

**SUBJECT PAGE**

**OE-KVK ELECTRICAL ENGINEERING BSC ENGLISH LANGUAGE TRAINING  
BASICS OF PROFESSIONAL**

<b>SUBJECT NAME:</b> Electronics I.	<b>CODE(S):</b> KEXEL5ABNE	<b>HOURS:</b> <table border="0"> <tr> <td></td> <td align="center"><u>LECTURE / CONSULTATION</u></td> <td align="center"><u>PRACTICE</u></td> <td align="center"><u>LABORATORY</u></td> </tr> <tr> <td><i>FULL TIME:</i></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weekly</td> <td align="center">2</td> <td align="center">0</td> <td align="center">2</td> </tr> </table> <i>CORRESPONDENCE:</i> Semester <i>DISTANT LEARNING:</i> Semester		<u>LECTURE / CONSULTATION</u>	<u>PRACTICE</u>	<u>LABORATORY</u>	<i>FULL TIME:</i>				Weekly	2	0	2
	<u>LECTURE / CONSULTATION</u>	<u>PRACTICE</u>	<u>LABORATORY</u>											
<i>FULL TIME:</i>														
Weekly	2	0	2											
<b>CREDITS:</b>  4  <b>REQUIREMENTS:</b> Examination	<b>PREREQUISITE(S):</b>													
<b>SUBJECT LEADER:</b> Dr. Turmezei Péter	<b>POST:</b> Associate professor	<b>FACULTY AND INSTITUTE:</b> Kandó Kálmán Faculty of Electrical Engineering Institute of Microelectronics and Technology												
<b>DESCRIPTION OF THE SUBJECT:</b> <p>Theory of semiconductors and PN junctions. Properties, types and uses of diodes. Theory of bipolar junction transistors; DC analysis; CE, CB and CC topologies. Current generator circuit. Principle of amplification in the transistor circuit; model circuit of transistor; AC analysis. Field effect transistors (JFET, MOSFET), FET amplifiers, DC and AC analysis. Frequency dependence of transistor circuits. Basic theory of analogue amplifiers; properties of feedback; frequency dependency. Differential amplifiers. Integrated operational amplifiers; inverting and non-inverting amplifier circuits, frequency dependency.</p> <p>Practice: Rectifier diode data sheet. Half-wave and full-wave rectifier circuits.</p> <p>Frequency dependency of BJT and FET circuits. Operational amplifier circuits: inverting and non-inverting amplifier; null-comparator; hysteresis comparator.</p> <p>Laboratory practice: Computer simulations of diode, transistor and pump circuits. Practical measurement of diodes, BJTs and pumps.</p>														
<b>COMPETENCES:</b> <ul style="list-style-type: none"> <li>- Knowledge of general and specific mathematical, natural and social scientific principles, rules, relations, and procedures as required to pursue activities in the special field of electrical engineering.</li> <li>- Knowledge of the most important theories and correlations of the special field of electrical engineering, including their terminology.</li> <li>- Knowledge of the learning, knowledge acquisition, and data collection methods of the special field of electrical engineering, their ethical limitations and problem solving techniques.</li> <li>- Able to design, analyze, and troubleshoot electronic equipment and systems.</li> <li>- Able to process characteristic online and printed references of their special field, both in Hungarian and in a foreign language, and use them for engineering tasks.</li> </ul>														
<b>LITERATURE:</b> <ol style="list-style-type: none"> <li>1. Owen Bishop: Electronics - A First Course; 2011. Elsevier</li> <li>2. Simon M. Sze: Semiconductor Devices: Physics and Technology; 2002 Wiley</li> <li>3. Paul Horowitz: The Art of Electronics; Cambridge University Press</li> <li>4. Thomas Floyd, David Buchla: Electronics Fundamentals. Circuits, Devices &amp; Applications; 2009 Prentice Hall</li> <li>5. Albert Malvino: Electronic Principles; 1998 Career Education</li> <li>6. Allan R. Hambley: Electronics; 1999 Prentice Hall</li> </ol>														

