



ADMITERE DOCTORAT  
Sesiunea Septembrie 2023

Domeniul de doctorat: Inginerie Electrica  
Conducător de doctorat: Prof. Dr ing Corneliu Marinescu

TEME (TEMATICĂ) PENTRU CONCURS

TEMA 1: *Statii de incarcare domestice pentru Vehiculele Electrice utilizand energii regenerabile*

Conţinut / Principalele aspecte abordate

- Surse regenerabile utilizabile in domeniul casnic
- Statii de incarcare pentru VE
- Vehicule Electrice, VE, urbane
- Stocarea Energiei electrice
- Incarcarea bateriilor electrice performante
- Tehnici de control a incarcarii in Microretele

Bibliografie recomandată:

1. Marinescu C., et a. *Rețele Hibride cu Surse Regenerabile de Energie. Evolutii moderne, (Hybrid Networks with Renewable Energy Sources)* 2011, Ed Univ Transilvania, ISBN 978 973 -598-049-1
2. *Hatzigryriou, Nikos (2014). Microgrids Architectures and Control. John Wiley and Sons Ltd. p. 4. ISBN 978-1-118-72068-4.*
3. Eric Tervo et al., An economic analysis of residential photovoltaic systems with lithium ion battery storage in the United States, *Renewable and Sustainable Energy Reviews*, 94, 2018
4. H.S. Das et al. Electric vehicles standards, charging infrastructure, and impact on grid integration: A technological review, 2020, 120, *Renewable and Sustainable Energy Reviews*
5. C. Marinescu, *Design Consideration regarding a Residential Renewable based Microgrid with EV Charging Station capabilities*. *Energies* 2021, Volume 14, Issue 16, 5085
6. C. Marinescu, *Progress in the Development and Implementation of Residential EV Charging Stations Based on Renewable Energy Sources*. *Energies* 2023, Volume 16, Issue 1, 179.

Note / Precondiții / Obs.:

*studii: Inginerie Electrica sau compatibile*

TEMA 2: Mediu SOFTWARE pentru SMART CITY considerand SMART Microretele RESIDENTIAL cu RES si capabiliati de incarcare VE.

Conţinut / Principalele aspecte abordate

1. Identification of key challenges and limitations in the current state of the art of smart residential MGs with EV charging capabilities;
2. Research and analysis of existing software environments and technologies that can be used to support the management and operation of smart residential MGs with EV charging capabilities in Smart Cities context
3. Creation of a weather forecast of 24/48 hours for RES (solar; wind, temperature)
4. Database with Charging stations, CS, based on RES (geographic position, availability, scheduling for charging) and other CSs.
5. Payment on line facility;

6. Instantaneous Redistribution of charging for EVs according grid load (to avoid grid overcharging).

Bibliografie recomandată:

1. *Hatzigryiou, Nikos (2014). Microgrids Architectures and Control. John Wiley and Sons Ltd. p. 4. ISBN 978-1-118-72068-4.*

2. \*\*\* **Congress of Smart Cities** Proceedings ICSC-CITIES 2022, available on web

3. *David Bakken* editor, **SMARTGRIDS Clouds, Communications, Open Source, and Automation**, CRC Press, 2014.

4. *I Serban, Sandra Cespedes, C.Marinescu, et al., Communication requirements in Microgrids: a practical survey*, IEEE Access, DOI 10.1109/ACCESS, 2020,

6. *C. Marinescu, Design Consideration regarding a Residential Renewable based Microgrid with EV Charging Station capabilities*. Energies 2021, Volume 14, Issue 16, 5085

7. *C. Marinescu, Progress in the Development and Implementation of Residential EV Charging Stations Based on Renewable Energy Sources*. Energies 2023, Volume 16, Issue 1, 179.

Note /Precondiții / Obs.:

*Inginerie Electrica sau compatibile si abilitati programare*

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Coordonatorul domeniului

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