| Academic unit: Faculty of Engineering and Informatics Applied Informatics Applied Informatics Level: Bachelor Course Status: Obligatory Year of studies: I Number of hours per week: 3 Value of Credits - ECTS: 5 Time / location: Course lecturer: Course lecturer: Prof.Ass. Dr.Bashkim Cerkini Course Description: This course enables students to know, understand and apply the basic concepts of digital electronics. It provides candidates with an opportunity to develop the knowledge and skills to be able to design and construct logic circuits to meet a design brief. Objectives of the course: The purpose of the module is to present the way of digital logic design (analysis and design). Expected learning outcomes: Upon successful completion of this course, student will be able to: • To express values in different system: Binary, Octal, Hexadecimal, etc. • To formulate different codes for information. • Explain and find the functions that perform a digital logic circuit. • Analyse logic circuits. • Designing the digital circuits. • Designing the digital circuits. • Designing the digital circuits. • Designing the digital circuits. • Contribution to the student load (which must correspond with learning outcomes) < | Basic data of the subject | | | | |
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| Title of the subject: Basics of Informatics Level: Bachelor Course Status: Obligatory Year of studies: I Number of hours per week: 3 Zourse lecturer: Prof.Ass. Dr.Bashkim Cerkini Course lecturer: Prof.Ass. Dr.Bashkim Cerkini Contact details: bashkim.cerkini@ushaf.net Course Description: This course enables students to know, understand and apply the basic concepts of digital electronics. It provides candidates with an opportunity to develop the knowledge and skills to be able to design and construct logic circuits to meet a design brief. Objectives of the course: Upon successful completion of this course, student will be able to: • To express values in different system: Binary, Octal, Hexadecimal, etc. • To formulate different codes for information. • Explain and find the functions that perform a digital logic circuit. • Analyse logic circuits. • Designing the digital circuits. • Designing the digital circuits. • Designing the digital circuits. • To express values in different system: Binary, Octal, Hexadecimal, etc. • To formulate different codes for information. • <td></td> <td>Applied Inf</td> <td>ormatics</td> <td></td> <td></td> | | Applied Inf | ormatics | | |
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| Teaching methodology: | The course takes 15 weeks with 2 hours of lectures and 2 hour weekly individual and group exercises. Exercises will be held in the form of individual and group work in which concrete examples will be discussed. Active participation is extremely important so students are encouraged to attend lectures and exercises regularly and contribute to the discussions that take place in lectures. Lectures, exercise, individual work, discussions and group work. |
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| Assessment methods: | Final exam: 70%; Course work: 30% |
| The ratio of theory and practice: | 60% theory and exercises with 40% lab work. |
| Literature | |
| Basic Literature: | 1. Agni Dika "Qarqet digjitale kombinuese I", Universiteti i Prishtinës, 2008 |
| Additional Literature: | 2. S.M. Deokar, A. A. Phadke, "Digital Logic Design and VHDL", Wiles, 2009 |
| Designed learning plan | |
| Week: | Lectures and exercises to be held |
| Week one: | Presentation of the subject |
| Week two: | Numerical systems. The binary number system, arithmetic operations in the binary system. Transformations between systems |
| | bybients. |
| Week three: | Codes and encoding. Boolean algebra. Logical functions and their presentation. |
| Week three: Week four: | Codes and encoding. Boolean algebra. Logical functions and their presentation. Combinatorial logic circuits. |
| Week three: Week four: Week five: | Codes and encoding. Boolean algebra. Logical functions and their presentation. Combinatorial logic circuits. Analysis of logic circuits. Synthesis of logic circuits. |
| Week three: Week four: Week five: Week six: | Codes and encoding. Boolean algebra. Logical functions and their presentation. Combinatorial logic circuits. Analysis of logic circuits. Synthesis of logic circuits. Encoders, decoders, codes transducers. |
| Week three: Week four: Week five: Week six: Week seven: | Codes and encoding. Boolean algebra. Logical functions and their presentation. Combinatorial logic circuits. Analysis of logic circuits. Synthesis of logic circuits. Encoders, decoders, codes transducers. Test 1 |
| Week three: Week four: Week five: Week six: Week seven: Week eight: | Systems:Codes and encoding. Boolean algebra. Logical functions and their presentation.Combinatorial logic circuits.Analysis of logic circuits. Synthesis of logic circuits.Encoders, decoders, codes transducers.Test 1Multiplexers, de-multiplexers, arithmetic circuits, comparators, ROM memories. |
| Week three: Week four: Week five: Week six: Week seven: Week eight: Week nine: | Systems:Codes and encoding. Boolean algebra. Logical functions and their presentation.Combinatorial logic circuits.Analysis of logic circuits. Synthesis of logic circuits.Encoders, decoders, codes transducers.Test 1Multiplexers, de-multiplexers, arithmetic circuits, comparators, ROM memories.Digital sequential circuits. Flip-Flops: SR, JK, D, T. |
| Week three: Week four: Week five: Week six: Week seven: Week eight: Week nine: Week ten: | Systems:Codes and encoding. Boolean algebra. Logical functions and their presentation.Combinatorial logic circuits.Analysis of logic circuits. Synthesis of logic circuits.Encoders, decoders, codes transducers.Test 1Multiplexers, de-multiplexers, arithmetic circuits, comparators, ROM memories.Digital sequential circuits. Flip-Flops: SR, JK, D, T.State Tables of the circuits. Diagram of states of the circuit. |
| Week three: Week four: Week five: Week six: Week seven: Week eight: Week nine: Week ten: Week ten: | Systems:Codes and encoding. Boolean algebra. Logical functions and their presentation.Combinatorial logic circuits.Analysis of logic circuits. Synthesis of logic circuits.Encoders, decoders, codes transducers.Test 1Multiplexers, de-multiplexers, arithmetic circuits, comparators, ROM memories.Digital sequential circuits. Flip-Flops: SR, JK, D, T.State Tables of the circuits. Diagram of states of the circuits. |
| Week three: Week four: Week five: Week six: Week seven: Week eight: Week nine: Week ten: Week ten: Week ten: Week twelve: | Systems:Codes and encoding. Boolean algebra. Logical functions and their presentation.Combinatorial logic circuits.Analysis of logic circuits. Synthesis of logic circuits.Encoders, decoders, codes transducers.Test 1Multiplexers, de-multiplexers, arithmetic circuits, comparators, ROM memories.Digital sequential circuits. Flip-Flops: SR, JK, D, T.State Tables of the circuits. Diagram of states of the circuit. Analysis of synchronous and asynchronous sequential circuits.Design of sequential circuits. |
| Week three: Week four: Week five: Week six: Week seven: Week eight: Week nine: Week ten: Week ten: Week twelve: Week twelve: Week thirteen: | Systems:Codes and encoding. Boolean algebra. Logical functions and their presentation.Combinatorial logic circuits.Analysis of logic circuits. Synthesis of logic circuits.Encoders, decoders, codes transducers.Test 1Multiplexers, de-multiplexers, arithmetic circuits, comparators, ROM memories.Digital sequential circuits. Flip-Flops: SR, JK, D, T.State Tables of the circuits. Diagram of states of the circuit.Analysis of synchronous and asynchronous sequential circuits.Design of digital counters. |
| Week three:Week four:Week five:Week six:Week seven:Week seven:Week eight:Week nine:Week ten:Week ten:Week ten:Week ten:Week thirteen:Week thirteen:Week fourteen: | Systems:Codes and encoding. Boolean algebra. Logical functions and their presentation.Combinatorial logic circuits.Analysis of logic circuits. Synthesis of logic circuits.Encoders, decoders, codes transducers.Test 1Multiplexers, de-multiplexers, arithmetic circuits, comparators, ROM memories.Digital sequential circuits. Flip-Flops: SR, JK, D, T.State Tables of the circuits. Diagram of states of the circuit.Analysis of synchronous and asynchronous sequential circuits.Design of digital counters.Design of memory. Software for simulating logic circuits. |
| Week three:Week four:Week five:Week six:Week seven:Week eight:Week eight:Week ten:Week ten:Week ten:Week ten:Week thirteen:Week thirteen:Week fourteen:Week fifteen: | Systems:Codes and encoding. Boolean algebra. Logical functions and their presentation.Combinatorial logic circuits.Analysis of logic circuits. Synthesis of logic circuits.Encoders, decoders, codes transducers.Test 1Multiplexers, de-multiplexers, arithmetic circuits, comparators, ROM memories.Digital sequential circuits. Flip-Flops: SR, JK, D, T.State Tables of the circuits. Diagram of states of the circuit.Analysis of synchronous and asynchronous sequential circuits.Design of digital counters.Design of digital counters.Test 2 |
| Week three: Week four: Week five: Week six: Week seven: Week eight: Week eight: Week ten: Week ten: Week ten: Week ten: Week thirteen: Week thirteen: Week fourteen: Week fifteen: Academic policies and rules of | Codes and encoding. Boolean algebra. Logical functions and their presentation. Combinatorial logic circuits. Analysis of logic circuits. Synthesis of logic circuits. Encoders, decoders, codes transducers. Test 1 Multiplexers, de-multiplexers, arithmetic circuits, comparators, ROM memories. Digital sequential circuits. Flip-Flops: SR, JK, D, T. State Tables of the circuits. Diagram of states of the circuit. Analysis of synchronous and asynchronous sequential circuits. Design of sequential circuits. Design of digital counters. Design of memory. Software for simulating logic circuits. Test 2 Conduct |
| Week three:Week four:Week five:Week six:Week seven:Week eight:Week eight:Week ten:Week ten:Week ten:Week ten:Week thirteen:Week thirteen:Week fourteen:Week fifteen:Academic policies and rules ofRegular attendance of lectures | Codes and encoding. Boolean algebra. Logical functions and their presentation. Combinatorial logic circuits. Analysis of logic circuits. Synthesis of logic circuits. Encoders, decoders, codes transducers. Test 1 Multiplexers, de-multiplexers, arithmetic circuits, comparators, ROM memories. Digital sequential circuits. Flip-Flops: SR, JK, D, T. State Tables of the circuits. Diagram of states of the circuit. Analysis of synchronous and asynchronous sequential circuits. Design of sequential circuits. Design of digital counters. Design of memory. Software for simulating logic circuits. Test 2 Conduct and exercises is necessary, as well as active participation with |

phones turned off or in silent mode