| № | Field name | Detailed content, comments |
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| 1. | Name of the faculty | Faculty of information radio technologies and technical information security |
| 2. | The level of higher education | Bachelor |
| 3. | Code and title of specialty | 171 – Electronics |
| 4. | The type and title of the educational program | Educational program Systems, technologies and computer means of multimedia |
| 5. | Code and title of the discipline | ВБ2.4 Fundamentals of Media Engineering Usability |
| 6. | Number of ECTS credits | 4 |
| 7. | The structure of the course (distribution by type and hours of training) | Lectures - 4 hours, practical - 28 hours, laboratory work - 16 hours, consultations - 8 hours, independent work - 64 hours, semester control - credit |
| 8. | Schedule (terms) of study of the subject | Course -1, semester - 1 |
| 9. | Prerequisites for learning the discipline | Basic multimedia technologies |
| 10. | Abstract (content) of the discipline | Fundamentals of theory and practice of UX / UI design; features of UX / UI construction for WEB and for mobile platforms based on usability. |
| 11. | Competencies, knowledge, skills, understanding that a higher education acquirer has in the learning process | General competencies:<br>1. Ability to apply knowledge in practical situations.<br>2. Knowledge and understanding of the subject area and understanding of professional activity.<br>3. Ability to communicate in the state language both orally and in writing.<br>5. Skills in the use of information and communication technologies.<br>6. The ability to learn and master modern knowledge.<br>7. Ability to search, process and analyze information from various sources.<br>12. Definiteness and perseverance in terms of tasks and responsibilities.<br>Professional competencies:<br>1. Ability to use knowledge and understanding of scientific facts, concepts, theories, principles and methods for the design and application of devices, devices and systems of electronics.<br>2. Ability to perform analysis of the subject area and regulatory documentation required for the design and application of devices, devices and electronics systems.<br>3. Ability to integrate knowledge of the fundamental sections of physics and chemistry to understand the processes of solid-state, functional and power electronics, electrical engineering. |

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| | | 4. Ability to take into account social, environmental, ethical, economic and commercial considerations that affect the efficiency and performance of engineering activities in the field of electronics.<br>6. Ability to identify, classify, evaluate and describe the processes of devices, devices and systems of electronics using analytical methods, modeling tools, prototypes and experimental results.<br>7. Ability to apply creative and innovative potential in the synthesis of engineering solutions and in the development of designs of devices and electronics systems.<br>8. Ability to solve engineering problems in the field of electronics, taking into account all aspects of development, design, production, operation and modernization of electronic devices, devices and systems.<br>9. Ability to determine and evaluate the characteristics and parameters of materials of electronic equipment, analog and digital electronic devices for the design of microprocessor and electronic systems.<br>10. Ability to apply in practice industry standards and quality standards for the operation of devices and systems of electronics.<br>11. Ability to monitor and diagnose the condition of equipment, use modern electronic components and technical means, prevention, repair and maintenance of electronic devices and systems, install, configure and repair analog, digital and optical modules, develop and manufacture printed circuit boards, develop software for microcontrollers. |
| 12. | Learning outcomes of a Higher Education applicant | P1. Describe the principle of operation using scientific concepts, theories and methods and verify the results in the design and application of devices, devices and electronics systems.<br>P2. Apply knowledge and understanding of differential and integral calculus, algebra, functional analysis of real and complex variables, vectors and matrices, vector calculus, differential equations in ordinary and partial derivatives, Fourier series, statistical analysis, information theory, numerical methods to solve theoretical and applied problems of electronics.<br>P3. Find solutions to practical problems of electronics by applying appropriate models |

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| | | and theories of electrodynamics, analytical mechanics, electromagnetism, statistical physics, solid state physics.<br>P4. Evaluate the characteristics and parameters of electronic equipment, understanding the basics of solid-state electronics, electrical engineering, analog and digital circuitry, converter and microprocessor technology.<br>P5. Use information and communication technologies, applied and specialized software products to solve problems of design and debugging of electronic systems, demonstrate skills of programming, analysis and display of measurement and control results.<br>P6. Apply experimental skills (knowledge of experimental methods and procedures for conducting experiments) to test hypotheses and study the phenomena of electronics, be able to use standard equipment, plan, make diagrams; analyze, model and critically evaluate the results.<br>P8. Identify and identify mathematical models of technological objects in the development of new complex electronic systems in the computer environment and the choice of the optimal solution.<br>P9. Design complex real-time systems and means of collecting and processing information, consistent with the specified information and<br>software by using software for embedded systems based on microcontrollers.<br>P10. Develop technical means for the construction and diagnosis of technical condition of electronic devices and systems, organize and conduct scheduled and unscheduled repairs, adjustment and reconfiguration of electronic equipment in accordance with current production requirements.<br>P13. Be able to acquire new knowledge, advanced technologies and innovations, find new non-standard solutions and means of their implementation; meet the requirements of flexibility in overcoming obstacles and achieving goals, rational use and regulation of time, discipline, responsibility for their decisions and expediency.<br>P16. Apply understanding of the theory of stochastic processes, methods of statistical processing and data analysis in solving |

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| | | professional problems.<br>P17. Demonstrate skills in conducting experimental research related to professional activities; to improve<br>measurement methods; control the reliability of the obtained results; systematize and analyze the data obtained experimentally.<br>P18. Apply the method of mathematical modeling and optimization of electronic systems for the development of automated and robotic production systems |
| 13. | Assessment system in accordance with each task for taking tests/exams | To evaluate the student's work during the semester, the final rating is calculated as the sum of grades for different types of classes and control activities. |
| 14. | The quality of the educational process | The policy of academic integrity, updating the content of the discipline on the basis of modern practices, scientific achievements, recommendations of employers. |
| 15. | Methodological support | 1. Designing with the Mind in Mind: Simple Guide to Understanding User Interface Design Guidelines ( 2nd Edition) /Jeff Johnson, 2014.- 250c.<br>2. The Design of Everyday Things: Revised and Expanded Edition/ Don Norman, 2013. —.370c.<br>3. Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability (3rd Edition) / Steve Krug's, 2014 – 200 c.<br>4. Хороший интерфейс - невидимый интерфейс /Голден Кришна– СПб, 2016 – 256с.<br>5. Не заставляйте меня думать! / Стив Круг – СПб.: Символ-Плюс, 2008 – 215с.<br>6. Об интерфейсе. Основы проектирования взаимодействия / Алан Купер – СПб.: Символ-Плюс, 2009 – 688с.<br>7. Интерфейс. Новые направления в проектировании компьютерных систем / Джеф Раскин – СПб.: Символ-Плюс, 2004 – 272с. |
| 16. | The developer of the Syllabus | Senior lecturer Yelyzaveta Tolstykh, yelyzaveta.tolstykh@nure.ua |