

**INDIAN INSTITUTE OF INFORMATION TECHNOLOGY  
DESIGN AND MANUFACTURING (IIITD&M) KANCHEEPURAM**

INTRODUCTION OF NEW COURSE

Course Title	Design for Manufacture and Assembly	Course No (will be assigned)				
Specialization	Manufacturing Engineering	Structure (LTPC)	4	0	0	4
Offered for	Ph.D / M.Tech / M.Des / B.Tech	Status	Core ✓		Elective ✓	
Faculty	Dr.A.Arivazhagan	Type	New		Modification ✓	
Pre-requisite	Manufacturing / CAD/CAM	To take effect from	Jan 2011			
Submission date	November 2010	Date of approval by AAC				
Objectives	DFMA helps to analyze and compare the costs of different materials and manufacturing methods, in the design phase. It is possible to estimate the difficulty of assembly, eliminate unnecessary parts and assembly tooling, and design products that are less costly to manufacture. DFMA course will help students to become technologists and will benefit industries to cut costs from their product manufacturing costs.					
Contents of the course (With approximate break up of hours)	<p>Manufacturing Processes - Overview - Traditional and Non -Traditional - Material and process selection - Advantages of applying DFMA, Process capabilities.</p> <p>Design for Casting - Casting Considerations - Pattern, Mould, parting line, special sand cores - Die casting alloys, machines, dies, Assembly techniques, Design principles.</p> <p>Sheet metal working - Introduction to sheet metalworking, Dedicated Dies and Press working, Press selections, Design Rules. Powder metal processing - Powder metallurgy processing, stages, compaction characteristics, Tooling, Sintering, Design guidelines.</p> <p>Component design - Machining Considerations - Drills, Milling cutters, Reduction in machining areas, work piece holding, surface grinding.</p> <p>Design for Injection molding - Injection molding materials, Molding cycle, Systems, molds, machine size, cycle time, Cost estimation, Insert molding.</p> <p>Geometric Tolerance - Symbols, Straightness, concentricity, Run-out, Location Tolerance, Assembly of parts - Profile dimensioning, Tapers, Shaft of two diameters.</p>					
Text and References	<p><b>Textbooks:</b></p> <ol style="list-style-type: none"> <li>1. Geoffrey Boothroyd, Peter Dewhurst, Winston Knight, Product Design for Manufacture and Assembly, Marcel Dekker Inc, Newyork, 2010.</li> <li>2. Corrado Poli, "Design for Manufacturing", Butterwoth-Heinmann, 2001.</li> </ol> <p><b>References:</b></p> <ol style="list-style-type: none"> <li>1. James G. Bralla, Design for Manufacturing Handbook, Mc Graw Hill, 1998.</li> <li>2. Paul Drake, Dimensioning and Tolerancing Handbook, Mc Graw Hill, 1999.</li> </ol>					