



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*				
BTMEGE14	GE	METAL CUTTING MACHINES AND OPERATIONS	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) lathe machines and its operations (B) drilling machines and its operations, (C) shaping and milling machines and operations performed on it, (D) grinding machines, grinding wheel, operations and related terms.

Course Outcomes:-

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

1. understand & describe lathe machines, operations and applications.
2. understand & describe drilling machine, operations & applications.
3. understand & describe the shaping/planning machines, operations and applications.
4. understand & describe milling machines, operations & applications.
5. understand grinding machines, grinding operations, grinding wheel and related terms.

Syllabus

Unit-I

(9 Hrs)

Lathe Machine: Function and construction of lathe; types and selection of lathe, basic parts of lathe, Lathe operations, lathe cutting tools and materials, applications of lathe machine, safety aspects

Unit-II

(9 Hrs)

Drilling Machine:

Construction and types of drilling machines, basic parts of drilling machine, drill speed and feed mechanism, drilling operations, applications of drilling machine, safety aspects

Unit-III

(8 Hrs)

Shaping and Planning Machine

Working principle of shaping machine; types of shaping/planning machines, construction and basic parts, operations, applications of shaping and planning machine

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Unit-IV:

(9 Hrs)

Milling Machine:

Working principle and type of milling machines, milling cutter, milling methods, milling operations, indexing, applications of milling machines

Unit-V

(10 Hrs)

Grinding Machine: Working principle and types of grinding machines, grinding operations, grinding wheel: classification, size, shape, type of abrasives, grain size, bond grade, structure etc. Glazing, loading and gumming of grinding wheel; truing, dressing, balancing of grinding wheel; Selection of grinding wheel.

Text and Reference Books:

1. "Workshop Technology" by W. A. J. Chapman part I, II & III, 5th ed., 2001.
2. "Manufacturing Technology" by P. N. Rao, Vol. 1 and 2, 2018.
3. "Fundamentals of Machining and Machine Tools" by D.G. Boothroy and W.A. Knight, Marcel Dekker, NY, 2007.
4. "Elements of Workshop Technology" by Hazra Chaudhary Vol I, II, 12th ed., 2007.
5. "Metal Cutting Theory and Practice" by Bhattacharya, New Central Book Agency, 2015.
6. "Principles of Metal Cutting" by G. Kuppaswamy, Universities Press, 2006.
7. "Metal forming-Fundamentals and Applications" by T Altan, Soo-Ik-Oh and H.L. Gegel, American Society of Metals, Metal Park, 2013.
8. "Fundamentals of Metal Cutting and Machine Tools" by B.L. Juneja and G.S. Sekhon, New Age International, 2013.

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