

TITLE: AUTOMATION OF MEASUREMENT SYSTEM ANALYSIS

KEY WORDS OF ASSIGNMENT:

- ✓ Measurement system analysis
- ✓ Programming – Software development
- ✓ Python

APPRENTICESHIP

MASTER THESIS

CONTENT OF ASSIGNMENT:

ArcelorMittal Gent is a steel production company which is situated alongside the canal Ghent-Terneuzen in the port of Ghent. The plant produces flat steel products, that are, amongst others used in the automotive industry.

At ArcelorMittal Gent, thousands of measurement instruments track the production processes on an ongoing basis. To deliver high quality products to our customers, it is of the utmost importance that we can rely on the proper functioning of these devices. One of the steps in ascertaining this is to perform measurement system analyses (MSA). The test results from an MSA are processed according to prescribed statistical procedures, in order to assess the degree to which:

- measurement bias occurs,
- measurement bias varies over the range,
- measurement is stable (i.e. the deviation is under control)
- the measurement process is repeatable and reproducible.

The employee performing the MSA will assemble the test results in a report and interpret them in order to decide whether the measurement system is fit to perform its task.

In this internship, we want to automate a part of the MSA process, using Python. Specifically, we want to write some software that takes as its input the table with gauge measurements from the MSA and produces as output a complete and conform report, including graphs and tables which show that the instrument works properly.

In the future, employees could then generate such automated reports and possibly amend these with their own interpretation of the results.

OBJECTIVES:

- Study the current MSA processes applied in the company
- Develop and document the code base for the automation of the MSA process and the generation of the report
- Test on a few real cases

EXPECTED COMPETENCES (KEY WORDS):

- ✓ General programming skills (Python, C#, C++,...)
- ✓ Data analysis and statistics

NUMBER OF STUDENTS:

- 1-2

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

- Master or bachelor of science (engineering, IT, physics, ...)

LOCATION:



- Systems and Models ArcelorMittal Gent, John Kennedylaan 51, 9042 Gent.

PROMOTORS:

- Industrial : Karsten Naert – Mark D'Hondt
- Academic :

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