

The thesis deals with stability of delay epidemiological models. For this purpose we formulate the basic theory of delay differential equations and the fundamental theorems about Ljapunov functions and stability, that we state with detailed proofs. We briefly comment on the meaning of each equation and constants used in three epidemiological models: SIR with constant population size, SIR with varying population size and SEIR model. It is a system of two, three and four delay differential equations, respectively. By combining different procedures from source articles we find appropriate Ljapunov functions and with the help of them we prove global asymptotic stability of the disease free equilibrium and local asymptotic stability of the endemic equilibrium for each of the models.