

Ed. April 2021



UNIVERSITÀ  
DI TRENTO

# PM *Life.*

LIFELONG LEARNING IN POWDER METALLURGY

Powder  
Metallurgy  
Technology  
Courses



PRESS AND  
SINTER

## Fundamentals

*Online*

29 June - 01 July  
2021

## Practice

*Trento*

08 - 09 September  
2021

PS

# Course Details

The programme of the Press&Sinter Technology Course is divided into two parts.

The first part is made up of theoretical lessons on the different steps of Press & Sinter technology, on materials and their properties, on design and technological aspects, on production equipment and on development prospects, especially in relation to the transition of cars to the electric or hybrid engine. The teachers are either from universities or from industries in the sector. The base mechanisms active during powder production and its consolidation throughout the process as well as those responsible for the properties of the sintered materials will be described.

The second part starts with a day of laboratory activities in which students will be involved in the direct or indirect execution of experimental activities related to Press & Sinter technology, and in the processing and analysis of results with reference to case studies of industrial interest. At the end of the laboratory session, students will have to take a written exam lasting one hour that will lead to the course certificate. The second day will be dedicated to the visit of a Press & Sinter company.

The Technology Course is split in two parts, that cannot be accessed separately:

- An Online **“Fundamentals”** part, with lectures from selected speakers and covering all aspects of Press and Sinter. Dates: 29 June – 1 July 2021
- An Onsite **“Practice”** part, with lab experience, group work, and in-depth training within the facilities of the **University of Trento**. Dates: 8-9 September 2021.

### Fees:

- EPMA Member €1200 / Non-Member €1500 / Academic €800 / Individual (unemployed) €400

**Registration deadline: 22 June 2021**

FUNDAMENTALS - Online		
29 June - 1 July	Presentation of PM Life programme and Press&Sinter Training Course	Alberto Molinari, University Trento
	The Press&Sinter process	Alberto Molinari, University Trento
	Powders for P&S	Ivan Lorenzon, Pometon
	Mechanics of powder compaction	Marco Zago, University Trento
	Compressibility of powders and densification	Ilaria Cristofolini, University Trento
	Practical compaction of steels & Design for parts and pressing tools	Arno Steiner, GKN SinterMetals
	Compacting presses	Alex Rambelli, SACMI
	Effect of porosity on the properties of P&S materials	Alberto Molinari, University Trento
	Fundamentals of solid state sintering	Silvia Baselli, University Trento
	Liquid phase sintering	Cinzia Menapace, University Trento
	Sintering atmosphere	Christian Gierl-Mayer, Technical University Wien
	Sintering furnaces	Peter Vervoort, ONEJOON
	Dimensional and geometrical precision of P&S parts	Ilaria Cristofolini, University Trento
	P&S steels	Herbert Danninger, Technical University Wien
	Non ferrous P&S materials	Ilaria Rampin, Pometon
	Heat and thermochemical treatments of P&S steels	Alberto Molinari, University Trento
	Sizing of P&S parts	Siegfried Neumair, Miba
	Modelling in P&S	Didier Bouvard, Univ. Grenoble Alpes (TBC)
	High Temperature Sintering: properties	Alberto Molinari, University Trento
	High Temperature sintering: industrial experience and cost effectiveness	Lars Wimbert, GKN Hoeganaes
Soft Magnetic Composites	Riccardo Crosa, Höganäs AB Alessandro	
Future perspectives of P&S	DeNicolò, GKN SinterMetals	
PRACTICE - Onsite		
8-9 September	Lab. Work: Dilatometry study of sintering; Microstructural analysis; Mechanical properties; Measurement of P&S parts	Silvia Baselli; Cinzia Menapace; Lorena Emanuelli; Ilaria Cristofolini (University Trento)
	Discussion of the lab. Work and case studies	Alberto Molinari, University Trento
	Exam	
	Visit to a Press and Sinter company	

