



Rapid Prototyping Laboratory

Principal goals and activities

The laboratory closely cooperates with the Laboratory of Prototype Technologies and Processes at the Institute of Nanomaterials, Advanced Technology and Innovation.

The site conducts research and development of new methods and procedures to facilitate, improve and accelerate product and process development in these areas:

- Rapid Prototyping – rapid production of prototype components from plastic or metal for the purpose of visualisation and testing.
- Rapid Tooling – rapid production of tools using the additive method.
- Rapid Manufacturing – rapid production of short production series.
- Reverse Engineering – reverse reconstruction of 3D model using an existing part.

General focus of laboratory

The site engages in the application of advanced technology in development and innovation of products. We test new materials with improved mechanical properties in order to improve accuracy and quality of production of physical models. We develop new equipment for model prototyping and verify their functionality.

Specific instruments and outcomes

- Dimension SST 768 uses the FDM method for rapid production of small models and prototypes from ABS material.
- Mk-Mini vacuum chamber for production of silicon molds and casting of parts from plastic (polyurethane) or wax.

In collaboration with the Laboratory of Prototype Technologies and Processes, other equipment is also available:

- Objet 500 Connex 3D printer with PolyJet Matrix technology, optional two-component printing, rapid production of large models and precision prototype assemblies from various materials (similar to rubber, ABS, also hard or transparent materials).
- SLM 280HL generative laser melting equipment for rapid production of complex-shape parts from any metal powders using the Selective Laser Melting technology.

Offer of technology and expertise

We offer our expertise in additive manufacturing and use the activities mentioned above for:

- Contracted research and collaboration with the industry.
- In investigation of scientific and research projects.
- In the training process of offering selected courses at TUL.
- When investigating topics and writing of bachelor and master theses and dissertations.

