

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E Semester: 4 Rubber Engineering

Subject Code 142603
Subject Name RUBBER ENGINEERING

Sr.No	Course contents
1.	Mixing Mill: Open mill mixer-internal mixer-semi continuous & automatic mixing equipments, single geared & double geared mills, energy & economic consideration, Kneaders, Transfer mix, Banbury mixer, Tandem mixing, new developments.
2.	Calenders: Types & sizes of typical machines, roll configurations, roll cambering, single trip & double rip arrangements for sheeting, equipments for coating of textile fabrics, friction coating, axis crossing devices, roll bending etc New developments.
3.	Extruders: Ram type & screw type extruders, hot & cold feed extrusion direct powder extruders, effects of screw length/dia ratio, temp. control & ancillary equipment, extruder drives & power rating, machine selection. New developments
4.	Press: Introduction, Terminologies of press, Hydraulic principle, difference between hydraulic and mechanical press., bagomatic and autoform press, different types of compression molding press, different parts of press.
5.	Moulding Machine: Molding, Review of Molding Methods, Compression Molds, Transfer Molds, Injection Molds, Materials handling & Mold Stripping, Mould lubricants, Surface treatments & Cleaning Deflashing & Finishing of Moldings, Blank preparation for moulding , Blank heating methods, injection moulding machine, types, screw & ram type machines, vertical injection moulding machines ejection techniques, compression moulding machines, transfer moulding machine. New developments
6.	Hand Building & Forming Equipments: Equipments for tank & pipe lining, roller covering, low pressure unreinforced hoses making.
7.	Vulcanization Equipments: Equipments for Volume by methods other than moulding, autoclave, curing methods, equipments for continuous vol. hot air tunnel, molten salt bath, fluidized bed, microwave curing.

8.	Finishing Of Rubber Components: Equipments for flash & spew removal, hand riming, roller trim, buffing, low temp tumbling, punching, grinding, shot blasting, painting & lacquering. New techniques
9.	Latex Processing & Testing Equipments: Planetary mixer, turbo mixer, Jar mill, Indentation hardness tester for foam, flex resistance tester, Mechanical stability tester.
10.	Safety In The Use Of Rubber Machinery: Construction, use & maintenance of guards, fixed guards, interlocked guarding, trip devices, photo electric & pressure sensitive devices, maintenance of guards.

Reference Books:

1. Rubber Technology & Manufacturing: by C. M. Blow
2. Calendering & Extrusion Technology by : Arun V. Apte.
3. Rubber Engineering: IRI.
4. Rubber Processing & Production Organisation By: Philip K. Freakley