



Department of: Environmental Sciences and Health

College of: Science

University of: Salahaddin

Subject: Quality Control

Course Book: Fourth Stage/ Second Semester

**Lecturer's name: Dr. Nashmeel Saeed Khudhur
(Assistant Professor) (Ph.D.)**

Academic Year: 2022/2023

Course Book

1. Course name	Quality Control
2. Lecturer in charge	Dr. Nashmeel Saeed Khudhur (Ph.D.)
3. Department/ College	Department of Environmental Sciences and Health/ College of Science
4. Contact	e-mail: nashmeel.khudhur@su.edu.krd
5. Time (in hours) per week	Theory: 2
6. Office hours	
7. Course code	
8. Teacher's academic profile	<p>Graduated in Biology Department-Microbiology (Ranked 3rd in the department and 6th in the collage) in Salahaddin University/ College of Science (2001-2002). Worked as assistant biology for 2 years. Got M.Sc. in Biology Department/ Salahaddin University, (2006). Got Ph.D. in Biology Department/ Salahaddin University, (2013) and the Dissertation title was “Effect of Some Pesticides on Soil Microorganisms in Hawler Governorate”.</p> <p>Taught different subjects in the Departments of Biology and Environmental Sciences including: Ecology and Pollution, Sewage and Soil Microbiology, Virology, Eco-physiology, Mycology and Plant pathology, General Biology, General Microbiology, Mycology, Toxicology, Quality Control. Academic Skills, Public Health, Environmental Awareness, Climate Change, Environmental Toxicity and Pesticides.</p> <p>Taught different postgraduate coarse for MSc and PhD student including: Advanced Environmental Analysis, Advanced Soil Pollution, Trace Elements, Pesticides, Heavy Metal Pollution and Environmental Pollution.</p> <p>Worked at different committees of Biology and Environmental Sciences Departments including: Scientific and Higher Education, Higher Education Examination Committee, Quality Assurance and Curriculum Development, Seminar Presentation, Research Project Evaluation, Department Council, Students Affair, Student's Presence/Absence, Social, Objection committees and many others. I have 22 scientific articles and 14 social articles.</p> <p>Now I am the academic staff in Environmental Sciences and Health Department in the College of Science, Department Head of Quality Assurance and Curriculum Development Program, and teaching courses for Bachelor, Master's and PhD students.</p>

9. Keywords**Quality, Control, ..****10. Course overview:**

This course will cover the most important topics of Quality Control, which focus on components of quality control/quality assurance and a historical look about quality. Quality control course focus on the requirements for quality control processes and methods for applying quality system. It important for the student to know about the standard. The student will take knowledge about sampling, sampling strategies for environmental components and how statistical process control is applied; how construct control charts. The student able to know the quality specification and purposes of quality control in foods and drugs; water, soil and air quality standards and regulations, monitoring and treatment.

11. Course objective:

This course develops appreciation of quality management theory, principles, and practices; provides an ability to function as a team member for solving problem as well as to design experiments, to collect and analyse data, and interpret results. This course also develops strategies for organizational change and transformation and use quality improvement tools and practices for continuous improvement. Moreover, the course provide information about quality control and quality assurance of the environmental compartments including air, water, soil, food, etc.

12. Student's obligation

In this course, the students will be evaluated through two 2 exams. The student's obligation during the course is attendance in the class for two hours for studying the theory. During this course the students will prepare a report about quality of any of the environmental components and consider as an exam.

13. Forms of teaching

For each class, we recommend the students to take the lecture handout before attending the classroom. The student is better to read the lecture before the class. In the class, the lectures were power-point present at the first hour of the class, inconspicuous points are clear on whiteboard, difficult idioms and tough words are also clear for the students, and then medium talk with teacher will make to discuss the theoretical aspects of the subjects. If required, social media considered as another method for teaching using different platforms including Moodle, Google Meet, Zoom, ...etc.

14. Assessment scheme

The students are required to do more than one closed book exam at the mid of the semester besides other assignments including scientific reports. Each exam takes 20% and the report and seminars presented by students takes 20%. The mean of both exams and the report and seminar is the final semester grade on 20% as the final annual effort. Students also expect weekly quizzes and must account as an exam. The final exam at the end of year takes 30%. So that the final grade will be based upon the following criteria:

Exam 1 = 20 %

Exam 2 = 20 %

Scientific reports and seminar presentation = 20%

Weekly quizzes = 20 %

The final annual effort will be 20%.

Final exam: 30%

Final mark will be 20% + 30% =50%

Constructive classroom participation, submitting assignments, and attending class will be evaluated by the lecturer over the semester and used in borderline cases to determine the final grade. Exams and assignments require analytical work and not just memorization of topics or articles.

15. Student learning outcome:

At the end of the semester, students should get enough information about the:

- ✓ Quality, quality assurance and quality control.
- ✓ How to set a quality control plan and processes.
- ✓ Standards and referring to guidelines.
- ✓ Role of biostatistics in quality control.
- ✓ General knowledge about environmental compartments (water, air, soil, food and drug quality).

16. Course Reading List and References:

- 1- Juran, J. M. 1999. The Quality Control Process. 5th edition. McGraw-Hill Companies, Inc.
- 2- Hubbard, M. R. 2003. Statistical Quality Control for the Food Industry. 3rd edition. Kluwer Academic/Plenum Publishers, New York.
- 3- Feigenbaum, A.V. 1991. Total Quality Control. 3rd edition. McGraw-Hill, Inc.
- 4- Mark, C. 2009. Food Industry Quality Control Systems. Taylor & Francis Group, LLC.
- 5- Tague, N.R. 2013. The Quality Toolbox, Second Edition. 584 pages.
- 6- De Feo, J.A. 2016. Juran's Quality Handbook, Seventh Edition. 992 pages.
- 7- Armstrong, H.C.; Russell, C.S. and Kelly, R.A. 2017. Environmental Quality Management. Routledge publisher. 214 pages.
- 8- Forrest, C.J. 2018. Environmental Quality Management.
- 9- Alley, E.R. 2007. Water Quality Control Handbook, 2nd Edition. McGraw-Hill Companies, Inc.

17. The Topics:

Lecturer's name

An introduction to quality control: A historical review. What is quality? Quality assurance vs. quality control. Quality assurance cycle. Quality assurance tools and techniques. Quality control processes. Main objectives to study quality control.

International Organization for Standardization (ISO): What is a standard? A brief history. ISO 9000 facts. Basic steps in ISO 9000 registration. The ISO standardization process. Versions of ISO. The success factors in ISO 9000 registration. Positive aspects of ISO 9000 certification. Negative aspects of ISO 9000.

Air quality management: Introduction. Air pollution emissions overview. Clean Air Act goals and standards. Measuring, reporting, and using emissions data. Air Quality Index (AQI) Basics. Managing air quality - human health, environmental and economic

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2hour per week for
theoretical lecture

assessments.

Water quality management: Introduction. Classification of Water. Water quality parameters. Water quality standards and regulations. Water contaminants. Water quality monitoring. Water treatment aims. Methods of water treatment.

Soil quality management: Introduction. Soil quality types. Functions of soil quality. Soil quality index parameters. Assessment of soil quality. Soil health indicators. Numerical calculation of soil quality. Methods for calculating soil quality. Soil threats. Improvement of soil quality.

Environmental quality management: Introduction. Environmental quality management. Environmental compliance. Remediation.

Pharmaceutical quality assurance: Introduction. Key definitions. Goals of medicine QA programs. Characteristics of a comprehensive QA program. Determinants of medicine quality. Impacts of low-quality medicines. How quality is assuring? Who ensures medicine quality? Some features of international health care.

Safety and quality of foods: Introduction. Quality specification. Purposes of quality control in foods.

Sanitation and hygiene during food processing: Buildings and equipment. Chlorination. Operator hygiene. Cleaning schedules. Regulatory quality control. Obligatory systems of food health and safety assurance.

Six Sigma: A history on Six Sigma. Definition of Six Sigma. Phases of Six Sigma. Benefits of Six Sigma.

Statistical quality control: Introduction. A brief history. Sample and sampling. Selection of probability distribution. Statistical process control. Control charts. Benefits of control charts. Constructing control charts.

18. Extra notes:

The course book lacks to the problems which affect the educational process is the absence of appropriate rooms for lecturers to develop themselves.

19. Peer review

Assistant Professor Dr. Nashmeel Saeed Khudhur