Course title: Practical Analytics of Materials – selectable / ~~regular course~~

Number of contact hours: 45 hours (15h lectures/15h Lab/15h seminar)

ETCS credits: 3

Course description: Students shall understand the systematics of electrical and dielectric material characterization. and their relation to magnetic characterization. This insight shall be based on a universal description through the dielectric function, whenever possible.

Contents: Introduction into basic concepts (electrodes, definitions) of conductivity, Surface conductivity, excess conductivity, Impedance Spectroscopy, Complex dielectric function, connection to spectroscopy; Polarization mechanisms, time dependence, refractive index; Introduction into magnetism characterization; Lab: students work remotely and interactively at an electrochemical workstation for materials characterization.

Education effects (P6S_UW, P7S_WG)**:**

Learning outcome: Students will have developed the necessary skills to analyze critically the electric and dielectric properties of a given material sample. They will be able to use these results in the framework of e.g. conductivity development or corrosion studies.

Literature:

Assessment method: Final exam test

Prerequisites: -

Primary target group:

Lecturer: Michael Bredol - Münster University of Applied Sciences