

Course Number and Name													
BME009 - DESIGN FOR MANUFACTURING													
Credits and Contact Hours													
3&45													
Course Coordinator's Name													
Dr.Bachshumiyam													
Text Books and References													
TEXTBOOK:													
1. M.F.Spotts – “Dimensioning & Tolerancing for Quantity Production” – Prentice Hall													
REFERENCES:													
1.Harry Peck – “Designing for Manufacture” – Pitman Publications, 1973.													
2.James G.Bnalla- “Hand book of Product Design for Manufacturing”.													
3. www.bookchums.com › Books › Free ebooks													
Course Description													
At the end of this course the student should be able to understand the design principles of casting, welding, forming, machining and assembly, by considering various manufacturing constraints.													
Prerequisites							Co-requisites						
MACHINE DESIGN, MANUFACTURING TECHNOLOGY							Nil						
required, elective, or selected elective (as per Table 5-1)													
Core Elective													
Course Outcomes (COs)													
CO1	Students will learn the principles of manufacturing												
CO2	Students will learn manufacturing design												
CO3	Learn design principles of welding												
CO4	Learn design principles of forming												
CO5	Learn design principles of casting												
CO6	Learn design principles of machining and assembly												
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												
	CO2	H	H							M			

CO3		H				M				M	H	
CO4	H											H
CO5		H				M						
CO6												H

List of Topics Covered

UNIT I GENERAL DESIGN	9
General design principle for manufacturing - Process capability- Surface finish – tolerances – features of tolerance – cumulative effect of tolerance – Geometric tolerances.	
UNIT II FITS AND ASSEMBLIES	9
Fits- Selective assembly- Deciding the number of groups, control of axial play- Grouped datum systems- Types- Automated assemblies- laminated shims assemblies.	
UNIT III TOLERANCING	9
True position theory- Virtual size concept- True position tolerancing- fixed fasteners- Floating fasteners- zero true position tolerances- Functional gauging- paper layout gauging.	
UNIT IV REDESIGNING	9
Form design of castings- Redesigning- Parting line consideration- Minimizing core requirements- economic design of castings- Form design of weldments- Welding symbols- redesigning cast members using weldments- Economic weldments.	
UNIT V DESIGN FOR ASSEMBLY	9
Design for assembly- Design for inspection- Design for machining- Redimensioning based on manufacturing datums- Design of reduce value addition – Parts cut to length – Machined round holes- Blind & Through holes – Design consideration for various machining operations.	