PROF. JANAKARAJAN RAMKUMAR  
Department of Mechanical Engineering  
IIT Kanpur

PROF. AMANDEEP SINGH  
Department of Mechanical Engineering  
IIT Kanpur

TYPE OF COURSE: Rerun | Elective | UG/PG
COURSE DURATION: 12 weeks (18 Jan’ 21 - 9 Apr’ 21)
EXAM DATE: 24 Apr 2021

PRE-REQUISITES: The student should have completed two semesters of UG Engineering or Science program.

INTENDED AUDIENCE: Students of all Engineering and Science disciplines.

INDUSTRIES APPLICABLE TO: HAL, NAL, SAIL, ISRO

COURSE OUTLINE:
In this course, Computer Integrated Manufacturing (CIM) approaches are discussed. CAD/CAM tools and their within and between the production systems are presented along with appropriate case studies. Data storage and handling is also the need of contemporary manufacturing systems. This is also catered using software tools. The course is reinforced with the laboratory demonstrations to add a practitioners' touch.

ABOUT INSTRUCTOR:
Dr. Janakarajan Ramkumar is Professor of Mechanical Engineering Department, and Design Program, at Indian Institute of Technology, Kanpur. He teaches manufacturing science, micro / nano technology, new product development. He has a bachelors in Production Engineering with his doctorate in Defect quantification in drilling of composites from IIT Madras, India with a best thesis award.

Dr. Amandeep Singh is working as Research Scientist in the Mechanical Engineering Department, and Design Program, Indian Institute of Technology, Kanpur, India. He holds PhD degree from Indian Institute of Technology Kanpur, India, and a Bachelors degree in Production Engineering. Dr. Singh has ten years of industrial and academic experience.

COURSE PLAN:
Week 1: Introduction to Computer Integrated Manufacturing (CIM)
Week 2: Computer Aided Design
Week 3: Computer Aided Manufacturing
Week 4: Computer Numerical Control
Week 5: Computer Aided Process Planning (CAPP)
Week 6: CIM interfaces: CAD vs CAM
Week 7: Data and information in CIM
Week 8: Manufacturing Systems and their design
Week 9: Simulation of Manufacturing Systems
Week 10: Computer Aided Maintenance
Week 11: Computer Integrated Additive Manufacturing
Week 12: Advanced CIM techniques