FUTURE UNIVERSITY IN EGYPT
جامعة المستقبل

Faculty of Engineering & Technology

Quality Control

Information :

Course Code :	MAN 481	**Level :**	Undergraduate	**Course Hours :**	2.00- Hours

Department : Department of Mechanical Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	Arafa Soliman Sobh Khalil Arafa	3
Lecturer	SAMAH ELSAYED ELMETWALLY ELKHATIB	2
Lecturer	SAMAH ELSAYED ELMETWALLY ELKHATIB	2
Teaching Assistant	Eman Mohamed Hammad Ahmed	1
Teaching Assistant	Eman Mohamed Hammad Ahmed	1

Area Of Study :

Upon successful completion of this course, the student will be able to:
1- Define quality, statistical process control (SPC), the detection, and prevention models.
2- Define the concept of variation, and calculate the basic statistics parameters.
3- Apply the SPC tools to collect, organize, and analyze data.
4- Use Control Charts to study and analyze SPC data.
5- Explain the significance of quality in business.
6- Explain the role of Statistical Quality Control (SQC) within broader contexts such as Total Quality Management (TQM) Six Sigma and Lean.

Course outcomes :

a.Knowledge and Understanding: :

1 -	1. Provide an introduction to the fundamental concepts of statistical quality, control statistical process control, strategic total quality management and the application of these concepts, philosophies, and strategies to issues arising in industry.
2 -	2. Enhance the student's understanding of the complexities of statistical analysis, sampling plans and control-chart interpretation and their work-place application.
3 -	3. Provide skills in diagnosing and analyzing problems causing variation in manufacturing and service industry processes.
4 -	4. 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.

b.Intellectual Skills: :

1 -	Define the mechanical power engineering problems and evaluate designs, processes, and performance and propose improvements.

2 -	Derive different solution alternatives for the engineering problems, analyze, interpret data and design experiments to obtain new data, and evaluate the power losses in the fluid transmission lines and networks
3 -	Analyze the performance of the basic types of internal combustion engines, hydraulic machines, fluid power systems, subsystems and various control valves and actuators. Analyze the solution alternatives and choose the optimum one.
4 -	Creative thinking.
c.Professional and Practical Skills: :	
1 -	Use laboratory, workshop e4quipment and field devices competently and safely.
2 -	Analyze the record data in the laboratory.
3 -	Prepare engineering drawings, computer graphics, and write specialized technical reports.
4 -	Write computer programs pertaining to mechanical power and energy engineering to describe the basic thermal and fluid processes mathematically, and use the computer software for their simulation and analysis.
d.General and Transferable Skills: :	
1 -	Collaborate effectively within multidisciplinary team.
2 -	Share ideas, communicate effectively and work in stressful environment and within constraints.
3 -	Lead and motivate individuals and work with others according to the rules of the professional Ethics.
4 -	Use digital libraries and/or Learning systems and demonstrate efficient IT capabilities.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction to quality control	4	2	2
Measures of central tendency	4	2	2
Measures of dispersion	4	2	2
Grouping data and frequency distribution	4	2	2
Probability distributions	4	2	2
Confidence intervals	4	2	2
Statistical Process control	4	2	2
Control charts for variables	4	2	2
Control Charts for attributes	4	2	2
Sampling plans	4	2	2
Total Quality Management	8	4	4

Teaching And Learning Methodologies :

Lectures
Tutorials
Presentation & Discussion
Brain storming

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Attendance	5.00		
Class Participation and performance	5.00		
Final examination	40.00		
Homework assignments and Projects	10.00		
Mid-term examination(s)	30.00		
Quizzes	10.00		

Recommended books :

- Introduction to Statistical Quality Control, Douglas C. Montgomery
- Juran's Quality Handbook by J.M. Juran