Close eccentric eclipsing binary star systems are important to our understanding of stellar formation and evolution. We analyze three such systems - V335 Ser, BW Boo and DR Vul - with emphasis on a possible third body in the systems needed for the system's existence according to the current theoretical models. Using spectra from the Ondřejov Observatory, we attempted to disentangle the spectra of the components and determine the radial velocity solutions for the systems. For V335 Ser we obtain new radial velocity measurements, spectra, and upper limits on the mass of a possible third body. For BW Boo we obtain the spectrum of the third body possibly dynamically connected with the system. Using measured radial velocities and our fit to TESS photometry, we compute best to date parameters for the components and the orbit of the binary system. In the system DR Vul we confirmed the third body and also its nature by obtaining its spectra. We present the first orbital solution available for the central binary. The triple system does not seem to follow the theoretically predicted common inclination of the orbits.