



**The Hashemite University**  
**Faculty of Engineering**  
**Department of Civil Engineering**  
**Course Syllabus**

<b>Course Title:</b>	Special Topics in Civil Engineering	<b>Course Number:</b> 110401595
<b>Designation:</b>	Elective	<b>Prerequisite(s):</b> Department Consent
<b>Instructor:</b>	Dr. Maha Alkawasbeh	<b>Instructor's e-mail:</b> <a href="mailto:malkawasbeh@hu.edu.jo">malkawasbeh@hu.edu.jo</a>
<b>Office Hours:</b>	9:00 – 10:00 Sun., Tue. & Thurs.	

**Course Description (catalog):** The primary objective of this course is to provide students with basic theories and advanced techniques for total quality management to effectively adapt them in construction organizations.

**Textbooks:**

Dale H. Besterfield, et al., "Total quality Management", Revised Third Edition, Pearson Education Asia, Indian Reprint, 2012.

Dale H. Besterfield, "Quality Control", Ninth Edition, Pearson/Prentice Hall, Upper Saddle River, N.J., 2009

**Major Topics Covered:**

Topics	No. of Weeks	Contact hours*
Introduction to total quality management (TQM), the concepts of TQM, overview of TQM framework, Benefits of TQM, and contribution of quality gurus in the TQM journey	2	6
Performance Measures, the basic concepts of performance measurement, strategic measurement system, basic techniques for performance presentation including time series plots, control charts, capability indices, and Taguchi loss function.	2	6
Quality management systems, ISO 9000 series of standards, namely, ISO 9000, ISO 9001, and ISO 9004. The ISO 9001 requirements, the ISO 9001 implementation, and analysis of registration requirements	2	6
Statistical Process Control, the seven QC tools of continuous improvement and solving problems: Pareto charts, check sheets and histograms, process flow diagrams and cause and effect diagrams. Basic statistical concepts like measures of central tendency and dispersion, population, sample and normal distribution	4	12
Control charts, categories, source and types of variations, Variables control charts types and its characteristics, attributes control charts types and its characteristics, application for the different types of control charts, and Process capability	4	12
Leaderships , core, values and concepts of leaderships, characteristics of quality leaders, and habits of highly effective people	1	3
<b>Total</b>	<b>15</b>	<b>45</b>

\*Contact hours include lectures, quizzes and exams

**Specific Outcomes of Instruction (Course Learning Outcomes):**

**After completing the course, the student will be able to:**

- **CLO1:** Become familiar with concepts of TQM, benefits of TQM, Performance Measures, quality management systems, and leaderships characteristics (1,7)
- **CLO2:** Perform the seven QC tools of continuous improvement and solving problems. Apply the appropriate control chart for variables and attribute and perform the process capability. (1, 7)

**Student Outcomes (SO) addressed by the course:**

#	Outcome Description	Contribution
<b>General Engineering Student Outcomes</b>		
(1)	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	H(50%)
(2)	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	
(3)	an ability to communicate effectively with a range of audiences.	
(4)	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.	
(5)	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.	
(6)	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	
(7)	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	H(50%)
<b>H=High, M= Medium, L=Low</b>		

<b>Grading Plan:</b>	First Exam	30 Points	<b>Wednesday, 29/3/2023</b>	<b>10:00am-11:00 am</b>
	Second Exam	30 Points	<b>Wednesday, 10/5/2023</b>	<b>10:00am-11:00 am</b>
	Final exam	40 points		

**General Notes:** Beware of Plagiarism: copying and handing in for credit someone else's work.  
Any plagiarism case will result in an automatic 'F' for the course.