GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering
Subject Code: 3152607
Semester – V

Subject Name: Rubber Product & Process Engineering

Type of course: Humanities and Social Science
Prerequisite:
Rationale:

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P	C	Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	0	3	70	30	0	0	100

Content:

Sr. No.	Content	Total Hrs
1	Industrial Sanitation & Housekeeping:	**6**
2	Industrial Safety: General introduction, Safety science, Technology of hazard identification, Nature of fire & explosion & their Remedies, Safety in use of Rubber machineries & Equipments. Toxic hazards of Rubber Chemicals & their handling.	**6**
3	Industrial Pollution: Various types of Environmental pollution by Rubber Industries, Their impact & remedial measures.	**6**
4	Location & Layout: Factory location & layout, Plant location & layout, Equipment layout Guiding principles for layout of rubber industry. Calculation of storage area.	**6**
5	Motion & Time Study: establishing time value of time study, processing & use of time study date. Aims and benefits of time and motion study.	**6**
6	Cost Estimation & Profitability Analysis: Costing, Fixed, Variable & overhead costs, Job costing & Process costing, Product Cost, Cost analysis. Investment, Profitability analysis Projected cash flow statements and balance sheets. Introduction to project identification & Formulation for Rubber products.	**6**
7	Plant Maintenance: Types of Plant maintenance: Unplanned and planned maintenance, Preventive maintenance and its importance.	**6**
8	Just In Time Concept: Concept of JIT, Right first time and Total quality management.	**6**
9	Waste Management: Different ways of Waste disposal in rubber industry.	**6**

Suggested Specification table with Marks (Theory): (For BE only)

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Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	**10**	**15**	**15**	**10**	**10**

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create 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:-

- Rubber Processing & Production Organization. By: Philip K. Freakley
- Rubber Products Manufacturing Technology By: Anil K. Bhowmick

Course Outcome:

After learning this course students will be able to:

Sr. No.	CO statement	Marks % weightage
CO-1	Explain the importance of Industrial Sanitation & Housekeeping	10
CO-2	Select the different safety equipment according to Industry requinment	15
CO-3	Solve the problems related to industrial pollution and waste management	15
CO-4	Design the plant layout for rubbery industry	15
CO-5	Calculate the cost analysis' of rubber product	15

List of Experiments:

Tutorials/Presentation/Practicals based on above topics.

Major Equipments:

Industrial Visit for different Rubber Industries, Different Case Study etc.

List of Open Source Software/learning website:

- http://esatjournals.net/
- http://www.tropical-rainforest-animals.com/Environmental-Pollution.html
- http://www.chemionics.com/natlatex.html
- http://safety-work.org/