

## **SURFACE MINING**

### **Module-I:**

Basic concepts, deposits amenable to surface mining, types of surface mining system-applicability, advantages, disadvantages, classification and choice, unit operations

Elements of surface mine planning, concept of stripping ratio, bench geometry, bench slope, overall pit slope, selection of machineries, opening of mine, box cut, formation of benches, ground preparation for excavation, drilling and blasting, types of explosives, classification and properties of explosives.

### **Module-II:**

Shovels, operation, productivity, applications and limitations of shovels, hydraulic excavators, selection of size, correlation between shovel capacity, dumper capacity and crusher's mix feed size, dragline, front end loader, scrapper, bucket wheel excavator and continuous surface miner

Transporting equipment, applications and limitations of dumper, conveyor, in pit crushing and conveying

### **Module-III:**

Extraction of mineral deposits: bedded, vein, pipe, cap, massive

### **Module-IV:**

Mine waste management, solid waste dump, layout equipment, construction, precaution to be taken against runoff water, dump stabilization process

Introduction to placer deposits, effect of surface mining on environment and mitigating measures