



Faculty of Earth Sciences



Department of Mineral Resources & Rocks 3rd & 4th Years Program



The Geological Society
Accredited degree courses

VOLCANOLOGY

Course Name	Course ID	Prerequisite
<i>VOLCANOLOGY</i>	<i>EMR 321</i>	<i>EMR 304</i>

Course Description

Physical properties of magma. Genesis and ascending of magma. Volcanic activity and plate tectonics. Types and classification of volcanic eruptions. Lavas and pyroclastics. Shape of volcanoes. Succession of old and young volcanicity. Volcanic facies. Volcanic successions in the Arabian shield. Recent volcanicity in Kingdom of Saudi Arabia and Red Sea region. Mineralization related to volcanic activity. Volcanic activity and energy. Recording of volcanic activity. Risks of volcanic activity.

Course Objectives

1. Physical properties of magma and generation and ascent of magma and volcanic facies.
2. Types and classifications of volcanic eruptions.
3. Volcanism and plate tectonics. Mineralization associated with volcanism.
4. Volcanic successions in the Arabian Shield. Cenozoic volcanism in Saudi Arabia and the Red Sea region. Mineralization associated with volcanism.
5. Volcanism and energy. Monitoring volcanic activity. Volcanic risks.

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

Students in this course can read from:

1. *Volcanic Successions: Modern and Ancient*, by: Cas, R.A.F., and Wright, J.V., 1988. Unwin Hyman.
2. *Volcanoes and Society*, by Chester, D., 1993. London, Edward Arnold, 351 p.
3. *Volcanoes, a Planetary Perspective*, by Francis, P., 1995. Oxford University Press.

4. *Volcanoes*, by Macdonald, G.A., 1972. Prentice-Hall.
5. *Volcanology*, by, Williams, H., and McBirney, A.R., 1979. Freeman, Cooper & Co.

List of URLs for this Course

- <http://www.kaau.edu.sa/mmoufti/volcanic.htm>
- www.geo.mtu.edu/volcanoes

Course Outcome

1. Student can be able to know the physical properties of magmas.
2. Student can identify volcanism and plate tectonics.
3. Student can know the types and classification of volcanic eruptions.
4. Students can know the volcanoclastic deposits and lava types.
5. Students can differentiate between volcanic landforms and facies.
6. Student can distinguish between modern and ancient volcanic succession.
7. Student can be able to know the Cenozoic volcanism in Saudi Arabia.
8. Student can be able to monitoring volcanic activities and volcanic hazards.