Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
IND334	Computer Integrated Manufacturing Systems	5	3	0	0	3	4

Prerequisites	
Admission Requirements	

Language of Instruction	French
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	The innovation of computers and their integration to the production systems have fundamentally changed the manufacturing processes used for decades. Productivity is increased and quality is improved, despite the fact that costs are reduced and the possibility to react quickly and flexibly to continuously changing market conditions is increased. Integration includes all stages from the design to the delivery of the product to the customer. Consequently, the knowledge and skills that will be acquired during this obligatory course are critical for the professional careers of the undergraduate industrial engineering students. Within this context, the objectives of this course are: • To show students how computers can be integrated to every stages of the production • To disseminate the knowledge related to the functioning of the components of modern automation systems to the students • To develop the basic skills of the student necessary to use pneumatic and electro-pneumatic systems, sensors, industrial robots, computer numerically controlled (CNC) machine tools • To provide to the students a general overview on how flexible, cellular and shop type manufacturing systems can be designed and planned by means of mathematical modeling and operations research solution method
Content	1st week: Introduction to computer integrated manuf. systems 2nd week: Part design 3th week: Computer aided design 4th week: Computer aided process planning 5th week: Programmable logical controllers 6th week: Robot systems 7th week: Fundamentals of CNC machines 8th week: CNC part programming 9th week: Midterm 10th week: CNC part programming 11th week: Flexible manufacturing systems 12th week: Flexible manufacturing systems 13th week: Group technology and cellular manufacturing systems 14th week: Shop type manufacturing systems
References	1. Chang, T.-C., Wysk, R.A., Wang, H.-P., “Computer-Aided Manufacturing”, 3. Baskı, Prentice Hall, 2005. 2. Singh, N., “Systems Approach to Computer-Integrated Design and Manufacturing”, Wiley, 1996. 3. Groover, M.P., “Automation, Production Systems, and Computer-Integrated Manufacturing”, 3. Baskı, Prentice Hall, 2007. 4. Rehg, J.A., Kraebber, H.W., “Computer Integrated Manufacturing”, 3. Baskı, Prentice Hall, 2004.

Theory Topics

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