

Preface

Nowadays, it is the trend to report production engineering as a combination of manufacturing technology with applied management science. This book covers design of experiments (DoE) applied in production engineering. DoE is a statistical methodology used to establish statistical correlation between a set of input variables with a chosen outcome of the system/process. DoE is a systematic approach to investigation of a system/process. In general, DoE analysing and interpreting sets of experiments without incurring a too high cost or taking too much time.

The purpose of this book is to present a collection of examples illustrating DoE applied in production engineering. The first chapter is “[Screening \(Sieve\) Design of Experiments in Metal Cutting](#)”. The second chapter is “[Modelling and Optimisation of Machining with the Use of Statistical Methods and Soft Computing](#)”. The third chapter is “[Design of Experiments—Statistical and Artificial Intelligence Analysis for the Improvement of Machining Processes: A Review](#)”. The fourth chapter is “[A Systematic Approach to Design of Experiments in Waterjet Machining of High Performance Ceramics](#)”. The fifth chapter is “[Response Surface Modeling of Fractal Dimension in WEDM](#)”. The sixth chapter is “[Thrust Force and Torque Mathematical Models in Drilling of Al7075 Using the Response Surface Methodology](#)”. The seventh chapter is “[Design of Experiments in Titanium Metal Cutting Research](#)”. Finally, the eighth chapter is “[Parametric Optimization of Submerged Arc Welding Using Taguchi Method](#)”.

This book can be used as a research book for a final undergraduate engineering course or as a topic on DoE in production engineering at the postgraduate level. Also, this book can serve as a valuable reference for academics, engineers, researchers, professionals in production engineering and related subjects. The scientific interest in this book is obvious for many important centres of research and universities as well as industry. Therefore, it is expected that this book will motivate others to undertake research in DoE in production engineering.

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