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| **Óbudai Egyetem**<br>Neumann János Informatikai Kar | | | Alkalmazott Informatikai Intézet | |
| **Tantárgy neve és kódja: Digital Systems NIXDR0EBNE** | | | **Kreditérték*: 5*** | |
| *Mérnök Informatikus BSc szak* | | *Nappali tagozat 2022/23 tanév I. félév* | | |
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| Tantárgy oktató(i): Klespitz József | | | | |
| Előtanulmányi feltételek: (kóddal) | Electrical Engineering, Electronics | | | |
| Heti óraszámok: | Előadás:2 | Tantermi gyak.: 0 | Laborgyakorlat: 2 | Konzultáció: 0 |
| Számonkérés módja: | Midterm grade | | | |

**A tananyag**

*Aim of the course*: Student will learn the basic principles of digital electronics required for computer engineers. They will get familiar with the most important construction elements of digital systems, the advancement of logic families, and the application aspects of use of construction elements in the realization of complex tasks.

*Topics*: Binary, octal, decimal and hexadecimal numeric representation, boolen algebra, De-Morgen rules, K-maps and truth tables, AND, OR, NOT, NOR, NAND, XOR, NXOR gates, basic CPU architectures, memories, combinational and sequential networks, synchornous systems, design and development single and multi-level systems, design and simulation with CAD, design and development methods for FPGAs

| Féléves ütemezés: | |
|---|---|
| Oktatási hét (konzultáció) | Témakör |
| 1. | Introduction, numeric representations, basics of Boolen-algebra |
| 2. | Description of combinational networks |
| 3. | Ideal and real components, properties of real components |
| 4. | Sequential networks |
| 5 | Design and analysis of sequential networks |
| 6. | Typical sequential networks |
| 7. | National holiday |
| 8. | Finite state machine: CPU |
| 9. | Logic circuit families: diode, transistor |
| 10. | Physical implementation of basic electronic components |
| 11. | Rectoral holiday |
| 12. | Computer aided design and simulation |
| 13. | Midterm exam |
| 14. | Complementary exam |

**Félévközi követelmények**

Reach at least 60% on each test (including midterm exam). Participate on at least 70% of laboratories and have and accepted documentations for them. Hand-in an accepted homework before each lab.

**Zárthelyi dolgozatok**

| Oktatási hét (konzultáció) | Témakör |
|---|---|
| 13 | Midterm exam |
| 14 | Complementary midterm exam |

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**A *félévzáró érdemjegy* (é) kialakításának módszere**

Midterm exam is considered with 50% weight. The average result of the best 5 lab tests is considered with 50% weight.

**Pótlás módja**

Midterm exam can be re-written during the 14th week.
Another retake can be written during the first two weeks of the examination period. The content of this test will however cover the entire semester, minimum results to pass: >60%. –To get the midterm grade it is mandatory to have the necessary amount of lab participation AND the accepted documentations.

**Vizsga módja**

**Vizsgajegy kialakítása**

| Result (%) | Grade (Hungarian scheme) |
|---|---|
| 90-100 | jeles (5) |
| 80-89 | jó (4) |
| 71-79 | közepes (3) |
| 60-70 | elégséges (2) |
| 0-59 | elégtelen (1) |

**Irodalom**

Kötelező:

Materials found in the Moodle system

Ajánlott:

In Hungarian:
Kóré László: Digitális elektronika I. BMF 1121
Dr. Arató Péter: Logikai rendszerek tervezése, Tankönyvkiadó, Budapest
In English:
M. Rafiquzzaman: Fundamentals of Digital Logic and mMicrocomputer Design

Egyéb segédletek:

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