Creo Parametric 2.0 for Engineers and Designers

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DEDICATION

To teachers, who make it possible to disseminate knowledge
to enlighten the young and curious minds
of our future generations

To students, who are dedicated to learning new technologies
and making the world a better place to live in

THANKS

To the faculty and students of the MET department of
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Preface

Creo Parametric 2.0

Creo Parametric, developed by Parametric Technology Corporation, is a new technology in the series of Pro/ENGINEER. It provides a broad range of powerful and flexible CAD capabilities that can address even the most tedious design challenges. Being a parametric feature-based solid modeling tool, it not only integrates the 3D parametric features with 2D tools, but also assists in every design-through-manufacturing process. Based mainly on the feedback of the users of solid modeling, this software is remarkably user-friendly and allows you to be productive.

This solid modeling software allows you to easily import the standard format files with an amazing compatibility. The 2D drawing views of the components are automatically generated in the **Drawing** mode. Using this software, you can generate detailed, orthographic, isometric, auxiliary, and section views. Additionally, you can use any predefined drawing standard files for generating the drawing views. You can display the model dimensions in the drawing views or add reference dimensions whenever you want. The bidirectionally associative nature of this software ensures that any modification made in the model is automatically reflected in the drawing views. Similarly, any modification made in the dimensions of the drawing views is automatically updated in the model.

The **Creo Parametric 2.0 for Engineers and Designers** textbook has been written to enable the readers to use the modeling power of Creo Parametric 2.0 effectively. The latest surfacing techniques like Freestyle and Style are explained in detail in this book. The textbook also covers the Sheetmetal module with the help of relevant examples and illustrations. The mechanical engineering industry examples and tutorials are used in this textbook to ensure that the users can relate the knowledge of this book with the actual mechanical industry designs. The salient features of this textbook are as follows:

- **Tutorial Approach**

  The author has adopted the tutorial point-of-view and the learn-by-doing theme throughout the textbook. This approach guides the users through the process of creating the models in the tutorials.

- **Real-World Projects as Tutorials**
  The author has used the real-world mechanical engineering projects as tutorials in this textbook so that the readers can correlate them with the real-time models in the mechanical engineering industry.

- **Tips and Notes**
  Additional information related to various topics is provided in the form of tips and notes.

- **Learning Objectives**
  The first page of every chapter summarizes the topics that will be covered in that chapter. This helps the users to easily refer to a topic.

- **Self-Evaluation Test, Review Questions, and Exercises**
  Every chapter ends with a Self-Evaluation test so that the users can assess their knowledge of the chapter. The answers to the Self-Evaluation test are given at the end of the chapter. Also, the Review Questions and Exercises are given at the end of each chapter and they can be used by the Instructors as test questions and exercises.

- **Heavily Illustrated Text**
  The text in this book is heavily illustrated with the help of around 1400 line diagrams and screen capture images that support the tools section and tutorials.

Symbols Used in the Text

Note

The author has provided additional information to the users about the topic being discussed in the form of notes.

Tip

Special information and techniques are provided in the form of tips that helps in increasing the efficiency of the users.

New

This symbol indicates that the command or tool being discussed is new.

Enhanced

This symbol indicates that the command or tool being discussed has been enhanced in Creo Parametric 2.0.

Formatting Conventions Used in the Text

Please refer to the following list for the formatting conventions used in this textbook.

- Names of tools, buttons, options, groups, tabs, slide-down panels, and Ribbon are written in boldface.

  Example: The **Extrude** tool, the **OK** button, the **Editing** group, the **Sketch** tab, and so on.

- Names of dialog boxes, drop-downs, drop-down lists, dashboards, areas, edit boxes, check boxes, and radio buttons are written in boldface.

  Example: The **Revolve** dashboard, the **Chamfer** drop-down of **Engineering** group in the **Model** tab, the **Thickness** drop-down of the **Shell** dashboard, the **Extended intersect surfaces** check box in the **Options** tab slide-down panel of the **Draft** dashboard, and so on.

- Values entered in edit boxes are written in boldface.

  Example: Enter **5** in the **Radius** edit box.

- Names and paths of the files are written in italics.

  Example: *C:\Creo-2.0\c03*, *c03tut03.prt*, and so on

- The methods of invoking a tool/option from the **Ribbon** are enclosed in a shaded box.

  Ribbon: Get Started > Launch > New

Naming Conventions Used in the Text

Tool

If you click on an item in a toolbar or a group of the **Ribbon** and a dashboard or dialog box is invoked to create/edit an object or perform some action, then that item is termed as **tool**.

For example:
Line tool, **Normal** tool, **Extrude** tool
Fillet tool, **Draft** tool, **Delete Segment** tool
If you click on an item in a toolbar or a group of the **Ribbon** and a dialog box is invoked wherein you can set the properties to create/edit an object, then that item is also termed as **tool**, refer to Figure 1.

For example:
To Create: **Extrude** tool, **Sweep** tool, **Round** tool
To Edit: **Extend** tool, **Trim** tool

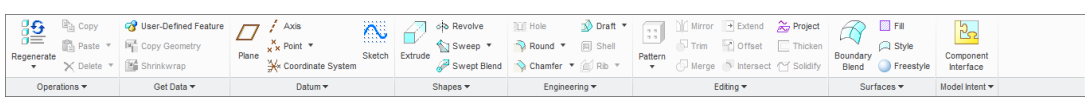

Figure 1 *Various tools in the Ribbon*

Button

The item in a dialog box that has a 3D shape like a button is termed as **Button**. For example, **OK** button, **Cancel** button, **Apply** button, and so on.

Dialog Box

The naming conventions for the components in a dialog box are mentioned in Figure 2.

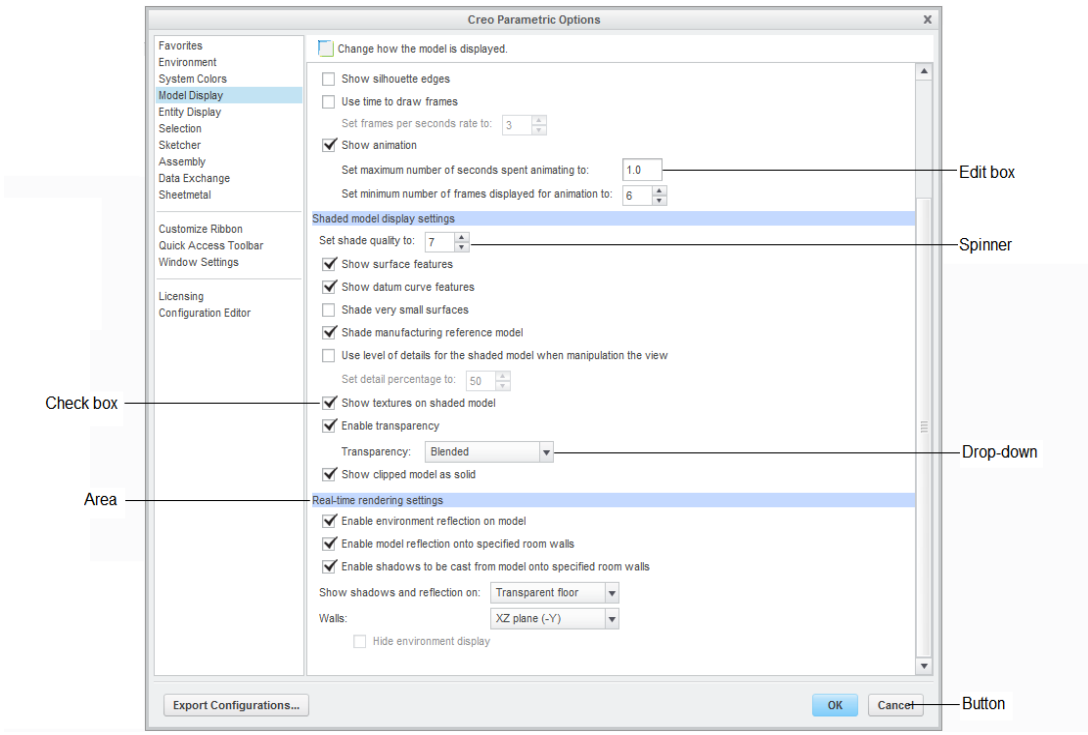

Figure 2 *The components in a dialog box*

Drop-down

A drop-down is one in which a set of common tools are grouped together for creating an object. You can identify a drop-down with a down arrow on it. These drop-downs are given a name based on the tools grouped in them. For example, **Arc** drop-down (refer to Figure 3), **Chamfer** drop-down (refer to Figure 4), **Draft** drop-down (refer to Figure 5), and so on.

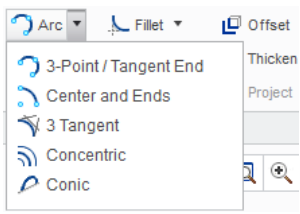

Figure 3 *The **Arc** drop-down*

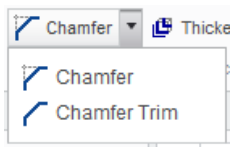

Figure 4 *The **Chamfer** drop-down*

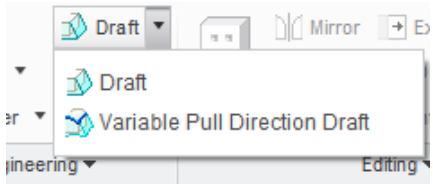

*Figure 5 The **Draft** drop-down*

Drop-down List

A drop-down list is the one in which a set of options are grouped together. You can set various parameters using these options. You can identify a drop-down list with a down arrow on it. For example, **Dimension** drop-down list, **Clear Appearance** drop-down list, and so on, refer to Figure 6.

*Figure 6 The **Dimension** and **Clear Appearance** drop-down lists*

Options

Options are the items that are available in shortcut menu, drop-down list, dialog boxes, and so on. For example, choose the **Front** option from the **View Manager** dialog box, refer to Figure 7; choose the **New** option from the **File** menu, refer to Figure 8.

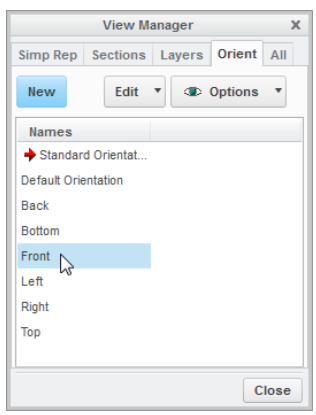

*Figure 7 The **Front** option in the **View Manager** dialog box*

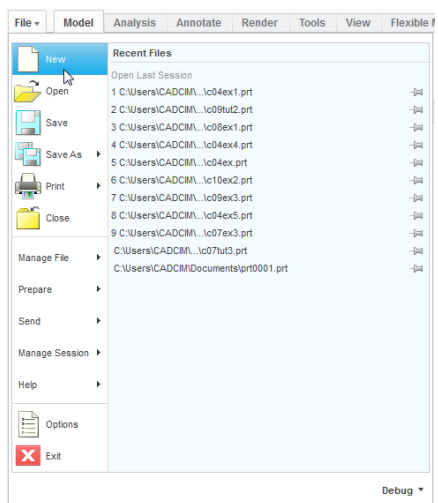

*Figure 8 The **New** option in the **File** menu*

Free Companion Website

It has been our constant endeavor to provide you the best textbooks and services at affordable price. In this endeavor, we have come out with a Free Companion website that will facilitate the process of teaching and learning of Creo Parametric 2.0. If you purchase this textbook from our website (***www.cadcim.com***), you will get access to the files on the Companion website.

To access the files, you need to register by visiting the **Resources** section at ***www.cadcim.com***. The following resources are available for the faculty and students in this website:

Faculty Resources

- **Technical Support**
  You can get online technical support by contacting ***techsupport@cadcim.com***.

- **Instructor Guide**
  Solutions to all review questions and exercises in the textbook are provided in this link to help the faculty members test the skills of the students.

- **PowerPoint Presentations**
  The contents of the book are arranged in PowerPoint slides that can be used by the faculty for their lectures.

- **Part Files**
  The part files used in illustration, tutorials, and exercises are available for free download.

Student Resources

- **Technical Support**
  You can get online technical support by contacting ***techsupport@cadcim.com***.

- **Part Files**
  The part files used in illustrations and tutorials are available for free download.

- **Additional Students Projects**
  Various projects are provided for the students to practice.

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