

Program : Diploma in Mechanical Engineering / Manufacturing Technology	
Course Code : 5027	Course Title: Machine Shop Practice
Semester : 5	Credits: 1.5
Course Category: Program Core	
Periods per week: 3 (L:0, T:0, P:3)	Periods per semester: 45

Course Objectives:

- To Acquire skills in basic engineering practice and measurements
- To Familiarize with the hand tools and instruments used in workshop
- To provide experience in performing operations on different machines in a machine shop

Course Prerequisites:

Topic	Course Code	Course Name	Semester
Basic knowledge on measurements, workshop practice and safety		Workshop practice 3 & 4	3, 4

Course Outcomes:

On completion of the course, the student will be able to

CO _n	Description	Duration (Hours)	Cognitive Level
CO1	Perform various operations on Production type Lathes.	10	Applying
CO2	Practice gear cutting and drilling operations on Milling machines and Drilling machines respectively	10	Applying
CO3	Demonstrate planing and slotting operations on planing and slotting machines	12	Applying
CO4	Apply theoretical knowledge to perform grinding operations in cylindrical/surface/centerless Grinding machines	10	Applying
	Lab Exam	3	

CO-PO Mapping:

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	3			3			
CO2	3			3			
CO3	3			3			
CO4	3			3			

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline

Module Outcomes	Description	Duration (Hours)	Cognitive Level
CO1	Perform various operations on Production type Lathes		
M1.01	Advanced turning practice	10	Applying
Contents: Taper turning, Form turning and Thread cutting on lathes. Manufacture hexagonal/square headed bolts by feeding hexagonal/square bars in Production type/Heavy duty/Capstan / Turret lathes			
CO2	Practice gear cutting and drilling operations on Milling machines and Drilling machines respectively		
M2.01	Milling and Drilling practice	10	Applying
	Lab Exam	1.5	
Contents: Milling-square-hexagon from round bars with simple/Direct / compound indexing and differential indexing methods. Generation of spur/helical gear teeth on a round bar Drilling Exercise (Three different sized holes for different materials maintaining uniform distances			
CO3	Demonstrate simple planing and slotting operations on planing and slotting machines		
M 3.01	Slotting/Planing practice	12	Applying
Contents: Simple planing exercise cutting 'T' slots (one model) Shaping a Hexagon on a round bar, key ways, grooves splines Shaping step block cut dovetail to angles 60, 90, 120 degrees			

CO4	Apply technical knowledge to perform grinding operations in cylindrical / surface / centerless grinding machines		
M 4.01	Grinding practice	10	Applying
	Lab Exam - II	1.5	
Contents: Cylindrical grinding of external surface and internal surface using grinding machines. Grinding cutting tools to the required angles			

Text / Reference

T/R	Book Title/Author
T1	Manufacturing process – Myro N Begman, 5 th edition, Tata McGraw Hill, New Delhi
R1	Production Technology – HMT, 18th edition, Tata McGraw Hill, New Delhi
R2	Elements of Workshop Technology (Volume I & II) – Hajra Chowdry & Bhattacharaya, Media Promoters, 11th Edition, 2007
R3	Production Technology—By R.K. JAIN
R4	A Textbook of Machine tools and tool design.by P.C. Sharma. S.chand& company ltd.

Online Resources

Sl.No	Website Link
1	http://www.tandfonline.com
2	http://www.journals.elsevier.com
3	http://www.sciencedirect.com
4	http://www.sae.org