

Course specifications: **Crystallography and optical mineralogy**

- Programme (s) on which the course is given: **Special Geology**
- Major elements of mineral program
- Department offering the program: **Geology**
- Department offering the course: **Hard crystalline rocks and associated courses.**
- Academic year: **2nd year (Geology) (1st Semester)**
- Date of specification approval: 2008

A- Basic information

Title: **Crystallography and optical mineralogy (stereographic projection)**

Code: **G 222**

Credit hours:

Lecture: **3 hrs\week**

Tutorial:

Practical: **2 hrs\week**

Total: **5**

hrs\week

B- Professional Information

1- Overall aims of the course

Identification of the twenty two classes of crystals. This is essential for the mineralogy. The aim of the optical mineralogy course is to identify the main optical properties in thin sections and use the polarized microscope
Optical properties using the polarizing microscope
How to use the polarizing microscope

2- Intended learning outcomes of course (ILOS)

2a. Knowledge and understanding:

- a1- Stereographic representation of crystals
- a2- Detailed description of crystal models of the twenty two classes
- a3- Optical properties of minerals in thin sections
- a4- Preparation of the thin section

2b. Intellectual skills

- b1- Identification of the different crystals

b2- Plotting of the elements of crystallization and elements of symmetry on the basic

circles.

b3- Representation of the different crystal forms on the basic circle

b4- Study a thin section and mineral identification

2c. Professional and practical skills

c1- Drawing of the spherical projection

c2- Drawing of the stereographic projection from the graphical one.

c3- Plotting the stereographic projection of the elements of crystallization, elements

of symmetry and forms of different crystal models

c4- Identification of mineral using their optical properties in thin section using the polarizing microscope

3- Contents

Topic	No. of hours	lecture	Tutorial/practical
1- Crystal projection	4	2	2
2- Cubic system	4	2	2
3- Tetragonal system	4	2	2
4- Orthorhombic system	4	2	2
5- Hexagonal system	4	2	2
6- Trigonal system	4	2	2
7- Monoclinic system	4	2	2
9- Triclinic system	4	2	2
10- general properties of light	4	2	2
11- polarization of light	4	2	2
12- preparation of the thin section	6	4	2
13- properties of minerals in parallel light	10	6	4
14- properties of minerals in polarized light	6	2	4

15- properties of minerals between crossed polar	10	8	2
16- properties of minerals in convergent light	8	6	2

4- Teaching and learning methods

Information collection

Discussions

Lecture

Practical training lab

Class activities

5- Student assessment methods

5.1- Monthly test to assess understanding lectures and practical problems.

5.2- Oral test at the end of the January to assess understanding lectures and practical parts of the course.

5.3- General test at the end of the January to assess understanding practical part of the course.

5.4- General test at the end of the January to assess understanding lectures of the course.

Assessment 1 to 12 week 12

Weighing of assessment

Final-term Examination	40%
Oral Examination.	10%
Practical Examination	40%
Class Work	10 %
Other types of assessment	<u>0 %</u>
Total	100%

6-list of references

- 1- Course notes
- 2- Essential text books in

**Morphologic crystallography and optical Minerology S. Roy, 1976 Oxiford
and IBH Publishing G.**

3- Recommended books

**Morphologic crystallography and optical Minerology S. Roy, 1976 Oxiford
and IBH Publishing G.**

Periodical web site....etc: Science direct,google.com .

7-Facilities required for teaching and learning

Course coordinator: Prof. M. Wateed

Head of Department:

Date: