



Faculty of Earth Sciences



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



The Geological Society
Accredited degree courses

SYSTEMATIC MINERALOGY

Course Name	Course ID	Prerequisites
<i>SYSTEMATIC MINERALOGY</i>	<i>EMR 311</i>	EMR 211 / CHEM 110, CHEM 281

Time Table for Course Lectures

SYSTEMATIC MINERALOGY (EMR 311)

Week	Topics
1	<i>Class Introduction goals, syllabus, and policies. Definition of mineral. Significance of minerals</i> X-ray analytical method. Internal orders, unit cell structure, crystal structure.
2	<i>Crystal Chemistry, Ionic radii, Bonding, Packing, Radius ratio, Coordination ionic site, Pauling's rules.</i>
3	<i>Chemical Composition of minerals, Calculation of mineral formula, Mineral classification.</i> <i>Systematic mineralogy, Silicates introduction, Silica tetrahedron, Classification general structure formula for the silicates.</i>
4	<i>Systematic mineralogy – Nesosilicates, Olivine group, Garnet group, and Aluminosilicate group</i> Periodical exam-1
5	<i>Systematic mineralogy – Sorosilicates, Epidote Group, Clinozoisite.</i>

	<i>Systematic mineralogy – Inosilicate, Single chain – pyroxene group.</i>
6	<i>Systematic mineralogy – Inosilicate, Double chain – Amphibole group.</i> <i>Systematic mineralogy – Phyllosilicates, serpentine group, Clay mineral group.</i>
7	<i>Systematic mineralogy – Phyllosilicates, Mica group, Chlorite group.</i>
8	<i>Systematic mineralogy – Tectosilicates, SiO₂ group, Feldspar group.</i> Periodical exam-2
9	<i>Systematic mineralogy – Tectosilicates, Feldspathoid group, Scapolite series, Zeolite group.</i>
10	<i>Systematic mineralogy – Native Metals, Gold group – Platinum group – Iron group. Native semimetals and Native Nonmetals, Sulfer, Diamond, and Graphite</i>
11	<i>Systematic mineralogy – Sulfides</i> <i>Systematic mineralogy – Oxides and Hydroxides, and Halides</i>
12	<i>Systematic mineralogy – Carbonates, Sulfates</i> <i>Systematic mineralogy – Nitrates and Borates</i>
13	<i>Systematic mineralogy – Phosphates, Tungstates, Arsenates, and Vanadates</i>
14	<i>Final Exam</i>

References:

Manual of Mineralogy (after J.D. Dana) 21st ed., by Klein, [1] C., and Hurlbut, C. S., 1993. John Wiley & Sons, Inc., New York.

An Introduction to the Rock Forming Minerals, by Deer, [2] W.A., Howie, R.A., and Zussman, J., 1989. Longman New York, 16th edition.