

Discipline annotation

Документ подписан простой электронной подписью Информация о владельце: ФИО: Петренко Вячеслав Иванович Должность: директор Института цифрового развития Дата подписания: 28.03.2024 14:31:33 Уникальный программный ключ: b47f96eea65a16e179f94dbf7fb0b10000e7ad4d	Discipline name Математические основы цифровой обработки сигналов / Mathematical foundations of digital signal processing
	Summary General information about discrete signals and linear systems. Operations on discrete sequences and schemes of shift-invariant linear systems. Methods for representing discrete signals. Discrete signals, their representation in the frequency and pulse domain. Signals and linear systems. Discretization by direct z-transform. Calculation of the convolution of two sequences by the discrete Fourier transform. Implementation of two-dimensional linear convolution of sequences using circular convolution. Representation of filter structures in the form of signal graphs and matrices of digital circuits. Representation of digital filters as systems of linear equations. Construction of block diagrams of IIR filters and their synthesis. Calculation of filters based on analog-to-digital transformation.
Learning outcomes of the discipline	- able to monitor the operation of communication means of telecommunication networks, protection of facilities and communication means of telecommunication networks against unauthorized access - determines the technical channels of information leakage arising due to side electromagnetic radiation and pickup from the main technical means, due to interference of information signals on the power supply and electrical grounding circuits of the main technical means and systems, auxiliary technical means and systems, their cable communications, as well as those created by the method “high-frequency exposure” of the main technical means and systems and due to the possibly introduced electronic devices for intercepting information in the main technical means; - configures secure technical means of information transmission; - conducts testing of secure technical means of information transmission
Workload, c. u.	3 c. u.
Reporting Forms	Credit - 5th semester
List of essential and supplementary literature necessary for mastering the discipline	
Essential literature	1. Solonina A. I. Digital signal processing. Modeling in Simulink: textbook for universities. - St. Petersburg: BHV-Petersburg, 2013. - 425 p. Stamp: recommended by the AMA.
Supplementary literature	1. Vasiliev V. P. Fundamentals of the theory and calculation of digital filters: study guide / V. P. Vasiliev, E. L. Muro, S. M. Smolsky; ed. by C. M. Smolsky. – M.: Academia, 2007. – 272 p. 2. Sergienko A. B. Digital signal processing: textbook for universities / A. B. Sergienko. - 2nd ed. - M. [and others]: Piter, 2016. - 750 p. 3. Goldenberg L. M. Digital signal processing: textbook for universities / L. M. Goldenberg, B. D. Matyushkin, M. N. Polyak. - 2nd ed., revised and enlarged - M. : Radio I svyaz, 2015. - 256 p. 4. Fedosov V. P. Digital signal processing in LabVIEW / V. P. Fedosov, A. K. Nesterenko; ed. by Fedosova V. P. – M.: DMK, 2013. – 472 p.