



Type of course: Engineering Science

Prerequisite: Zeal to learn the subject

Rationale: Plant layout & Material Handling is basically focused on application of Material handling systems for real world applications. More specifically this course is focused on application of material handling methods, paths, methods to minimize cost of material handling energy. The main purpose of implementing this course in curriculum is to learn about material handling layout plants.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	0	3	50	0	0	0	50

Sr. No.	Topic	No. of Hours	Weightage
01	Objective of Facility Design: Types of layout problems, the layout function, organization of layout. Analysis and Design of Material Flow: Systems approach to flow cycle, process charts, flow process charts, Quantitative analysis of material flow; optimal material flow configuration. Space and Area Allocation for Production and Physical Plant Services	7	25
02	Computerized handling of layout algorithms; Algorithms for computerized Layout Planning, Construction and Development type of computerized Layout Planning Techniques i.e. CRAFT, ALDEP, CORELAP etc.;	5	15
03	Product handling; Design of system configurations conforming to various kinds of product features and layout characteristics; Design concepts of common handling and transfer equipment; Different types of conveyors, elevators, fork lifters;	6	20
04	Design concept of warehouse facilities commensurate with adopted kind of handling and transfer devices; Automated Handling of materials, Automated Transfer lines, AGVS, Use of Robots in Product handling, automated packaging devices.	7	25
05	Application of pneumatic and hydraulic system in transportation and handling of products, Design of integrated plant layout for product handling systems	5	15

Distribution of marks weightage for cognitive level:

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	20	20	-	-	-

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.



GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Bachelor of Vocation (B.Voc), 5th Semester

Branch: Production Technology

Subject Name: Plant Layout and Product Handling

Subject Code: 1150302

**With effective
from academic
year 2018-19**

Reference Books:

1. Plant Layout and Materials Handling by G K Agarwal, Jain Brothers New Delhi.
2. Plant Layout and Materials Handling By James M. Apple.
3. Plant Layout and Materials Handling by S. C. Sharma Khanna publication.

Course Outcome:

Sr. No.	CO statement	Marks % weightage
CO 1	To analyze and design material flow system.	25
CO 2	To study computerized handling of layout algorithms.	15
CO 3	To understand product handling considering various kinds of product features.	20
CO 4	To study various types of automatic transfer system.	25
CO 5	To study application of pneumatic and hydraulic system in transportation of products.	15

List of Open Source Software/learning website:

<https://nptel.ac.in>,