

CE 4523 GEOTECHNICAL EARTHQUAKE ENGINEERING

TERM PROJECT (Due to 25.12.2015)

- 1) A dam will be constructed on Tokat river. Location of the dam is shown on the tectonic map (Figure 1). The design acceleration spectra for surface motions at the Site, due to a Magnitude 7.5 ($M_w=7.5$) earthquake event on the North Anatolian Fault is requested by the client for 5 percent damping. Soil profile of the site is provided by the client as given in the Appendix.

By the computer program SHAKE91, analyse the response of soil profile under 4 base excitations having different ground motion characteristics.

Upon completion of the analysis, using the output data,

- a) Draw the response spectrum at the outcrop for the given soil profile, for all of the earthquake base motions.
- b) Draw the amplification spectra for the given soil profile, for all of the earthquake base motions.
- c) Draw shear stress and strain profile for all of the earthquake base motions.
- d) Construct design acceleration spectra for the given Site. Compare with the Turkish design spectra (Turkish Earthquake Code 2007).

