

## **Simulation of a real-world animal food filling process**

**Jamilly Carolina Furtado César, Lais Fasiaben Lemes, Nicolly Domingues Perillo, Stephanie Ricco Ribeiro, Thaynara Poncio, Henrique Ewbank, and Rodrigo Luiz Gigante**

Production Engineering Department

Facens University

Sorocaba, BRAZIL

[167272@facens.br](mailto:167272@facens.br), [171180@facens.br](mailto:171180@facens.br), [171136@facens.br](mailto:171136@facens.br), [171215@facens.br](mailto:171215@facens.br),  
[183305@facens.br](mailto:183305@facens.br), [henrique.vieira@facens.br](mailto:henrique.vieira@facens.br), [rodrigo.gigante@facens.br](mailto:rodrigo.gigante@facens.br)

### **Abstract**

This study aims to improve productivity of an animal food filling process in order to attend an expected demand. Authors collected production time data, and simulated the actual layout from the production line. Several scenarios were tested and results indicated that doubling the number of filling machines improve productivity, servers and machines usage, and waiting time by more than 50% each.

### **Keywords**

Queue Theory, Animal Food, Filling Process, Productivity.

### **Biographies**

**Jamilly Carolina Furtado César** is a Production Engineering student in the Department of Engineering Eng. Antonio Erminio de Moraes at Facens University, Sorocaba, São Paulo, BR.

**Lais Fasiaben Lemes** is a Production Engineering student in the Department of Engineering Eng. Antonio Erminio de Moraes at Facens University, Sorocaba, São Paulo, BR.

**Nicolly Domingues Perillo** is a Production Engineering student in the Department of Engineering Eng. Antonio Erminio de Moraes at Facens University,, Sorocaba, São Paulo, BR.

**Stephanie Ricco Ribeiro** is a Production Engineering student in the Department of Engineering Eng. Antonio Erminio de Moraes at Facens University,, Sorocaba, São Paulo, BR.

**Thaynara Poncio** is a Production Engineering student in the Department of Engineering Eng. Antonio Erminio de Moraes at Facens University,, Sorocaba, São Paulo, BR.

**Henrique Ewbank de M. Vieira** is Professor in Industrial Engineering at Facens University, Brazil. He has a PostDoc in Environmental Sciences from Paulista State University, Sorocaba, Brazil. He earned PhD in Management from Federal University of Rio de Janeiro, Brazil, Graduate Certificates in Logistics & Supply Chain Analysis and in Systems & Supportability Engineering from Stevens Institute of Technology, New Jersey, USA, and B.S. in Industrial Engineering from Estácio de Sá University, Brazil. He has taught courses about operations research, management and data science for graduate and undergraduate students. His research interests include demand planning, inventory management, supply chain, and multi-criteria decision making.

**Rodrigo Luiz Gigante** is master in Production Engineering from the University of São Paulo (2010); Bachelor of Applied Mathematics and Scientific Computing from the University of São Paulo (2007). He is a professor at Facens University. His areas of expertise are Operational Research, Discrete Event Simulation, Scheduling, Queue Theory, Production Planning and Control and Logistics.