Course specifications of

Computer Applications in Industry - MDP 427

University: Ain Shams **Faculty: Engineering**

Program on which the course is given	B. Sc. in Mechanical Engineering, Production Section
Major or minor element of program	N.A.
Department offering the program	Design and Production Engineering
Department offering the course :	Design and Production Engineering
Academic year/ Level :	Fifth year/First semester
Date of specification approval :	

A- Basic Information

Title :	Computer Applications in Industry	**code :**	MDP-427
Credit Hours :	N.A.	**Lecture :**	2
Tutorial :	2	**Practical**	**Total:** 4

B- Professional Information

1 – Overall aims of course

By the end of the course the students will be able to:

- Acquainted with the different techniques of effective using of computer in manufacturing.
- Use of modern tools, and applications programs commonly used in CAM
- Acquainted with the different CAD data representation
- Understand the fundamental concepts of computer assisted CNC programming
- Acquainted with the different sensors and transducer
- Develop a process plan for a real case study
- Plan a production facility for a real case study

2- Intended learning outcomes of course (ILOs)

a-Knowledge and understanding

a1- Describe the different applications of computers in industry
a2- Identify the Different CAD data representation and different neural files
a3- Explain the Fundamental concepts of computer assisted CNC programming
a4- Explain the concepts of computer aided process and production planning
a5- Describe the different sensors and transducer concept
a6- Know the concept of rapid prototyping

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b-Intellectual skills

b1 - Choose a suitable sensors for different applications
b2 - Choose an appropriate CAD data representation for different applications
b3 - Establish a complete plan for a case study
b4 - Write CNC part program using computer assisted language

c-Professional and practical skills

c1 - Use appropriate lab sensors and transducers
c2 - Design an experiments in the sensors lab
c3 - Use different CAM application softwares

d-General and transferable skills

d1 - Write technical report according the scientific standards guideline
d2 - Present the different knowledge concepts through a report in oral seminar
d3 - Work as a part of a team in process and production planning group for a real case study

3- Contents

No	Course Content	lectures lectures	tutorials	Total
1	CAD data representation	2	2	4
2	Group Technology	2	2	4
3	Computer Aided Process Engineering	2	2	4
4	Computer Aided Process Planning (CAPP)	2	2	4
5	Computer Assisted NC Part Programming	4	6	10
6	Computerized Machinability Data	2	2	4
7	Computer Aided Line Balancing	2	2	4
8	Computer Aided Production Planning	2	2	4
9	Sensors and Data acquisition	2	2	4
10	Computerized Process Control	4	2	6
11	Computerized Quality Control	2	4	6
12	Rapid prototyping	4	2	6
	Total Hours	30	30	60

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4- Assessment schedule

Assessment method	No	Description	Week No	Weight (%)
assignments	1	ass 1	Week 3	2
assignments	2	ass 2	Week 5	2
Written exams	3	mid term	Week 7	10
assignments	4	ass 3	Week 9	2
Written exams	5	quiz	Week 10	2
reports	6	report	Week 11	10
assignments	7	ass 4	Week 12	2
Written exams	8	final	Week 16	70
Total				100 %

5- List of references

5. 1 Course notes

- Course lecture notes will be distributed during lectures

5. 2 Essential books (text books)

- Thomas O. Boucher, Computer Automation In Manufacturing An Introduction, Chapman & Hall, 1996
  2-Galip Ulsoy and Warren R., Microcomputer Applications In manufacturing, John Wiley & Sons, 1989
  3-Andrew Kusiak, Intelligent Manufacturing Systems, Pre

6- Facilities required for teaching and learning

Appropriate teaching class accommodations including; data show, presentation board and white board

Sensor lab, CAM lab and CNC lab equipped with normal equipments

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Course Content/ILO Matrix

Course Content	a1	a2	a3	a4	a5	a6	b1	b2	b4	c1	c2	c3	d1	d2	d3
CAD data representation	●	●	●												
Group Technology	●	●	●										●		
Computer Aided Process Engineering				●				●						●	
Computer Aided Process Planning (CAPP)				●				●							●
Computer Assisted NC Part Programming	●	●	●					●	●						
Computerized Machinability Data	●	●						●					●		
Computer Aided Line Balancing	●							●						●	
Computer Aided Production Planning	●							●							●
Sensors and Data acquisition					●		●			●	●		●		
Computerized Process Control												●		●	
Computerized Quality Control												●			
Rapid prototyping						●						●			●

Learning Method /ILO Matrix

Learning Method	a1	a2	a3	a4	a5	a6	b1	b2	b4	c1	c2	c3	d1	d2	d3
Lecture	●	●	●	●	●	●	●	●	●						
Tutorials	●	●	●	●	●		●	●	●	●	●	●			
Workshop													●	●	●

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Assessment Methods /ILO Matrix

Assessment	a1	a2	a3	a4	a5	a6	b1	b2	b4	c1	c2	c3	d1	d2	d3
assignments : ass 1	●	●	●	●				●							
assignments : ass 2	●	●	●	●				●	●						
Written exams : mid term	●	●	●	●				●	●						
assignments : ass 3	●							●							
Written exams : quiz	●				●		●	●		●	●				
reports : report													●	●	●
assignments : ass 4												●			
Written exams : final	●	●	●	●	●	●	●	●	●						

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