GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering
Subject Code: 3142308
Semester – IV
Subject Name: Fundamentals of Mold Design

Type of course: Basic Science

Prerequisite: NA

Rationale:
The course will help the student of Plastic Technology to understand the fundamentals of mold and die designing. This knowledge will help them to design& develop molds and dies used for processing of plastic materials.

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	-	4	5	70	30	30	20	150

Content:

Sr. No.	Content	Total Hrs
1	**General Mould Construction:** **Basic Terminology related to mould**, Parting line, Core and cavity, Core Plate, Cavity Plate, Runner and gate, Sprue, Sprue Bush, Sprue Puller, Guide Pin, Guide Bush, Dowel, Registered ring, Ejector, Ejector Pin, Ejector Plate, Ejector back Plate, Ejector Rod, Guide bushes, Guide pillars, Day light **Mould cavity and core** • Integer – cavity and core plate • Insert- cavity and core **Bolsters and its types** **Guide Bushes and Guide Pillars and its all type** **Sprue Bushes** **Registered ting**	**8**
2	**Feed System:** **Sprue** **Runner** • Runner section • Runner size, • Runner layout, • Runner balancing **Gates** • Positioning of gate • Balance gating • Types of gate **Feed system calculation.**	**8**

3	**Parting Surface** • General Introduction • Flat parting surface • Non-Flat parting surface and its types • Venting	**6**
4	**Ejection System** General Introduction, Ejector grid, Ejector Plate Assembly: • Ejector Plate • Ejector retaining Plate • Ejector Rod and Ejector Rod Bush Ejection Techniques • Pin Ejection • Stepped Ejector pins • D-Shaped Ejector Pin • Sleeve ejection • Blade ejection • Valve ejection • Air Ejection • Stripper Plate Ejection ➢ Telescopic length bold actuation ➢ Chain actuation ➢ Direct actuation Sprue Puller and Sprue Puller types	**10**
5	**Cooling System** ➢ General Introduction ➢ Cooling Integer type mould plates ➢ Cooling Integer type cavity plate ➢ Cooling Integer type core plate	**5**
6	**Designing of Mould** ➢ Designing of Hand Injection Mould	**5**

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
12	**21**	**12**	**7**	**10**	**8**

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Reference Books:

1. **Injection Moid Design- R.G.W Pye**

2. **Fundamentals of injection mold design- A.B.Glenvil L and Denton**
3. **Plastics Mold Engineering- Prible and Drebois**
4. **How to make injection mold-Henser Publication**

Course Outcomes:

The theory should be taught and practical should be carried out in such a manner that students are able to acquire required learning out comes in cognitive, psychomotor and affective domain to demonstrate following course outcomes.

Sr. No.	CO statement	Marks % Weightage
CO-1	Understand different mould parts and related terminology	15
CO-2	Identify different types of gates and runners and calculate feed system.	25
CO-3	Understand different types of parting surfaces and its importance.	10
CO-4	Draw different types of ejection systems.	20
CO-5	Understand the need and importance of cooling system in a mold.	15
CO-6	Design injection mold.	15

List of Experiments: - As per the above syllabus topics-
Major Equipment:
List of Open Source Software/learning website:

- https://www.smithersrapra.com/SmithersRapra/media/Sample-Chapters/The-Mould-Design-Guide.pdf
- http://mould-technology.blogspot.in/search/lable/Mold%20Construction