No	Information of Subject (2019-2020) First Semester	
1	Unit name:	Mineralogy and Petrology for metallurgical engineering
2	Code:	Geol- 31003
3	Classification:	Engineering subject
4	Credit value:	3.5
5	Semester/ Year Offered:	1/3
6	Pre-requisite:	NA
7	Mode of delivery:	Lecture, Assignment, Practical
8	Assessment system and breakdown of marks:	
	Test Marks:	
	Test Assignment	 15%
	Practical	15%
	Mid-term/ final Examination	70%
9	Academic staff teaching unit:	Assistant Lecturer
10	Objective of unit: To familiarize the students with the various types of mineralogy and petrology, including crystal structure, formation and grouping of minerals and definition origin, structure and classification of igneous, sedimentary and metamorphic rocks.	
11	Course outcome of unit: In this course, students will be able (a)To explain geology and its relation with other science and the element of crystallography (b) To determine the physical properties of a minerals (c) To describe elements of petrology	
12	Synopsis of unit: The course introduces to the study of mineralogy and petrology presents the essentials of both disciplines through an approach accessible to industry professionals, academic researchers, and student. Detail knowledge of mineral and rocks and the process of formation and association are essential for practicing professionals and advanced students. The full scope of the core concepts of mineralogy and petrology, including crystal structure, formation and grouping of minerals and definition origin, structure and classification of igneous, sedimentary and metamorphic rocks.	

13	Topic Chapter (1) Introduction 1.1 The meaning and scope of geology 1.2 Geology and its relationship with other sciences 1.3 The branches of geology Chapter (2) The element of crystallography 2.1 Definition of crystal 2.2 External characteristic of crystal 2.3 Symmetry 2.4 Crystallographic axes 2.5 Classification of crystal 2.6 The crystal system 2.7 Twinning Chapter (3) Element of mineralogy 3.1 Introduction 3.2 Definition of a mineral 3.3 Physical properties of a minerals 3.4 Common rock forming minerals Chapter (4) Petrology 4.1 Petrology and Petrography of igneous rocks 4.2 Petrology of metamorphic rocks 4.3 Petrology of sedimentary rocks
14	Main reference: Rutley's Elements of Mineralogy, Twenty-Six Edition H. H. Read, F.R.S

Information on practical Experiment (Mineralogy and petrology for metallurgical engineering)

Lab	Activity
P1	Topic: Study of Rock Forming Minerals Task: To understand the rock forming minerals Resource: give the quartz, feldspar (plagioclase, orthoclase), mica (biotite, muscovite)
P2	Topic: Study of Rock Forming Minerals Task: To understand the rock forming minerals Resource: give the olivine, calcite, gypsum, augite, hornblende
P3	Topic: Study the identification of the Igneous Rocks Task: To understand identification of the Igneous Rocks

	Resource: give the granite, syenite, serpentinite
P4	Topic: Study the identification of the Sedimentary Rocks Task: To understand identification of the Sedimentary Rocks Resource: give the sandstone, limestone, siltstone
P5	Topic: Study the identification of Metamorphic Rocks Task: To understand identification of the Metamorphic Rocks Resource: give the phyllite, schist, gneiss