

DEVELOPMENT OF A UNIFIED FRAMEWORK FOR THE MONITORING OF MATHEMATICAL MODELS IN A STEEL PLANT

KEY WORDS OF ASSIGNMENT:

- ✓ Software design
- ✓ Industrial process control and data analysis
- ✓ Mathematical optimization
- ✓ Business intelligence

APPRENTICESHIP

MASTER THESIS

CONTENT OF ASSIGNMENT:

One of the reasons why ArcelorMittal Gent is a world class performing steel plant, is because we continuously question our processes and try to improve our business. Using mathematical models to control and automate our production processes but also our supply chain and logistics processes, is a common practice. Model development is a major activity of the Industrial Automation and Modelling department.

Monitoring the continued proper functioning of these models is a challenging task, due to the large number of models, often very different in nature and technology.

A unified platform to quickly access, aggregate and analyze model metrics is increasingly necessary. For managers, a central point for visualizing these metrics and coupling them to financial data would be very convenient. For engineers, such a platform would also be extremely welcome, since they would not have to "reinvent the wheel" for each new model.

The purpose of this internship is to develop a computer framework for the model monitoring. The trainee will have the opportunity to learn how mathematical models are developed and how they are applied in an industrial context. By developing this framework, she/he will significantly contribute to maximizing the benefits of the models for the company.

OBJECTIVES:

- Understand the production flow and the use of optimization models
- Research the possibility of integrating model metrics to existing visualization tools
- Develop software interfaces for gathering and presenting data from different systems (unified framework)
- Propose guidelines for the staff on how to preprocess and store the output of the models in order to use them in the new framework

EXPECTED COMPETENCES (KEY WORDS):

- ✓ General software design and programming skills
- ✓ General knowledge of statistical analysis

NUMBER OF STUDENTS:

- 1 or 2

TARGET GROUP: BACHELOR/MASTER/ ... & SPECIALIZATION(S):

- Bachelor in Software Engineering, Computer Science, or related fields



LOCATION:

- Industrial IT, Automation & Models (IAM) – Systems and Models (SYMO), John Kennedylaan 51, 9042 Gent.

PROMOTORS:

- Industrial : Rodrigo Rezende Amaral
- Academic :

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