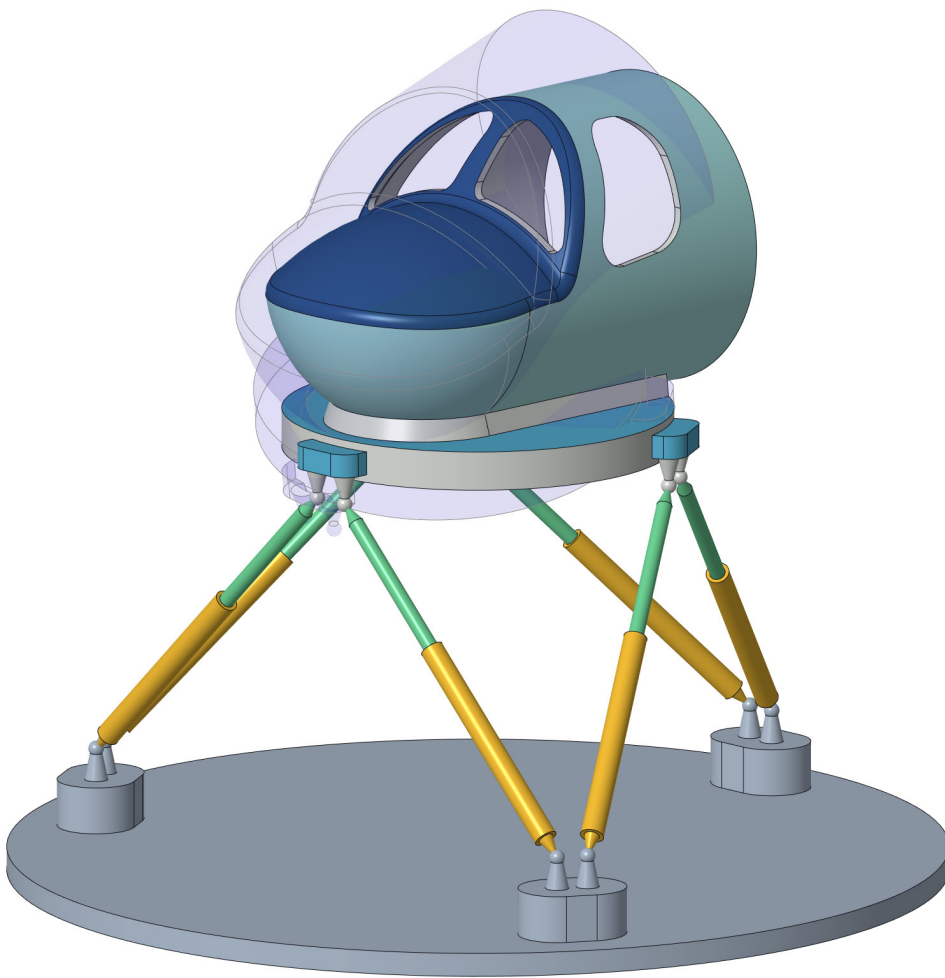


Creo® 8.0 Mechanism Design

A Short Course Tutorial



Roger Toogood, Ph.D.

Visit the following websites to learn more about this book:



[amazon.com](https://www.amazon.com)

[Google books](https://books.google.com)

[BARNES & NOBLE](https://www.barnesandnoble.com)

Table of Contents

Chapter 1: Introduction to Creo *Mechanism Design*

Summary	1 - 1
Introduction	1 - 1
Mechanism Design vs Mechanism Dynamics	1 - 1
Guide to This Tutorial	1 - 2
Download Files	1 - 3
Font Conventions	1 - 3
Creo Version	1 - 3
Further References	1 - 3

Chapter 2: Making Connections

Summary	2 - 1
The Slider-Crank	2 - 1
Creating a <i>Pin</i>	2 - 2
Creating a <i>Slider</i>	2 - 4
Creating a <i>Cylinder</i>	2 - 5
More Connections	2 - 6
Pin	2 - 8
Cylinder	2 - 9
Slider	2 - 10
Planar	2 - 11
Ball	2 - 12
Bearing	2 - 13
Gimbal	2 - 14
Slot	2 - 15
Rigid and Weld	2 - 16
General Connections	2 - 16
General #1 (PNT - PNT, Surf - Edge)	2 - 17
General #2 (Point - Line, Edge - Plane)	2 - 17
General #3 (Plane - Plane)	2 - 18

Chapter 3: Creating Motion Drivers

Summary	3 - 1
The Slider-Crank	3 - 1
More About Servos	3 - 2
Motor Function Types	3 - 3
Ramp	3 - 3
Cosine	3 - 4
Parabolic	3 - 4
Polynomial	3 - 5
Cycloidal	3 - 5
Table	3 - 6
User Defined Function	3 - 7

A Note about Multiple Drivers	3 - 8
-------------------------------------	-------

Chapter 4: Setting up and Running an Analysis

Summary	4 - 1
The Slider-Crank	4 - 1
Step 1: Analysis Setup	4 - 1
Step 2: Analysis Playback	4 - 2
Motors Whose Period is Less Than the Analysis Length	4 - 3
Using Multiple Motors	4 - 4
Issues With Setting a Time Step	4 - 5
Other Solutions to Analysis Problems	4 - 12

Chapter 5: Tools for Viewing Results

Summary	5 - 1
The Slider-Crank	5 - 1
Creating and Graphing <i>Measures</i>	5 - 1
Creating a Trace Curve	5 - 5
Creating a Motion Envelope	5 - 5
Creating <i>User Defined</i> Measures	5 - 6
Creating and Exporting Animations	5 - 7
Collision and Interference Checking	5 - 7
More About Motion Envelopes	5 - 8

Chapter 6: Special Connections

Summary	6 - 1
Gears	6 - 1
Spur Gear	6 - 1
Worm Gear Set	6 - 3
Rack and Pinion	6 - 4
Cams	6 - 5
Belts	6 - 7

Chapter 7: Exercises

In-line Reciprocator	7 - 1
Spatial (3D) Slider-Crank	7 - 2
4-Bar Dwell Mechanism	7 - 4
3D Spinner	7 - 5
Kostitsyn “Straight Line” Linkage	7 - 7
Variable Pitch Propeller	7 - 9
Schmidt Coupling for Offset Shafts	7 - 10
Stewart Platform	7 - 12

List of Animations	7 - 14
---------------------------------	--------