



A Comprehensive Introduction to SolidWorks 2012

Godfrey Onwubolu

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This textbook is written to assist students in colleges and universities, designers, engineers and professionals interested in using SolidWorks for practical applications. This textbook was created specifically for both new and intermediate SolidWorks users and will guide students to becoming truly advanced level users.

The textbook is divided into three parts. Part I covers the introductory principles of SolidWorks: simple and advanced-part modeling, assembly modeling, drawing, configuration and design tables, and part modeling with equation driven curves. Part II covers the intermediate principles of SolidWorks: reverse engineering, top-down design, surface modeling, toolboxes and design libraries, animation, and rendering. Part III covers the practice of SolidWorks.

Newcomers to SolidWorks should begin with Part I of the textbook, while intermediate users may skip ahead to Part II. After completing the first two sections, Part III puts the principles learned in the first two sections into practice with specific industry-based examples. The organization of this textbook helps readers find their best path to becoming an advanced SolidWorks user.

The focus of this book is on the areas of manufacturing processes, mechanical systems, electro- mechanical systems, and engineering analysis. The sections on manufacturing processes include the design of molds, sheet metal parts, dies, and weldments. The sections on mechanical systems include aspects of routing such as piping and tubing, power transmission systems, and mechanism design. The section on engineering analysis covers finite element analysis, FEA. Also, the ANSI and ISO standards have been used in this textbook.

This textbook is written using a hands-on approach in which students can follow the steps described in each chapter to model parts, assemble parts, and produce drawings. They create applications on their own with little assistance from their instructors during each teaching session or in the computer laboratory.

This textbook has a significant number of pictorial descriptions of the steps that a student should follow. This approach makes it easy for users of the textbook to work on their own as they use the steps described as guides. Instructional support is also provided, including SolidWorks files for all models, drawings, applications, and answers to end-of-chapter questions.

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