|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Title of the course:**  **Open and Closed loop Control** | | **NEPTUN-code:**  RKXSV1EBNF | **Weekly teaching hours:** l+cw+lw  1+0+2 | **Credit:** 4  **Exam type:**  tm |
| **Course leader:**  Lóránt Szabó, Ph.D. | | **Position:**  senior lecturer | **Required preliminary knowledge:** - | |
| ***Curriculum:*** | | | | |
| Learning the basic concept of the open and closed loop control. The open loop control using only On/Off signals. Overview PLC systems. Open loop control with pneumatic final elements.  Review the theoretical background of closed loop control, structure of a control system, signals and basic control blocs. Time response, frequency response, steady state characteristics. | | | | |
| ***Curriculum Description:*** | | | | |
| **Week** | **Topic of lectures and practices** | | | |
| 1. 2025.02.20 | Logical networks - building blocks | | | |
| 2. 2025.02.27. | Combinational networks | | | |
| 3. 2025.03.06. | Combinational networks Sequential networks | | | |
| 4. 2025.03.13. | Sequential networks  Homework No. 1. giveout | | | |
| 5. 2025.03.20. | Relays, basic relay circuits Programmable logic controllers  Homework No. 1. deadline | | | |
| 6. 2025.03.27. | Programmable logic controllers | | | |
| 7. 2025.04.03. | 1st Mid-term | | | |
| 8. 2025.04.10. | Programmable logic controllers Homework No. 2. giveout | | | |
| 9. 2025.04.17. | Rector’s break | | | |
| 10. 2025.04.24. | Rector’s break | | | |
| 11. 2024.05.01. | Labour’s Day Homework No. 2. deadline | | | |
| 12. 2025.05.08. | Electro-pneumatic systems | | | |
| 13. 2025.05.15. | 2nd Mid-term | | | |
| 14. 2025.05.22. | Retake | | | |

|  |
| --- |
| ***Mid-term requirements:*** |
| *Attendance:*  Compulsory |
| *Midterms, lab reports, etc.:*  Completion of 2 (theory practice in one) midterm at least at a sufficient level.  Dissemination of the homeworks, and pass with sufficient points.  Completion of the micro-tests at the beginning of the exercises with a minimum of 3 points. |
| *The method of obtaining a signature / mid-term mark:*  Basis of marking: attendance at lectures and laboratory works/practice.  Written tests min. = 2 (pass) (separately).  In case of mid-semester mark fail (1), correction opportunities are available according to the Student Requirements System of Óbuda University. |
| ***Professional competencies:*** |
| * In possession of state-of-the-art IT skills, being able to use professional databases and certain design, modelling, and simulation software depending on their specialty. * Efforts to improve knowledge by on-going self-education and continuously update their knowledge of the world. * Responsible proclamation and representation of the value system of the engineering profession; openness to professionally well-founded critical remarks. * Sharing experiences with colleagues, thus promoting their development. |
| ***Literature:*** |
| 1. Javad, Mohammadpour: Control of Linear Parameter Varying systems. Chapter: 1, 2, 3; ISBN: 978-1-4674-1832 2. Keviczky, László: Control Engineering, Chapter: 1, 2, 4, 6, 8; ISBN: 978-963-9819-74-0 3. E-learning materials in Moodle (lectures) |