



















*Methodology: Process and Product Optimization Using Designed Experiments* (3rd ed.).  
WILEY.

- Naves, F. L., de Paula, T. I., Balestrassi, P. P., Braga, W. L. M., Sawhney, R. S., & de Paiva, A. P. (2017). Multivariate Normal Boundary Intersection based on rotated factor scores: A multiobjective optimization method for methyl orange treatment. *Journal of Cleaner Production*, 143, 413–439. <https://doi.org/http://dx.doi.org/10.1016/j.jclepro.2016.12.092>
- Roy, R. K. (2001). *Design of Experiments Using The Taguchi Approach: 16 Steps to Product and Process Improvement*. John Wiley & Sons, Inc. London: Springer Series in Reliability Engineering.
- Ulrich, K. T., & Eppinger, S. D. (2008). *Product Design and Development* (4th ed.). Irwin: McGraw-Hill.
- Versteeg, H. K., & Malalasekera, W. (1995). *An introduction to computational fluid dynamics: The finite volume method*. New York (Harlow, Essex, England and Longman Scientific & Technical).
- Wang, L., & Sunden, B. (2002). Performance comparison of some tube inserts. *International Communications in Heat and Mass ...*, 29(I), 45–56. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0735193301003232>
- White, F. M. (1999). *Fluid mechanics*. WCB/McGraw-Hill.
- Yoshimura, M. (2010). *System Design Optimization for Product Manufacturing*. Springer-Verlag.

## Biography

**Julián I. López Arcos** is a Professor, in the Department of Industrial Engineering at Universidad de San Buenaventura, Cali, Colombia. He received his B.S. in Mechatronics Engineering at Universidad Autónoma de Occidente, Cali, Colombia. MS in Industrial Engineering from the Universidade Federal de Itajubá, Itajubá, Brazil. His research interests include product design process, design of experiments, simulation, optimization.

**Ramiro Gustavo Camacho** is a Professor in the School of Industrial and Mechanical Engineering at Federal University of Itajubá, Brazil. He received his BS in Mechanical Engineering at Universidade Federal do Pará, MS and PhD in Mechanical Engineering at Universidade Federal de Itajubá. His research interests include CFD, turbomachinery, simulation and optimization.

**Paulo Henrique da Silva Campos** is a Professor in the School of Industrial and Mechanical Engineering at Federal University of Itajubá, Brazil. He received his BS in Mechanical Manufacturing, MS and PhD in Industrial Engineering. His research interests include machining processes, applied statistics, design of experiments and optimization.

**Carlos Eduardo Sanches Da Silva** is an Associate Professor in the School of Industrial and Mechanical Engineering at Federal University of Itajubá, Brazil. He received his BS in Economics and Mechanical Manufacturing, MS in Industrial Engineering at Universidade Federal de Itajubá and PhD in Industrial Engineering at Universidade Federal de Santa Catarina. His research interests include project management and product development.

**Anderson Paulo de Paiva** is an Associate Professor in the School of Industrial and Mechanical Engineering at Federal University of Itajubá, Brazil. He received his BS in Mechanical Engineering, MS in Industrial Engineering and PhD in Mechanical Engineering. His research interests include design of experiments, multivariate statistics and optimization methods.