

# FMH606 Master's Thesis

**Title:** The development of a metering reporting system

**USN supervisor:** Hans-Petter Halvorsen

**External partner:** Ineos Rafnes AS

## **Task background:**

Ineos Rafnes is an ethylene plant located at Rafnes Industriområde in Bamble, Norway. The plant produces 650.000 tons of ethylene and 80.000 tons of propylene per year, and is a key ethylene producer within the Ineos Group, which is one of the largest petrochemicals companies in the world.

Reporting of reliable data for produced and exported quantities, environmental emissions and energy consumption is a requirement from both customers and authorities. The current tools are developed over the years using several technology platforms, but they are now outdated and unsupported by suppliers.

Ineos Rafnes is therefore looking for a new tool for extracting data from the plant historian database, performing required calculations and presenting the data in a uniform format.

The specific tool Ineos Rafnes shall replace is a system referred to as the Metering Reporting System (MRS). The MRS

- presents data used for economic settlement between Ineos Rafnes and their downstream customers as a set of reports
- allows the data to be evaluated, corrected and verified by qualified personnel
- writes verified data back to the plant historian database
- the reports are available per product stream, both per month(period) and per year

## **Task description:**

- Perform a study on different programming languages for developing web applications with focus on evaluating which of them will endure into the future.
- Set up a development schedule based on given information for a new metering reporting system, and make it open for changes as the development process unfolds.
- Create a web application for presentation of the metering reports and test it in cooperation with the users of the system.
- Integrate the web application for presentation of the metering reports with the Processes Historian Database system at Ineos Rafnes.
- Test the new metering reporting system and create a test report.
- Create design and user documentation of the new system.

**Student category:** Reserved for IIA Industry Master Student working at Ineos

**The task is suitable for online students (not present at the campus):** Yes

**Practical arrangements:**

This project will be performed in close cooperation with Ineos Rafnes personnel. The student is already integrated into the company organisation as an industry master student and may perform the majority of the work using the company facilities.

**Ineos Rafnes will be responsible for providing a sensor for the project that will grade the work in collaboration with the supervisor from USN.**

**The resulting report should be public available.**

**Supervision:**

As a general rule, the student is entitled to 15-20 hours of supervision. This includes necessary time for the supervisor to prepare for supervision meetings (reading material to be discussed, etc).

**Signatures:**

Supervisor (date and signature):

Student (write clearly in all capitalized letters): Hestnes, Erlend Håland

Student (date and signature):