

Course Type	Course Code	Name of Course	L	T	P	Credit
DC	MMC207	BULK MATERIAL HANDLING EQUIPMENT	3	0	0	09

#### Course Objective

Students will learn basic construction and operation of different types of crushers, screens, feeders, stackers and reclaimers. They will also get introduced to construction, operation and design aspects of different types of conveyers i.e. Belt conveyor, chain conveyor, hydraulic conveyor etc.

#### Learning Outcomes

Upon successful completion of this course, students will

- Understand the constructional features of different types and subtypes of primary, secondary and tertiary crushers their construction, working principles and maintenance strategies followed.
- Learn difference between single toggle and double toggle crushers.
- Get acquainted with constructional features, working principles and maintenance of types of feeders, screens, conventional belt conveyors, high angle conveyors, cable belt conveyor, chain conveyors.
- Design belt conveyors according to applications, Get knowledge of wagon loaders, wagon tipplers, stackers and reclaimers, learn different types of stacking patterns, hydraulic and Pneumatic devices, storage devices such as bins, silos and bunkers.

Unit No.	Topics to be Covered	Lecture Hours	Learning Outcome
1	<b>Rock Crusher:</b> Construction, operation, selection and classifications of jaw crusher, gyratory crusher, cone crusher, roll crusher, hammer crusher, ring granulator, fiddler breaker, rotary breaker, inpit crusher	8	To get introduced to classification, constructional features and working of different types of crushers.
2	<b>Conveyor:</b> Construction, operation, selection and classifications of conventional belt conveyors, high angle conveyors, cable belt conveyors, pipe conveyors, chain conveyors, AFC, feeders, bucket elevators, theory and practices of hydraulic and numeric conveying systems, capacity and power calculations	7	To get introduced to classification, constructional features and working of different types of conveyors.
3	<b>Tippler and Wagon Loader:</b> Constructional features, working principles	4	To understand the constructional features and working of different types of Tipplers and wagon loaders
4	<b>Aerial Ropeway:</b> Classifications, layout, constructional features, loading, unloading and angle stations, capacity and power calculations	5	To understand the construction, working, capacity and power calculation of different types of Ropeways
5	<b>Storages Vessel:</b> Constructional features, operation of bins, bunkers, silos, storage and discharge methods, maintenance.	10	To understand the constructional and maintenance aspects of different storage vessels.
6	<b>Stacking and Reclaiming Equipment:</b> Construction, operation, classification, maintenance of stackers and reclaimers	8	To understand the constructional and maintenance aspects of different types of stackers and reclaimers.

#### Text Books

1. Mechanical conveyors for bulk solids– H Colijn; Elsevier Science Publishers.
2. Materials handling equipment– M P Alexandrov; MIR Publishers.

**Reference Books**

1. Good year handbook of belting, conveyor and elevetor
2. Pneumatic conveying– H. A. Stoess; John Wiley & Sons.
3. Mineral Processing– G Tarjan; Akademiai Kiado.
4. Mineral processing– B. A. Wills; Pergamon Press.