

<b>Óbuda University</b> Donát Bánki Faculty of Mechanical and Safety Engineering		Institute of Mechatronics and Vehicle Engineering Department of Mechatronics		
<b>Subject name and Neptun-code:</b> <i>Measurement Techniques II (BMXRIE2MNE)</i>				<b>Credit points of the Subject: 4</b>
<i>Full time training. Spring Semester of the Academic year of 2017/2018.</i>				
Course available at: Mechanical engineering training				
Supervised by:		Lectured by:	Prof. Dr. Róbert Szabolcsi	
Requirements of the course: (Neptun Codes)	Mathematics (BGRMA2GNNC/BGRMA2GNND)			
Lessons per week:	Theory: 1	Practice (in Auditorium):	Lab: 1	Consultation: available by request.
Level of exam:	Practice mark (p)			
<b>The Syllabus</b>				
<i>Aim:</i> to give an overview about analogue and digital measurement techniques.				
<b>Schedule and Requirements</b>				
Weeks				
1.	Registration week.			
2.	Measurement and testing analogue and digital processes and devices.			
3.	Performance specifications. Sources of errors.			
4.	Signal sources.			
5.	Signal analysis. Signal processing.			
6.	Analogue meters.			
7.	Digital meters.			
8.	1 <sup>st</sup> Test.			
9.	Component measurements.			
10.	Instrumentation systems.			
11.	Electrical transducers I			
12.	Electrical transducers II			
13.	Opamps applied in electrical transducers. Filtering techniques based on opamps.			
14.	2 <sup>nd</sup> Test.			
15.	Gaining signature and practice mark. Test writing activity.			
<b>Requirements</b>				
All main three areas of the course are evaluated by two test papers. The course is successfully executed if and only if all the two tests are evaluated with grade higher than Grade2 ('Satisfactory'). If a single test is failed and Grade 1 ('Unsatisfactory') is provided for, and it is not improved, the signature must be denied. If any of the two tests is the not written one the student must be cancelled from the course.				
<i>To improve:</i> If the test paper is evaluated with Grade1 'Unsatisfactory', the student must be provided 2 occasions to improve. The 15 <sup>th</sup> lecture is also among those of available for improving.				
<i>Participation:</i> The participation is not obligatory at all lectures with the exception of the test paper lectures.				
<i>Practice mark (p):</i> Average of the grades provided for the two test papers.				

<b>References</b>
<ol style="list-style-type: none"><li>1. Bolton, W.: Electrical and Electronic Measurement and Testing. Longman Scientific &amp; Technical, 1992.</li><li>2. Paul, C.R., Nasar, S.A., Unnewher, L.E.: Introduction to Electrical Engineering. McGraw-Hill International Editions, 1992.</li><li>3. Schilling, C., Belove, C.,: Electronic Circuits – Discrete and integrated. McGraw-Hill International Editions, 1989.</li><li>4. Morris, N.M.: Electrical Circuits – Analysis and Design. The Macmillan Press Ltd., 1993.</li><li>5. Beards, P.H.: Analog and Digital Electronics. Prentice-Hall International Ltd., 1991.</li><li>6. Lecture notes of the students.</li></ol>
<p><i>Quality Assurance:</i> using feedback provided by the students for improving content and methods of teaching of the subject.</p>
<p>Besides, or, instead of traditional lecture delivering and conducting labs, in case of students' choice, a project-based learning teaching method can be implemented.</p>



2 February, Budapest, Hungary.

Prof. Dr. Róbert Szabolcsi  
lecturer