



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Technology and Science
Choice Based Credit System (CBCS) Scheme in light of NEP-2020
Generic Elective (Odd Semester)
(2021-2025)

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
BTMEGE13	GE	CASTING TECHNOLOGY	60	20	20	0	0	3	0	0	3

Legends: L - Lecture; T - Tutorial/Teacher Guided Student Activity; P – Practical; C - Credit;
***Teacher Assessment** shall be based following components: Quiz/Assignment/Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives:-

The primary objective of the course is to describe and develop knowledge of (A) Basics of casting and molding materials (B) different pattern and allowances, (C) casting processes and their defects and applications of casting (D) casting materials and casting defects.

Course Outcomes:-

After completion of this course the students will be able to describe the followings:

1. Students will be able to understand & describe casting process and molding materials.
2. Students will be able to understand & describe casting patterns and allowances.
3. Students will be able to understand & describe casting processes and applications of casting
4. Students will be able to understand types of steels & cast irons and their properties.
5. Students will be able to understand & describe casting defects and diagnostic methods.

Syllabus

Unit-I

(9 Hrs)

Introduction of Casting and Molding Materials:

Introduction, importance of casting process in manufacturing, basic principles of casting processes, Molding and Foundry core sands and their properties, moulding processes, types of moulds; core material and core making, basic components of casting.

Unit-II

(9 Hrs)

Casting Patterns:

Types of patterns, Pattern and pattern making, pattern materials, pattern allowances, functions of patterns; pattern design considerations, core, core boxes

Unit-III

(10 Hrs)

Casting Processes:

Classification of casting processes, Various casting methods, viz., sand casting investment casting, pressure die casting, centrifugal casting, continuous casting, thin roll casting etc. applications of casting processes, basics of melting furnaces.

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Unit-IV

(9 Hrs)

Steel and Cast Iron:

Mechanical properties of materials, classification of materials, types of steel and cast irons, main alloying elements and their effects, melting and pouring of cast iron family materials

Unit-V

(8 Hrs)

Casting Defects:

Various types of casting defects, their causes and remedies, destructive and NDT diagnostic methods for casting products, case study

Text and Reference Books:

1. "Principles of Metal Casting" by M. Sahoo and S.S. Sahu, 3rd ed., McGraw Hill Ed., 2014.
2. "Introduction to manufacturing processes" by M.P. Groover, John Wiley & Sons, 2012
3. "Workshop Technology" by W. A. J. Chapman part I, II & III, 5th ed., 2001.
4. "Manufacturing Technology" by P. N. Rao, Vol. 1 and 2, 2018.
5. "Elements of Workshop Technology" by Hazra Chaudhary Vol I, II, 12th ed., 2007.
6. "Principles Of Manufacturing Materials And Processes" by J S Campbell, Tata McGraw Hill, 1995.
7. "Introduction to manufacturing technologies Principles and technologies" by Prashant P Date, Jaico publications, 2010.

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