

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. SEMESTER : VIII

RUBBER TECHNOLOGY

Subject Name: **TYRE & TUBE TECHNOLOGY**

Sr. No.	Course Contents	Total Hrs
1.	Introduction & Terminology production of variety of tyres in India & abroad.	4
2.	Structure Of The Pneumatic Tyre: Functions of the pneumatic tyre, tube & assembly, Construction of tyre tread, casing & bead general features, Principles of Cross-ply, radial & bias-belted construction, tubeless tyre, Tyre construction methods, Cord path, Aspect ratio.	4
3.	Tyre Manufacture: Composition of tyre, compounding of tyre tread cap tread base, carcass, bead, sidewall, inner liner etc. Raw materials for tyre, Mixing, Dipping, Calendaring, Extrusion, stock preparation, tyre building, green tyre preparation, tyre curing, PCI, finishing of tyre. Manufacturing process of radial tyre.	8
4.	Tyre Cord & Cord To Rubber Bonding: Physical prop. Of tyre cords from cotton, rayon, nylon etc. Outline of bonding methods, etc.	4
5.	Tyre Design: Tyre structure, tyre shape, tread design. Tyre size determination.	8
6.	Tyre Performance Analysis: Analysis of tyre for different performance criteria like tyre stresses & deformation, tyre stiffness, tyre noise, rolling resistance, aquaplaning etc.	5
7.	Tyre Evaluation: Evaluation of tyres by machine tests, Contact pr. & its relation to traction & wear, tyre steering & road interaction. Tyre testing – destructive and non destructive.	4
8.	General Developments: In material construction & performance assessments. Tyre standards. Performance & design criteria, manufacturing of cycle, Motor cycle, automobile, truck, earthmover, air- craft & tubeless tyre.	5
9.	Tubes: Principles of tube design, mfg. tubes, extrusion, valve jamming, inflation & curing in presses, tube testing.	6
10.	Flaps: Properties, Compounding, Manufacturing and testing of flaps.	3
11.	Retreading: Criteria for retreading, methods of retreading.	3

Practical and Term work:

It should be based on theories

Textbooks

- Tyre Technology By: Tom French
- Tyre Manufacturing & Engineering By: F. J. Kovac

Reference Books

- Rubber Products Manufacturing Technology By: Anil K. Bhowmick