

King Saud University,  
College of Science,  
Department of Geology.

## Geo 223 Course

### Crystallography and Mineralogy

Academic Year 1430- 1431H (2009 – 2010)

Course Director: Dr. Bassam A. Abu amarah

Contributor:

Course Title: Crystallography and Mineralogy.

Course Code: Geo 223.

Credit hours: 3 credit hours (2+1).

Level/ year the course is offered: 2<sup>nd</sup> semester of the fourth year.

Course pre-requisites: Geo 101 course (Physical geology) + Chem. 101 course.

Group Number: 17751.

Lecture theater (room): 170 B

#### **Course objectives:**

This course will tend to develop the students knowledge of general crystallography silicate and non silicate mineralogy .

#### **Course Description:**

The Geo. 223 – course consists of sixteen weeks including 30 lectures, 15 practical hours, and field work. The course will provide a basic knowledge in crystallography and mineralogy, as well as, on the economic significance of mineral deposits. So Students will be able to understand and to differentiate between minerals and to imagine its crystals in 3 dimensions. Students will also be trained to solve some crystallographic and mineralogical problems

. Course Evaluation:

First Assessment Exam	Second Assessment Exam	Practical I	Practical II	Final
10	10	15	15	50

Essential References and text books:

1. Cox, Price and Harte . The Practical study of Crystal, Minerals and rocks, Mc GRAW-HILL.
2. M. A. Wahab Essential of crystallography, Alpha Science.
3. Phillips, F.C. An introduction to crystallograpy , longman.
4. M.H. Battey. Mineralogy for student, Longman.
5. Martin J. Burger. Introduction to crystal geometry, Mc GRAW-HILL.
6. Lab manual prepared for this course.
7. Electronic Materials such as Web Sites by using scientific search engine s etc
8. The instructor will provide some relevant materials and learning aids.

Course outlines:

The following table shows the tentative outlines of this course.

Course outnes

No of weeks	Lecture Time	Date	Lecture's Title	Practical
1	9 –10 am	Sat 6/3/1431 20/2/2010	Introduction : crystal growth, measurement of crystal angles	1
	9-10 am	Mon 8/3/1431 22/2/2010		
2	9 –10 am	Sat 13/3/1431 27/2/2010	Introduction : crystal growth, measurement of crystal angles	1
	9-10 am	Mon 15/3/1431 1/3/2010		
3	9 –10 am	Sat 20/3/1431 6/3/2010	Crystal systems and classes	1
	9-10 am	Mon 22/3/1431 8/3/2010		
4	9 –10 am	Sat 27/3/1431 13/3/2010	Miller indices interfacial angles and axial ratios	1
	9-10 am	Mon 29/3/1431 15/3/2010		
5	9 –10 am	Sat 4/4/1431 20/3/2010	Forms, crystal habits	1
	9-10 am	Mon 6/4/1431 22/3/2010		
6	9 –10 am	Sat 11/4/1431 27/3/2010	Symmetry and unit cell	1
	9-10 am	Mon 13/4/1431 29/3/2010		
7	9 –10 am	Sat 18/4/1431 3/4/2010	First assessment exam	1
	9-10 am	Mon 20/4/1431 5/4/2010	Lattices and symmetry operations	

8	9 –10 am	Sat 25/4/1431 10/4/2010	Mineral chemistry: chemical composition. of the earth's crust	1
	9-10 am	Mon 27/4/1431 12/4/2010		
9		Sat 3/5/1431 17/4/2010	2 <sup>nd</sup> semester Med –year vacation	
		Mon 5/5/1431 19/4/2010		
10	9 –10 am	Sat 10/5/1431 24/4/2010	Chemical analytical technique	1
	9-10 am	Mon 12/5/1431 26/4/2010		
11	9 –10 am	Sat 17/5/1431 1/5/2010	Mineral Classification:  Native elements , sulphides and sulfosalts, halides	1
	9-10 am	Mon 19/5/1431 3/5/2010		
12	9 –10 am	Sat 24/5/1431 8/5/2010	metallic :  Oxides, hydroxides, sulphides, carbonates, borates, phosphates and sulphates	1
	9-10 am	Mon 26/5/1431 10/5/2010		
13	9 –10 am	Sat 1/6/1431 15/5/2010	silicateminerals – structure and classification : quartz, pyroxenes , amphiboles, phyllosilicates and tectosilicates.	1
	9-10 am	Mon 3/6/1431 17/5/2010		
14	9 –10 am	Sat 8/6/1431 22/5/2010	Second assessment exam	1
	9-10 am	Mon 10/6/1431 24/5/2010	silicateminerals – structure and classification : quartz, pyroxenes , amphiboles, phyllosilicates and tectosilicates.	
15	9 –10 am	Sat 15/6/1431 29/5/2010	origin of minerals	1
	9-10 am	Mon 17/6/1431 31/5/2010		
16	9 –10 am	Sat 22/6/1431 5/6/2010	Revision	1

