Course Title: Better products through coatings - Modern coating technologies and their applications

Modul Code	**ECTS Credits: 2,5**

Lecturer
Prof. Dr.-Ing. Walter Reichert

Teaching and Learning Methods

Lecture/Tutorial:	3	time of presence per week (45 minutes)
Total contact hours / week:	3	time of presence per week (45 minutes)
Total contact hours / course:	20	hours
Preparation and post class work / course:	55	hours
Workload / course:	75	hours

Learning Outcomes

The students know and understand the relevant coating technologies and the areas of application of various coating products with regard to wear and corrosion protection, tribology, electronics, microsystem technology and decoration.

They know and understand the basic technological, physical and chemical principals of selected coating processes and can classify the processes with regard to a given application.

Description of Content

Without the use of modern coating processes, a large number of everyday products would not be available to us.

Coating technologies are utilized for manufacturing a wide range of products that we use every day. Application examples of such products include computers, smartphones and displays, LED lights, solar cells, fuel-efficient automobile or aircraft engines, or tools to process fiber-reinforced plastics in automobile or aircraft construction.

In this course, the basic functions of selected modern coating technologies are explained, and areas of application of coatings are presented using practical examples from the consumer and industrial good sectors:

- Processes and applications of surface technology
- Importance of vacuum and plasma in the coating process
- Thin and thick film technologies
- Fabrication of thin diamond layers
- Layer analysis
- Properties and areas of application of hard material and diamond coatings.

Prerequisites
Enthusiasm for new technologies
.

Exam
Written examination (60 minutes).

Literature and Lecture Notes
1. Current literature will be provided during the lecture.
2. K. Bobzin, Oberflächentechnik für den Maschinenbau, Hanser Verlag, 2013