



Faculty of Earth Sciences



Geophysics Department



The Geological Society
Accredited degree courses

RADIOMETRY AND GEOTHERMOMETRY

Course Name	Course ID	Prerequisites
<i>RADIOMETRY AND GEOTHERMOMETRY</i>	<i>EGP 342</i>	<i>EGP 211</i>

Course Description

Natural radioactivity, radioactive decay, radioactive equilibrium, units of measurements, total counts gamma-rays scintillometer and gamma-rays spectrometer, radiation background, calibration systems. Thermal characteristics of rocks, geothermal history, geothermal field, geothermal flux, geothermal anomalies, measuring instruments, surveying methods, and historical cases.

Course Objectives

1. Studying radiometric and geothermometric properties of rocks and minerals.
2. To delineate the natural sources of radiometric and geothermometric on the earth surface and how to use them as a geophysical tool for surface and subsurface investigations.
3. Studying of the behavior of radiometric and heat distribution and the factors affecting them.
4. Describing of the different radiometric and geothermometric tools to explore different types of rocks
5. Learn about and gain training in the methods of interpretation of radiometric and geothermometric data.

General References for the Course: (Books/Journals...etc.)

Students in this course can read from:

1. *Nuclear Methods in Mineral Exploration and Production*, by Morse, J.G., 1977. Elsevier Scientific Publishing Company, Amsterdam.
2. *Principles of Applied Geophysics, 5th Edition*, by Parasnis, D.S., 1997. Chapman & Hall, London.
3. “*Understanding the Earth*”, *A Reader in the Earth Sciences*, by Gass, I.G., Smith, P.J., & Wilson, R.C.L., 1977. Published by the Open University, the Artemis Press.

List of URLs for this Course

- www.google.com
- www.igme.gr/e30.htm

Course Outcome

The student is able to know the radiometric and geothermometric application in different geological exploration objectives. The student is in a position to know the following:

1. Student knows the radiometric survey techniques.
2. Student knows the natural behavior of the radioactivity.
3. Student knows radiometric and spectrometric applications in geological objectives.
4. Student can outlining of geothermal flow and its significance.
5. Student can conduct the geothermal survey and data interpretation.