

Prepare a short presentation devoted to one of the following topics:

1. Specification of fundamental programming tools and data structures in MATLAB
 2. Two-dimensional and three-dimensional graphics in the MATLAB environment
 3. Basic blocks and ideas of data modelling in the SIMULINK environment
 4. Principle of the mean square method for data approximation
 5. Z-transform, its definition, basic properties and applications
 6. Discrete Fourier transform, interpretation and selected properties
 7. Spectral analysis, short time Fourier transform and window functions use
 8. Two-dimensional discrete Fourier transform in image analysis
 9. Difference equations and digital filtering, FIR and IIR filters
 10. Explanation of convolution and its use in spectral analysis and filtering
 11. The use of discrete Fourier transform for frequency domain filtering
 12. Principles of wavelet transform, signal decomposition and reconstruction, signal de-noising
 13. Wavelet decomposition and de-noising in image processing
 14. Explanation of relation between wavelet dilation and spectrum compression
 15. Autoregressive signal modelling and prediction
 16. Principles of artificial neural networks and computational intelligence
 17. Artificial neural networks in adaptive signal processing
 18. Specific problems of environmental signal processing and data modelling
 19. Selected problems and methods of biomedical signal processing
 20. Problems and methods of biomedical image analysis and Radon transform use
 21. Application of autoregressive modelling to prediction of energy consumption
-