Autodesk Inventor for Designers
Release 5

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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

Thanks

To the faculty and students of the MET department of
Purdue University Calumet for their cooperation

To Deepak Maini, Senior CADD Engineer, CADCIM Technologies
for his valuable help

Teaching Aids for Faculty

The following teaching aids are available to faculty:

1. All Part files (.ipt), Assembly files (.iam), Presentation files (.ipn), and Drawing files (.idw) used for tutorials and exercises in this book.

2. PowerPoint presentations for every chapter of the book.

3. Instructor's Guide with answers to review questions and solution to exercises.

4. Course outlines

5. Students projects

6. Free online technical support by contacting cadsoft@vsnl.com

To access the web site that contains these teaching aids, please contact the author, Prof. Sham Tickoo, at the following address:

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or
tickoo@cadcim.com

Engineering Services Offered by CADCIM Technologies

The following are the services offered by CADCIM Technologies:

Solid Modeling, MAX/VIZ

CADCIM Technologies specializes and undertakes the following solid modeling related projects:

- Conversion of 2D drawings to 3D solid/surface models using Mechanical desktop (MDT), Autodesk Inventor, Pro/ENGINEER, I-DEAS, CATIA, SolidWorks, and AutoCAD.
- Conversion of 3D models to 2D drawings.
- Generation of assembly models.
- Animation and rendering using 3D Studio VIZ/MAX.
- Animation of assemblies using Inventor and SolidWorks.

Training and Technical Documentation

CADCIM Technologies offer training on the following software packages:
• AutoCAD, • Mechanical Desktop (MDT), • Autodesk Inventor, • Pro/ENGINEER, and
• SolidWorks

CADCIM Technologies also offers services in developing technical documents, study/training materials, and brochures.

For more information, please visit www.cadcim.com

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Author's Web Sites

For Faculty: Please contact the author at **stickoo@calumet.purdue.edu** or **tickoo@cadcim.com** to access the web site that contain the PowerPoint presentations, solid models used in the text book, Instructor's Guide, and other related material.

For Students: You can download solid modeling exercises, tutorials, and special topics by accessing the author's web site at **www.cadcim.com**.

Preface

AUTODESK INVENTOR 5

Autodesk Inventor, developed by Autodesk Inc., is one of the world's fastest growing solid modeling softwares. It is a parametric feature-based solid modeling tool and it not only unites the 3D parametric features with 2D tools but also addresses every design-through-manufacturing process. The adaptive technology of this solid modeling tool allows you to handle an extremely large assembly with tremendous ease. Based mainly on the solid modeling users' feedback, this solid modeling tool is remarkably user-friendly and it allows you to be productive from the day one.

This solid modeling tool allows you to easily import the AutoCAD, the AutoCAD Mechanical, and the Mechanical Desktop files with an amazing compatibility. The parametric features and assembly parameters are retained when you import the Mechanical Desktop files in Autodesk Inventor.

The 2D drawing views of the components are automatically generated in the layouts. The drawing views that can be generated include detailed, orthographic, isometric, auxiliary, section, and so on. 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 bidirectional associative nature of this software ensures that any modification made in the model is automatically reflected in the drawing views and any modification made in the dimensions in drawing views automatically updates the model.

Autodesk Inventor for Designers is a book that is written with an intent of helping the people who are into 3D design. This book is written with the tutorial point of view with learn-by-doing as the theme. The mechanical engineering industry examples and tutorials are used in this book to ensure that the user can relate his knowledge of this book with the actual mechanical industry designs. The main features of the book are as follows:

- **Sheet Metal Mode.**

  This is one of the very few books that includes the complete coverage of the Sheet Metal mode of Autodesk Inventor. Fifty-six pages of heavily illustrated text on Sheet Metal mode has each and every tool of this mode discussed in detail.

- **Tutorial approach.**

  The author has adopted the tutorial point-of-view with learn-by-doing as the theme

throughout the book. This approach will guide the users through the process of creating the model in the tutorial.

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

- **Coverage of all Autodesk Inventor modules.**
  All the modules of Autodesk Inventor are covered in this book including the **Presentation** module for animating the assemblies and the **Sheet Metal** module for creating the sheet metal components.

- **Tips and Notes.**
  The additional information related to the topics is provided to the users in the form of tips and notes.

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

- **Tools section.**
  Every chapter begins with the tools section that provides the detailed explanation of the Autodesk Inventor tools.

- **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 author has given the answers of the Self-Evaluation Tests so that the users can compare their answers with the correct answers. The Review Questions and Exercises are also given at the end of each chapter and can be used by the Instructors as test questions and exercises in the classroom.

- **Heavily illustrated text.**
  The text in this book is heavily illustrated with the help of around 700 line diagrams and 500 photos that support the tools sections and tutorials.