APPENDIX A – COURSE SYLLABI

1. **Course number and name**: Quality Control in Engineering– 0905583
2. **Course Prerequisite:** ChE 0915481,0905302
3. **Credits, contact hours, and categorization of credits in Table 5-1** (math and basic science, engineering topic, and/or other): (3 Cr. – Required Course)
4. **Syllabus URL**: http://elearning.ju.edu.jo

5. **Instructor's or course coordinator's name**: Dr. Ali Khalaf Al-Matar. Office: ChE307, Telephone: 06/5355000 ext 22890, Email: aalmatar@ju.edu.jo .
6. **Textbook, title, author, and year**: Douglas C. Montgomery, Introduction to Statistical Quality Control, 6th edition, John Wiley & Sons, 2008. (ISBN: 978-0470233979).
    a. Eugene L. Grant and Richard S. Leavenworth, Statistical Quality Control, 7th edition, McGraw-Hill Book Company, 1999. (ISBN: 0-07-116320-4).
    b. ISO web site.
7. **Live stream platform**: Microsoft Teams
   Live Stream URL: https://web.microsoftstream.com/video/e671b758-d51c-4d1e-8f8a-305a705cb387
   YouTube: https://www.youtube.com/channel/UC2aLJ_dDpSM-pQjuOh1R9cw
8. **Specific course information**

Catalog description (2024 ChE Curriculum): Quality improvement; its importance, dimensions and costs. Statistical quality control: basic statistical tools, control charts (x-bar, S, and charts), analysis of charts, process capability. Principles of TQM and trend in quality management. The IOS model and its requirements and specifications, and ISO application.

   a. **Prerequisite**: ChE 0915481,0905302
   b. **Indicate whether a required, elective, or selected elective** (as per Table 5-1) course in the program: elective course.

9. **Specific goals for the course**
    a. Specific outcomes of instruction (e.g. The student will be able to explain the significance of current research about a particular topic.)
        i. Students will be able to understand and define the modern definitions of quality and its dimensions.
        ii. The student will have a basic understanding and knowledge of the DMAIC process: Define Measure, Analyze, Improve and Control.
        iii. The students should be able to carry out a basic application of the DMAIC process.
        iv. Students will be able to define the control limits (UCL, CL and LCL) for a given process data as well as interpret them.
        v. Students will be able to generate control charts for a given process.
        vi. Students will be able to interpret results of process capability analysis.

vii. Students will have basic knowledge and understanding of quality systems pertinent to the chemical industry e.g., ISO 9000, 14000 and 18000 and six sigma.

10. **Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.**
    a. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts. [4]
    b. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.[5]
    c. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies. [7]

11. **Brief list of topics to be covered:**
    a. Quality improvement; its importance, dimensions and costs
    b. Statistical quality control: basic statistical tools, control charts (x-bar, S, and R charts), analysis of charts, process capability.
    c. Principles of TQM and trends in quality management.
    d. The ISO model and its requirements and specifications, and ISO application to the chemical industry including brief overview of ISO 9000, 14000 and 18000.

Date 23-9-2025