



**ADMISSION TO DOCTORAL STUDIES**

**Session September 2022**

**Field of doctoral studies: Electronics engineering, telecommunications and information technologies**

**Doctoral supervisor: Prof. PhD. Cotfas Petru Adrian**

**TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES**

**TOPIC 1:** *Addressing Cybersecurity Challenges in Remote Control Engineering Applications*

**Content / Main aspects to be considered**

Remote control technologies

Online laboratories based on virtual instrumentation

Cybersecurity Challenges in remote control networks

**Recommended bibliography:**

1. Şeyda SerdarAsa, Erkan Işıklı, Engineering Education Trends in the Digital Era, IGI Global, 2020, ISBN13: 9781799825623;
2. Robles-Gómez, Antonio, Llanos Tobarra, Rafael Pastor-Vargas, Roberto Hernández, and Jesús Cano. 2020. "Emulating and Evaluating Virtual Remote Laboratories for Cybersecurity" Sensors 20, no. 11: 3011. <https://doi.org/10.3390/s20113011>
3. M. Marali, S. D. Sudarsan and A. Gogioneni, "Cyber security threats in industrial control systems and protection," 2019 International Conference on Advances in Computing and Communication Engineering (ICACCE), 2019, pp. 1-7, doi: 10.1109/ICACCE46606.2019.9079981.
4. C. Willems, T. Klingbeil, L. Radvilavicius, A. Cenys and C. Meinel, "A distributed virtual laboratory architecture for cybersecurity training," 2011 International Conference for Internet Technology and Secured Transactions, 2011, pp. 408-415.
5. D. Tayouri; S. Hassidim; E. Bremier; A. Smirnov; P. A. Shabtai, "CyberSecurity Standards for Cloud Access," in CyberSecurity Standards for Cloud Access , vol., no., pp.1-18, 22 Feb. 2022.
6. P. Cotfas, D. T. Cotfas, D. Ursuţiu, C. Samoilă, NI ELVIS Computer-Based Instrumentation, NTS PRESS (National Technology and Science Press), USA Allendale, NJ 07401,2012 (ISBN 978-1-934891-11-7) (<http://www.ntspress.com/publications/ni-elvis-computer-based-instrumentation/>);
7. P. Hu et al., "Research on Cybersecurity Strategy and Key Technology of the Wind Farms' Industrial Control System," 2021 IEEE International Conference on Electrical Engineering and Mechatronics Technology (ICEEMT), 2021, pp. 357-361, doi: 10.1109/ICEEMT52412.2021.9601591.

**TOPIC 2:** *Energy harvesting systems applicable in the medical field***Content / Main aspects to be considered**

Energy harvesting systems (photovoltaic, thermoelectric, piezoelectric, radio frequency, ...)  
Embedded systems with applicability in medicine  
IoT and Low power sensors used in medicine

**Recommended bibliography:**

1. Jiming Chen et al., Rechargeable Sensor Networks: Technology, Theory, and Application - Introducing Energy Harvesting to Sensor Networks, World Scientific, 2014, ISBN: 978-981-4525-45-9;
2. Christopher Siu, Krzysztof Iniewski, IoT and Low-Power Wireless Circuits, Architectures, and Techniques, 2nd edition, CRC Press, 2018;
3. Ran He, Gabi Schierning, Kornelius Nielsch, Thermoelectric Devices: A Review of Devices, Architectures, and Contact Optimization, Advanced Materials Technologies, 2018, 3, 1700256;
4. MA Zoui et al, A Review on Thermoelectric Generators: Progress and Applications, Energies 2020, 13(14);
5. Nasser Kehtarnavaz, Sidharth Mahotra, Digital Signal Processing Laboratory: LabVIEW-Based FPGA Implementation, Universal-Publishers, 2010;
6. P. Cotfas, D. T. Cotfas, D. Ursuțiu, C. Samoilă, NI ELVIS Computer-Based Instrumentation, NTS PRESS (National Technology and Science Press), USA Allendale, NJ 07401, 2012 (ISBN 978-1-934891-11-7) (<http://www.ntspress.com/publications/ni-elvis-computer-based-instrumentation/>).

**TOPIC 3:** *IoT and IIoT technologies applied in electrical vehicle's industry***Content / Main aspects to be considered**

IoT and IIoT technologies and systems  
Edge and Cloud computing  
Artificial Intelligence and Machine Learning

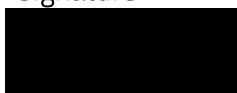
**Recommended bibliography:**

1. Einar Krogh, An Introduction to the Internet of Things, Bookboon, 2020.
2. Mansaf Alam, Kashish Ara Shakil, Samiya Khan, Internet of Things (IoT), Springer, 2019.
3. Laurence Moroney, AI and Machine Learning for Coders, O'Reilly Media, Inc, 2020.
4. LabVIEW 2018 Analytics and Machine Learning Toolkit Help, [https://zone.ni.com/reference/en-XX/help/377059B-01/lvamlconcepts/aml\\_gettingstarted/](https://zone.ni.com/reference/en-XX/help/377059B-01/lvamlconcepts/aml_gettingstarted/).
5. David Fisher, Cloud Computing: Principles, Design and Applications, States Academic Press, 2022.
6. Rajkumar Buyya, Satish Narayana Srirama, Fog and Edge Computing: Principles and Paradigms, Wiley, 2019.

**Doctoral supervisor,**

Prof. Dr. Cotfas Petru Adrian

Signature

**Coordinator of the field of doctoral studies,**

Prof. Dr. Eng. Ivanovivi Mihai

Signature

