Course Number and Name
BME305 – MANUFACTURING TECHNOLOGY I
Credits and Contact Hours
3 & 60
Course Coordinator's Name
Mr.V.P.Durai Raj
Text Books and References

Text Books:

1. P.C. Sharma, A text book of production technology, S.Chand & company ltd., New Delhi, 2007.
2. Hajra Chowdary S K The fundamentals of work shop technology Vol. I &II, Media publishers,1997
3. P.N.Rao. Manufacturing Technology-foundry forging &welding TMH publishing co., New Delhi -2009.

References:

1. W.A.J.chapman-work shop technology, vol I,II & III, 1975, ELBS.
2. Roy A Llindberg, Process and material manufacture, PHI, 1995
3. Kalpakjian, manufacturing engineering and technology, Addison Wesley, 2005

Course Description
To understand the concept and basic mechanics of metal cutting, working of standard machine tools such as lathe, shaping and allied machines, milling, drilling and allied machines, grinding and allied machines and broaching

Prerequisites	Co-requisites
Basic Mechanical Engineering	Nil
required, elective, or selected elective (as per Table 5-1)	
Required	

Course Outcomes (COs)	
CO1	Upon completion of this course, the students can able to learn different manufacturing process.
CO2	Understand means of component production
CO3	Students will be able to have hands on experience on machineries
CO4	Understand metal working concepts
CO5	Learn the theory of metal operations cutting
CO6	Will know how to perform simple lathe

Student Outcomes (SOs) from Criterion 3 covered by this Course

COs/SOs	a	b	c	d	e	f	g	h	i	j	k	l
CO1	H	H	L					M	M		H	H
CO2	H	H	L					M	M		H	H
CO3	H	H						M	M		H	H
CO4	H	M	L					M	M		H	H
CO5	M	H	L					M	M		H	H
CO6	M	H	L					M	M		H	H

List of Topics Covered

UNIT I METAL WORKING PROCESS 9

Mechanical working of metals-hot and cold working-rolling, extrusion, spinning, wiredrawing, press working. Welding - different types of gas and arc welding process, soldering and brazing. Casting-different types, furnaces, casting defects and inspection.

UNIT II THEORY OF METAL CUTTING 8

Introduction, mechanics of metal cutting- chip formation, Merchant's circle theory, cutting force calculations, tool materials, Influence of tool angles, tool life, cutting fluids, machining time calculations, Metal cutting economics, problem in merchant circle, tool life, machining time and economics.

UNIT III MACHINING PROCESSES 10

Lathe- introduction, types, construction, mechanisms and attachments for various operations, nomenclature of single point cutting tool. Capstan and turret lathes: various mechanisms, tool and loading arrangement. Automatic lathes- single spindle and multi spindle mechanisms.

UNIT IV SHAPER, PLANER AND MILLING PROCESS 10

Shaper, planer and slotter : types, specification, mechanisms, holding devices, difference between shaper and planer. Milling machine - types and specification, mechanisms, holding devices, milling operations. Milling tool nomenclature, indexing types-simple, compound and differential.

UNIT V DRILLING, BORING AND BROACHING 8

Drilling, Boring- Specification. Nomenclature of drilling and reaming tool and its specification. Broaching: Specification, types, mechanisms, nomenclature of broaching tool.