GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering
Subject Code: 3152309
Semester – V
Subject Name: Plastic Mold & Die Design

Type of course: Professional Elective Course

Prerequisite: NA

Rationale:

A Plastic Engineer has to plan and supervise operations and maintenance of injection moulds and Extrusion Dies. This competency requires the knowledge of different kinds of Injection Moulds and Extrusion Dies . Hence the course has been designed to develop this competency and its associated cognitive, practical and affective domain learning outcomes.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE (E)	PA (M)	ESE (V)	PA (I)	
3	0	2	4	70	30	30	20	150

Content:

Sr. No.	Content	Total Hrs
1	Introduction of Injection Mould, Two-Plate Mould: Introduction of Two Plate Injection Mould ,Constructional Details of Two Plate Mould, Three-Plate Mould: Introduction ,Construction and Working : Stripper Plate Mould, Double Daylight Underfeed Mould, Double Daylight Underfeed-Stripper Plate Mould , Runner Ejection Techniques, Comparison with Two Plate Mould	8
2	Mold Cooling: General, Cooling integer type mold plates, Cooling insert-bolster assembly, cooling other mold parts	5
3	Split Mold: General, Sliding splits, Angled –lift splits, Summary, Standard parts for the splits type mold	8
4	Side core and side cavities :General, Design Features, Types of Side core and side cavity, Standard mold parts	4
5	Molding internal undercuts: General, Form pin, split cores, side cores, stripping internal undercuts, standard mold parts.	4

6	Mold for threaded components :General, Molds for internally threaded components, Molds for externally threaded components, Mold construction , Standard unscrewing type mold systems	**8**
7	Design of Extrusion Dies:Parts of the Die, its functions, design formulae for design of approach section, land, etc. Rheological considerations, Design of straight through dies with calculations.	**5**

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

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

1. **Injection Mould Design - R.G.W. Pye**
2. **Plastics Mold Manufacturing Handbook - Dubois & Pribble**
3. **Extrusion of Plastics- Fisher**
4. **Extrusion Dies for Plastics and Rubbers - Walter Michaeli**

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	Design of Fully Automatic Injection Machine Split Mould	15
CO-2	The students able to design the cooling system for the given mold.	25

CO-3	Design of Fully automatic Threaded moulds	15
CO-4	Design of Undercut moulds	15
CO-5	Design and Drawing of Extrusion Dies	15
CO-6	To understand and decide suitable Ejection systems	15

List of Experiments: As per Syllabus

Major Equipment:

List of Open Source Software/learning website:

i.AutoCAD , Solid works
ii.http://www.ferris.edu/htmls/academics/course.offerings/hillm/myweb7/Basic%20Molds/Basic%20Molds.htm