Devi Ahilya University, Indore, India **Institute of Engineering & Technology**				**III Year B.E. (Mechanical Engg.)** **(Full Time)**			
Subject Code & Name	**Instructions Hours per Week**			**Credits**			
5MERL3 Workshop/Practical (MACHINE DESIGN – I)	**L**	**T**	**P**	**L**	**T**	**P**	**Total**
	0	**0**	**2**	**0**	**0**	**1**	**1**

Course Objective:

The course is designed

1. To solve the Practical based problems for the designing the Mechanical Components.
2. To introduce the market survey practice to the students.
3. To develop the practice for literature survey to the students.
4. To prepare the students to work in a team.

Pre requisite(s): Machine Design I, Material Science, Strength of Material.

COURSE CONTENTS

1. Problem based on theory of failure.
2. Problem on Design for Helical Spring.
3. Problem on Design for Leaf Spring.
4. Problem on Design for Pressure Vessels
5. Problem on Design for Pipe Joints.
6. Problem on Design for Rotating Disc
7. Problem on Design for Flywheel.
8. Problem on Design for Pulleys.
9. Problem on Design for Crane Hook.
10. Problem on Design for Chain Drive

Course Outcome:

Students earned credits will develop ability to

CO1. Get the practical knowledge of designing the various components of Internal Combustion Engine.
CO2. Learn the market survey practice.
CO3. Get practice of literature survey.
CO4. Learn to work in a team.

BOOKS RECOMMEDED:

[1]. Shigley J.E., *Mechanical Engineering Design*, McGraw-Hill 2015.
[2]. Spotts M.F.,Shoup T.E., Hrnberger L.E., *Design of Machine Elements*, Pearson Education ,8e,2007.
[3]. Sharma P.C. & Aggarwal D.K., *Machine Design*, S.K.Kataria & Sons,11e,2013
[4]. Bhandari V.B., Design of Machine Elements, McGraw-Hill, 4e,2017.
[5]. Black and Adams, *Machine Design*, Mc.Graw Hill,1968.
[6]. Maleev V.L., *I.C.Engine Design*, Mc.Graw Hill ,1945.

Course Objective:

The course is designed

5. To solve the Practical based problems for the designing the Mechanical Components.
6. To introduce the market survey practice to the students.
7. To develop the practice for literature survey to the students.
8. To prepare the students to work in a team.

Course Outcome:

Students earned credits will develop ability to

CO.No.	CO	PO
CO1	Get the practical knowledge of designing the various components of Internal Combustion Engine.	PO1, PO2
CO2	Learn the market survey practice.	PO1, PO4, PO5
CO3	Get practice of literature survey.	PO1, PO4, PO12
CO4	Learn to work in a team.	PO9, PO12

CO-PO Relationship

CO	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
CO1	3	3										
CO2	3			3	3							
CO3	3			3								2
CO4									3			3
CO5												

* CO (rows) mention nil/very small/insignificant contribution to the PO(column)

1→ relevant and small significance 2 → medium or moderate and 3 →strong