GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN MECHANICAL ENGINEERING

SEMESTER- VI

Subject Name: **Foundary Technology (Elective-II)**
Subject Code: **2361927**

Sr. No.	Subject Content	Hrs.
1	**INTRODUCTION.** 1.1 Know the objectives of learning this subject. 1.2 Need, Scope & importance of Foundary Technology (FT) in industries. 1.3 Need of attitude, knowledge & skill required for application of FT. 1.4 Moulding materials. 1.5 Moulding sand-properties & testing. 1.6 Moulding strength & its testing. 1.7 Hardening & coating of moulds. 1.8 Parting compounds. 1.9 Oil-oxygen process of making of cores and moulds.	6
2	**MOULD DESIGN.** 2.1 Gating system & design. 2.2 Parameters in pouring. 2.3 Riser & its design. 2.4 Pouring basin 2.5 Chills 2.6 Exothermic compound.	6
3	**CASTING FORMATION.** 3.1 Solidification of casting for extensively used metals. 3.2 Nucleation. 3.3 Growth of dendrites. 3.4 Segregation 3.5 Progressive & Directional solidification 3.6 Control of solidification.	6
4	**CASTING PROCESSES.** 4.1 Types, process, parameters, merits, demerits, features and applications of various casting processes such as: - Shell moulding - Investment casting	13

	- Centrifugal casting - Die-casting - Magnetic moulding - Vacuum moulding - Ceramic mould casting - Continuous casting - Frozen mercury moulding (Mercast process) **Note** : Question/s to select/justify process/es and specify parameters etc. of given data (application type) of 16- 18 marks out of total 70.	
5	**CASTING DESIGN.** 5.1 Functional design. 5.2 Design for metal flow. 5.3 Dimensional tolerance. 5.4 Economic consideration. **Note** : Question/s to flow design/ dimensional tolerance of given data (application type) of 5-6 marks out of total 70.	**4**
6	**CASTING DEFECTS.** 6.1 Defects. 6.2 Inspection. 6.3 Analysis of casting defects. 6.4 Quality control. **Note** : Question/s to analyse defects of given data (application type) of 4-5 marks out of total 70.	**5**
7	**FOUNDARY MANAGEMENT.** 7.1 Mechanisation & modernisation 7.2 Quality control systems 7.3 Use of computers.	**2**
	Total	**42**

Notes:

A. FOR STUDENTS.

a. It is advised that student download this copy of syllabus and plan to achieve the objectives of learning this subject.

B. FOR PAPER SETTER/MODERATOR.

a. Refer GTU syllabus and do not take reference of previous TEB question papers.
b. Ask the questions from each topic having marks weightage proportionate to hours allotted to that topic.
c. Optional questions must be asked from the same topic. That is weightage of compulsory attendance part of questions will be equal to proportionate to hours allotted to each topic.
d. Marks ratio of knowledge: comprehension: application types questions must be 30:30:40.
e. Submit solution / answer keys along with distribution of marks in each question for the paper being submitted.

Reference Books:

1. Principles of Metal casting	Heine, Loper Resenthal Tata McGraw Hill publishing Co.Ltd.
2. Principal of Foundry Technology	P.L.Jain Tata McGraw Hill
3. Fundamentals of metal Casting Technology	P. C. Mukharjee Tata McGraw Hill
4. Foundry Engineering	Banza, Agarwal Manghanani Khanna Publishing Ltd.
5. Foundry Technology	M.Lal Dhimpat Rai & Sons.

Additional Reference Books:

1. Foundry Engineering	Taylor Fleming Woolf Wiley Eastern Ltd.
2. Foundry Practice	Salmon Simons ELBS & ISSU pitmun.
3. Manufacturing Technology	Malik Ghosh Affiliated East-west Press Pvt.Ltd.