

Doctoral School on Safety and Security Sciences – Óbuda University

Course title: Measurement of Non-Electrical Quantities

To which area the course belongs: Applied research

Credit value of the course: 6 credits

Lecturer: József Sárosi

The aim of the course:

Most quantities to be measured are non-electrical such as temperature, pressure, displacement, humidity, fluid flow, etc., but these quantities cannot be measured directly. Hence such quantities are required to be sensed and changed into some other form of quantities. Therefore, for measurement of non-electrical quantities these are to be converted into electrical quantities. During the course the principles and practice of electrical instruments for the measurement of non-electrical quantities are presented and investigated.

Prerequisite: -

Content of the course:

Acquaintance to measurement systems and elements of the measurement systems. Basic sensor technologies. Study of the measurement of different non-electrical quantities through electrical methods. Getting knowledge of process and monitoring systems and application of contemporary virtual instrumentation and computer measurement techniques for measurement of non-electrical quantities.

Recommended reading:

Gerard C. M. Meijer: Smart Sensor Systems, John Wiley & Sons Ltd., ISBN 978-0-470-86691-7, 2008

Alan S. Morris: Measurement and Instrumentation Principles, Butterworth Heinemann Books - Elsevier, ISBN 978-963-306-284-5, 2001

József Sárosi: Measurement and Data Acquisition, University of Szeged, Faculty of Engineering, ISBN 978-963-306-284-5, 2014

Rosemary H. Taylor: Data Acquisition for Sensor Systems, Springer US, ISBN 978-1-4757-4905-2, 2010