

COMPUTER INTEGRATED MANUFACTURING
PROFESSIONAL ELECTIVE - VI

VIII Semester								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
A5AE57	PCC	L	T	P	C	CIE	SEE	Total
		3	0	0	3	30	70	100
COURSE OBJECTIVES:								
<ol style="list-style-type: none"> 1. Students will be introduced to CAD/CAM/CAE concepts. 2. Student will learn steps in upgrading from FMS to CIM. 3. Students will learn about importance of data generation and management in CIMS. 								
UNIT-I	COMPUTER TECHNOLOGY							
Introduction to computers, central processing unit, types of memory, input/ output, the binary number system, computer programming languages.								
UNIT-II	CONVENTIONAL NUMERICAL CONTROL							
Basic components of NC system, NC motion control, system, applications of NC, advantages and disadvantages of NC, problems with conventional NC, NC controller technology, computer Numerical control (CNC), advantages of CNC, functions of CNC, Direct Numerical Control (DNC), components of a DNC system, functions of DNC, advantages of DNC.								
UNIT-III	NC PART PROGRAMMING							
Introduction, punched tapes in NC, tape coding and format, NC words, manual part programming, computer assisted part programming, The part programmer's job, the computer's job, NC part programming languages, APT language, geometry statements, motion statements, post processor statements, auxiliary statements.								
UNIT-IV	AUTOMATED MATERIAL HANDLING AND FMS							
Material handling function, types of material handling equipment, conveyor systems, types of conveyors, automated guided vehicle system, applications, FMS, components of a FMS, types of systems, where to apply FMS technology, FMS workstation, planning the FMS.								
UNIT-V	COMPUTER AIDED QUALITY CONTROL							
Introduction, terminology in quality control, the computer in QC, contact and non-contact Inspection methods- optical and non-optical, computer aided testing.								
Text Books:								
<ol style="list-style-type: none"> 1. Automation, Production systems and Computer Integrated Manufacturing:-Groover M. P. (PHI) 2. CAD/CAM :- Zimmers and Groover (PHI) 3. Approach to computer integrated design and manufacturing :- Nanua Singh (JohnWiley and sons) 								
Reference Books:								

1. Automation, Production systems and Computer Integrated Manufacturing, 3/e - M.P. Groover (PHI or Pearson Education).
2. Computer Integrated Design and Manufacturing - Bedworth, Henderson & Wolfe, (McGraw Hill).
3. Performance Modeling of Automated Manufacturing Systems, 2/e - Viswanadham, N. & Narahari, Y. (EEE) (PHI).
4. Principles of Computer Integrated Manufacturing - S. Kant Vajpayee, (PHI).
5. CAD / CAM Principles and Applications - P.N. Rao (Tata McGraw Hill).
6. CIM Handbook - Teicholtz & Orr (McGraw Hill)
7. CAD/CAM/CIM, 3/e - Radhakrishnan, Subramanayam & Raju (New Age International).
8. Computer Integrated Manufacturing, 2/e - James A. Rehg, H. W. Kraebber, (Pearson Education).

COURSE OUTCOMES:

1. Students will be able to apply knowledge about Computer Aided Quality control and Process Planning Control.
2. Students will be able to Design Flexible manufacturing cell after carrying out Group technology study and finally creating FMS.
3. Students will be able to apply knowledge about various methods of communication in CIMS.
4. Students will be able to apply data management and its importance for decision making in CIMS environment.