this textbook three chapters have been given for free download. You can download these chapters from our website *www.cadcim.com*. To download these chapters follow the given path: *Textbooks > CAD/CAM > AutoCAD > AutoCAD 2021: A Problem-Solving Approach, Basic and Intermediate > Chapters for Free Download* and then select the chapter name from the **Chapters for Free Download** drop-down. Click the **Download** button to download the chapter in the PDF format.

Chapter 22: Conventional Dimensioning and Projection Theory Using AutoCAD

Dimensioning 22-2
Dimension Units 22-2
    Inch Units 22-2
    SI (Metric) Units 22-3
Dimensioning Components 22-4
Common Rules For Dimensioning 22-4
    Dimensioning of Rounds, Fillets, and Chamfers 22-13
    Dimensioning of Repetitive Features 22-14
Working Drawings 22-14
    Detail Drawing 22-14
    Assembly Drawing 22-15
Bill of Materials 22-16
Multiview Drawings 22-16
Understanding the X, Y, and Z Axes 22-17
Orthographic Projections 22-18
Positioning Orthographic Views 22-21
Sectional Views 22-26
Auxiliary Views 22-37
Self-Evaluation Test 22-42
Review Questions 22-43

Chapter 23: Concepts of Geometric Dimensioning and Tolerancing

History of Tolerances and Allowances 23-2
Methods of Tolerancing 23-2
    Limit Dimensioning 23-3
    Plus and Minus Tolerancing 23-4
Geometric Tolerances 23-4

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com

Form Tolerances 23-10
Profile Tolerances 23-19
Orientation Tolerances 23-22
Location Tolerances 23-25
Runout Tolerances 23-29
Fits 23-33
    Hole Basis System 23-33
    Shaft Basis System 23-34
Standards of Fits 23-39
    Standard Inch Fits 23-39
    Standard Metric Fits 23-43
Self-Evaluation Test 23-49
Review Questions 23-49

Chapter 24: Isometric Drawings

Isometric Drawings 24-2
Isometric Projections 24-2
Isometric Axes and Planes 24-3
Setting the Isometric Grip and Snap 24-3
Drawing Isometric Circles 24-7
    Creating Fillets in Isometric Drawings 24-8
    Dimensioning Isometric Objects 24-8
Isometric Text 24-10
Self-Evaluation Test 24-11
Review Questions 24-12
Student Project (Free Downloadable) SP-1
Index **I-1**

Evaluation Copy. Do not reproduce. For information visit www.cadcim.com