

# GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: III

## Mechanical Engineering (CAD/CAM)

Subject Name: **Design of Material Handling Equipments**

Sr. No	Course content
1.	<b>Materials Handling Equipments:</b> Types, Selection and applications.
2.	<b>Design of Hoists:</b>  Design of hoisting elements: Welded and roller chains - Hemp and wire ropes - Design of ropes, pulleys, Pulley systems, Sprockets and drums, Load handling attachments. Design of forged hooks and eye hooks, Crane grabs, Lifting magnets, Grabbing attachments, Design of arresting gear, Brakes: shoe, Band and cone types.
3	<b>Drives of Hoisting Gear:</b>  Hand and power drives, Travelling gear, Rail travelling mechanism, Cantilever and monorail cranes, Slewing, Jib and lifting gear, Cogwheel drive, selecting the motor ratings.
4	<b>Conveyors:</b>  Types, Description, Design and applications of Belt Conveyors, Apron Conveyors and Escalators Pneumatic Conveyors, Screw conveyors and vibratory conveyors.
5	<b>Elevators:</b>  Bucket elevators: design, Loading and bucket arrangements, Cage elevators, Shaft way, Guides, counter weights, Hoisting machine, Safety devices, Design of form lift trucks.

### Practical:

Major Design including assembly and detailed drawings.

### Reference Books:

1. ASME, "Materials Handling Handbook", Wiley -Interscience, 1985.
2. Material Handling Equipments by Rudenko, MIR Publishers.
3. "Conveying Machines" Spivakovsy A.O. and Dyachkov, V.K., Volume I and II, MIR Publishers, 1985.
4. Alexandrov M., "Materials Handling Equipments", MIR Publishers, 1981.
5. Tech. P.S.G., "Design Data Book", Kalaikathir Achchagam, Coimbatore, 2003.