



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 for UG
(2022-2026)

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*				
GUME202	GE	Product and Design Thinking	60	20	20	0	0	4	0	0	4

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 Educational Objectives:-

This course provides a basic understanding to the students about the concept and significance of product design and design thinking.

Course Outcomes:-

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

1. Students will be able to understand the concepts of product design and Innovation.
2. Students will be able to understand design thinking and idea generation.
3. Students will be able to understand the concept generation, evaluation, selection, and testing methods.
4. Students will be able to understand the design thinking paradigm with affordability engineering.
5. Students will be able to understand opportunities and challenges for entrepreneurship.

Syllabus

Unit-I (10 Hrs)

Introduction to product design, innovation, product engineering, and design thinking; traditional and modern design concept, design process, and need of new product; product design specification and planning.

Unit-II (11 Hrs)

Design thinking for need identification and product specification; conceptual design stemmed from Idea generation, tools, and techniques.

Unit-III (10 Hrs)

Concept generation, evaluation, selection, and testing methods; embodiment design, product architecture, configuration design; eco-design; and prototyping

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Unit-IV **(10 Hrs)**

Product innovation in the design thinking paradigm with affordability engineering complying with quality, robustness, and reliability with illustrations

Unit-V **(11 Hrs)**

Entrepreneurship and user experience study methods in industrial design; application of design thinking in product engineering and innovation. Opportunities and challenges for a new product in business.

Text and References Books:

1. Karl T. Ulrich, Steven D. Eppinger and Maria C. Yang “Product Design and Development” McGraw-Hill Education, 2020.
2. Rothberg, Robert, R., “Corporate Strategy and Product Innovation” The Free Press, 2009.
3. Jones, J.C., “Design Methods, Seeds of Human Future”, John Wiley and sons, 2005.
4. Grunwald, G., “New Product Development”, Business Books, Illinois, 1985.
5. Ulrich K.T., “Principles of Product Design” McGraw Hill, 2020.
6. Birkhofer H., “Future of Design Methodology” Springer, 2020.
7. A. K. Chitale and R. C. Gupta, “Product Design and Manufacturing”, PHI, 2018.
8. Eppinger, S., & Ulrich, K. Product design and development. McGraw-Hill Higher Education, 2015.
9. Lidwell, W., Holden, K., & Butler, J. Universal principles of design, revised and updated: 125 ways to enhance usability, influence perception, increase appeal, make better design decisions, and teach through design. Rockport Pub, 2010.
10. Dr. Bala Ramadurai “Karmic Design Thinking - A Buddhism-Inspired Method to Help Create Human-Centered Products & Services” e-book 2020.

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