MIN 3029 LAB: 01

AIM: Preparation of rock sample for testing in laboratory.

Apparatus & Materials:

1. Coring Machine (Drill)

2. Raw rock cores

3. Caliper, ruler

4. Permanent Marker

THEORY:

In Mining operations we mainly deal with hard rocks with different physico-Mechanical properties. Rock is a complex engineering material that can vary greatly as a function of lithology, stress history, weathering, moisture content and chemistry, and other natural geologic processes. All reasonable efforts shall be made to prepare a specimen in accordance with this practice and for the intended test procedure. These practices specify procedures for laboratory rock core test specimen preparation of rock core from drill core and block samples for strength and deformation testing.

The dimensional, shape, and surface tolerances of rock core specimens are important for determining rock properties of intact specimens. All these dimensions must be according to the standards recommended by ISRM. The moisture condition and the original physical condition of the specimen at the time of the sample preparation can have a significant effect upon the strength and deformation characteristics of the rock. Good practice generally dictates that laboratory tests be made upon specimens representative of field conditions. Thus, it follows that the field moisture condition and physical conditions of the specimen should be preserved until the time of the test.

a) **Coring**
   Rock coring is a method of extracting a cylindrical section of rock from a natural outcrop or a boulder for analytical purposes. Most rock cores are taken by drilling with special drills (electrical rotary drill) into the rock with a hollow steel tube called a core drill. These core samples are analyzed by destructive and non-destructive methods
b) **Cutting**
   This is a sample preparation process of dimensioning the rock core for a particular rock test. A rock cutter is used to achieve the objective
c) **Polishing**
   Rock polishing aims at achieving required dimensional tolerances as guided by the International Society of Rock Mechanics Engineers

PROCEDURE:

1. Each student/group will select one kind of rock and cut 5 samples. The ratio of length/diameter should be at least 2.5

2. Polish both ends until they become parallel to within 0.002 mm.

3. Polish both ends of the specimen so that it will be near vertical to the axis of the specimen within 0.001 radian.

4. Mark the roll number and specimen number using permanent marker