

4.1. Title: **Queuing theory** (system analysis)

4.2. Annotation of the academic subject: the subject includes the essentials of queuing theory and its application to engineering of modern telecommunication networks, mobile communications and communication data system. The lectures materials include queuing theory systems classification, the incoming requirements flows analysis and limit theorems for cumulative flow. The systems study starts upon easy Markov models. Then the models become more compound like models of Erlang and semi-Markov type. The most difficult models are of GI|GI|m type.

4.3. Type: special subject

4.4. Duration: 7<sup>th</sup> semester

4.5. Number of credits: 2

4.6. Lector's full name: full professor Eugene A. Lebedev.

4.7. The goal of the academic subject: students should master the methods of queuing systems analysis, birth-and-death processes, Erlang stages methods, Kendall imbedded chains methods, catastrophe method. Students have to understand main steps of theory implementation at the examples of concrete technical systems.

4.8. The prior requirements: mathematical analysis essentials, algebra, discrete mathematics, differential equations, probability theory and mathematical statistics basic concept.

4.9. Teaching methods: lectures.

5.0. Rating methods: module-rating system. Each semester results are estimated over 100-points scale. The course ends by test.

5.1. Language: Ukrainian.