

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY

DESIGN AND MANUFACTURING (IIITD&M) KANCHEEPURAM

INTRODUCTION OF NEW COURSE

Course Title	Computer Aided Process Planning	Course No <i>(will be assigned)</i>				
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	This course focuses on achieving a complete Computer Integrated Manufacturing through various concepts in CAPP namely Feature recognition, Machining Planning and Setup / Fixture Planning. It covers all the basic objectives that are necessary to be the interlink CAD and CAM. CAPP covers whole gamut of design to manufacturing and helps to reduce the time and cost associated with a product.					
Contents of the course <i>(With approximate break up of hours)</i>	<p>Introduction- Generative and variant CAPP - Kings Algorithm, Cellular Manufacturing, Problems involved CAD/CAPP/CAM integration.</p> <p>Interfacing CAD/CAPP/CAM - Neutral Formats, CAD data loss, Mismatch of Features, Various type of representation. Feature Recognition methods - Syntactic pattern recognition, Volume decomposition, Attributed Adjacency Graph.</p> <p>Machinable Volumes - Concept of Machinable Volumes, Rough and Finish cut Volumes, Calculation of Rough and Finish Cut Volumes, Case Studies with Mini project.</p> <p>Machining Planning -Manufacturing process and Materials, Operations involved in Sheet metal parts, prismatic & rotational parts, Operation Planning.</p> <p>Setup Planning & Fixture Planning - Concept of setup planning, Introduction to Geometric Tolerance and Dimensioning, Different types of fixtures, Fixture analysis, Constraints involved in Fixture Planning, STEP-NC and Advancement in Interlinking CAD / CAPP / CAM- Case Studies with Mini project</p>					
Text and References	<p>Textbooks:</p> <ol style="list-style-type: none"> 1. Chang Tien-Chien & Wysk, Introduction to automated process planning systems, Prentice Hall ,1995. 2. Scallan Peter, Au, Process planning: the design/manufacture interface, Butterworth Heinemann, 2003. <p>References:</p> <ol style="list-style-type: none"> 1. Halevi, Gideon, Process and operation planning, Kluwer Academic Publishers, 2003. 2. Nasr, EmadAbouel, Kamrani, Ali K, Computer Based Design and Manufacturing, Springer, 2007. 					