

PHD POSITION AT THE ÉCOLE DES MINES DE SAINT-ÉTIENNE (FRANCE)

The research pursued by the PhD student will concern the development of new models and original solution methods for the optimization of planning operations for end-of-life products. It aims at addressing problems dealing with the newly introduced concept of *circular economy* and *greenhouse gas emissions*, recently raised by the French government. Companies are currently facing two antagonist objectives. On the one hand, they must ensure a local economic development that creates wealth; on the other hand, they must satisfy environmental constraints related to their production. In this challenging context, one of their major issues is to minimize the consumption and waste of raw materials while limiting the use of non-renewable energies.

Meanwhile, new communicating technologies could provide necessary traceability information about end-of-life products, their state and the state of their components. This information can help organizing and optimizing remanufacturing and disassembly processes. The process of valuing end-of-life products could be economically viable, and therefore valuable from an industrial point of view.

In the light of the above background, this thesis focuses on the use and advantage taking of new communicating technologies in remanufacturing and disassembly systems. The goal is to develop new models and original solution methods for planning remanufacturing and disassembly systems that exploit this new procured information, while satisfying both resource and environmental constraints. The proposed news approaches will be defined and tested with industrial partners.

Candidate profile: Applicants must have a Master Degree (or equivalent) in Computer Sciences, Applied Mathematics or any related discipline. Applicants should demonstrate good programming skills and a deep knowledge in combinatorial optimization and integer programming.

Location: The PhD student will be located in Gardanne (south of France, near Aix-en-Provence) in the research group *Manufacturing Sciences and Logistics* of the Georges Charpak Provence Campus of the Ecole des Mines de Saint-Étienne.

Duration and assumption of duty: The position is for three years starting September 1, 2017 (exact date is negotiable).

Application procedure: Please send your application electronically (preferably as a single pdf file) including a detailed curriculum vitae and examination results, plus, if available, a list of reference letters and copies of diploma, to: Nabil ABSI (absi@emse.fr) or Valeria BORODIN, (valeria.borodin@emse.fr). The position will remain open until fulfilled.

For further questions regarding the position or details on the research project, please contact Nabil ABSI or Valeria BORODIN.