SCHEME OF COURSE WORK
(2016-2017)

Course Details:

Course Title	MACHINE SHOP PRACTICE		
Course Code	13ME1136	L T P C	0 0 3 2
Program:	B.Tech.		
Specialization:	Mechanical		
Semester	VI		
Prerequisites	Manufacturing technology		
Courses to which it is a prerequisite	Advanced manufacturing process		

Course Outcomes (COs): The student will be able to

CO	Course Outcomesd	Cognitive Level
CO 1	Operate turning, knurling and thread cutting functions on lathe	Remember , Understand , Apply
CO 2	Operate drilling, shaping and milling machines	Remember , Understand , Apply
CO 3	Measure lengths, bores, angle and tapers by using vernier calipers, micrometers, bevel protractor and sinebars	Remember , Understand , Apply
CO 4	Evaluate gear elements by gear tooth vernier calipers , measure thread elements by using thread micrometer and tool makers microscope and measure surface roughness by Talysurf	Remember , Understand , Apply
CO 5	Demonstrate machine tool alignment tests on lathe and milling machine.	Remember , Understand , Apply

Program Outcomes (POs):
A graduate of mechanical engineering will be able to

1	Apply the knowledge of mathematics, science, engineering fundamentals to solve complex mechanical engineering problems.
2	Attain the capability to identify, formulate and analyse problems related to mechanical engineering.
3	Design solutions for mechanical system components and processes that meet the specified needs with

	appropriate consideration for public health and safety.
4	Conduct experiments, perform analysis and interpretation of data by using research methods such as design of experiments to synthesize the information and to provide valid conclusions.
5	Select and apply appropriate techniques from the available resources and current mechanical engineering and software tools.
6	Carry out their professional practice in mechanical engineering by appropriately considering and weighing the issues related to society.
7	Understand the impact of the professional engineering solutions on environmental safety and legal issues.
8	Transform into responsible citizens by resorting to professional ethics and norms of the engineering practice.
9	Function effectively in individual capacity as well as a member in diverse teams and in multidisciplinary streams.
10	Communicate fluently with the engineering community and society, and will be able to prepare reports and make presentations effectively.
11	Apply knowledge of the engineering and management principles to managing projects and finance in multidisciplinary environments.
12	Engage themselves in independent and life-long learning to continuing professional practice in their specialized areas of mechanical engineering.

Course Outcome Versus Program Outcomes:

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1				S	M							
CO-2				S	M							
CO-3				S	M							
CO-4				S	M							
CO-5		M		S	M							

S - Strongly correlated, *M* - *Moderately* correlated, *Blank* - *No correlation*

Assessment Methods:	Assignment / Seminar / Mid-Test / End Exam

Teaching-Learning and Evaluation

Exercise	TOPIC / CONTENTS	Course Outcomes	Sample questions	TEACHING-LEARNING STRATEGY	Assessment Method & Schedule
1	Plain turning and Step turning	CO 1	What are the different types of turning operations?	Experiment	Internal Lab 1 Observation Record Submission (cycle 1)/ (week 1-6)
2	Knurling and taper turning on lathe machine	CO 1	What are the different methods to perform taper turning?	Experiment	Internal Lab 1 Observation Record Submission (cycle 1)/ (week 1-6)
3	Thread cutting on lathe machine	CO 1	How do you perform thread cutting operation on engine lathe? What are the different forms of threads?	Experiment	Internal Lab 1 Observation Record Submission (cycle 1)/ (week 1-6)

4	Spur gear cutting on horizontal milling machine	CO 2	What are the different types of indexing heads?	Experiment	Internal Lab 1 Observation Record Submission (cycle 1)/ (week 1-6)
5	Hexagonal block machining on shaping machine	CO 2	How do you machine hexagonal block on shaper from round work piece?	Experiment	Internal Lab 1 Observation Record Submission (cycle 1)/ (week 1-6)
6	Hexagonal nut machining	CO 2	How do you cut internal threads in hexagonal nut?	Experiment	Internal Lab 1 Observation Record Submission (cycle 1)/ (week 1-6)
	Internal Exam - I				
7	Measurement of lengths, diameters by vernier calipers, micrometers etc.	CO 3	What do you mean by end standard and line standard?	Experiment	Internal Lab 2 Observation Record Submission (cycle 2)/ (week 8-14)
8	Measurement of bores by internal micrometers and dial bore indicators	CO 3	What do you mean by mechanical comparator?	Experiment	Internal Lab 2 Observation Record Submission (cycle 2)/ (week 8-14)
9	Angle and taper measurements by Bevel protractor, Sine bars,etc. Thread measurement by Two wire/Three wire method or Tool maker's microscope	CO 3	How do you measure angle of a given block by sine bar and bevel protractor?	Experiment	Internal Lab 2 Observation Record Submission (cycle 2)/ (week 8-14)
10	Use of gear tooth vernier calipers checking the chordal addendum and chordal height of spur gear	CO 4	What is the need for measuring chordal addendum and chordal height of spur gear?	Experiment	Internal Lab 2 Observation Record Submission (cycle 2)/ (week 8-14)
11	Toolmakers microscope and its application	CO 4	What are the different applications of tool maker's microscope?	Experiment	Internal Lab 2 Observation Record Submission (cycle 2)/ (week 8-14)

12	Machine tool alignment test on the lathe.	CO 5	Explain the need of machine tool alignment test?	Experiment	Internal Lab 2 Observation Record Submission (cycle 2)/ (week 8-14)
	Internal Exam – II				
					END EXAM