Kharkiv National University of Radio Electronics

Department of Computer Intelligent Technologies and Systems

**Syllabus**

Design of intelligent computer systems on the Raspberry Pi platform

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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 | Design of intelligent computer systems on the Raspberry Pi platform |
| 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", "Computer Architecture", "Programming of microcontrollers" and "Programming in C / C ++". |
| 10. | Discipline abstract | The discipline of basic (professional) training in the specialty contains content modules:1. Introduction to ARM technology.
2. Design of IoT systems and review of cloud technologies.
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| 11. | Competences, knowledge, skills, understanding, which are acquired by the applicant in higher education in the learning process | Ability to analyze, design and install specialized intelligent systems based on microcomputers and controllers; operate microcomputer intelligent systems and related software; determine the causes of system failures and eliminate them; install and debug Raspbian OS; administer microcomputer resources; to provide information security of operation of Raspberry Pi microcomputers. |
| 12. | Learning outcomes of higher education | Knowledge of basic concepts and terms used in theory and practice; principles of data transmission and intellectual processing; principles of building specialized intelligent systems based on microcomputers; basic architectures and technologies for setting up microcomputers based on RPI3, OrangePI; protocols used on the Internet of Things; Raspbian operating system; intelligent means of combining microcomputers; basic methods of information security in microcomputer systems. |
| 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 of educational and methodical support of the discipline "Design of intelligent computer systems on the Raspberry Pi platform" for students majoring in 123 "Computer Engineering" in the educational program "Computer Intelligent Technologies", field of knowledge 12 "Information Technology" [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 |