

BMEE401P	Computer Integrated Manufacturing Lab	L	T	P	C
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Pre-requisite	BMHA202L , BMHA202P / BMEE306L & BMEE306P	Syllabus version			
		1.0			
Course Objectives					
1. To impart knowledge on CAM & CIM software for various engineering applications.					
2. To develop proficiency in the application of CIM to the realistic engineering problems.					
Course Outcome					
At the end of the course, the student will be able to					
1. Develop CNC programs for various geometries using CAM and CIM software.					
2. Evaluate and interpret flexible integrated digital factory systems.					
Indicative Experiments					
1.	Manual Programming for CNC Tuning / Milling Machine.				
2.	Offline verification of CNC program using CNC controller simulator.				
3.	CAD/CAM based Part Programming and operation of a 3 axis CNC Milling Machine.				
4.	Demonstrate automatic feature recognition using CAM software.				
5.	CNC tool path verification and optimization using digital manufacturing software.				
6.	Simulation to predict and optimize performance of CNC machining operations.				
7.	Demonstrate factory shop floor data collection methods.				
8.	Modeling and Simulation of CIM system using software.				
9.	Simulation on flexible manufacturing systems.				
10	Virtual Reality simulation of digital manufacturing machinery and factory.				
Total Laboratory Hours					30 hours
Text Books					
1.	Xun Xu, Integrating Advanced Computer-Aided Design, Manufacturing, and Numerical Control: Principles and Implementations, 2015, IGI Global.				
2.	Hans Bernhard Kief, Helmut A. Roschiwal, Karsten Schwarz, The CNC Handbook: Digital Manufacturing and Automation from CNC to Industry 4.0, 2021, Industrial Press.				
3.	Lab Manual prepared by course faculty.				
Reference Books					
1.	Mikell P. Grover, Automation, Production Systems and Computer-Integrated Manufacturing, 2019, Pearson Education, New Delhi.				
2.	Radhakrishnan P, Computer Numerical Control Machines and Computer Aided Manufacture, 2018, New Age International (P) Ltd.				
Mode of assessment: Continuous assessment, FAT, Oral examination					
Recommended by Board of Studies		09-03-2022			
Approved by Academic Council		No. 65	Date	17-03-2022	