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Name of the course:	**Non-destructive material testing**
Course type:	Optional
Responsible lecturer:	Dr. Csaba Cserháti
Content:	Non-destructive material testing provides an overview of material characterization by traditionally proven and new NDT techniques, especially in the automotive industry, moreover for materials used in the aerospace industry, power plants, and infrastructure construction. A corresponding application example is selected for every method in order to present the possibilities of each technique. Methods discussed include scanning and transmission electron microscopy, X-ray micro-tomography and - diffraction, ultrasonic, electromagnetic, microwave, and hybrid techniques. The subject describes and reviews the definition and determination of microstructural properties, including the determination of phase content, grain size, and mechanical properties such as hardness, toughness, yield strength, texture, and residual stress.
Literature:	• Nathan Ida, Norbert Meyendorf (ed): Handbook of Advanced Nondestructive Evaluation, Springer eBook ISBN 978-3-319-30050-4 DOI https://doi.org/10.1007/978-3-319-30050-4 • Gerhard Hübschen, Iris Altpeter, Ralf Tschuncky, Hans-Georg Herrmann (ed): Materials Characterization Using Nondestructive Evaluation (NDE) Methods, ISBN 978-0-08-100040-3 https://doi.org/10.1016/C2014-0-00661-2Woodhead Publishing 2016