Preface

This book discusses some tools used by many engineering industries, especially in the automotive area. Methodologies such as DFMA (Design for manufacturability and assembly) ensure that the parts meet the requirements for manufacturability, combining conceptions that allows for a more easily assembly and lower costs. Under the environmental laws and consumers "green" engineers were again forced to use creativity and develop projects with emphasis on environmental preservation. Thus was born the DFX in more detail, the DFD (Design for Disassembly), the DFR (Design for recyclability) and DFE (Design for Environment). The integration of the area has become critical to the success of the project, resulting in compliance with the schedule, the intelligent use of human resources and financial gain speed over the competition. To make all these tools even more effective to adopt the scheme of Concurrent Engineering where the various areas involved in the development of the project merge and have the opportunity to influence the designers of engineering and product designers from the Studio. Managing the lifecycle of the product has become another focus of attention of companies. This is a more comprehensive view of the entire project development cycle where concern is to create an environment that enables integration between areas so that all information is delivered to the correct person in the right way at the right time.

The topics and ideas discussed on the chapters have been the main topic of research of the author. During the last thirty years the author has taught undergraduate and graduate courses at Polytechnic School of the University of Sao Paulo, Brazil, as well as a visiting professor at in foreign universities. Here some results and approaches developed together with his students are presented in the sense to stimulate and improve a more ecological conception of the engineering design and manufacturing activities trying to include aspects of quality and operation management into the simultaneous and concurrent engineering, joining materials, manufacturing, mechanical and production engineering formations.

Gliwice, in May 2012 Gilmar Ferreira Batalha