4046

5053 - MANUFACTURING PROCESS – III

Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)			
					Theory		Practical Ex.	Total
Lectures	Practical	Credits						
2	4	6	50	25	3 Hrs.	100	0	175

Pre-requisite	Source
.2004	MEC

Semester	Theory	Test	Total	TW	PR	Gr Total
	75	25	100	25	–	125

Rationale:- As a technician the knowledge and practical skills in different engineering processes are essential and hence enough weightage is given in this course towards skill development. Further the Technician should be able to cater to handling of equipment, tools and accessories and also know safety aspect of man, machine and tools, The contents of this course are oriented towards the above.

Competencies to be developed:- 1) The student should be able to apply and use the appropriate planing machines and operations for the given job under consideration., 2) The student should be able to apply and use the appropriate boring machines and operations depending on the type of product required. 3) The student should be able to choose the appropriate broaching machine and operation depending on the product desired. 4) The student should be able to apply and use the special purpose machines depending on the type of product involved. The student should be able to apply and use the techniques of gear manufacture depending on the type of product involved. 6) The student should be able to choose and apply the appropriate unconventional machining process depending on the type of product to be manufactured.

COURSE CONTENTS	Hrs	Mks
1. PLANING MACHINES:- Types of planing machines, Principal parts of a double housing planer, Planer operations.	4	12
2. BORING MACHINES . 2.1 Introduction, 2.2 Description of boring machines. 2.3 Types of boring machines. 2.4 Boring bars & boring heads & their mountings. 2.5 Jig boring machine.	4	14
3. BROACHING MACHINES :3.1 Types of broaches. 3.2 Elements of a broaching tool. 3.3 Broaching methods. 3.4 Types of broaching machines. 3.5 Advantages & limitations of broaching. .	4	12
4. GEAR MANUFACTURING PROCESSES. 4.1 Methods of gear cutting. 4.2 Indexing & dividing heads. 4.3 Different methods of indexing. 4.4 Gear hobbing.	8	25
5. SPECIAL PURPOSE MACHINES:- 5.1 Capstan & turret lathes. 5.2 Principal parts. 5.3 Turret Indexing mechanism. 5.4 Bar feeding mechanism. 5.5 Work holding devices. 5.6 Tool holding devices 5.7 Different types of lathe tools. 5.8 Lathe operations. 5.9 Tooling layouts.	8	25
6. UNCONVENTIONAL MACHINING PROCESSES. 6.1 Electrochemical machining. 6.2 Electrodischarge machining. 6.3 Electrodeam machining 6.4 Electrolaser beam machining	4	12
Total	32	100

Term Work

1) One job in gear cutting.
2) One job in eccentric turning.
3) One composite job involving varied operations on lathes.

REFERENCE BOOK:-

1) Elements of workshop Technology - Vol. II – S.K. Hajra Choudhury & A. K. Hajra Choudhury
2) Workshop Technology _ Vol II - W. A. J. Chapman
3) Workshop Technology – Vol. II by Raghuwanshi
4) Workshop Technology Vol. II - Kaushish & Gupta.