



ADMITERE DOCTORAT

Sesiunea Septembrie 2024

Domeniul de doctorat: Inginerie electrica

Conducător de doctorat: Prof. dr. habil. ing. Aurel FRATU

TEME (TEMATICĂ) PENTRU CONCURS

TEMA 2:

CERCETĂRI ŞI CONTRIBUŢII PRIVIND INTEGRAREA TEHNOLOGIILOR DIGITALE ALE INDUSTRIEI 4.0 IN CONTROLUL PROCESELOR INDUSTRIALE REALIZAT CU CONTROLERE LOGICE PROGRAMABILE

Conţinut / Principalele aspecte abordate -

Stadiul actual al cercetărilor privind integrarea tehnologiilor digitale ale industriei 4.0 in controlul proceselor industriale  
Controlul inteligent al proceselor industriale  
Digitalizarea sistemelor de producție în contextul industriei 4.0  
Sisteme flexibile de producție în contextul Industriei 4.0  
Analiza arhitecturilor recente ale Industriei 4.0  
Tehnologii inovatoare ale Industriei 4.0  
Flexibilitate si Modularitate in contextul Industriei 4.0  
Principii și funcționalități de proiectare  
Principiile strategiei de integrare a Industriei 4.0 în sistemele de control a proceselor  
Controlul inteligent cu PLC-uri  
Capabilitățile unui controler PLC  
Principalele tipuri de PLC-uri  
Componente hardware PLC  
Limbaje de programare PLC standard  
Comunicații PLC  
Virtualizarea PLC-urilor  
Criterii de selecție PLC . Utilizarea PLC-urilor împreuna cu IloT  
Controler logic programabil de siguranță.  
Activități ce duc la asigurarea rezilienței informaționale

Bibliografie recomandată:

Rojko A.: Industry 4.0 Concept: Background and Overview, International Journal of Interactive Mobile Technologies, Vol. 11, nr. 5, 2017, pp. 77-90

Larosse J.: Analysis of national initiatives on digitising European industry. The Netherlands: Smart Industry, Report produced for DG CNECT, Revised on October 10th, 2017.

Liao Y., Loures E.R., Deschamps F., Brezinski G., Venâncio A.: The impact of the fourth industrial revolution: a cross-country/region comparison, Production, Vol. 28, 2018, art. e20180061.

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manufacturing companies. International Journal of Production Economics 210, 15–26. <https://doi.org/10.1016/j.ijpe.2019.01.004>

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Lee, J., Davari, H., Singh, J., Pandhare, V., 2018. Industrial Artificial Intelligence for industry 4.0-based manufacturing systems. Manufacturing Letters 18, 20–23 <https://doi.org/10.1016/j.mfglet.2018.09.002>

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Cristani, M.; Demrozi, F.; Tomazzoli, C. ONTO-PLC: An ontology-driven methodology for converting PLC industrial plants to IoT. Proced. Comput. Sci. 2018, 126, 527–536.

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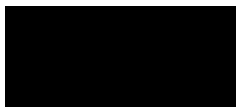
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Note /Precondiții / Obs.: *se va adapta /completa/elimina, după caz*

Conducător de doctorat,

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Semnătură,



Coordonatorul domeniului de doctorat,

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