GUJARAT TECHNOLOGICAL UNIVERSITY

PRODUCTION ENGINEERING
FACILITIES PLANNING
SUBJECT CODE: 2182504
B.E. 8th SEMESTER

Type of course: Under Graduate

Prerequisite: Nil

Rationale: The course aims to impart basic skills of Facility Planning & Facility Design.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
				Theory Marks			Practical Marks			
L	T	P	C	ESE (E)	PA (M)		ESE (V)		PA (I)	
					PA	ALA	ESE	OEP		
3	1	0	4	70	20	10	30	0	20	150

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	**Plant Location** Nature of Location Decision, Need for facility location planning, General procedures and actors influencing location decisions, Facility Location Models, economics and cost analysis, Rural and urban location pattern in India.	06	12
2	**Facility Planning** Definition, Significance and objectives of facility planning, Facility planning process, Strategic Facilities Planning, Developing Facilities Planning Strategies, Flow system patterns like RAFT, CORELAP, ALDEP & PLANET, Material flow system, Activity Relationships, Space requirements, Basic Lay out types, Lay out procedures, Algorithmic Approaches, Department Shapes and mail Aisles, The impact of changes, developing Layout Alternatives.	08	16
3	**Facility design for Manufacturing system** Introduction, fixed automation system, Flexible manufacturing system, Reduction in work in process, Just-in-time manufacturing, Facilities planning trends.	06	12
4	**Evaluating, Preparing and Maintaining the Facilities Plan** Introduction, Evaluating, selecting, preparing, presenting, implementing and maintaining the Facilities Plan.	06	12
5	**Industrial Acts and Safety** Necessity of Industrial acts, The Indian Factories Act 1948, The industrial Dispute act1947, The minimum Wage Act 1948. Introduction to Industrial safety, Causes and sources of accidents, Accident control, safety programme, investigation and analysis of accidents, Safety devices in Machines, Welfare and safety, safety and productivity	08	16

6	**Engineering Economics** Concept of Engineering economics, Risk and uncertainty, discounted cash flow techniques in changing economics, Purpose, type and requirements of depreciation methods and obsolesce, Reasons for replacement and it's models, Present worth method of comparison and future worth method.	**08**	16
7	**Material Handling Equipments** Scope and functions of material handling , Manual mechanical handling ratio, Principles of material handling , Analysis of material handling problem, Classification of material handling system, Salient features and applications of general purpose material handling Equipments , Material handling in stores and warehouses , Optimum allocation of material handling equipment.	**08**	16

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
7	**14**	**14**	**14**	**21**	**0**

Legends: R : Remembrance ; U = Understanding; A = Application and above Levels (Revised Bloom's Taxonomy)

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

Reference Books:

1. Facilities Planning by James A Tompkins
2. Facility Layout & Location By Richard L. Francis
3. Production and Operations Management By S.N.Chary
4. Engineering Economics By R. Panneerselvam
5. Engineering Economics By E Paul Degrams, William G. Sullivan

Course Outcome:

After learning the course the students should be able to:

1. Understand Plant Location.
2. Understand Facility Planning & Facility Design.
3. Differentiate Industrial Acts.
4. Understand Engineering Economics.
5. Differentiate Material Handling Equipments.

List of Experiments:

Tutorials based on above syllabus.

List of Open Source Software/learning website:

www.nptel.ac.in/

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should be submitted to GTU.