The focus of this thesis are three-dimensional simulations of flow of two immiscible incompressible viscous fluids and distribution of concentration transported by the flow where the free interface between the fluids is realized by level-set method. It is applied to blood flow and coagulation. The blood flow is described using Navier-Stokes equations for incompressible fluids, numerical method is done by finite element method with Q2 - Q1 elements and the problem is solved as coupled. The distribution of concentration is described using transport equation, discretization is done using Q1 elements.