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Engineering Graphics & Drawing



ENGINEERING DRAWING AND DESIGN

Seventh Edition

by Cecil H. Jensen, Jay D. Helsel, and Dennis Short

2008 (July 2007) / Hardcover / 1120 pages

ISBN-13: 978-0-07-352151-0 / MHID: 0-07-352151-5

Engineering Drawing and Design prepares students for drafting careers in a modern, technology-intensive industry. Technical drafting, like all technical areas, is constantly changing; the computer has revolutionized the way in which drawings and parts are made. This text covers the most current technical information available, including graphic communication, CAD, functional drafting, material positioning, numerical control, electronic drafting, and metrication, in a manner useful to both the instructor and student. The authors synthesize, simplify, and convert complex drafting standards and procedures into understandable instructional units.

NEW TO THIS EDITION

- Drafters will be pleased to see that this book covers ASME drawing standards and ISO guidelines and shows how to interpret and apply them.

FEATURES

- Four-color design highlights the text's special features and enhances instructional value of material.
- The authors bring together and explain the manufacturing materials that are available for engineering design. They describe the manufacturing process that influences the shape, appearance, and design of the product.
- The numerous assignments help the reader gain practice. These assignments can be completed with the help of a variety of Appendix tables reflecting real-world applications.
- The text's unit approach makes it possible for instructors to put together a customized program of instruction that suits the needs of their students and local industry.
- Text emphasizes all types of fasteners, both permanent and removable, that are currently available.

CONTENTS

Part I: Basic Drawing and Design. 1. Engineering Graphics as a Language. 2. Computer-Aid Drawing (CAD). 3. Drawing Media, Filing, Storage, and Reproduction. 4. Basic Drafting Skills. 5. Applied Geometry. 6. Theory of Shape Description. 7. Auxiliary Views and Revolutions. 8. Basic Dimensioning. 9. Sections. Part II: Fasteners, Materials, and Forming Processes. 10. Threaded Fasteners. 11. Miscellaneous Types of Fasteners. 12. Manufacturing Materials. 13. Forming Processes. Part III: Working Drawings and Design. 14. Detail and Assembly Drawings. 15. Pictorial Drawings. 16. Geometric Dimensioning and Tolerancing. 17. Drawings for Numerical Control. 18. Welding Drawings. 19. Design Concepts. Part IV: Power Transmissions. 20. Belts, Chains, and Gears. 21. Coupling, Bearings, and Seals. 22. Cams, Linkages, and Actuators. Part V: Special Fields of Drafting. 23. Developments and Intersections. 24. Pipe Drawings. 25. Structural Drafting. 26. Jigs and Fixtures. 27. Electrical and Electronics Drawings. Computer-Aided Drawing. Review and Assignments. Glossary. Appendix-Standard Parts and Technical Data. Index.

International Edition



FUNDAMENTALS OF GRAPHICS COMMUNICATION

Fifth Edition

by Gary Robert Bertoline, Purdue University, West Lafayette, and Eric N. Wiebe, North Carolina State University -Raleigh

2007 / Softcover / 960 pages

ISBN-13: 978-0-07-322078-9 / MHID: 0-07-322078-7

ISBN-13: 978-0-07-110791-4 / MHID: 0-07-110791-6 [IE with OLC]

<http://www.mhhe.com/bertoline>

Bertoline's text covers the latest CAD tools available to engineering and technology students. As powerful as today's computers and CAD software have become, they are of little use to engineers and technologists who do not fully understand the fundamental graphics principles and 3-D modeling strategies. The new edition covers the fundamentals while emphasizing the important concepts: visualization, 3D modeling real-world design, problem solving and teamwork

NEW TO THIS EDITION

- New!! Dream High Tech Jobs Boxes
- New!! Design in Industry Boxes
- New Online Learning Center
- UNIQUE!! Visualization Chapter
- Photographs and computer screen shots in 4 color!!

CONTENTS

1 Introduction to Graphics Communication. 2 Sketching and Text. 3 Engineering Geometry. 4 3-D Solid Modeling. 5 Multiviews and Visualization. 6 Auxiliary Views. 7 Pictorial Projections. 8 Section Views. 9 Dimensioning and Tolerancing Practices. 10 Working Drawings and Assemblies. 11 The Engineering Design Process. 12 Geometric Dimensioning and Tolerancing (GDT)



INTRODUCTION TO SOLID MODELING USING SOLIDWORKS

Third Edition

By William E. Howard, East Carolina University, and Joseph Musto, Milwaukee School Of Engineering

2008 (June 2007) / Softcover / 352 pages

ISBN-13: 978-0-07-337532-8 / MHID: 0-07-337532-2

The text presents solid modeling not just as a communication tool, but as an integral part of the design process. To this end the book explores design intent, the use of solid models in engineering analysis, and introduces techniques from manufacturing such as mold design and sheet metal patterning. Howard and Musto provide a student-friendly presentation filled with easy-to-use tutorials. Their approach is also designed to help students understand how engineering is used in the real world. For instance, modeling exercises are largely centered on examples drawn from industrial applications. As well, "Future Study" boxes introduce students to different topics they will study in their engineering programs.

NEW TO THIS EDITION

- The text has been updated to reflect the new features of SolidWorks.
- Newly updated and enhanced "Future Study" boxes are used to direct students to the topical areas they will be exploring in typical engineering programs, and how those topics relate to the examples and exercises found in the text.
- Explores the idea of "design intent" through boxed sidebars updated for the new edition, as well as the challenges involved in embedding design constraints within a solid model.
- A four-color Guide to SolidWorks Tutorials has been added to the inside front cover for easy reference.
- Chapter Objectives have been expanded and enhanced to better

introduce chapter concepts.

- A new interior design renders the text more user-friendly and visually appealing.

FEATURES

- Gives students an introduction to techniques from manufacturing; mold design, sheet metal patterning, and stereolithography representations will be introduced.
- Solid Modeling is treated not just as a communication tool, but as an integrated part of the design process.
- Exposes students to the use of solid models in engineering analysis; the ability of solid modeling software to perform vector operations, kinematic analysis, animation, interference detection, and mass property computation will be explored.
- Modeling exercises are largely centered on examples drawn from industrial applications; most exercises and problems feature mechanical and structural components (flanges, fasteners, I-beams, springs, etc.), rather than the "widgets" found in many introductory engineering graphics texts.
- Additional resources are available on the website. Including on the website are tutorials for two popular SolidWorks Add-Ins, COSMOSMotion and PhotoWorks, and the book figures in PowerPoint format. Instructors can also access model files for all tutorials and problems.

CONTENTS

PART ONE Learning SolidWorks. 1 Basic Part Modeling Techniques. 2 Engineering Drawings. 3 Additional Part Modeling Techniques. 4 Use of Parametric Modeling Techniques. 5 Advanced Concepts in Part Modeling. 6 Building Assembly Models from Part Models. 7 Advanced Assembly Operations. 8 Creating Assembly Drawings. PART TWO Applications of SolidWorks. 9 Using SolidWorks for the Generation of 2-D Layouts. 10 Application of SolidWorks to Vector Mechanics. 11 Using SolidWorks in the Design and Analysis of Mechanisms. 12 The Use of SolidWorks as a Tool for Manufacturing: Mold Design and Sheet Metal Parts. 13 The Use of SolidWorks to Accelerate the Product Development Cycle.



FUNDAMENTALS OF GRAPHICS COMMUNICATION WITH AUTODESK INVENTOR SOFTWARE 06-07

Fifth Edition

By Gary Robert Bertoline, Purdue University-West Lafayette, And Eric N. Wiebe, Nc State University-Raleigh

2007 / Softcover with CDROM

ISBN-13: 978-0-07-331272-9 / MHID: 0-07-331272-X

A thoroughly contemporary approach to teaching essential technical graphics skills has made Bertoline and Wiebe's Fundamentals of Graphics Communication the leading textbook in introductory engineering graphics programs. The fifth edition continues to integrate design concepts and the use of CAD into its outstanding coverage of the basic visualization and sketching techniques that enable students to create and communicate graphic ideas effectively.

As in past editions, the authors have included many examples of how graphics communication pertains to "real-world" engineering design, including current industry practices and breakthroughs; as one example, the Motorola RAZR cellular phone is used as a case study to synthesize the design concepts in the text. A dynamic Online Learning Center provides additional resources such as an image bank, animations, quizzes, and links to current industry and career sites.

NEW TO THIS EDITION

- "Dream High Tech Jobs" boxes introduce students to interesting careers and people in the fields of graphics, CAD, and design.
- "Design in Industry" boxes are updated and more closely tied to each chapter, improving Bertoline's unique integration of design content.
- Practice Exercises, Practice Problems, Questions for Review, and End-of-Chapter Problems have been updated and expanded to reflect the latest advances in the field.
- The Online Learning Center is enhanced with new exercises,

projects, and links to web resources.

- More than 30 tear-out drawing worksheets are printed on uncoated paper for easy sketching.

FEATURES

- Unique Visualization Chapter assists the student in understanding the concepts and importance of visualization and offers techniques for reading and visualizing engineering drawings.
- Photographs and computer screen shots in 4-color clearly illustrate the use of modern CAD tools in the real-world.
- Unique 3-D modeling chapter is devoted exclusively to the theory and practice of 3-D modeling.
- Step-by-step illustrated drawing technique examples clearly demonstrate how to create graphics and solve problems.
- Over 500 problems, cross-checked for accuracy, are included. Most end-of-chapter problems are parts or assemblies of modern devices and products.
- An online learning center (OLC) provides students with free access to interactive exercises, animations, self-grading quizzes, chapter summaries, case studies, a team 3-D project, and more. Instructors have secure access to the Solutions Manual, Instructor's Manual, presentation materials including an image bank, and additional exercises.
- CAD books are available in packages for those who wish to cover specific programs such as AutoCAD and Pro/E. Visit www.mhhe.com/ for information about CAD titles to be used with Fundamentals of Graphics Communication.

CONTENTS

1 Introduction to Graphics Communication. 2 Sketching and Text. 3 Engineering Geometry. 4 3-D Solid Modeling. 5 Multiviews and Visualization. 6 Auxiliary Views. 7 Pictorial Projections. 8 Section Views. 9 Dimensioning and Tolerancing Practices. 10 Working Drawings and Assemblies. 11 The Engineering Design Process. 12 Geometric Dimensioning and Tolerancing (GDT). Appendices. Glossary. Index. Workbook Sheets.



INTRODUCTION TO SOLID MODELING USING SOLIDWORKS

Second Edition

by Ed William Howard, Milwaukee School of Engineering, and Joe Musto, Milwaukee School of Engineering

2007 / 352 pages / Softcover

ISBN-13: 978-0-07-331042-8 / MHID: 0-07-331042-5

ISBN-13: 978-0-07-124956-0 / MHID: 0-07-124956-7 [IE]

Browse <http://www.mhhe.com/howard>

Geared toward an introductory course in solid modeling, Introduction to Solid Modeling Using SolidWorks by Edward Howard and Joseph Musto, both of the Milwaukee School of Engineering, teaches solid modeling using SolidWorks 2004. The text presents solid modeling not just as a communication tool, but as an integral part of the design process. To this end the book explores design intent, the use of solid models in engineering analysis, and introduces techniques from manufacturing such as mold design and sheet metal patterning. Howard and Musto's provide a student-friendly presentation filled with easy-to-use tutorials. Their approach is also designed to help students understand how engineering is used in the real world. For instance, modeling exercises are largely centered on examples drawn from industrial applications. As well, "Future Study" boxes introduce students to different topics they will study in their engineering programs.

FEATURES

- Solid Modeling is treated not just as a communication tool, but as an integrated part of the design process.
- Explores the idea of "design intent," and the challenges involved in embedding design constraints within a solid model.
- Exposes students to the use of solid models in engineering analysis; the ability of solid modeling software to perform vector operations, kinematic analysis, animation, interference detection, and

mass property computation will be explored.

- Gives students an introduction to techniques from manufacturing; mold design, sheet metal patterning, and stereolithography representations will be introduced.
- Modeling exercises are largely centered on examples drawn from industrial applications; most exercises and problems feature mechanical and structural components (flanges, fasteners, I-beams, springs, etc.), rather than the “widgets” found in many introductory engineering graphics texts.
- “Future Study” boxes are used to direct students to the topical areas they will be exploring in typical engineering programs, and how those topics relate to the examples and exercises found in the text.

CONTENTS

1 Basic Part Modeling Techniques. 2 Engineering Drawings. 3 Additional Part Modeling Techniques. 4 Use of Parametric Modeling Techniques. 5 Advanced Concepts in Part Modeling. 6 Building Assembly Models from Part Models. 7 Advanced Assembly Operations. 8 Creating Assembly Drawings. 9 Using SolidWorks for the Generation of 2-D Layouts. 10 Application of SolidWorks to Vector Mechanics. 11 Using SolidWorks in the Design and Analysis of Mechanisms. 12 The Use of SolidWorks as a Tool for Manufacturing: Mold Design and Sheet Metal Parts. 13 The Use of SolidWorks to Accelerate the Product Development Cycle.



PRO/ENGINEER WILDFIRE 3.0 INSTRUCTOR

Third Edition

by David S. Kelley, Central Michigan University

2007 (June 2006) / Softcover / 576 pages

ISBN-13: 978-0-07-340245-1 / MHID: 0-07-340245-1

Browse <http://www.mhhe.com/kelley>

This revision of Kelley's Pro/ENGINEER features the many user-friendly enhancements of the new version of Pro/ENGINEER Wildfire 3.0, while continuing with the strong pedagogical framework and tutorials that have made the previous editions so successful. The text is designed to serve as a tutorial, reference, and lecture guide, and is appropriate as a course text or self-paced independent study guide. Chapters start by covering selected topics in moderate detail, followed by one or more tutorials covering the chapter's objectives and topics. At the end of each chapter, practice problems are used to reinforce concepts covered in the chapter and previously in the book. An accompanying website features solutions for instructors as well as ancillary materials for reading and download.

NEW TO THIS EDITION

- The text details the new features of Pro/ENGINEER Wildfire 3.0 including the addition of the chamfar tool, axial pattern option, and a Drawing View dialog box for the creation of views.

FEATURES

- Each chapter begins with a reference portion designed to provide a step-by-step guide for performing specific Pro/ENGINEER modeling tasks outside of a tutorial environment.
- Numbered tutorials follow the reference sections to help users navigate this procedure-intensive computer-aided design application.
- Modeling Point Boxes are shaded boxes used throughout the text to highlight specific modeling strategies.
- The book's modular organization allows flexibility in course structure.
- Object files (part, assembly, drawing) are available for download from the book's website. Instructors will also have access to solutions to end-of-chapter problems and additional problems.

CONTENTS

1 Introduction to Parametric Design. 2 Pro/ENGINEER's User Interface. 3 Constraint-Based Sketching. 4 Extruding, Modifying, and Redefining Features. 5 Feature Construction Tools. 6 Revolved Features. 7 Feature Manipulation Tools. 8 Creating a Pro/ENGINEER Drawing. 9 Sections and Advanced Drawing Views. 10 Swept and Blended Features. 11 Advanced Modeling Techniques. 12 Assembly Modeling. 13 Surface Modeling. Appendix A Supplemental Files. Appendix B Configuration File Options.



PRO ENGINEER-WILDFIRE INSTRUCTOR

Fourth Edition

by David S. Kelley, Central Michigan University

2008 (June 2007) / Softcover / 768 pages

ISBN-13: 978-0-07-352266-1 / 07-352266-X

The text details the new features of Pro/ENGINEER Wildfire 3.0 including the addition of the chamfar tool, axial pattern option, and a Drawing View dialog box for the creation of views. The text is designed to serve as a tutorial, reference, and lecture guide, and is appropriate as a course text or self-paced independent study guide. Chapters start by covering selected topics in moderate detail, followed by one or more tutorials covering the chapter's objectives and topics. At the end of each chapter, practice problems are used to reinforce concepts covered in the chapter and previously in the book. An accompanying website features solutions for instructors as well as ancillary materials for reading and download.

NEW TO THIS EDITION

- The text details the new features of Pro/ENGINEER Wildfire 3.0 including the addition of the chamfar tool, axial pattern option, and a Drawing View dialog box for the creation of views..

FEATURES

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CONTENTS

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INTRODUCTION TO GRAPHICS

COMMUNICATIONS FOR ENGINEERS (B.E.S.T.

SERIES)

Third Edition

by Gary Robert Bertoline, Purdue University - West Lafayette

2006 / 256 pages / Softcover

ISBN-13: 978-0-07-304836-9 / MHID: 0-07-304836-4 (with OLC)

ISBN-13: 978-0-07-331273-6 / MHID: 0-07-331273-8

(with Autodesk Inventor Software 06-07)

Information about the series. Links to contact Primis as well as reviewers/author forms. (Browse <http://www.mhhe.com/engcs/general/best>)

Introduction to Graphics Communication for Engineers is a short introductory technical drawing text intended for use in technical drawing or drafting courses at two and four year schools or other technology programs. Powerful computers and CAD software are of little use to engineers who do not fully understand the fundamentals of graphics communication principles and 3-D modeling strategies, or do not possess a level of visualization ability. Because of this, Bertoline concentrates on the concepts and skills necessary to sketch and create 2-D drawings and 3-D CAD models in this text. New to the third edition are “Design in Industry Boxes” that

cover an aspect of design as practiced in industry. Quotes and interesting stories from practicing engineers make the boxes motivating and informative for students. Also new are practice sketching problems included throughout each chapter, which allow students a chance to practice what they are learning. This book is part of the B.E.S.T. (Basic Engineering Series and Tools), which consists of modularized textbooks offering virtually every topic and specialty likely to be of interest to engineers.

NEW TO THIS EDITION

- New "Design in Industry" boxes have been added to the fourth edition. Each of these boxes cover some aspect of design as practiced in industry. Students will learn how design is done in the real world from these interesting stories presented by practicing engineers and technologists.
 - New to this edition are practice problems located throughout each chapter. This new feature gives students drawing practice as they learn new concepts. Through immediate hands-on practice, students can more readily grasp chapter material.
 - New end-of-chapter sketching problems have been added, reinforcing what students have learned in the chapter.
- Features
- Pedagogically sound, this book provides a list of objectives at the beginning of each chapter, step-by-step instructions on how to draw, and a wide assortment of problems that can be assigned to reinforce topics covered.
 - Sketching worksheets are integrated into the end of each chapter. These worksheets are excellent for sketching assignments, used to augment CAD work.
 - As part of the McGraw-Hill B.E.S.T. (Basic Engineering Series and Tools), this book can be customized on-line and combined with other BEST titles to be sold to students either in an electronic form or traditional book form.

CONTENTS

Chapter 1 Introduction to Graphics Communication. **Chapter 2** Sketching and Text. **Chapter 3** Section and Auxiliary Views. **Chapter 4** Dimensioning and Tolerancing Practices. **Chapter 5** Reading and Constructing Working Drawings. **Chapter 6** Design and 3-D Modeling

International Edition

THE COMPLETE TECHNICAL ILLUSTRATOR

by Jon M. Duff and Greg Maxson

2004 / 656 pages

ISBN-13: 978-0-07-292229-5 / MHID: 0-07-292229-X

(with Bind-In Card)

ISBN-13: 978-0-07-121652-4 / MHID: 0-07-121652-9 [IE]

The website contains all art files from the text and links to useful internet resources. (Browse <http://highered.mcgraw-hill.com/sites/0072529962>)

The Complete Technical Illustrator offers comprehensive access to information on every aspect of technical illustration using the most popular software packages. It is appropriate for students of engineering and computer graphics as well as professional technical illustrators. The authors present strategies and procedures for applying knowledge about geometry, assemblies, materials, and processes to communicate technical information. The result is that, in a single volume, the reader has an authoritative guide to the study, learning, and practice of presenting technical information in a visual form. A CD-ROM accompanies the text and provides users with: a productivity tool called "AxonHelper," designed by Jon Duff to simplify many of the calculations necessary to make accurate Axonometric constructions; examples of the most popular illustration tools; a web browser-driven technical illustration course; examples of textures and materials from Greg Maxson's studio; and a gallery of professional illustrations.

CONTENTS

I Digital Reproduction of Technical Illustration: 1 Overview of Computer Graphics and Technical Illustration. 2 Technical Illustration Reproduction and Workflow. **II Technical Illustration Layout and Construction:** 3 Orthogonal Layout. 4 Axonometric Views. 5 Axonometric Circles. 6 Axonometric Scale

Construction. 7 Axonometric Projection. 8 Axonometric Shearing. 9 Perspective Techniques. **III Technical Illustration Rendering:** 10 Line Rendering. 11 Photo Tracing. 12 Emphasis with Color. 13 Color Rendering. 14 Postscript Materials. 15 Text and Technical Illustrations. **IV Modeling, Animation, and Technical Illustration:** 16 Turning Engineering Drawings into 3D Illustrations. 17 Using CADD Data in Illustrations. 18 Modeling for Illustration. 19 Raster Materials. 20 Animation and Technical Illustration. Appendixes. Glossary. Index

International Edition

TECHNICAL GRAPHICS COMMUNICATION

Third Edition

by Gary Robert Bertoline, Purdue University, West Lafayette, and Eric N. Wiebe, North Carolina State University, Raleigh

2003 / 1,184 pages

ISBN-13: 978-0-07-365598-7 / MHID: 0-07-365598-8

ISBN-13: 978-0-07-119925-4 / MHID: 0-07-119925-X [IE]

CONTENTS

1 Visual Science For Technical Graphics 1 Introduction to Graphics Communications 2 The Engineering Design Process 3 Technical Drawing Tools 4 Sketching and Text 5 Visualization for Design 2 Fundamentals of Technical Graphics 6 Engineering Geometry and Construction 7 Three-Dimensional Modeling 8 Multiview Drawings 9 Axonometric and Oblique Drawings 10 Perspective Drawings 11 Auxiliary Views 3 Descriptive Geometry 12 Fundamentals of Descriptive Geometry 13 Intersections and Developments 4 Standard Technical Graphics Practices 14 Section Views 15 Dimensioning and Tolerancing Practices 16 Geometric Dimensioning and Tolerancing Basics 17 Fastening Devices and Methods 18 Integrated Production, Automation and Manufacturing Processes, and the Role of Technical Graphics 19 Working Drawings Supplement: Design Problems. 5 Technical Graphics in Industry 20 Design in Industry 21 Technical Data Presentation 22 Mechanisms: Gears, Cams, Bearings, and Linkages 23 Electronic Drawings 24 Piping Drawings 25 Welding Drawings

International Edition

ENGINEERING DRAWING

Sixth Edition

by Albert Boundy

2001 / 350 pages

ISBN-13: 978-0-07-471043-2 / MHID: 0-07-471043-5

(with Sketchbook)

ISBN-13: 978-0-07-124261-5 / MHID: 0-07-124261-9

[IE with Sketchbook]

(McGraw-Hill Australia Title)

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Preface. Chapter 1 Introductory and Standards Information. Chapter 2 Geometrical Constructions. Chapter 3 Orthogonal Projections. Chapter 4 Descriptive Geometry: Auxiliary Views. Chapter 5 Pictorial Drawing: Isometric and Oblique Parallel Projection. Chapter 6 Working Drawings: Detail and Assembly Drawing. Chapter 7 Drawing Analysis. Chapter 8 Intersections and Development of Surfaces. Appendix One: Structural Steel Sections. Appendix Two: Reinforced Concrete. Index

AutoCad



AUTOCAD 2008 INSTRUCTOR

Fourth Edition

by James A. Leach, University Of Louisville-Louisville

2008 (June 2007) / Softcover / 1472 pages

ISBN-13: 978-0-07-352265-4 / MHID: 0-07-352265-1

AutoCAD 2008 Instructor covers all features and capabilities of AutoCAD. The text is command-oriented so chapters are centered around groups of related commands, making the text very effective as a reference. The chapters are structured in a practical pedagogical sequence beginning with instruction in general procedures for using the computer interface, setting up and creating drawings, and then progressing to advanced features such as dimensioning, special drawing applications and AutoCAD features, three-dimensional modeling and rendering, and software customization.

FEATURES

- Complete Coverage. The full range of AutoCAD commands, concepts, and features is explained. The author's simple writing style enables students to grasp concepts easily. Fundamental concepts are discussed first, then more advanced and specialized features.
- Outstanding Visuals and Page Layout. Over 1900 figures are to support the concepts, commands, and procedures. The finely tuned page layout makes the text easy to read and aids comprehension.
- Easy Update from AutoCAD 2005 and 2006. All new features and commands are easily identified by a unique bar in the margin.
- Special "Tips". The "TIP" indicator identifies important professional tips otherwise discovered only after much experience.
- Instructive Command Tables. Command tables throughout the text indicate how each command can be invoked, including icon buttons, command aliases, shortcut menus, shortcut keys, and more.
- Multi-Chapter "Reuse" Exercises. Exercises used in multiple chapters are denoted with a "REUSE" (diskette) icon. Using exercises through multiple chapters maximizes the student's efforts, creates connections between concepts, and supports the pedagogical progression throughout the text.
- Valuable Reference Guide. Numerous "tabbed" pages indicate important reference material, such as a table of AutoCAD commands, a table of system variables, a table for setting limits, a complete index of commands, options, and concepts, and many other tables and lists.
- Supplemental Material at www.mhhe.com/leach. Dedicated website provides three additional chapters (Customize User Interface, CAD Management, and Express Tools), 1100 test/review questions, 400 additional drawing exercises for architectural, mechanical, and civil/electrical engineering applications, instructor's solutions manual, and additional information.

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1 Getting Started. 2 Working with Files. 3 Draw Command Concepts. 4 Selection Sets. 5 Helpful Commands. 6 Basic Drawing Setup. 7 Object Snap and Object Snap Tracking. 8 Draw Commands I. 9 Modify Commands I. 10 Viewing Commands. 11 Layers and Object Properties. 12 Advanced Drawing Setup. 13 Layouts and Viewports. 14 Printing and Plotting. 15 Draw Commands II. 16 Modify Commands II. 17 Inquiry Commands. 18 Creating and Editing Text. 19 Internet Tools. 20 Advanced Selection Sets. 21 Blocks, DesignCenter, and Tool Palettes. 22 Block Attributes. 23 Grip Editing. 24 Multiview Drawing. 25 Pictorial Drawings. 26 Section Views. 27 Auxiliary Views. 28 Dimensioning. 29 Dimension Styles and Dimension Variables. 30 XReferences. 31 Object Linking and Embedding (OLE). 32 Raster Images And Vector Files. 33 Advanced Layouts and Plotting. 34 3D Modeling Basics. 35 3D Display and Viewing. 36 User Coordinate Systems. 37 Wireframe Modeling. 38 Solid Modeling Construction. 39 Advanced Solids Features. 40 Surface Modeling. 41 Rendering. 42 Creating 2D Drawings From 3D Models. 43 Miscellaneous Commands and Features. 44 Basic Customization. 45 Menu Customization [Web-only chapter]. 46 CAD Management [Web-only chapter]. 47 Express Tools and Batch Plotting [Web-only chapter]. Appendix A System Variables. Appendix B Command Alias List Sorted by Command. Appendix C Command Alias List Sorted by Alias. Appendix D Buttons and Special Keys. Appendix E Command Table Index.



AUTOCAD 2006 COMPANION

by James A Leach, University of Louisville

2007 / 768 pages / Softcover

ISBN-13: 978-0-07-340247-5 / MHID: 0-07-340247-8

<http://www.mhhe.com/leach>

AutoCAD 2006 Companion is designed to teach AutoCAD 2006 in a one-semester course through its coverage of solid modeling and 2-D design and drafting essentials. AutoCAD 2006 Companion can be used on its own or as a companion to other graphics books, such as Fundamentals of Graphics Communication or Technical Graphics Communication by Bertoline and Wiebe. Its engineering, architecture, design, construction, and manufacturing examples makes this textbook suitable for a wide range of students. Developed from teaching techniques used in an authorized AutoCAD Training Center and through instruction at engineering colleges, AutoCAD 2006 Companion is command-oriented with chapters centered on groups of related commands. This feature makes the text very effective as a reference tool. The chapters are structured in a practical and pedagogical sequence beginning with instruction in general procedures for using the user interface, setting up and creating drawings, and progressing to advanced features such as dimensioning, special drawing applications and AutoCAD features, and solid modeling construction and editing.

NEW TO THIS EDITION

- The text is comprised of 30 chapters, 1200 figures, and 700 pages.
- All new AutoCAD 2005 and 2006 features and commands are easily identified by unique "2005" and "2006" vertical bars in the margin.
- Exercises used in multiple chapters are denoted with a "REUSE" (diskette) icon. Using exercises through multiple chapters maximizes student's efforts, creates connections between concepts, and supports the pedagogical progression throughout the text.
- The website features an instructor's solutions manual, true/false, multiple choice, and essay practice quizzes for students, as well as important terms, commands, and options (with page references) for each chapter, and an image library.

FEATURES

- Over 1500 illustrations are used to support the concepts, commands, and procedures in the text. The finely tuned page layout makes the text easy to read and aids comprehension.
- The "TIP" indicator identifies important professional tips otherwise discovered only after much experience.
- Numerous "tabbed" pages indicate important reference material, such as the Command Table Index, Shortcut Keys, Dimension Variables, Tables of Limits Settings, Template Drawings, and more.
- Command Tables throughout the text indicate how each command can be invoked, complete with icon buttons, command aliases, shortcut menus, and shortcut keys.

CONTENTS

1 Getting Started. 2 Working with Files. 3 Draw Command Concepts. 4 Selection Sets. 5 Helpful Commands. 6 Basic Drawing Setup. 7 Object Snap and Object Snap Tracking. 8 Draw Commands I. 9 Modify Commands I. 10 Viewing Commands. 11 Layers and Object Properties. 12 Advanced Drawing Setup. 13 Layouts and Viewports. 14 Printing and Plotting. 15 Draw Commands II. 16 Modify Commands II. 17 Inquiry Commands. 18 Text. 19 Grip Editing. 20 Blocks, DesignCenter, and Tool Palettes. 21 Multiview Drawing. 22 Pictorial Drawings. 23 Section Views. 24 Auxiliary Views. 25 Dimensioning. 26 Dimension Styles and Dimension Variables. 27 3D Basics, Display, and Viewing. 28 User Coordinate Systems. 29 Solid Modeling Construction. 30 Advanced Solids Features. Appendix A AutoCAD Command Alias List Sorted by Command. Appendix B Buttons and Special Keys.



AUTOCAD 2007 INSTRUCTOR WITH AUTODESK INVENTOR SOFTWARE 06-07

Third Edition

by James A Leach, University of Louisville

2007 (July 2006) / 1472 pages / Softcover

ISBN-13: 978-0-07-331274-3 / MHID: 0-07-331274-6

<http://www.mhhe.com/leach>

AutoCAD 2006 Instructor is intended for instructor-lead instruction and self-instruction in AutoCAD software. AutoCAD is the market leader for all CAD software and is used by nearly two million students and professionals in architecture, engineering, construction, and design. AutoCAD 2006 Instructor makes it easy to upgrade from previous versions of AutoCAD by the use of a 2006 bar in the margin that highlights the new features. Developed from teaching techniques used in an authorized AutoCAD Training Center and in instruction for engineering colleges, AutoCAD 2006 Instructor covers all features and capabilities of AutoCAD. The text is command-oriented so chapters are centered around groups of related commands. This feature makes the text very effective as a reference text. The chapters are structured in a practical/pedagogical sequence beginning with instruction in general procedures for using the computer interface, setting up and creating drawings, and then progressing to advanced features such as dimensioning, special drawing applications and AutoCAD features, three-dimensional modeling and rendering, and software customization.

FEATURES

1. Complete coverage of AutoCAD 2006, 44 Chapters, 1600 figures, 1400 pages. 2. Pedagogical progression, command-oriented, chapters progress from simple to complex and from concept to details. 3. Excellent reference text including: 24-page Index, Table of Command Access, Tables of Limit Settings, Tables of Template Drawings, Dimension Variables Table, System Variables Table, Command Alias Tables, and more. 4. Chapter Objectives, Step-by-step Chapter Exercises, Practice Tables, Professional Tips, AutoCAD 2005 and 2006 update indicators. 5. Ancillary material available on Website including: Chapter Tests (25 T/F, M/C, Fill-in questions), Additional Chapter Exercise sets for Architectural, Civil, and Mechanical applications, Additional Advanced Chapters, Solutions Manual. What is New? 1. New Textbook Design: new fonts, headers, chapter openers, Tip icons, 2005 and 2006 bars, new indicators for multi-chapter exercises. 2. Many new and enhanced commands are fully explained such as, Copy, Stretch, Rotate, Scale, Chamfer, Fillet, Offset, Trim, Extend, Rectangle, Join, Mline, Mtext, Scalelistedit, Eatttext, Hatch, Dimarc, Dimjogged, Osnapz, Toolbars, Layer, Vpmin, Vpmax, Table, Field, Publish, Revcloud and more. 3. Coverage of Dynamic Input. This new feature in AutoCAD (specify a point by a distance dimension and angular dimension) is fully explained with examples and applications, and is applied throughout the book. 4. Coverage of Dynamic Blocks. The new book explains how to create Blocks in AutoCAD that can be edited directly in the drawing by key grips that allow you to stretch, rotate, scale, array, flip, etc. specific parts of the block geometry based on specific parameters. 5. New Chapter on Sheet Sets. The new book explains how to combine multiple .DWG files into one complete set of drawings for a specific project. Instructions on how to control sheet numbers, lists, title blocks, references, and plotting globally for the set rather than for each sheet individually. McGraw-Hill is proud to be one of the first and few publishers to have a text on AutoCAD 2006.

NEW TO THIS EDITION

- Command Tables throughout the book indicate how every command can be invoked, including icon buttons, command aliases, shortcut menus, pull-down menus, etc.
- AutoCAD 2004 Instructor is organized as a reference guide, with material easily located on the numerous "tabbed" pages and tables, command table index, organization by command, 2004 bars, and a thorough index.
- Over 1500 illustrations are used to support the concepts and commands in the text.
- Discussion of Tool Palette use and customization in chapter 21.

2004 bar to highlight new AutoCAD 2004 features.

- Approximately 800 new screen captures.
- Online chapter on Express Tools.
- Discussion of password protection and digital signatures for drawing files and Shadeplot for printing shaded or rendered drawings.
- Learn how to set up Communication Center to automatically receive software updates and information from Autodesk.
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AUTOCAD 2006 INSTRUCTOR

Second Edition

by James A. Leach, University of Louisville -Louisville

2006 / Softcover / 1456 pgs

ISBN-13: 978-0-07-352261-6 / MHID: 0-07-352261-9

<http://www.mhhe.com/leach>

This website contains book information, ancillary chapter exercises, sample pages and password protected solutions manual. AutoCAD 2006 Instructor is intended for instructor-lead instruction and self-instruction in AutoCAD software.

AutoCAD is the market leader for all CAD software and is used by nearly two million students and professionals in architecture, engineering, construction, and design. AutoCAD 2006 Instructor makes it easy to upgrade from previous versions of AutoCAD by the use of a 2006 bar in the margin that highlights the new features. Developed from teaching techniques used in an authorized AutoCAD Training Center and in instruction for engineering colleges, AutoCAD 2006 Instructor covers all features and capabilities of AutoCAD. The text is command-oriented so chapters are centered on groups of related commands. This feature makes the text very effective as a reference text. The chapters are structured in a practical/pedagogical sequence beginning with instruction in general procedures for using the computer interface, setting up and creating drawings, and then progressing to advanced features such as dimensioning, special drawing applications and AutoCAD features, three-dimensional modeling and rendering, and software customization.

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Exercises, Practice Tables, Professional Tips, AutoCAD 2005 and 2006 update indicators. 5. Ancillary material available on Website including: Chapter Tests (25 T/F, M/C, Fill-in questions), Additional Chapter Exercise sets for Architectural, Civil, and Mechanical applications, Additional Advanced Chapters, Solutions Manual. What is New? 1. New Textbook Design: new fonts, headers, chapter openers, Tip icons, 2005 and 2006 bars, new indicators for multi-chapter exercises. 2. Many new and enhanced commands are fully explained such as, Copy, Stretch, Rotate, Scale, Chamfer, Fillet, Offset, Trim, Extend, Rectangle, Join, Mline, Mtext, Scalelitedit, Eattext, Hatch, Dimarc, Dimjogged, Osnapz, Toolbars, Layer, Vpmin, Vpmax, Table, Field, Publish, Revcloud and more. 3. Coverage of Dynamic Input. This new feature in AutoCAD (specify a point by a distance dimension and angular dimension) is fully explained with examples and applications, and is applied throughout the book. 4. Coverage of Dynamic Blocks. The new book explains how to create Blocks in AutoCAD that can be edited directly in the drawing by key grips that allow you to stretch, rotate, scale, array, flip, etc. specific parts of the block geometry based on specific parameters. 5. New Chapter on Sheet Sets. The new book explains how to combine multiple .DWG files into one complete set of drawings for a specific project. Instructions on how to control sheet numbers, lists, title blocks, references, and plotting globally for the set rather than for each sheet individually. McGraw-Hill is proud to be one of the first and few publishers to have a text on AutoCAD 2006.

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- 2004 bar to highlight new AutoCAD 2004 features.
- Approximately 800 new screens capture.
- Online chapter on Express Tools.
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AUTOCAD 2004 COMPANION

by James A Leach, University of Louisville—Louisville
2005

ISBN-13: 978-0-07-301604-7 / MHID: 0-07-301604-7
(with Bind-In Engg Sub Card)

ISBN-13: 978-0-07-319896-5 / MHID: 0-07-319896-X
(with AutoCAD 2005 Update)

AutoCAD 2004 Companion provides material typically covered in a one-semester AutoCAD course. It covers the essentials of 2D design and drafting as well as solid modeling. AutoCAD 2004 Companion can be used as a stand-alone AutoCAD text or with other discipline-specific graphics texts such as Bertoline's Technical Graphics Communication or Fundamentals of Graphics Communication. AutoCAD is the market leader for all CAD software and is used by nearly two million students and professionals in architecture, engineering, construction, and design. AutoCAD 2004 Companion makes it easy to upgrade from previous versions of AutoCAD by the use of a 2004 bar in the margin that highlights the new features. Developed from teaching techniques used in an authorized AutoCAD Training Center and in instruction for engineering colleges, AutoCAD 2004 Companion covers all features and capabilities of AutoCAD. The text is command-oriented so chapters are centered around groups of related commands. This feature makes the text very effective as a reference text. The chapters are structured in a practical/pedagogical sequence beginning with instruction in general procedures for using the computer interface, setting up and creating drawings, and then progressing to advanced features such as dimensioning, special drawing applications and AutoCAD features, three-dimensional modeling and rendering, and software customization. McGraw-Hill is proud to be one of the first and few publishers to have a text on AutoCAD 2004.

FEATURES

- About 500 new screen captures are included to illustrate the new look of AutoCAD 2004 and the Microsoft XP operating system.
- Discussion of Tool Palette use and customization, Qnew, and Shadeplot
- Covers password protection for drawing files and Shadeplot for printing shaded or rendered drawings.
- Details editing with the new, simpler Grips
- New AutoCAD 2004 features are highlighted with a 2004 bar.
- Website includes glossary, quizzes, password protected solutions manual, and more

CONTENTS

Introduction. 1. Getting Started. 2. Working With Files. 3. Draw Command Concepts. 4. Selection Sets. 5. Helpful Commands. 6. Basic Drawing Setup. 7. Object Snap And Object Snap Tracking. 8. Draw Commands I. 9. Modify Commands I. 10. Viewing Commands. 11. Layers And Object Properties. 12. Advanced Drawing Setup. 13. Layouts And Viewports. 14. Printing And Plotting. 15. Draw Commands II. 16. Modify Commands II. 17. Inquiry Commands. 18. Creating And Editing Text. 19. Internet Tools. 20. Blocks, Designcenter, And Tool Palettes. 21. Grip Editing. 22. Multiview Drawing. 23. Pictorial Drawings. 24. Section Views. 25. Auxiliary Views. 26. Dimensioning. 27. Dimension Styles And Variables. 28. 3D Modeling Basics. 29. 3D Display And Viewing. 30. User Coordinate Systems. 31. Solid Modeling Construction. 32. Advanced Solids Features. Appendices. Index

PROJECT-BASED AUTOCAD

by Glencoe/McGraw-Hill

2004

ISBN-13: 978-0-07-828732-9 / MHID: 0-07-828732-4

(A Glencoe/McGraw-Hill Title)

Project-Based AutoCAD is designed for students who want a more sophisticated, industry-based experience with design/drafting projects. It assumes knowledge of basic drafting principles and a limited knowledge of AutoCAD. Students will work their way through four in-depth projects, each focusing on a different aspect of real-world CAD.

CONTENTS

Project 1: Hydroelectric Turbine Nozzle Assembly. Two-dimensional working drawings for the manufacture of a nozzle Assembly. **Project 2:** Structural Field Assembly of Tire Converter A look at the drafter's role in documenting a prototype in the field. **Project 3:** 3D CAD/CAM: Compensator Swivel Bracket Preparation of AutoCAD files for use with computer-aided Machinery. **Project 4:** Mechanical Shaft Assembly. A concept project that illustrates the various factors the designer/drafter must consider when designing a mechanical assembly.

CAD Manuals



INTRODUCTION TO SOLID MODELING USING SOLIDWORKS

Third Edition

By William E. Howard, East Carolina University, and Joseph Musto, Milwaukee School Of Engineering

2008 (June 2007) / Softcover / 352 pages

ISBN-13: 978-0-07-337532-8 / MHID: 0-07-337532-2

The text presents solid modeling not just as a communication tool, but as an integral part of the design process. To this end the book explores design intent, the use of solid models in engineering analysis, and introduces techniques from manufacturing such as mold design and sheet metal patterning. Howard and Musto provide a student-friendly presentation filled with easy-to-use tutorials. Their approach is also designed to help students understand how engineering is used in the real world. For instance, modeling exercises are largely centered on examples drawn from industrial applications. As well, "Future Study" boxes introduce students to different topics they will study in their engineering programs.

NEW TO THIS EDITION

- The text has been updated to reflect the new features of SolidWorks.
- Newly updated and enhanced "Future Study" boxes are used to direct students to the topical areas they will be exploring in typical engineering programs, and how those topics relate to the examples and exercises found in the text.
- Explores the idea of "design intent" through boxed sidebars updated for the new edition, as well as the challenges involved in embedding design constraints within a solid model.
- A four-color Guide to SolidWorks Tutorials has been added to the inside front cover for easy reference.
- Chapter Objectives have been expanded and enhanced to better introduce chapter concepts.
- A new interior design renders the text more user-friendly and visually appealing.

FEATURES

- Gives students an introduction to techniques from manufacturing; mold design, sheet metal patterning, and stereolithography representations will be introduced.
- Solid Modeling is treated not just as a communication tool, but as an integrated part of the design process.
- Exposes students to the use of solid models in engineering

analysis; the ability of solid modeling software to perform vector operations, kinematic analysis, animation, interference detection, and mass property computation will be explored.

- Modeling exercises are largely centered on examples drawn from industrial applications; most exercises and problems feature mechanical and structural components (flanges, fasteners, I-beams, springs, etc.), rather than the "widgets" found in many introductory engineering graphics texts.
- Additional resources are available on the website. Including on the website are tutorials for two popular SolidWorks Add-Ins, COSMOSMotion and PhotoWorks, and the book figures in PowerPoint format. Instructors can also access model files for all tutorials and problems.

CONTENTS

PART ONE Learning SolidWorks. 1 Basic Part Modeling Techniques. 2 Engineering Drawings. 3 Additional Part Modeling Techniques. 4 Use of Parametric Modeling Techniques. 5 Advanced Concepts in Part Modeling. 6 Building Assembly Models from Part Models. 7 Advanced Assembly Operations. 8 Creating Assembly Drawings. PART TWO Applications of SolidWorks. 9 Using SolidWorks for the Generation of 2-D Layouts. 10 Application of SolidWorks to Vector Mechanics. 11 Using SolidWorks in the Design and Analysis of Mechanisms. 12 The Use of SolidWorks as a Tool for Manufacturing: Mold Design and Sheet Metal Parts. 13 The Use of SolidWorks to Accelerate the Product Development Cycle.



PRO ENGINEER-WILDFIRE INSTRUCTOR

Fourth Edition

by David S. Kelley, Central Michigan University

2008 (June 2007) / Softcover / 768 pages

ISBN-13: 978-0-07-352266-1 / 07-352266-X

The text details the new features of Pro/ENGINEER Wildfire 3.0 including the addition of the chamfar tool, axial pattern option, and a Drawing View dialog box for the creation of views. The text is designed to serve as a tutorial, reference, and lecture guide, and is appropriate as a course text or self-paced independent study guide. Chapters start by covering selected topics in moderate detail, followed by one or more tutorials covering the chapter's objectives and topics. At the end of each chapter, practice problems are used to reinforce concepts covered in the chapter and previously in the book. An accompanying website features solutions for instructors as well as ancillary materials for reading and download.

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FEATURES

- Each chapter begins with a reference portion designed to provide a step-by-step guide for performing specific Pro/ENGINEER modeling tasks outside of a tutorial environment.
- Numbered tutorials follow the reference sections to help users navigate this procedure-intensive computer-aided design application.
- Modeling Point Boxes are shaded boxes used throughout the text to highlight specific modeling strategies.
- The book's modular organization allows flexibility in course structure.
- Object files (part, assembly, drawing) are available for download from the book's website. Instructors will also have access to solutions to end-of-chapter problems and additional problems.

CONTENTS

1 Introduction to Parametric Design. 2 Pro/ENGINEER's User Interface. 3 Constraint-Based Sketching. 4 Extruding, Modifying, and Redefining Features. 5 Feature Construction Tools. 6 Revolved Features. 7 Feature Manipulation Tools. 8 Creating a Pro/ENGINEER Drawing. 9 Sections and Advanced Drawing Views. 10 Swept and Blended Features. 11 Advanced Modeling Techniques. 12 Assembly Modeling. 13 Surface Modeling. Appendix A Supplemental Files. Appendix B Configuration File Options.



PRO/ENGINEER WILDFIRE 3.0 INSTRUCTOR

Third Edition

by David S. Kelley, Central Michigan University

2007 (June 2006) / Softcover / 576 pages

ISBN-13: 978-0-07-340245-1 / MHID: 0-07-340245-1

Browse <http://www.mhhe.com/kelley>

This revision of Kelley's Pro/ENGINEER features the many user-friendly enhancements of the new version of Pro/ENGINEER Wildfire 3.0, while continuing with the strong pedagogical framework and tutorials that have made the previous editions so successful. The text is designed to serve as a tutorial, reference, and lecture guide, and is appropriate as a course text or self-paced independent study guide. Chapters start by covering selected topics in moderate detail, followed by one or more tutorials covering the chapter's objectives and topics. At the end of each chapter, practice problems are used to reinforce concepts covered in the chapter and previously in the book. An accompanying website features solutions for instructors as well as ancillary materials for reading and download.

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AUTODESK INVENTOR

by James M. Leake, University of Illinois-Champaign

2004 / 350 pages

ISBN-13: 978-0-07-292237-0 / MHID: 0-07-292237-0

(with Bind-In Engg Sub Card)

This site contains tutorials, model files, powerpoints and solutions to chapter exercises. (Browse <http://www.mhhe.com/leake>)

Computer-Aided-Design has advanced rapidly. Originally developed to perform 2D manual drafting task, CAD software has developed into 3D surface and solid modeling. Autodesk Inventor is a prime example of this next generation CAD software. Autodesk Inventor is a tutorial based textbook intended to provide beginners with the most important aspects of Autodesk Inventor. Each chapter will contain an introduction as it relates to parametric modeling, tutorial and additional problems.

CONTENTS

1 Getting Started. 2 Sketching and the Base Feature. 3 Feature Creation. 4 Part Editing. 5 Advanced Part Modeling. 6 Part Documentation. 7 Assembly Modeling. 8 Presentation Files. Tutorials 1-20

INVITATION TO PUBLISH

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