

Proposal for Master's thesis, October 2, 2025

Analysis and expansion of a welding laboratory for basic research

Description

This master's thesis focuses on improving a welding laboratory. It aims to identify and add new measurement technologies to enhance its capabilities. The starting point is an existing database from previous welding tests. In the first step, this database will be analyzed, structured, and evaluated to derive requirements for modern laboratory and data management. The goal is to develop a modular, expandable concept for future test setups, data flows, and systematic data storage, and to implement and test it partially. The results will serve as the basis for the further digitization of the welding laboratory.



Core Content:

- Analysis and structuring of existing welding test data – identification of fundamental relationships between process parameters
- Design of a consistent test setup
- Exemplary (simplified) execution of experiments, including data acquisition and evaluation to validate the concept based on existing measurement technology
- Documentation (master's thesis)

Organisation

Supervisor: Assoc.Prof. Dipl.-Ing. Dr.techn. Norbert Enzinger, norbert.enzinger@tugraz.at

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Duration: immediately for at least 6 months

Location: Working Group Joining Technology, Kopernikusgasse 24, 8010 Graz

Remuneration: € 3000 + € 500 Performance bonus for very good achievement

For further information, please contact the institute's secretariat or the supervisor.

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