Department of Mathematics **Faculty of Science**

MATH 319 (206319) **FUNDAMENTAL CONCEPTS OF GEOMETRY** **3(3/3-0/0)**

Abbreviation **FUND CONCEPTS OF GEOMETRY**

Prerequisite MATH 309 (206309)

Course Description

Euclid's geometry. Hilbert's geometry. Neutral geometry. Various proofs of parallel postulates. Hyperbolic geometry. Elliptic geometry. Projective geometry. Analytic geometry.

Course Contents	**No. of Lecture Hours**
1. Axiomatatic system History. Inductive and deductive reasoning. Axiomatic system.	5
2. Euclidean geometry History. First four postulates of Euclid and Fifth postulate of Euclid. The Analysis of some theorems of Euclid.	7
3. Incidence geometry Some logical rules. Postulates of incidence geometry. Some theorems in incidence geometry.	8
4. Hilbert's Postulate Improvement of Euclidean geometry. Postulates of betweenness. Postulates of congruence.	7
5. Neutral geometry Euclidean geometry without the fifth postulate. Alternate interior angle theorem. Extension angle theorem. Measurement (angle and segment).	9
6. Hyperbolic geometry History. Hyperbolic postulate. Basic theorems of hyperbolic geometry. Important theorems of hyperbolic geometry. Asymtotic triangles. Saccheri quadrilaterals.	9
Total	**45**