

# APPLICATION Projektarbeit

## Provisional working title:

**Development of a Digital Twin for Injection Molding  
Using NVIDIA Omniverse**

## Initial situation / problem:

Advances in digital technologies are rapidly changing the fields of simulation and digital twins, enabling manufacturing companies to create virtual representations of real production environments. This project is part of the cross-university and industry collaboration **Metalinx**, which aims to develop a metaverse-based representation of the injection molding process using **NVIDIA Omniverse**.



## The aim of the work:

The aim of this project is to initiate the simulation of an injection molding process in the Omniverse environment. Provided CAD models of the injection molding machine will be integrated, structured, and extended with basic kinematic behavior to create an initial functional simulation.

## Main tasks:

- Learning and applying simulation concepts within the Omniverse environment, including proper documentation for future project members
- Importing and structuring the injection molding machine CAD models in Omniverse
- Defining and implementing basic kinematics of the machine components
- Creating a simplified simulation sequence representing the injection molding process

## Requirements

- **Basic knowledge of mechanical systems and simulation**
- **High motivation to learn and apply new technologies in simulation and digital twin development**
- **Basic understanding of programming concepts**

You can get more information in a personal conversation with the content supervisor.

<b>First contact / support:</b>	<b>Content support:</b>
Univ.Prof. Dr.-Ing.	MSc
Sebastian Schlund	Zahra Safari Dehnavi
Email: <a href="mailto:sebastian.schlund@tuwien.ac.at">sebastian.schlund@tuwien.ac.at</a>	Email: <a href="mailto:zahra.dehnavi@tuwien.ac.at">zahra.dehnavi@tuwien.ac.at</a>