First Year/ Mineralogy G102

Course Description Form

The course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether s/he has made maximum use of the available learning opportunities.

1.Educational Institution	College of Science/ University of Basrah
2. Department	Geology
3. Course name/Code 1. Programs included in it	Mineralogy G102
4. Programs included in	Bachelor, Master, Doctorate
5. Attendance Form Available	Weekly
6. Semester/ Year	2022-2023
7. Total of study hours	30 hours + 60 practical hours
8. The course description was	Prepared in 01/09/2022
9. Aims of the Course	

The objective of mineralogy course is to provide students with the basic principles and knowledge of minerals. It covers the following aspects: physical properties, chemical composition, crystal structure, internal atomic arrangement, types of chemical bonds that holds atoms, classification, origin, and the process of mineral formation. 10. Course outcomes and methods of teaching, learning and assessment a- Knowledge and Understanding goals 1. Recognize the most important naturally occurring minerals 2. Diagnose the physical properties of minerals using naked eyes. 3. Know the chemical composition of the minerals. 4. Understanding the types of chemical bonds that hold atoms together. 5. Demonstrate the main classes of minerals according to their chemical composition. 6. Explore the origin and the process of mineral formation. **b-** Subjective- Specific Skills 1. Gain skills to identify the physical properties of minerals using naked eyes. 2. Gian skills to recognize between the different mineral groups according to the physical properties. 3. Acquire the skill on how identifying and understanding the origin and the process of mineral formation. Learning Methods 1. Classroom explanation and discussion. 2. Motivate students to write assays and reports on a mineral. 3. Urging the student to make PowerPoint presentations. 4. Practical work to identify physical properties of hand specimen minerals. **Evaluating Methods** 1- Weekly quick exam and laboratory reports 2- Monthly exams 2- Final exams c- Emotional and evolutional goals 1. Ability to recognize the physical properties of minerals. 2. Get an imagination on origin and the process of mineral formation. 3. Linking the physical properties with the crystal structure and chemical composition of minerals. Learning Methods 1. Explanation and Discussion of the Lectures 2. Boosting the student to conduct research and reports. 3. The student PowerPoint presentations. d- General qualification skills transferred (other skills related to employability and personality development) 1. Developing the mental abilities of the student 2. Developing thinking skills 3. Learning the required steps to correctly identify a hand specimen mineral. - الصفحة 2

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, demonstrating whether he has made the most of the available learning opportunities. It must be linked to the description of the program.

11. Sequencing of course content

Week	Hours	Unit name	Course Outcomes	Learning method	Evaluation method
1st week, 2 nd , and 3 rd weeks	2 hrs. Lecture 2 hrs. Lab.	Theoretical: General introduction on minerals. Link physical properties of minerals with the chemical composition and crystal structure Practical: Identify hand specimen mineral samples using the naked eye and some assistant tools.	Knowledg e and understan ding of lectures	Understand the evolving state of knowledge learn to carry out practical work, in the field and in the laboratory	Weekly tests
4 th , 5 th , and 6 th weeks	2 hrs. Lecture 2 hrs. Lab.	Theoretical: Mineral chemistry and type of chemical bonding Practical: Identify physical properties of native and oxide minerals.	Knowledg e and understan ding of lectures	Understand the evolving state of knowledge learn to carry out practical work, in the field and in the laboratory	Weekly tests
7 th and 8 th weeks	2 hrs. Lecture 2 hrs. Lab.	Theoretical: Crystal features and twining of minerals Practical: Identify the physical properties of halide, sulphide and phosphate minerals.	Knowledg e and understan ding of lectures	Understand the evolving state of knowledge learn to carry out practical work, in the field and in the laboratory	Weekly tests
9 th and 10 th weeks	2 hrs. Lecture 2 hrs. Lab.	Theoretical: Classification of minerals Practical:	Knowledg e and understan ding of lectures	Understand the evolving state of knowledge learn to carry out practical	Weekly tests

- الصفحة 3

		Identify the physical properties of carbonate and sulphate minerals		work, in the field and in the laboratory	Weekly tests
11 th and 12 th weeks	2 hrs. Lecture 2 hrs. Lab.	Theoretical: Framework silicates (silica, feldspar and feldspathoid mineral groups) Practical: Identify the physical properties of silicate minerals	Knowledg e and understan ding of lectures	Understand the evolving state of knowledge learn to carry out practical work, in the field and in the laboratory	Weekly tests
13 th week	2 hrs. Lecture 2 hrs. Lab.	Second semester exam	Knowledg e and understan ding of lectures	Understand the evolving state of knowledge learn to carry out practical work, in the field and in the laboratory	Monthly test
14 th and 15 th weeks	2 hrs. Lecture 2 hrs. Lab.	Theoretical: Sheet silicates (clay mineral groups) Practical: Practical semester exam	Knowledg e and understan ding of lectures	Understand the evolving state of knowledge learn to carry out practical work, in the field and in the laboratory	Weekly tests

12. Course Development Plan

Course development based on recent versions of books and references.. The adoption of modern interactive teaching methods. Activating alignment programs with international universities to learn about modern curricula and to exchange the experiences.

13. Infrastructure				
1- Textbooks required for the course	- Nesse, W.D., 2012. Introduction to mineralogy.			
2 References	 Haldar, S.K., 2020. Introduction to mineralogy and petrology. Elsevier. 			
Recommended readings	 Aydinalp, C., 2012. An Introduction to the Study of Mineralogy. Mineralogy and petrology Mineralogical Magazine 			
Electronic website	www.mindat.org			