Kharkiv National University of Radio Electronics

Department of Computer Intelligent Technologies and Systems

**Syllabus**

METHODS AND MEANS OF INFORMATION COMPRESSION

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| № | Field name | Detailed content, comments |

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| 1. | Name of the faculty | Computer engineering and management |
| 2. | Level of higher education | Master's degree |
| 3. | Code and name of the specialty | 123 Computer Engineering |
| 4. | Type and name of educational program | OPP "Computer Intelligent Technologies" |
| 5. | Code and name of the discipline | Methods and means of information compression |
| 6. | Number of ECTS credits | 4 |
| 7. | Discipline structure (distribution by types and hours of study) | 24 years. - 12 lux,16 years. - 4 lbs,10 years. - 5 cons.,70. - independent work, type of control: exam |
| 8. | The schedule of studying the discipline | 1st year, 2nd semester |
| 9. | Prerequisites for studying the discipline | Previous disciplines should be studied: "Higher Mathematics", "Information Theory and Coding", "C ++ programming". |
| 10. | Discipline abstract | The discipline of basic (professional) training in the specialty contains content modules:   1. Universal methods of data compression .. 2. Methods of multimedia data compression. |
| 11. | Competences, knowledge, skills, understanding, which are acquired by the applicant in higher education in the learning process | Ability to use methods of information compression theory in solving engineering problems, which are associated with the development of effective algorithms for compression and decompression of data of various origins; be able to perform encoding and decoding of messages using Huffman compression algorithms, arithmetic and dictionary coding, as well as use the transformations that underlie more complex compression algorithms (audio, graphics and video); perform the calculation of the main characteristics of the algorithms - the degree and quality of compression, as well as metrics used to evaluate the encoding in the compression algorithms of multimedia data. |
| 12. | Learning outcomes of higher education | Knowledge of the basic provisions of the theory of data compression; evolution of data compression methods; principles of effective data coding; principles of construction of archivers and codecs; modern standards for compression of multimedia data and trends in the development of compression-decompression methods; principles of data compression, basic compression algorithms; idea of ​​ways of software implementation of compression algorithms in MS Visual Studio, Borland Delphi, C ++ Builder and Matlab; knowledge of the stages of implementation of the studied compression algorithms in the selected programming environment |
| 13. | Assessment system according to each task for passing the test / exam | 1. Work out and defend laboratory work.  2. Perform 2 tests.  4. Get at least 60 points per semester.  5. Pass the combined exam.  Semester grade () is calculated as the sum of grades for different types of classes and control measures. Each laboratory work is estimated at 5 points (1 point for attendance + 1 point for practice + 3 points for defense (delivery with an assessment)). DKR1 is estimated at 21-35 points, DKR2 - at 12-20 points, Test - at 12-20 points. The maximum rating during the semester is 100 points.  Exam score  = (60-100) points. |
| 14. | The quality of the educational process | Adherence to the principles of academic integrity (<http://lib.nure.ua/plagiat>). Update of the work program of the discipline - 2020 |
| 15. | Methodical support | Complex educational and methodological support of the discipline "Methods and means of information compression»For students majoring in 123« Computer Engineering »on the educational program« Computer Intelligent Technologies », branches of knowledge 12« Information Technologies »[Electronic resource] / Разр .: О.О. Bezsonov - Kharkiv: KNURE, 2019.<http://catalogue.nure.ua/knmz>. |
| 16. | Syllabus developer | O.O. Bezsonov, prof. Department of KITS, D. Of Sci., Professor |