

Computer Aided Virtual Manufacturing Using Creo Parametric

Paul Obiora Kanife

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Easy to Learn Step by Step Guide

Applicable to both Creo Parametric 2.0 & 3.0



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This book is dedicated to the greatest designer and manufacturer man has ever known. The giver of wisdom, knowledge and free will. The Omniscience, Omnipresence GOD, to whom I give all the glory. Also to my amazing mother, late Mrs. Monica Anayochukwu, Vincent Chidiebere and Dorothy Nnenna Kanife.

Preface

My drive for writing this tutorial book is based on the fact that during my M.Sc. programme in Advanced Manufacturing Systems Engineering at Brunel University London, I found that there were fewer tutorial/textbooks out there in the market that covered all areas of computer virtual manufacturing using the Creo Parametric software. Since this book focuses more on Computer Aided Manufacturing (CAM) and less on 3D Modelling using Creo Parametric 2.0 software formerly known as Pro Engineer, new users to this software will be introduced briefly to 3D modelling using a step-by-step guide to illustrate the process.

This book is aimed at undergraduate and master's level manufacturing engineering students and also mechanical engineering and design students who have CAD and CAM as an elective option. This book can also be used by technicians, technologists and engineers who want to learn CAM using the Creo Parametric software programme, which is a commercially available product and a registered trademark of PTC Inc. in the United States and other countries.

This book is written in such a way so as to make learning CAM using this software program fun and easy to follow and understand. The step-by-step guide illustrated in this tutorial will be better understood if you take time to read the text carefully, thinking and observing what happens. Therefore, just clicking through the command sequence without observing and paying attention to what happens is not enough. You will also learn more by exploring and experimenting with the different commands on your own.

The first tutorial chapter covers a brief introduction to Creo Parametric. Chapter 2 gives a brief introduction to 3D modelling, adding material to Part and the Engraving process. Face milling, Profile milling, Surface milling, and Volume Rough milling using Mill Volume and Window milling processes are covered in the subsequent chapters (Chaps. 3–7). Chapters 8 and 9 covers Expert Machinist and Electric Discharge Machining, which are 2½ and 2 axis machining processes respectively. Chapters 10–11 cover CNC Lathe Area Turning (2 axis machining process), drilling and boring. Five axis machining, drilling and tapping operations are covered in Chaps. 12–13.

In the practical manufacturing application/situation, it is highly advisable to consult the Machine Tool manual and other relevant books and tooling handbook manuals, if the user wants to use relevant formulas to calculate the cutting parameters, and to use the accurate Tool for each different operation. All dimensions of the Cutting Tools, Tooling Materials and the Cutting Parameters used in this tutorial are for illustration purposes only.

Any relevant suggestions/advice on how to improve subsequent editions of this book are highly welcome.

The 3D models of Parts used in this tutorial can be emailed to the user on request. All requests should be sent to the following email address: paul.kp123@yahoo.co.uk.

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