

Course Syllabus

Powder Metallurgy and Ceramics 7.5 Credits*, First Cycle Level 1

Learning Outcomes

After completion of the course, the students shall be able to:

- explain key concepts and terminology in the field of powder metallurgy and ceramics
- describe and explain different powder production techniques, compaction and shaping, sintering and finishing of the powder metallurgical components and ceramics
- demonstrate an understanding the fundamental principles of ceramics such as structure, physical and chemical properties
- relate the microstructure and mechanical properties of powder metallurgy components and ceramics in relation to their applications.

Course Content

Fundamental concepts of powder metallurgy and ceramics are introduced. The powder production, compaction and shaping, and sintering of powder metallurgical components and ceramics are explained. The structure, defects and microstructure of different ceramics and their processing are discussed. The microstructure and mechanical properties of powder metallurgical components and ceramics are investigated with an emphasis on their design and applications.

Assessment

Written exam (5 credits), active participation at seminar (1 credit), laboratory work and laboratory report (1.5 credits)

Forms of Study

Lectures, obligatory seminar and labs on powder metallurgy and ceramic components.

Grades

The Swedish grades U, 3, 4, 5.

Seminar U-G. Laboratory work U-G.

Prerequisites

Bachelor of Science degree in engineering (mechanical, electrical, energy, engineering physics) or equivalent of at least 180 credits, or an equivalent degree. Documented language proficiency knowledge equivalent to English B at Swedish upper secondary school or equivalent knowledges.

Subject:

Materials Technology

Group of Subjects:

Materials Technology

Disciplinary Domain:

Technology, 100%

This course can be included in the following main field(s) of study:

1. Materials Technology

Progression Indicator within (each) main field of study:

1. G1N

Approved:

Approved 15 February 2018

Valid from 15 February 2018