













Manufacturing - Complexities involved !					
Number of Parts					
300					
12,000					
15,000					
> 4,000,000					
> 6,000,000					













































ASU	Manufacturing Paradigms (examples/models/patterns)							
	How What	Craft and Custom	Mass Production	Automated Production	"Next Generation" Systems			
	Timeframe	Up to Present	1800s to Present	1950s to Present	1990s and Beyond			
	Quantities	Small	Very Large	Moderate	Small			
	Unit Costs	High	Low	Moderate	Low			
	Quality	Variable	Good	Good	Excellent			
	Delivery Times	Long	Long	Moderate	Short			
	Flexibility	High	Low	Moderate	High			
Ref include: Menufer	Environmental Consciousness		Low	Moderate	High			
ME4563 Intro to Manuf sharan 31								





















































Buy to Fly Ratio						
The weight of the purchased raw material divided by the weight of the final part						
Process	Buy to fly ratio					
Machining	1.1 - 50					
Hot closed die forging	1.2 - 1.5					
Sheet metal forming	1.1 - 1.25					
Extrusion	1.1 - 1.3					
Permanent mold casting	1.0 - 1.2					
Powder metallurgy	1.0 - 1.05					
Ref include: Manufacturing Engineering & Technology Kalpakijan & Schmid, Dr. John Mills' slides, UT Arlington <u>ME4563 Intro to Manuf sharan</u>						



































