Course specifications of

Quality Control - MDP 422

University: Ain Shams Faculty: Engineering

Programme on which the course is given	B. Sc. in Production Engineering
Major or minor element of programme	N.A.
Department offering the programme	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:	Quality Control	**Code:**	MDP-422
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:

- Demonstrate knowledge and understanding of the different quality control tools.
- Introduce students to both qualitative and quantitative information and techniques to arrive at economical and socially responsible solutions..
- Reason critically, both individually and collaboratively, draw sound conclusions from information, ideas, and interpretations gathered from various sources and disciplines
- Apply those conclusions to the solutions of real-world engineering problems.

2- **Intended learning outcomes of course (ILOs)**

a- Knowledge and understanding

a1 - Provide an introduction to the fundamental concepts of statistical process control, total quality management, six sigma and the application of these concepts, philosophies, and strategies to issues arising in government and industry.

a2 - Enhance the student's understanding of the complexities of statistical analysis and control-chart interpretation and their work-place application.

a3 - Provide skills in diagnosing and analyzing problems causing variation in manufacturing and service industry processes.

a4 - Provide a basic understanding of "widely-used" quality analysis tools and techniques. Create an awareness of the quality management problem solving techniques currently in use.

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b- Intellectual skills

b1 - Improve students understanding of statistical tools and their application.
b2 - Assess approaches to analyze different problems and statistical experiments.
b3 - Assess means of analyzing quality problems within the organization, thus maintaining high quality and market superiority.

c- Professional and practical skills

c1 - Identify the different quality analysis tools with which the engineer is likely to
c2 - deal. Deal with professional terms such as presentation of data, hypothesis sampling and control charts.
c3 - Create effective work area.

d- General and transferable skills

d1 - Conduct oral and written presentations.
d2 - Practice working in a team to develop communication skills.

3- Contents:

No	Course Content	Lectures	Tutorials	Total
1	Introduction	2	2	4
2	Presentation and description of data	2	2	4
3	Theory of probability	2	2	4
4	Discrete probability distributions	2	2	4
5	Continuous probability distributions	2	2	4
6	Sampling distributions	2	2	4
7	Estimation theory	2	2	4
8	Testing hypothesis	2	2	4
9	Regression and correlation analysis	2	2	4
10	Process capability analysis	2	2	4
11	Theory of control charts	2	2	4
12	Control charts for variables	2	2	4
13	Control charts for attributes	2	2	4
14	Acceptance sampling: Principles and concepts	2	2	4
15	Acceptance sampling by attributes	1	1	2
16	Acceptance sampling by variables	1	1	2
	Total Hours	30	30	60

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4- Assessment schedule:

Assessment Method	No	Description	Week No.	Weight (%)
Assignments	1	Assignment 1	Week 3	1
Report	2	Report 1	Week 5	2
Exam	3	Mid Term	Week 7	15
Assignment	4	Assignment 2	Week 9	2
Exam	5	Quiz	Week 10	5
Report	6	Report 2	Week 11	3
Assignment	7	Assignment 3	Week 12	2
Exam	8	Final Exam	Week 16	70
Total				100 %

5- List of references

5.1 Essential books (text books)

- Grant,E.L.,"Statistical Quality Control", McGraw Hill, New York, 1996.
- Motgomery, D. C., "Introduction to Statistical Quality Control", John Wiley and Sons, N.Y., 1997.

5.2 Periodicals, Web sites, … etc

- www.ASQ.org

6- Facilities required for teaching and learning

- Appropriate teaching class accommodations including presentation board and data show.

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Course Content /ILO Matrix

Course Content	a1	a2	a3	a4	b1	b2	b3	c1	c2	c3	d1	d2
Introduction	●	●	●									
Presentation and description of data		●		●	●	●						
Theory of probability		●	●	●								
Discrete probability distributions				●				●	●			
Continuous probability distributions					●							
Sampling distributions			●			●		●				
Estimation theory							●		●			
Testing hypothesis				●			●			●		
Regression and correlation analysis				●			●				●	●
Process capability analysis						●		●				
Theory of control charts				●					●			
Control charts for variables			●		●					●		
Control charts for attributes							●			●		
Acceptance sampling: Principles and concepts					●	●						
Acceptance sampling by attributes				●		●		●				
Acceptance sampling by variables			●	●		●	●			●		

Learning Method /ILO Matrix

Course Content	a1	a2	a3	a4	b1	b2	b3	c1	c2	c3	d1	d2
Lectures	●	●	●	●	●	●	●	●	●	●		
Tutorials	●	●	●	●	●	●	●	●	●	●	●	●

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Assessment Methods /ILO Matrix

Course Content	a1	a2	a3	a4	b1	b2	b3	c1	c2	c3	d1	d2
Assignments: Assignment 1	●	●										
Reports: Report 1		●				●					●	
Written Exam: Mid-term			●			●						
Assignments: Assignment 2			●						●			
Written Exam: Quiz				●				●				
Reports: Report 2					●		●			●		●
Assignments: Assignment 3									●			
Written Exam: Final Exam			●					●				

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