

Internship

Research and Development

Material and Research

Organic Department

Internship topic: Simulate cold impact performance of newly designed parts in polypropylene materials with CAE (LS Dyna)

Our team:

Research and Development (R&D) in Europe is responsible for the planning, the development and the production of attractive, superior quality cars matching European market requirements. R&D aims to strengthen the Toyota image in Europe.

Material and Research Organic department is responsible for the development and evaluation of plastic & parts and materials used in the car, i.e instrument panel, door trims, bumpers. Our function is to assure the visual appearance of these parts over the lifetime of the vehicle taking into account all the environmental aspects the parts will be exposed to (i.e heat, shock, humidity etc). These criteria are defined in the Toyota Standards (TS).

Your project:

As part of the plastic material development and evaluation, cold impact properties of plastic parts (bumper, trim) are tested. Your task will be, supported by Toyota member and the University, set-up a cold impact simulation via CAE for these polypropylene parts. This in order to determine part performance problems before the final design is fixed and address these issues together with related parties.

Initial material modeling and CAE simulations have been done in Jan-May 2017 by Einar Schwenke. This follow up study is intended to improve the material modeling and the CAE model.

Your main tasks will be:

- Optimize the polypropylene characterization material at low temperature (high speed tensile, impact, etc).
- CAE modelling and simulation.
- Actual part evaluation.
- Optimize CAE cold impact model.
- This assignment will include 2 trips to Toyota Technical centre in Brussels. One trip for part evaluations and one trip to present the outcome of the study.

Your assets:

- Master student in final year
- Good computing skills Excel, Word, PowerPoint, CAE modeling
- You are a team player in a multicultural environment
- Open personality able to work in an independent way, hands-on mentality
- Analytical mind
- Fluent in English

Place of internship: NTNU & Toyota Motor Europe – R&D centre Zaventem, Belgium

Material Characterization & CAE modeling in Norway. Actual evaluation and reporting in Belgium (2x1 week).

Starting date: January 2018

Duration: 5 months

Confidentiality: Due to business requirement, not all performed projects can be reflected in the internship report. This issue needs to be discussed with candidate/school in advance.