

Table of Contents

| | |
|---|------|
| Dedication | iii |
| Preface | xi |
| Chapter 1: Introduction to Creo Direct 2.0 | |
| Introduction to Creo Direct 2.0 | 1-2 |
| System Requirements | 1-2 |
| Getting Started with Creo Direct 2.0 | 1-3 |
| Important Terms and Definitions | 1-4 |
| Entity | 1-4 |
| Measurement | 1-4 |
| Bidirectional Associative Property | 1-4 |
| Working Directory | 1-5 |
| Components of Creo Direct 2.0 Interface | 1-6 |
| Ribbon | 1-6 |
| Toolbars | 1-8 |
| File Menu | 1-8 |
| Creo Direct Help | 1-8 |
| LearningConnector | 1-8 |
| Command Search | 1-10 |
| Navigator | 1-10 |
| Creo Browser | 1-10 |
| Setting Working Directory | 1-11 |
| Using the Navigator | 1-11 |
| Using the Select Working Directory Dialog Box | 1-12 |
| Invoking a New Environment | 1-15 |
| Opening An Existing File | 1-16 |
| Managing Files | 1-18 |
| Delete Old Versions | 1-19 |
| Delete All Versions | 1-19 |
| Erase Current | 1-19 |
| Erase Not Displayed | 1-19 |
| Erase Unused Model Reps | 1-19 |
| Save | 1-19 |
| Save a Copy | 1-20 |
| Save a Backup | 1-20 |
| Rename | 1-21 |
| Functions of the Mouse Buttons | 1-21 |
| Color Scheme Used in this Book | 1-22 |

Chapter 2: Sketching

| | |
|------------------------------------|-----|
| Introduction | 2-2 |
| Starting a New Creo Direct Session | 2-2 |

| | |
|--|------|
| Drawing a sketch Using the Tools Available in the Home Tab | 2-4 |
| Drawing a Line | 2-4 |
| Creating a Rectangle | 2-5 |
| Drawing a Circle | 2-7 |
| Drawing an Ellipse | 2-9 |
| Drawing an Arc | 2-10 |
| Placing a Point | 2-12 |
| Creating a Spline | 2-13 |
| Creating Fillets | 2-13 |
| Writing Text in the Sketcher Environment | 2-14 |
| Creating a Reference Coordinate System | 2-15 |
| Trimming the Sketched Entities | 2-16 |
| Trim Segment | 2-16 |
| Corner | 2-16 |
| Divide | 2-16 |
| Mirror | 2-17 |
| Measuring the Basic Entities | 2-17 |
| Measuring the Length | 2-17 |
| Measuring the Angle | 2-17 |
| Measuring the Diameter | 2-18 |
| Measuring the Distance | 2-18 |
| Measuring the Area | 2-19 |
| Measuring the Volume | 2-19 |
| Generating the Summary | 2-19 |
| Measuring Mass Properties | 2-19 |
| Clearing All Selections | 2-20 |
| Drawing Display Options | 2-20 |
| Zoom In | 2-20 |
| Zoom Out | 2-20 |
| Refit | 2-21 |
| Repaint | 2-21 |
| Sketcher Display Filters | 2-21 |
| Grid | 2-21 |
| Disp Grid | 2-22 |
| Tutorial 1 | 2-22 |
| Tutorial 2 | 2-26 |
| Tutorial 3 | 2-29 |
| Self-Evaluation Test | 2-32 |
| Review Questions | 2-33 |
| Exercise 1 | 2-33 |
| Exercise 2 | 2-34 |

Chapter 3: Creating Base Features

| | |
|--------------------------|-----|
| Introduction | 3-2 |
| The Default Datum Planes | 3-2 |
| Selection Processes | 3-2 |

| | |
|---------------------------|------|
| Select (with default) | 3-2 |
| Select (no default) | 3-3 |
| Creating Base Features | 3-3 |
| Creating Extrude Features | 3-3 |
| Creating Revolve Feature | 3-5 |
| Creating Sweep Features | 3-7 |
| Nesting of Sketches | 3-9 |
| Tutorial 1 | 3-10 |
| Tutorial 2 | 3-13 |
| Tutorial 3 | 3-17 |
| Tutorial 4 | 3-19 |
| Self-Evaluation Test | 3-22 |
| Review Questions | 3-23 |
| Exercise 1 | 3-23 |
| Exercise 2 | 3-24 |

Chapter 4: Creating Datum Features

| | |
|--|------|
| Introduction | 4-2 |
| Datum Planes | 4-2 |
| Default Datum Planes | 4-2 |
| Need for Datums in Modeling | 4-2 |
| Creating Datum Planes | 4-3 |
| Creating Datum Axes | 4-5 |
| Creating a Datum Axis Passing through an Edge | 4-6 |
| Creating a Datum Axis Normal to a Plane | 4-6 |
| Creating a Datum Axis Passing through a Datum Point and Normal to a Plane | 4-6 |
| Creating a Datum Axis Passing through the Center of a Round Surface | 4-7 |
| Creating a Datum Axis Passing through the Edge Formed by Two Planes | 4-7 |
| Creating a Datum Axis Passing through Two Datum Points or Vertices | 4-8 |
| Creating a Datum Axis Tangent to a Curve and Passing through its Vertex | 4-8 |
| Defining Coordinate System | 4-9 |
| Tutorial 1 | 4-9 |
| Tutorial 2 | 4-15 |
| Tutorial 3 | 4-18 |
| Self-Evaluation Test | 4-22 |
| Review Questions | 4-23 |
| Exercise 1 | 4-24 |
| Exercise 2 | 4-25 |
| Exercise 3 | 4-25 |

Chapter 5: Modeling Tools

| | |
|------------------------------|------|
| Introduction | 5-2 |
| Creating Draft Features | 5-2 |
| Draft hinge collector | 5-3 |
| Pull direction | 5-3 |
| Creating Shell Features | 5-3 |
| Change thickness direction | 5-4 |
| Excluded Surfaces collector | 5-4 |
| Creating Hole Features | 5-4 |
| Display reference dimensions | 5-5 |
| DMA Hole Offset Refs | 5-5 |
| Creating Round Feature | 5-5 |
| Creating Chamfer Features | 5-6 |
| Creating Pattern Features | 5-6 |
| Direction Pattern | 5-7 |
| Rotation Pattern | 5-8 |
| Usage of Patterns | 5-8 |
| Tutorial 1 | 5-9 |
| Tutorial 2 | 5-12 |
| Tutorial 3 | 5-20 |
| Tutorial 4 | 5-27 |
| Self-Evaluation Test | 5-30 |
| Review Questions | 5-31 |
| Exercise 1 | 5-31 |

Chapter 6: Assembly Modeling

| | |
|-------------------------------------|------|
| Introduction | 6-2 |
| Assembly Modeling | 6-2 |
| Creating Assemblies in Creo Direct | 6-3 |
| Inserting Components in an Assembly | 6-3 |
| Assembling Components | 6-4 |
| Co-Pilot Visibility | 6-4 |
| Constraints Type | 6-4 |
| Movement Origin | 6-8 |
| Placement reference collector | 6-8 |
| Positioning the Components | 6-8 |
| Tutorial 1 | 6-9 |
| Tutorial 2 | 6-19 |
| Self-Evaluation Test | 6-25 |
| Review Questions | 6-26 |
| Exercise 1 | 6-26 |
| Exercise 2 | 6-29 |

Chapter 7: Surface Modeling

| | |
|-----------------------------------|------|
| Introduction | 7-2 |
| Creating Surfaces | 7-2 |
| Creating Extruded Surface | 7-2 |
| Creating Revolved Surface | 7-3 |
| Creating Sweep Surface | 7-3 |
| Editing Surfaces | 7-4 |
| Trimming a Surface | 7-4 |
| Offsetting a Surface | 7-5 |
| Converging a Surface | 7-5 |
| Drafting a Surface | 7-6 |
| Creating Basic Rounds | 7-7 |
| Creating Chamfers | 7-8 |
| Merging the Surfaces | 7-9 |
| Converting a Surface into a Solid | 7-10 |
| Tutorial 1 | 7-11 |
| Tutorial 2 | 7-18 |
| Self-Evaluation Test | 7-23 |
| Review Questions | 7-23 |
| Exercise 1 | 7-24 |

Chapter 8: Direct Editing

| | |
|--|------|
| Introduction | 8-2 |
| Direct Editing Operations | 8-2 |
| Moving a Component | 8-2 |
| Pulling and Rotating Faces | 8-3 |
| Pulling Multiple Faces | 8-4 |
| Modifying Cylindrical, Spherical, Conical, and Toroid Features | 8-4 |
| Resizing Rounds | 8-5 |
| Resizing Chamfer | 8-6 |
| Resizing Hole | 8-7 |
| Copying and Pasting Geometries | 8-7 |
| Extracting Surfaces from a Solid Model | 8-9 |
| Deleting a Face | 8-10 |
| Tutorial 1 | 8-11 |
| Tutorial 2 | 8-17 |
| Self-Evaluation Test | 8-23 |
| Review Questions | 8-23 |
| Exercise 1 | 8-24 |

Chapter 9: Student Projects

| | |
|-------------------|------|
| Student Project 1 | 9-2 |
| Student Project 2 | 9-9 |
| Student Project 3 | 9-12 |
| Student Project 4 | 9-16 |
| Student Project 5 | 9-23 |

| | |
|--------------|------------|
| Index | I-1 |
|--------------|------------|

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