

## Zagadnienia egzaminacyjne **ELECTRONIC AND COMPUTER ENGINEERING**

	TYP STUDIÓW	STOPIEŃ STUDIÓW	ZAGADNIENIA KIERUNKOWE
<b>(EAC)</b> Electronic and Computer Engineering	<i>Stacjonarne</i>	<b>I-go stopnia</b>	<ol style="list-style-type: none"> <li>1. Basic telecommunication system: block diagram, coder/decoder, modulation/demodulation, Signal-to-Noise ratio</li> <li>2. Types and properties of electromechanic transducers</li> <li>3. Digital linear filters: classes, properties and applications</li> <li>4. TCP/IP reference model</li> <li>5. Characterize the problems of concurrent thread/process synchronization: synchronization criteria, available mechanisms, an example of the synchronization problem (e.g. critical section).</li> <li>6. Methods of analysis of linear electronic circuits.</li> <li>7. Operational amplifier, parameters of perfect and real OA, and applications.</li> <li>8. Microprocessor architecture. Principle of operation of a microprocessor</li> <li>9. Construction, principles of operation and characteristics of basic semiconductor components and main types of sensors.</li> <li>10. Parameters of PCB boards. Technology of production of PCB boards</li> <li>11. Thermal and photonic detectors of optical radiation - types, basic properties and parameters</li> <li>12. The review of lasing media. Describe one of chosen type of laser, its basic parameters and give an example of its application</li> <li>13. Building management systems (BMS): architecture, equipment, communication protocols</li> <li>14. Applications of kinematic and dynamic models of robots</li> <li>15. Wireless and radio systems: classification, applications, used frequency bands, network architectures and functions of individual elements</li> <li>16. General characteristics of transmission media used in telecommunication networks</li> <li>17. HDL Hardware Description Languages: Verilog and VHDL. Components of the language. The structure of the code.</li> <li>18. Methods for reducing power consumption in microprocessor systems. Microprocessors with minimal power consumption</li> <li>19. Problem solving using heuristic search and mathematical logic</li> <li>20. Discuss the most important differences between the RTOS (Real – time Operating Systems) and the GPOS (General – purpose Operating Systems); consider the API, scheduler, services and drivers.</li> </ol>