

ADMISSION TO DOCTORAL STUDIES

Session September 2025

Field of doctoral studies: Electronic, telecommunications and informational technologies

Doctoral supervisor: Prof. PhD. Cotfas Daniel Tudor

TOPICS FOR THE ADMISSION TO DOCTORAL STUDIES

TOPIC 1: <i>Agrivoltaics</i>
1. Photovoltaic systems and hybrid systems 2. Bifacial modules 3. Smart sensors 4. Abedometer 5. Light and water management
Recommended bibliography: 1. Socrates Kaplanis and Eleni Kaplani Renewable Energy Systems: Theory, Innovations and Intelligent Applications, Nova Science Publishers, USA, 2013. 2. Shiva Gorjian and Pietro Elia Campana, Solar Energy Advancements in Agriculture and Food Production Systems, 2022 3. Nicholas Jenkins, Renewable Energy Engineering, Cambridge University Press, 2017 4. Angèle Reinders, Pierre Verlinden, Wilfried van Sark, Alexandre Freundlich, Photovoltaic Solar Energy: From Fundamentals to Applications, Wiley, 2017. 5. Rabindra Nath Shaw, Ankush Ghosh, Saad Mekhilef, Valentina Emilia Balas, Applications of AI and IOT in Renewable Energy, Elsevier, 2022.
Prerequisites / Remarks: -
<input checked="" type="checkbox"/> Scientific Doctorate (full-time only)
<input checked="" type="checkbox"/> Professional Doctorate (full-time or part-time)
<input checked="" type="checkbox"/> without tuition fee (state budget funded)
<input checked="" type="checkbox"/> with tuition fee or with funding from other sources than the state budget

TOPIC 2: <i>Research on hybrid systems composed of PV, TEG and solar collector in concentrated light</i>
1. PV photovoltaic panels, TEG thermoelectric generators and solar collectors 2. Fresnel lenses 3. Sun tracking systems

4. Hybrid systems
5. Performance of different hybrid systems
Recommended bibliography: 1.Socrates Kaplanis and Eleni Kaplani Renewable Energy Systems: Theory,Innovations and Intelligent Applications, Nova Science Publishers, USA, 2013. 2. Angèle Reinders, Pierre Verlinden, Wilfried van Sark, Alexandre Freundlich, Photovoltaic Solar Energy: From Fundamentals to Applications, Wily, 2017. 3. N. Bizon, N.M. Tabatabaei, F. Blaabjerg, E. Kurt, Energy Harvesting and Energy Efficiency: Technology, Methods, and Applications, Springer 2017. 4. Raza Moshwan et al., Advances and challenges in hybrid photovoltaic-thermoelectric systems for renewable energy, Applied Energy, 2025.
Prerequisites / Remarks: -
<input checked="" type="checkbox"/> Scientific Doctorate (full-time only)
<input checked="" type="checkbox"/> Professional Doctorate (full-time or part-time)
<input checked="" type="checkbox"/> without tuition fee (state budget funded)
<input checked="" type="checkbox"/> with tuition fee or with funding from other sources than the state budget

TOPIC 3: <i>Research on using artificial intelligence in photovoltaic panels fault detection</i>
1. PV photovoltaic panels 2. Faults of PV 3. Artificial intelligence 4. Machine learning. Algorithms 5. Increasing the performance of PV panels
Recommended bibliography: 1.Socrates Kaplanis and Eleni Kaplani, Renewable Energy Systems: Theory, Innovations and Intelligent Applications, Nova Science Publishers, USA, 2013. 2. Angèle Reinders, Pierre Verlinden, Wilfried van Sark, Alexandre Freundlich, Photovoltaic Solar Energy: From Fundamentals to Applications, Wily, 2017. 3. K.Mohana Sundaram et.al, Photovoltaic Systems: Artificial Intelligence-based Fault Diagnosis and Predictive Maintenance, CRC Press, 2022 4. Ahteshamul Haque et.al, Fault Analysis and its Impact on Grid-connected Photovoltaic Systems Performance, Wily, 2022 5. Mohammad-Hassan Khooban, Applications of Deep Machine Learning in Future Energy Systems, Elsevier, 2024.
Prerequisites / Remarks: -
<input checked="" type="checkbox"/> Scientific Doctorate (full-time only)
<input checked="" type="checkbox"/> Professional Doctorate (full-time or part-time)
<input checked="" type="checkbox"/> without tuition fee (state budget funded)
<input checked="" type="checkbox"/> with tuition fee or with funding from other sources than the state budget

Doctoral supervisor,

Prof. Dr. **Cotfas Daniel Tudor**

Signature

Coordinator of the field of doctoral studies,

Prof. Dr. Ivanovici Laurentiu Mihail

Signature