Title:	Modern engineering materials
Lecture hours:	15 hours of lecture and 15 hours of seminar
Study period: (summer/winter)	summer/winter
Number of credits:	4
Assessment methods:	Final test
Language of instruction:	English
Prerequisites:	Base knowledge in the field of physics
Course content:	This course provides a comprehensive overview of modern engineering materials and their applications. Students will learn about the fundamental properties, characteristics, and processing techniques of various materials used in engineering. A strong emphasis will be placed on polymers and polymer-based composites used as advanced materials. Special attention will be given to understanding of the structure-property relationships, design considerations, and selection criteria for different engineering applications. Through lectures, case studies, and laboratory exercises, students will gain practical knowledge and skills to analyze, design, and utilize modern engineering materials effectively. Furthermore, this course delves into the broad spectrum of modern engineering materials, ensuring students gain a deep understanding of their diverse applications across industries. The course highlights the significance of sustainable materials and explores their role in addressing environmental challenges. Students will engage in hands-on experiments and projects to enhance their ability to critically analyze and innovate with modern engineering materials.
Learning outcomes:	By the end of the course, students will be equipped in comprehensive understanding of modern engineering materials, including their fundamental properties, characteristics, and processing techniques. They will be able to interpret the structure-property relationships of engineering materials, with a particular focus on polymers and polymer-based composites. Through engaging in laboratory exercises and hands-on projects, students will acquire practical skills in working with modern engineering materials, enhancing their ability to apply theoretical knowledge to real-world scenarios.
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