

**University of Jordan**  
**Jordan University Business School (JUBS)**

**Course Syllabus**

<b>1. Department Name:</b>	<b>Business Management</b>					
<b>2. Program Name:</b>	Master of Quality Management					
<b>3. Program Code</b>						
<b>4. Course Code and Title:</b>	1601785 Advanced Quality Models					
<b>5. Course credits:</b>	3					
<b>6. Pre-requisites:</b>	-					
<b>7. Course Instructor/ Coordinator Name and Email</b>	Dr. Ayman Abdallah a.abdallah@ju.edu.jo					
<b>8. Course web-page:</b>						
<b>9. Academic year:</b>	2017/2018					
<b>10. Semester:</b>	<b>First</b>	x	<b>Second</b>		<b>1<sup>st</sup> Summer</b>	<b>2<sup>nd</sup> Summer</b>
<b>11. Textbook(s)</b>	Besterfield, B. (2014). Quality Improvement (9 <sup>th</sup> edition). Pearson					
<b>12. References:</b>	<p>1- Montgomery, D. (2013). Statistical Quality Control: a Modern Introduction (7th edition). John Wiley &amp; Sons, Inc.</p> <p>2- Pyzdek, T. (2014). The Six Sigma Handbook (4th edition). McGraw-Hill Education</p>					
<b>13. Other resources used:</b>	Make good use of library resources such as journals and research papers in addition to internet resources.					
<b>14. Course description</b>	The course discusses quality improvement tools and techniques, lean management and the requirements of an efficient lean enterprise, six sigma methodology including the DMAIC improvement approach and six sigma statistical issues, fundamentals of statistics, statistical process control, control charts for variables, control charts for attributes, and acceptance sampling.					

<b>15. Course Intended Learning Outcomes:</b>											
<b>PILOs:</b>											
a) Apply critical, analytical, and systems thinking skills											
b) Apply quantitative and qualitative skills related to operations management, project management, and supply chain management.											
c) Apply quality management systems standards and statistical quality tools to diagnose and amend mistakes											
d) Apply scientific research and statistical analysis skills											
e) Utilize strategic planning and analysis skills and optimal utilization of human resources skills through human resource management and organizational behavior											
<b>Mapping to PILOs</b>											
<b>CILOs</b> <i>(Preferred not to exceed 12 CILOs)</i>	a	b	c	d	e						
1. Discuss quality, quality control, quality	x	x	x								



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<b>16. Course evaluation:</b> (Formative and summative assessment methods are expected)				
<b>Assessment Type</b>	<b>Details/ Explanation of Assessment in relation to CILOs</b>	<b>Number</b>	<b>Weight</b>	<b>Date(s)</b>
<b>Quizzes</b>	6 + 7 +8 Chapters 5, 6, 9	1	15%	
<b>Midterms</b>	1 +2 +3 +4 +5 Chapters 1, 2, 3, and 4	1	30 %	
<b>Assignments</b>	5 +6 +7 +8	2	15 %	
<b>Projects/Case Studies</b>			5%	
<b>Final</b>	All CILOs are included	1	40%	
<b>Total</b>			100%	

<b>17. Description of Topics Covered</b> (The description should be from the textbook used)	
<b>Topic Title (e.g. chapter title)</b>	<b>Description</b>
<b>Chapter 1. Introduction to Quality Improvement</b>	This chapter discusses quality, quality control, quality improvement, statistical quality control, quality assurance, process, FMEA, QFD, ISO 9000, ISO 14000, Benchmarking, TPM, Quality by Design, Products Liability, and IT.
<b>Chapter 2. Lean Enterprise</b>	This chapter includes the definitions of value added and non-value added activities, the lean fundamentals, constructing a value stream map, lean implementation, and benefits of lean system.
<b>Chapter 3. Six Sigma</b>	This chapter includes discussing the concept of six sigma statistics, describing DMAIC (Define, Measure, Analyze, Improve, Control) project methodology, and understanding the advantages of the methodology.
<b>Chapter 4. Fundamentals of Statistics</b>	This chapter includes the difference between a variable and an attribute, mathematical calculations to the correct number of significant figures, constructing histograms for simple and complex data, calculating and effectively use the different measures of central tendency, dispersion, and how related, understanding the concept of a normal curve and the relationship to the mean and standard deviation, performing the different tests of normality, constructing a scatter diagram and performing the necessary related calculations, and calculating the percent of items below a value, above a value, or between two values for data that are normally distributed.
<b>Chapter 5. Statistical Process Control</b>	This chapter includes constructing a Pareto diagram, a cause and effect diagram, check sheet, and process flow charts.
<b>Chapter 6. Control Charts for Variables</b>	This chapter includes discussing the three categories of variation and their sources, understanding the concept of the control chart method, understanding the purpose of variable control charts, understanding how to select the quality characteristics, the rational subgroup and the method of taking samples, calculating the central value, trial control limits and the revised control limits for X-bar and R-chart, explaining what is meant by a process in control and the various out-of-control patterns, understanding difference between individual

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	measurements and averages; control limits and specifications, understanding the different situations between the process spread and specifications and what can be done to correct the undesirable situation, and calculating process capability Indices.
<b>Chapter 9. Control Charts for Attributes</b>	This chapter includes understanding the limitations of variable control charts and the different types of attribute charts, understanding the objectives of the p-chart group and the applicable distribution, constructing a fraction defective chart- fixed subgroup size, constructing a fraction defective chart- variable subgroup size, constructing a percent defective chart, constructing a number defective chart, understanding how to minimize the effect of variable subgroup size, understanding the applications of the c-chart group, the applicable distribution and two conditions, and constructing a c-chart and a u chart and know the difference between them.
<b>Chapter 10. Acceptance Sampling</b>	This chapter includes understanding the advantages and disadvantages of sampling; the types of sampling plans and selection factors; criteria for formation of lots; criteria for sampling selection; and decisions regarding rejected lots, determining the OC Curve for a single sampling plan, determining the equations needed to graph the OC Curve for a double sampling plan, understanding the properties of OC Curves, understanding the consumer-producer relationships of risk, AQL, and LQ, describing the sampling plan systems, determining single sampling plans for stipulated producers risk and for stipulated consumers risk, and describing the different sampling plan systems.

**18. Course Weekly Breakdown:**

<b>Week</b>	<b>Date</b>	<b>Topics covered</b>	<b>CILOs</b>	<b>Teaching Method</b>	<b>Assessment</b>
<b>1</b>	30-01-2018	Ch. 1: Quality, quality control, quality improvement, statistical quality control, quality assurance, process, FMEA, QFD, ISO 9000, ISO 14000, Benchmarking, TPM, Quality by Design, Products Liability, and IT.	1+ 2	-Lecturing -Discussion -Examples	-Follow up short presentations by students -Follow up questions
<b>2</b>	6-02-2018	Ch. 2: The definitions of value added and non-value added activities, the lean fundamentals, constructing a value stream map, lean implementation, and benefits of lean system.	3	-Lecturing -Discussion -Examples	-Follow up short presentations by students -Follow up questions
<b>3</b>	13-02-2018	Ch. 3: Discussing the concept of six sigma statistics, describing DMAIC (Define, Measure, Analyze, Improve, Control) project methodology, and understanding the advantages of the methodology.	4	-Lecturing -Discussion -Examples	-Follow up short presentations by students -Follow up questions
<b>4</b>	20-02-2018	Ch. 4: The difference between a variable and an attribute, mathematical calculations to the correct number of significant figures, constructing histograms for simple	5	-Lecturing -Discussion -Problem solving	-Follow up questions -Assignment 1

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		and complex data, calculating and effectively use the different measures of central tendency, dispersion, and how related.			
<b>5</b>	27-02-2018	Ch. 4: Understanding the concept of a normal curve and the relationship to the mean and standard deviation, performing the different tests of normality, constructing a scatter diagram and performing the necessary related calculations, and calculating the percent of items below a value, above a value, or between two values for data that are normally distributed.	5	-Lecturing -Discussion -Problem solving	-Follow up questions -Assignment 1
<b>6</b>	6-03-2018	Ch. 5: constructing a Pareto diagram, a cause and effect diagram, check sheet, and process flow charts.	6	-Lecturing -Discussion -Problem solving	-Follow up questions -Follow up short presentations by students
<b>7</b>	13-03-2018	Ch.6: Discussing the three categories of variation and their sources, understanding the concept of the control chart method, understanding the purpose of variable control charts, understanding how to select the quality characteristics, the rational subgroup and the method of taking samples, calculating the central value, trial control limits and the revised control limits for X-bar and R-chart.	7	-Lecturing -Discussion -Problem solving	-Follow up questions -Assignment 2
<b>8</b>	20-03-2018	Ch. 6: Explaining what is meant by a process in control and the various out-of-control patterns, understanding difference between individual measurements and averages; control limits and specifications, understanding the different situations between the process spread and specifications and what can be done to correct the undesirable situation, and calculating process capability Indices.	7	-Lecturing -Discussion -Problem solving	-Follow up questions -Assignment 2
<b>9</b>	27-03-2018	Midterm exam	1, 2, 3, 4, 5		
<b>10</b>	3-04-2018	Ch. 9: Understanding the limitations of variable control charts and the different types of attribute charts, understanding the objectives of the p-chart group and the applicable distribution, constructing a fraction defective chart- fixed subgroup size, constructing a fraction defective chart- variable subgroup size, constructing a percent defective	8	-Lecturing -Discussion -Problem solving	-Follow up questions -Assignment 2

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		chart, constructing a number defective chart.			
<b>11</b>	10-04-2018	Ch. 9: Understanding how to minimize the effect of variable subgroup size, understanding the applications of the c-chart group, the applicable distribution and two conditions, and constructing a c-chart and a u chart and know the difference between them.	8	-Lecturing -Discussion -Problem solving	-Follow up questions -Assignment 2
<b>12</b>	17-04-2018	Ch. 10: understanding the advantages and disadvantages of sampling; the types of sampling plans and selection factors; criteria for formation of lots; criteria for sampling selection; and decisions regarding rejected lots, determining the OC Curve for a single sampling plan.	9	-Lecturing -Discussion -Problem solving	-Follow up questions
<b>13</b>	24-04-2018	Quiz	6,7,8		
<b>14</b>	1-5-2018	Ch. 10: Determining the equations needed to graph the OC Curve for a double sampling plan, understanding the properties of OC Curves, understanding the consumer-producer relationships of risk, AQL, and LQ, describing the sampling plan systems, determining single sampling plans for stipulated producers risk and for stipulated consumers risk, and describing the different sampling plan systems.	9	-Lecturing -Discussion -Problem solving	-Follow up questions
<b>15</b>	8-05-2018	Final exam	All		
<b>16</b>	15-05-2018	Final exam	All		

<b>19. Others:</b>	
	<b>Description</b>
<b>Attendance policies:</b>	Students are not allowed to miss more than 15% of the classes during the semester. Failing to meet this requirement will be dealt with according to the university disciplinary rules.
<b>Absences from exams and handing in assignments on time:</b>	Assignments should be submitted on time. Make up exams will be held for those students having permission from the deputy dean for students' affairs.
<b>Health and safety procedures:</b>	

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<b><i>Honesty policy regarding cheating, plagiarism, misbehavior:</i></b>	Cheating and plagiarism will be dealt with according to the university disciplinary rules.
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<b><i>Course Coordinator:</i></b>	Dr. Ayman Abdallah	
<b><i>Head of Department:</i></b>	Dr. Taghrid Suifan	
<b><i>Head of curriculum committee/ School Level:</i></b>		
<b><i>Dean:</i></b>		
<b><i>Approved by the Program Coordinator/ Head of the Department on:</i></b>		

<b><u>Copy to:</u></b>
<input type="checkbox"/> <b>Head of Department</b>
<input type="checkbox"/> <b>Assistant dean for Development and Quality Assurance</b>
<input type="checkbox"/> <b>Course Portfolio</b>