# **SOLIDWORKS®**

**SOLIDWORKS Electrical: 3D** 

© 1995-2017, Dassault Systemes SolidWorks Corporation, a Dassault Systèmes SE company, 175 Wyman Street, Waltham, Mass. 02451 USA. All Rights Reserved.

The information and the software discussed in this document are subject to change without notice and are not commitments by Dassault Systemes SolidWorks Corporation (DS SolidWorks).

No material may be reproduced or transmitted in any form or by any means, electronically or manually, for any purpose without the express written permission of DS SolidWorks.

The software discussed in this document is furnished under a license and may be used or copied only in accordance with the terms of the license. All warranties given by DS SolidWorks as to the software and documentation are set forth in the license agreement, and nothing stated in, or implied by, this document or its contents shall be considered or deemed a modification or amendment of any terms, including warranties, in the license agreement.

#### **Patent Notices**

SOLIDWORKS® 3D mechanical CAD and/or Simulation software is protected by U.S. Patents 6,611,725; 6,844,877; 6,898,560; 6,906,712; 7,079,990; 7,477,262; 7,558,705; 7,571,079; 7,590,497; 7,643,027; 7,672,822; 7,688,318; 7,694,238; 7,853,940; 8,305,376; 8,581,902; 8,817,028; 8,910,078; 9,129,083; 9,153,072; 9,262,863; 9,465,894; 9,646,412 and foreign patents, (e.g., EP 1,116,190 B1 and JP 3,517,643).

eDrawings® software is protected by U.S. Patent 7,184,044; U.S. Patent 7,502,027; and Canadian Patent 2,318,706.

U.S. and foreign patents pending

## Trademarks and Product Names for SOLIDWORKS Products and Services

SOLIDWORKS, 3D ContentCentral, 3D PartStream.NET, eDrawings, and the eDrawings logo are registered trademarks and FeatureManager is a jointly owned registered trademark of DS SolidWorks.

CircuitWorks, FloXpress, PhotoView 360, and TolAnalyst are trademarks of DS SolidWorks.

FeatureWorks is a registered trademark of HCL Technologies Ltd.

SOLIDWORKS 2018, SOLIDWORKS Standard, SOLIDWORKS Professional, SOLIDWORKS Premium, SOLIDWORKS PDM Professional, SOLIDWORKS PDM Standard, SOLIDWORKS Simulation Standard, SOLIDWORKS Simulation Professional, SOLIDWORKS Simulation Premium, SOLIDWORKS Flow Simulation, eDrawings Viewer, eDrawings Professional, SOLIDWORKS Sustainability, SOLIDWORKS Plastics, SOLIDWORKS Electrical Schematic Standard, SOLIDWORKS Electrical 3D, SOLIDWORKS Electrical Professional, SOLIDWORKS Electrical 3D, SOLIDWORKS Composer, SOLIDWORKS Inspection, SOLIDWORKS MBD, SOLIDWORKS PCB powered by Altium, SOLIDWORKS Visualization are product names of DS SolidWorks.

Other brand or product names are trademarks or registered trademarks of their respective holders.

#### COMMERCIAL COMPUTER SOFTWARE - PROPRIETARY

The Software is a "commercial item" as that term is defined at 48 C.F.R. 2.101 (OCT 1995), consisting of "commercial computer software" and "commercial software documentation" as such terms are used in 48 C.F.R. 12.212 (SEPT 1995) and is provided to the U.S. Government (a) for acquisition by or on behalf of civilian agencies, consistent with the policy set forth in 48 C.F.R. 12.212; or (b) for acquisition by or on behalf of units of the Department of Defense, consistent with the policies set forth in 48 C.F.R. 227.7202-1 (JUN 1995) and 227.7202-4 (JUN 1995)

In the event that you receive a request from any agency of the U.S. Government to provide Software with rights beyond those set forth above, you will notify DS SolidWorks of the scope of the request and DS SolidWorks will have five (5) business days to, in its sole discretion, accept or reject such request. Contractor/Manufacturer: Dassault Systemes SolidWorks Corporation, 175 Wyman Street, Waltham, Massachusetts 02451 USA.

## Copyright Notices for SOLIDWORKS Standard, Premium, Professional, and Education Products

Portions of this software © 1986-2017 Siemens Product Lifecycle Management Software Inc. All rights reserved.

This work contains the following software owned by Siemens Industry Software Limited:

D-Cubed® 2D DCM © 2017. Siemens Industry Software Limited. All Rights Reserved.

D-Cubed® 3D DCM © 2017. Siemens Industry Software Limited. All Rights Reserved.

D-Cubed® PGM © 2017. Siemens Industry Software Limited. All Rights Reserved.

D-Cubed® CDM © 2017. Siemens Industry Software Limited. All Rights Reserved.

D-Cubed® AEM © 2017. Siemens Industry Software Limited. All Rights Reserved.

Portions of this software © 1998-2017 HCL Technologies Ltd. Portions of this software incorporate PhysX™ by NVIDIA 2006-

Portions of this software © 2001-2017 Luxology, LLC. All rights reserved, patents pending.

Portions of this software © 2007-2017 DriveWorks Ltd.

© 2011, Microsoft Corporation. All rights reserved.

Includes Adobe® PDF Library technology

Copyright 1984-2016 Adobe Systems Inc. and its licensors. All rights reserved. Protected by U.S. Patents. 5,929,866; 5,943,063; 6,289,364; 6,563,502; 6,639,593; 6,754,382; Patents Pending.

Adobe, the Adobe logo, Acrobat, the Adobe PDF logo, Distiller and Reader are registered trademarks or trademarks of Adobe Systems Inc. in the U.S. and other countries.

For more DS SolidWorks copyright information, see Help > About SOLIDWORKS.

#### **Copyright Notices for SOLIDWORKS Simulation Products**

Portions of this software © 2008 Solversoft Corporation.

PCGLSS @ 1992-2017 Computational Applications and System Integration, Inc. All rights reserved.

### Copyright Notices for SOLIDWORKS PDM Professional Product

Outside In® Viewer Technology, © 1992-2012 Oracle © 2011, Microsoft Corporation. All rights reserved.

#### **Copyright Notices for eDrawings Products**

Portions of this software © 2000-2014 Tech Soft 3D.

Portions of this software © 1995-1998 Jean-Loup Gailly and Mark Adler.

Portions of this software © 1998-2001 3D connexion.

Portions of this software © 1998-2014 Open Design Alliance. All rights reserved.

Portions of this software © 1995-2012 Spatial Corporation.

The eDrawings® for Windows® software is based in part on the work of the Independent JPEG Group.

Portions of eDrawings® for iPad® copyright © 1996-1999 Silicon Graphics Systems, Inc.

Portions of eDrawings® for iPad® copyright © 2003 - 2005 Apple Computer Inc.

#### Copyright Notices for SOLIDWORKS PCB Products

Portions of this software © 2017 Altium Limited.

Document Number: PMT1814-ENG

## **Contents**

Introduction	
	About This Course
	Prerequisites
	Course Design Philosophy
	Using this Book
	About the Training Files
	Windows
	Conventions Used in this Book
	Use of Color
	Graphics and Graphics Cards
	Color Schemes
	More SOLIDWORKS Training Resources
	Local User Groups
Lesson 1:	1
Assembly Creation	
,	What are Assemblies?
	Stages in the Process
	Unarchiving a Project
	Opening an Existing Project in SOLIDWORKS
	The Electrical Project Documents
	SOLIDWORKS Assembly
	Opening a SOLIDWORKS File from the Browser
	Exercise 1: Assembly Creation
Lesson 2:	, and the second
Cabinets, Ducts, Rai	ls
, ,	Cabinets, Ducts, Rails
	Adding a Cabinet
	Stages in the Process

Contents SOLIDWORKS Electrical

	Inserting Components	23
	Naming	
	Inserting Rails	
	Mate References	
	Change Rail or Duct Length	26
	Inserting Ducts	
	Mates	
	Exercise 2: Cabinets	
Lesson 3:		
Component Intellig	gence	
	What is a component?	32
	Component Intelligence	
	The Electrical Component Wizard	
	Stages in the Process	
	Define Faces	
	Create Mate Reference	
	Create Connection Points	
	Creating Cable Connection Points	
	Exercise 3: Component Intelligence	
Lesson 4:	Exercise 3. Component interrigence	73
Insert Components	8	
mocre component	Insert Components	18
	Stages in the Process	
	Align Components	
	Inserting Terminals	
	Exercise 4: Insert Components	
Lesson 5:	Exercise 4. Insert Components	
Routing Wires		
Nouting wires	Routing Wires	59
	Stages in the Process	
	Sketch Name	
	Route Wires.	
	3DSketch Route	
	Routing Parameters	
	Wire Sketches	
	SOLIDWORKS Route	
	Wire Segregation	
l accon fi	Exercise 5: Routing Wires	/0
Lesson 6:		
Routing Cables	Describes California	
	Routing Cables	
	Stages in the Process	
	Creating Cable Connection Points	
	Route Cables	
	Set Origin Destination of Cables by Location	
	Exercise 6: Routing Cables	81