2182. Solar Energy

Solar radiation (basic concepts, angles, direct and diffuse radiation, spectral distribution, attenuation by the atmosphere, tilted and tracking systems, correlations, measurement of solar radiation, values in the Athens area) - Theory of flat-plate collectors (heat transfer analysis, temperature distribution on the absorber plate, collector efficiency factor, heat removal factor and flow factor, collector efficiency, measurement of collector performance, various designs of flat plate collectors) - Concentrating collectors - Solar systems for space and service water heating (design methods, the f-chart method) - Design methods for thermal solar systems (Utilizability, the f-chart method) - Energy storage - Other applications (Solar cooling, conversion to mechanical energy, solar ponds, passive systems, economics).

Lab: C 10% % of the Final Grade Project/s: C 10% of the Final Grade

X. Tzivanidis, K. Braimakis, (G. Zannis)