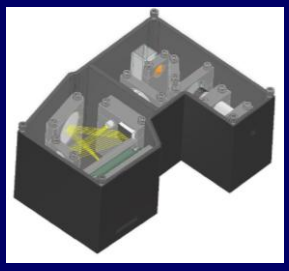
Leibniz Universität Hannover

Institut für Produktentwicklung und Gerätebau

Studienarbeit/
Student Project

Ausschreibung:
31.03.2026

Beginn: sofort



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Investigation of Optical Component Mounting Methods and Structural Design for 3D Printing

Project Background:
The use of 3D printing in optical systems opens up new possibilities for the manufacturing and integration of optical and mechanical structures. In particular, it enables more compact, highly integrated, and functionally combined designs, which directly influence how optical components are mounted within a system. Compared with conventional mounting methods, 3D printing not only allows certain structures to be fabricated directly, but also creates opportunities for new mounting concepts through structural optimization and design innovation.

Project Objectives:
The objective of this project is to investigate and evaluate the feasibility of different mounting concepts for optical components in the context of 3D printing. The main focus is on:

- identifying which mounting structures can be directly realized by 3D printing compared with conventional approaches;
- determining which mounting methods require structural optimization tailored to the characteristics of 3D printing;
- exploring which mounting principles offer potential for further design innovation and functional enhancement.

Tasks:

- Conduct a literature review on mounting structures for optical components;
- Classify and summarize different mounting principles and their corresponding optical component types;
- Reproduce representative mounting concepts using 3D printing and evaluate their advantages and disadvantages;
- Identify mounting methods that are suitable for 3D printing and highlight mounting principles with strong potential for design innovation.

Your profile:

- Interest in optical systems, opto-mechanical design, and 3D printing
- Hands-on skills and interest in experimental work
- Independent, careful, and structured working style
- Good written and spoken English or German

Interested? We look forward to hearing from you.