



GUJARAT TECHNOLOGICAL UNIVERSITY

Master of Engineering

Subject Code: 3734002

Semester – III

Subject Name: Elastomeric Gel & Polymer Clay (EGPC)

Type of course: Program Elective IV

Prerequisite:

Rationale:

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	70	30	0	0	100

Content:

Sr. No.	Content	Total Hrs
1	Introduction: Electrically Conductive & Photonic Polymers, Magnetically Activated Polymers, Ferroelectric Polymers, Liquid Crystal Elastomers, Dielectric Elastomers, Ionic and Nonionic Polymer Gels,	7
2	Ionic Polymeric Gel : Introduction, PAPMS Gels, Gel Preparation, Gel Application etc.	7
3	Ionic Polymers : Engineering, Industrial and Medical Applications etc.	7
4	Silicone Gel : Manufacturing, Properties, Applications Comparison, Correlation etc.	7
5	PAMPS Gel : Introduction, PAMPS Gel, Gel Preparation, Gel Application etc.	7
6	Polymer/ Rubber Clay : Introduction, Preparation & Properties, Effect of Vulcanisation ingredients etc.	7
7	Working with Polymer Clay : Conditioning, Storage, Sizing Clay, Polymer Clay Tools, Curing, Finishing, Mixing Clay Colors	6
8	Working with Liquid Polymer Clay & Metal Clay : Introduction, Metal Clay Tools, Processes, Applications etc.	6

Reference Books:

- Polymer Clay Mixed Media Jewelry by Shirley Rufener
- Artificial Muscles- Applications of Advanced Polymeric Nanocomposites by Mohsen Shahinpoor, Kwang J .Kim, Mehran Mojarrad.
- Advanced Rubber Composites by G.Heinrich



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Course Outcomes:

After learning the course the students should be able to:

Sr. No.	CO statement	Marks % weightage
CO-1	Learn about importance Electrically Conductive & Photonic Polymers	15
CO-2	Identify the different types of Gel.	15
CO-3	Compare Silicone Gel & PAMPs Gel & Learn about Working with Polymer Clay & Metal Clay.	20
CO-4	Interpret the Magnetically Activated Polymers & Ferroelectric Polymers.	20
CO-5	Classify the Ionic and Non-ionic Polymer Gels.	15
CO-6	Formulate the Liquid Crystal Elastomers & Dielectric Elastomers.	15

List of Open Source Software/learning website:

- <http://www.np.phy.cam.ac.uk/>
- <http://www.crcpress.com>
- <http://www.ijastnet.com/>
- <http://www.te.com/>