

Informatics I Course

<i>Name of the subject:</i> Informatics I - BSc	<i>SUBJECT code:</i>	<i>Weekly hours:</i> 2 lectures + 2 practical	<i>Credit:</i> 4
<i>Subject leader:</i> Darko Brodic Dragisa Stanujkic (Milena Jevtic Branislav Ivanov)	<i>Academi Degree:</i> <i>Associate Professor</i> <i>Associate Professor</i> <i>Assistant</i> <i>Assistant</i>	<i>Prerequisites:</i> The basic informatics knowledge from the high school	

Purpose: Acquiring basic computer knowledge in information technology

Outcome: Introduce with the operation of computer systems and their application for data processing basic level

Course description:

Numeral systems and number translation: The essence of numeral system, the translation of numbers from one numeral system to another, the conversion from binary to octal and hexadecimal numeral systems, binary arithmetic, basic arithmetic operations in the system with an arbitrary basis.

Representation of data in computer: BCD data, one's complement, two's complement, complement arithmetic, ASCII codes.

Boolean and switching algebra: definition of Boolean algebra and basic examples, idempotence law, the law of involution operation of negation, De Morgan's theorem, the law of absorption, the simplification of logic expressions, minimization of logical expressions, Karnaugh maps, switching algebra, analysis and synthesis logic circuits.

Switching and logic gates: Switching gates, AND, OR and NOT logic gates, examples of logic gates, analysis and synthesis of switching gates.

Schedule

Weeks	Topics
1.	Introduction to numerical systems
2.	The translation of numbers from one numeral system to another one
3.	Basic arithmetic operations (sum and difference)
4.	Basic arithmetic operations (product and division)
5.	Representation of data in computer
6.	Colloquium 1 about numerical systems
7.	Boolean and switching algebra
8.	Analysis and design of switching circuits
9.	Laws and theorems of Boolean algebra
10.	Minimization of logic gates
11.	Analysis and design of logic circuits
12.	Colloquium 2 about switching and logic circuits
13.	Karnaugh maps with 3 variable
14.	Karnaugh maps with 4 variable
15.	Final preparation for the exam

Final grade: Activity at lectures (10) + Colloquium 1 (20) + Colloquium 2 (20) + Seminary (Assignments) (10) + Final exam (40) = 100

0-50 – Mark 5

51-60 – Mark 6

61-70 – Mark 7

71-80 – Mark 8

81-90 – Mark 9

91-100 – Mark 10

Compulsory literature:

1. Milos Ercegovac, Thomas Lang, Jaime H. Moreno, Introduction to Digital Systems, John Wiley and Sons, ISBN: 978-8-126-52251-4

Supplemental literature:

1. Darko Brodic, Milena Jevtic, Book of Assignments in Computer Science I, In Serbian