Course Type	Course Code	Name of Course	L	T	P	Credit
DC	NGLC501	**Mineralogy**	3	1	0	4

Course Objective
The primary objective of the course is to introduce fundamental understanding of mineral composition and their occurrence in different rock.
Learning Outcomes
Upon completion of the course, students will be able to: • Learn about composition of common rock forming minerals • Which kind of rock the minerals may appear depending on the different geological processes involved • Identifying different minerals by physical and optical properties

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1.	**Basics of mineralogy:** Definition, coordination number, chemical bonding, Pauling's rule	7L + 2T	Various aspects of crystal chemistry
2.	**Silicate Structure:** Basis for classification of silicates with example	7L + 2T	Different types of silicates and their classification principles
3.	**Silicate minerals:** Composition, structure, paragenesis and property of different silicate minerals Neso silicate– Olivine, Zircon, Sphene, Garnet, Al2SiO5, Topaz, Staurolite, Chloritoid their physical and optic properties.	7L + 2T	Structure and property of common nesosilicate minerals
4.	Soro and ring silicates (Epidote, Beryl, Cordierite, Tourmaline) Inosilicate (Single Chain) Pyroxene, Wollastonite, Amphibole,	7L + 2T	Structure and property of common phyllosilicate and framework silicate minerals
5.	Phyllosilicates-Mica Group, Clay minerals, Framework Silicate- Feldspar group, Silica Minerals, Nepheline group, Scapolite, Zeolite group	7L + 2T	Structure and property of common sorosilicate, ring silicate and inosilicate (single chain) minerals
6.	Non silicate Minerals: Oxides, hydroxides, Sulphides, Sulphates, Carbonate, Phosphate, Halides	4L + 2T	Structure and property of common non-silicate minerals
7.	Introduction to equipment related to rock and mineral analysis	3L + 2T	Basic equipment required for mineral identification and characterization
	Total	**42L+14T**	

Text Books:

1. William D. Nesse. *Introduction to Mineralogy*. Oxford University Press, 2000.
2. W. A. Deer, R. A. Howie and J. Zussman. *An Introduction to Rock Forming Minerals*. Upper Saddle River, NJ: Pearson, 1992.

Reference Books:

1. Manual of Mineralogy (Revised) by Klein C., Hurlbut C. S. Jr., 1985, John Wiley & Sons.
2. W. H. Blackburn and W. H. Dennen. *Principles of Mineralogy*. Universal Book Stall, New Delhi, 1990.
3. Dexter Perkins. *Mineralogy*. PHI Learning Private Ltd., New Delhi, 2012.