COMPUTER AIDED DESIGN LABORATORY

I SEMSTER: CAD/CAM									
Course Code		Category	Hours / Week			Credits	Maximum Marks		
BCCB09		Core	L	Т	Р	С	CIA	SEE	Total
			-	-	3	2	30	70	100
Contact Classes: Nil		Tutorial Classes: Nil	P	ractica	l Classe	es: 36	Total Classes: 36		
OBJECTIVES: The courses should enable the students to: I. Basic understanding of modern trends in design and manufacturing using CAD/CAM II. Advanced aspects of enabling computer aided technologies used in design. III. Application of thermal analysis software.									
LIST OF EXPERIMENTS									
Week-1	INTRODCUTION TO CAD AND TOOLS :Part -1								
Creation of working drawing, creating geometry, constraining the profile, extracting a part using tools, creating pattern of hole.									
Week-2	INTRODUCTION TO CAD AND TOOLS:Part-2								
Translating Rotating, Mirroring, Managing The Specification Tree. Creating Sheets And Views, Creating Text And Dimensions.									
Week-3	ASSEMBLY OF PART DRAWING :Part -1								
Creating an assembly, moving components, assembling existing components, creating bill of materials									
Week-4 ASSEMBLY OF PART DRAWING :Part -2									
Creating wire frame and surface geometry using generative shape design and sweep tools.									
Week-5	GENERATION OF SURFACES :Part -1								
Generation of Ferguson's cubic surface patches, Bezier surface patches									
Week-6	GENERATION OF SURFACES :Part-2								
Generation of Coon's patch, import and export of drawing from other software.									
Week-7	ANALYSIS OF MODEL :Part -1								

Linear static analysis : Automatic calculation of rigid body modes using specified Eigen value shift, lumped and consistent mass matrices						
Week-8	ANALYSIS OF MODEL:Part-2					
Buckling Analysis: Jacobi inverse iteration techniques, steady state harmonic response, and mode superposition method, overall structural and damping.						
Linear dynamic analysis: Non linear static analysis, Non-linear dynamic analysis. Steady state heat transfer analysis problems.						
Week-9	THERMAL ANALYSIS :Part -1					
Transient Heat Transfer Analysis: Familiarity with element library, Defining Boundary conditions, multipoint constraint familiarity with different types of loads.						
Week-10	THERMAL ANALYSIS:Part-2					
Solution techniques, direct and iterative solver. Results and analysis. Design optimization.						
Reference Books:						
 Farid Amirouche, "Principles of Computer-Aided Design and Manufacturing, Pearson, 2nd Edition, 2004. P. Radha Krishnan, "CAD/ CAM/ CIM", New Age International, 4th Edition, 2016. 						
3. Warren. S. Seames, "Computer Numerical Control Concepts and Programming", Delmar Cengage Learning, 4th						
Edition, 2013.						
Web References:						
1. http://www.tutorialspoint.com/catiav5 /						