



Where will you have your next challenging professional experience?

ArcelorMittal is the **world's largest steel producer**. We use the most innovative technology to create the **steels tomorrow's world will be made of**. Every day over 190,000 of our talented people, located in over 60 countries, push the boundaries of digitalization and use advanced technology to create a world that is stronger, faster and smarter. To help make this possible, they know they can depend on the support and training that a company of our scope and scale can provide.

Our goal is **to help build a better world with smarter steels**. Steels made using innovative processes which use less energy, emit significantly less carbon and reduce costs. Steels that are cleaner, stronger and reusable. Steels for electric vehicles and renewable energy infrastructure that will support societies as they transform through this century. With steel at our core, our inventive people and an entrepreneurial culture at heart, we will support the world in making that change. This is what we believe it takes to be the **steel company of the future**.

ArcelorMittal is listed on the stock exchanges of New York (MT), Amsterdam (MT), Paris (MT), Luxembourg (MT) and on the Spanish stock exchanges of Barcelona, Bilbao, Madrid and Valencia (MTS). For more information about ArcelorMittal please visit: <http://corporate.arcelormittal.com>

Would you want to integrate a multicultural company with challenging missions and passionate people, ArcelorMittal is for YOU!

We are looking for Interns, VIE, apprentices willing to work in a multicultural environment in different domains.

English will be a plus.

<i>Internship information</i>	
Mission title	Modelling of vibration in cold rolling
Contract type	Internship
Start date	February – March 2024
Duration	6 months
Research center	Maizières Process,
Department	Downstream Processes
City	Maizières-lès-Metz
Country	France

<i>Trainee's profile</i>	
Studies level	Master's degree
Discipline (+ School/University)	Engineering school / Master of science
Internship requirement and competencies	Vibration, Fluid and solid mechanics, numerical modelling, Finite Elements
Languages (+ levels)	Fluent in French or English. Good level in English required.



Mission	
Purpose of the mission	<p><i>Cold rolling process is an important step in the steelmaking processes. For cold rolling of flat products, the process capability defines the final products' thickness.</i></p> <p><i>Due to several physical causes, vibrations are observed in the mills. These vibrations can be classified into modes depending on their characteristic frequency. The second and the third vibration modes (called 3rd and 5th octave chatter) are the most problematic. Indeed, these vibration modes can lead to severe product defects and productivity decreases (rolling speed, total amount of reduction).</i></p> <p><i>Concerning 3rd octave chatter, some "tricks" allow to limit the problem, but product mix evolution may lead to very problematic crisis.</i></p> <p><i>A simple numerical model was created to simulate the dynamic mechanical behaviour of a rolling mill. The aim was to improve our understanding of the vibration phenomena and to study different solutions to control or limit the vibrations.</i></p>
Accountabilities and activities	<p><i>The intern will be entrusted with the following mission:</i></p> <ul style="list-style-type: none"> • <i>Analyze existing model performances vs trials data/trends on cold rolling mill</i> • <i>Study interaction between chatter and the roll bite (strip + roll)</i> <ul style="list-style-type: none"> ➢ <i>Improve or propose a new model for vibration prediction</i> ➢ <i>Introducing more physical phenomena (lubrication, forward slip...)</i> • <i>Take advantage of measurements on chattering mill to investigate chatter and:</i> <ul style="list-style-type: none"> ➢ <i>Increase our understanding and knowledge of the phenomenon</i>

Contact	
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To put back to appropriate trainee correspondent

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