IE673 Total Quality Management (Detailed) Course Syllabus Spring 2025

IMPORTANT note: if due to various NJIT email server or other NJIT IOS IT issues, my NJIT offered ranky@njit.edu email address does not work, please use my Apple offered email address rmrwww@icloud.com & always work.

Having sent an email to me, if you don't hear from me within a few days, you can assume, that I have not received your email. If this is the case, I am sorry, but since I cannot do anything about it, please send it again to the above email address: rmrwww@icloud.com

Thanks!
Ranky

Course number and name

Warm welcome to IE673, the live and asynchronous eLearning (NJIT): Total Quality Management (TQM) course.

Please note, that 'asynchronous on-line' means, that there are no face-to-face meetings as for traditional live classes. Also, all materials are digital in this course, including all teaching / learning resources, as well as assignments and work created and posted by students. (See more details about this below in this syllabus.)

This is a very progressive and exciting course, because you'll learn about:

1. What is Total Quality Management (TQM) principles, methods, some tools and technologies too. (And as we know, quality must be part of everything we do...). These principles, methods, tools and technologies have a strong analytical foundation, and are also very practical to be deployed in modern US and international industries, ranging from product / process to service system designs in a wide range of applications. Truly, quality has no boundaries, even if the roadside approaches are different in a modern aircraft factory, versus a cheese processing plant.

2. Also, you'll learn how to set up your own quality-focused company and a strategy for your company, to document your knowledge / assignments, that you carried on the open web, as well as on NJIT's Canvas.

3. You'll also learn about social networking by reading and discussing several very up-to-date quality-focused technical articles, of which you should select three and write executive summaries of each, per assignment.

4. In this current every assignment should also have a Sustainable Green focus. You'll learn about this also.

5. Also, you'll learn, that quality is a journey, not a destination, and that continuous quality improvement is part of nature, as well as humanity; everything we create, use and re-manufacture for future use. Nothing is static and every system has many opportunities for quality improvement (including this course).

This course is assessed based on several assignments, that students create, control and document in their own webpages / Canvas.

As you can see below, the course schedule is based on this syllabus.

This course has a multimedia library of teaching / learning resources, created by Dr. Ranky, as well as an optional traditional textbook (see below).

All assignments are documented by the students on-line in their own web pages and Canvas (see more about this below).

Please read the syllabus carefully and then ask the instructor anytime if you need help or further explanations.

This is a long and detailed syllabus because it is trying to answer all of your questions. Based on over 20+ years of NJIT experience, this syllabus answers over 90% of student questions in this course. This saves time for everybody.

Yes, it is long, and relatively complex, nevertheless you also learn how to read and follow instructions. (In industry some sets of instructions will be 300+ pages long; please get ready for your professional life!)

Note, that the alternative would be a very short syllabus, but then most students would ask by email for a variety of different clarifications wasting everybody's time... Again, please learn to read and understand... Please read this syllabus carefully and then ask the instructor anytime if you need more help.

This syllabus has some level of redundancy because based on my 20+ years teaching this class at NJIT, students often need reminders before they start to work on assignments...

If something is unclear after having read the syllabus carefully, please ask the instructor by email, BUT please don't ask the instructor to read the syllabus with you / for you... that would neither be fair, nor professional at this MS level.

Even on a Sunday 9 AM try to answer your questions., but it is better if you learn to solve your own challenges first., this is called: 'preparation for real-life'. Nevertheless unless I am away on research, I'll try to respond to your emails asap, typically 7 days a week, 14 hrs a day.

Please note, that I assume, that you have carefully read this syllabus before you ask me any questions.

So, please again: read this syllabus carefully because it will most likely answer ALL of your questions about this course. Again, this is an important professional skill in real life: to be able to read and follow instructions.

VERY IMPORTANT: NJIT Verification of Presence Procedure: This is an NJIT requirement.

As stated by NJIT, each semester, including summer and winter, NJIT disburses millions of dollars of financial aid to students for payment of tuition and other expenses related to their education. The U.S. Department of Education has very complex rules and regulations that govern the eligibility of students to receive aid as well as the eligibility of an institution to award and accept that aid. One such rule is that NJIT must verify that a student is present and attending classes in which she/he is registered before disbursing any financial aid to the student.

'Presence' is applicable to all students: live, as well as eLearning / distance learning students.

Presence is defined as attendance in a classroom setting or having participated in some form of academic activity during the semester.

An academic activity may be defined as, but is not limited to, submission of a quiz or homework, participation in an online chat discussing class topics (e.g. in this class our social networking discussions fall into this category); an detailed instructions in this syllabus below), reading and understanding the syllabus and other class materials. (Note, that your assignments in this class, or submitting academic questions to the instructor that are related to the class, and perhaps not discussed in this syllabus.

To verify your presence, please send me an email to: ranky@njit.edu, stating, that you have read this syllabus and ready to work in this class. Thank you!

Credits and contact hours
3 credit hours, 3 contact hours

Instructor's, or course coordinator's name

Instructor: Dr. Paul G. Ranky (Full Tenured Professor at NJIT, NJIT)

The optional printed text book, or traditional PDF digital text, title, author

David L. Goetsch and Stanley Davis: Quality Management for Organizational Excellence: Introduction to Total Quality, by Pearson Publ., ISBN 0-13-235098-X, Global, 7th ed., or 8th ed., either of them are fine.

As additional reading, I have also found an interesting web site, that looks at major human problems and challenges in our world. In my view, many of these problems are also quality issues. Please see the most important ones that we discuss in this class. Suggest you review this very exciting free resource and think about the bigger picture: http://sites.tufts.edu/acip/problems.

It is continuously developed and updated and published by USA, (The Union of International Associations (UIA) is a research institute and documentation centre based in Brussels, Europe. It was founded over one hundred years ago, in 1907, by Henri La Fontaine (Nobel Peace Prize laureate of 1913), and Paul Otlet, a founding father of what is now called information science. Non-profit, apolitical, independent, and non-governmental in nature, the UIA has been a pioneer in networking, monitoring and provision of information on international organizations, international associations and their global challenges since 1907. The UIA has consultative status with ECOSOC and associate status with UNESCO.

Specific course information

Brief description of the content of the course (Catalog Description)

This course covers fundamental concepts of Total Quality Management. It introduces the concept of total quality management as applicable to industrial systems. Presents methods for product quality improvement. Emphasis is on prevention through quality engineering and design, and goes beyond traditional topics of statistical process control. Presentation of other methods such as benchmarking, quality assurance, process control, and competitor analysis. Includes discussion of international quality standards, such as ISO 9001 and quality awards.

Prerequisites or co-requisites

Prerequisites: see NJIT requirements.

Indicate whether a required, elective, or selected elective
Required course. Maximum points is 100, including 20 points for active participation in the class using the social networking assignment.

Broad teaching/learning objectives in this course (as reflected by all teaching / learning activities and assignments too):

1. Cognitive focus: learn and practice quality engineering management focused knowledge acquisition, analysis, design, management and mental skills.

2. Psychomotor focus: learn physical motor skills by imagining working in a real-world company on quality problems as explained in this course.

3. Become intellectually effective: develop engineering quality management feelings and attitudes relating to quality systems: feel good about good quality and learn to communicate it; also, feel really bad about poor quality and learn to communicate it and improve it based on facts. Learn to create a quality culture!

4. Develop interpersonal/social skills: proactively develop and conduct interactions with others whilst improving your social skills during the social networking exercises in this class whilst discussing and solving quality engineering management problems in small teams.

Specific goals for the course and specific outcomes of instruction (these are embedded in every assignment too):

1. This is a modern on-line TQM course, based on modern multimedia material, created by Dr. Ranky. Students learn the modern, accurate data driven, analytical and simultaneously practical, predictive analytical, real-time feedback controlled total quality approach to quality management (QM).

2. Students learn some fundamental concepts of quality and global competitiveness; strategic quality management.

3. Students learn fundamentals of quality management, social networking for quality, quality ethics, corporate responsibility, quality culture, and customer satisfaction.

4. Students learn fundamentals of employee empowerment, quality leadership and change, team building, effective communication, quality education and training methods.

5. Students learn fundamentals of international quality standards, like ISO 9001, and related USA quality standards, some important and professional quality tools, and technologies too. Quality problem solving and quality-based decisions are also core in this course.

6. Students learn the fundamentals of quality function deployment (QFD) with applications, lean six sigma and other modern quality methods, such as FMEA, Failure Mode and Effect Analysis, with a quality focus in systems engineering.

7. Students learn the importance of statistical process control, control charts for variables and attributes, and other statistical methods for quality improvement. (Note, that in this course, at graduate engineering management level it is assumed, that all students already have a good foundation in statistics.)

8. Students solve quality problems, as well as validate results following problem-based, case-based learning / problem solving methods.

9. Students also learn about modern quality methods, tools and technologies, including prevention techniques, waste reduction, lean six-sigma (LSS), and other statistical and graphical methods, as well as how to document their work on the web via digital documents they create and control.

10. Students also learn about quality auditing methods and rules, following US and international standards, such as ISO9001.

11. Students learn how to create a webpage for their own virtual quality focused companies and then document all of their knowledge in their assignments (as described in this syllabus) in the digital domain.

Further specific goals for the course, including the following learning objectives: students:

- Learn and practice various analytical approaches and methods to quality systems.

- Create quality engineering management focused analysis and problem solving skills.

- Learn and actively exercise the application of case-based / problem-based learning / problem-solving methods.

- Think outside the box and think and act as a creative engineering manager ready to solve problems and deliver solutions at a high level of quality. Learn, that there are often many different opportunities and constraints to solve quality problems.

- Understand and focus on the quantifiable, analytically solvable boundaries of a real-world system, including the boundary conditions, that are very difficult to quantify.

- Realize creative thinking challenges and create use cases, that are open-ended, based on continuous quality improvement, offering a large variety of solutions, that can be further optimized in a real-world situation.

- Learn and practice the use of computer graphics in engineering quality management, quality knowledge documentation and data management.

- Learn methods relating to quality engineering management systems analysis and system design.

- Learn analytical and practical skills focusing on how to set up a quality engineering management validation / test process in the real-world, how to collect / evaluate accurate data, how to reason over the data and how to apply analytical thinking and methods to come up with tangible sustainable green solutions in a simulated real-world scenario.

Welcome notes: IMPORTANT!

PLEASE send your NJIT offered email address and use your NJIT recorded name (NOT YOUR nickname or other name or email please!) since besides NJIT's Canvas, the professor will also keep in touch with you via that email; the you'll miss communication.

You can always contact me, your professor / instructor and PLEASE DO so 7 days a week, 14 hrs a day, at my NJIT email: ranky@njit.edu

Please note, that for learning management we are using Canvas.

For social networking and VC (video conferencing) we are using NJIT preferred WEBEX / Canvas for team discussions.

To document your assignments you'll have to set up your own individual web pages in the open access Internet. These will be your own, unique virtual company's webpages, that you'll create, control and maintain. Also, you'll learn how to use Canvas for grading purposes. You can use any software you like. Many students use www.weebly.com or www.wix.com as free sites to develop simple web pages.

Teamwork is encouraged, nevertheless each student must have their own company and website for documenting assignments. Each student is expected to create their own assignments / novel content, rather than copy-pasting from each other or from the Internet. These carry zero value.

The class schedule is affected by detail, week-by-week, in the syllabus and in Canvas. Please follow that. This is more like the real, professional world., the boss will tell you every day what to do, ... but the boss will ask for quality results though, that you should be able to deliver.

PLEASE interact with each other. Every semester several students join really, really VERY late to NJIT classes, including this one. This is difficult for all of us. The best solution is to contact me, as well as classmates (you can find the entire class list on NJIT's Highlander account, or Canvas: this is peace-work but you can get in using your NJIT UCID and email) and then catch up with the class in different groups.

I'll help you to catch up as much as possible.

Please network with me too, your professor / instructor. I answer emails 14 hrs a day, 7 days a week. We can also talk on the phone, and even video conference. I am here to help you, and I really mean it.

Pls. network with other students / your colleagues who have taken my classes and ask them about myself, how I teach you real-life challenges and solutions, help, communicate, grade, etc.

Also, please talk to my former students who have taken my classes and ask them how they are applying the knowledge I taught them in their jobs, in the real-world? I think that is the real-test of any course.

In the syllabus please follow the due dates for the assignments. The weekly breakdown is just a guideline, and in this case it does not mean calendar week but the amount of knowledge / study it takes to complete the semester / class.

So, again, please follow the calendar due dates in the syllabus. The weekly schedule should be interpreted as a strongly advisable study-schedule guideline.

More about the social networking component in your assignments...
The use, term content / assignment is really simple, and it is explained in the syllabus: every assignment has 3 use_term assignments, including the Midterm (if you have one in your class).

The use_term assignment should be submitted with every assignment including the Midterm. Every student should read articles on a weekly-basis, but document only 3 per assignment, incl. the Midterm. These articles are really fun to read! I'll send you many during the semester and you can choose the ones you like.

Course Outline

Instructor: Dr. Paul G. Ranky, email: ranky@njit.edu; more about the instructor: please look him up on LinkedIn, and/or on the web: web-resume here: www.rmrwww.com/resume.htm

Other Related Graduate Courses Taught by This Professor include the following:

IE728 487 / ES4725 487 (eLearning): Advanced LSS (Lean Six-sigma) Quality Methods: Independent Research Study Class. This is a very novel, progressive course focusing on Advanced Lean Six-sigma Methods... Customer Requirements Analysis / Quality Function Deployment and Lean Six-sigma Quality. An excellent course to prepare you for professional certification exams (e.g. ASQ, PMP), to be either simultaneously taken with IE673, or after 673 as a more advanced, in-depth course. Also,

About your company:
1. Explain what your value proposition is,
2. What your company does (in terms of quality-focused products, processes and/or service),
3. How it satisfies customers,
4. What is novel about it, and
5. How it makes money (or at least breaks even if it is a not-for-profit company).

In every assignment you'll be using this company, that you have created for yourself.

In this course every assignment should also have a Sustainable Green focus. How would your company be sustainable and green? Please think about this.

A suggestion: please go on the web, Google YouTube, and then in the field at the top type in 'Paul Hawky' (this is a search field and you'll find it easily). It will show you over 200+ links to videos I put up on YouTube.

The goal of this part of every assignment is for you to find any 6 videos on Paul Hawky, YouTube that deal with marine life (i.e., diving) and use those clips to convince your virtual board of directors and shareholders, that your company MUST NOT POLLUTE the oceans / world, in ANY way, ANY time... it MUST BE SUSTAINABLE AND GREEN: not just sustainable... but green too... these videos show pristine marine ecosystems that must not be destroyed by greed, incompetence, or human error...

To document this, in every assignment please write a specific statement about how you will prevent any toxic waste or pollution to be generated and released into any ocean (solid, fluid, etc., ever, or ok!) at those 100 reefs. Please also write a reference to the videos you have chosen from 'Paul Hawky' YouTube by putting in their individual filenames, and/or with hyperlinks to YouTube if you have a web-page at this stage already for your assignment:

Week 2 (also as appropriate in each semester as per the NJIT academic calendar): In preparation for the next assignment:
1. Study the Dr. Rasky created teaching / learning resources for week 2,
2. Study Chapters 2, 3 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Week 3 (also as appropriate in each semester as per the NJIT academic calendar): In preparation for the next assignment:
1. Study the Dr. Rasky created and teaching / learning resources,
2. Study Chapter 4 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Homework Assignment 1: DUE DATE? February 8, 11.59 pm (10 points): In your assignment, in about 300-350 words, and an original drawing /illustration, that you have created versus copy-pasted from the book or from the Internet, with some text (as appropriate) for each problem, please explain and document the following:

IMPORTANT NOTE: THIS APPLIES FOR EACH ASSIGNMENT: If you are using an image / line diagram / video clip, or any other illustration in your assignments, then please note, that each image should have a caption, indicating the figure / image number, what it describes, and who has taken the image (i.e. the source of the image). As an example, consider this: Figure 12b: This image illustrates a broken cell phone due to human error (image by myself: Mr/Ms. ABC). If you are using copyright images / illustrations from your book or from the Internet, that has zero value, because those are not your original contributions!

Try to create your own, always... no copy-pasting please! Please note, that I would like to see many illustrations in your assignments, but you have created. Not professionally done, good-quality pictures, line diagrams, even video clips, that are not copy-pasted from the book or the Internet, but created you! I hope you agree...that an engineering manager should be able to do this...

Based on my 40+ years of professional experience these are the assignment improvement opportunities (for every question in every assignment): Please add more of your own illustrations, with proper captions as described in the syllabus. As an example MS Word is not the right tool to create illustrations... please learn a semi pro-drawing tool. There are many for free; just search the Internet or download them from the NJIT student IT resources sites for FREE.

One of the best tools is Google Drawings: https://www.google.com/intl/en_ALL/drive/apps.html#drawings
https://www.lucidchart.com/pages/landing?
utm_source=google&utm_medium=cpc&utm_campaign=chart_en_us_mixed_search_brand_exact_Alex_CPC_Campaign&gclid=EMTF9eeT0sICFdcm7QodcnMAvw&utm_CPC_KeywordInclusionMatchAlex_CPC_MatchTypeInAlex_CPC_NetworkingAlex_CPC_AdPositionAlex_CPC_CreativeID432321228&utm_CPC_TargetID&ord=1032594.00&utm_CPC_CountryOfMS595&utm_CPC_placementsInAlex_CPC_targetedgclidClkdQodCMIE_Ow=&2?_ATCCTCb3jmgGuUAATAAAAEgJJ9D_BwE

They also have a comprehensive set of learning resources here:
https://lucidchart.com/resources

As an engineering manager in the future you MUST be able to draw, illustrate and create meaningful, logical, technical, professional presentations / reports. It is a MUST. I am trying to teach you these concepts because I know these will help you to prepare in real life. In the professional world out there poor quality, copy/pasted illustrations will drag you down and most audiences will turn away from you....

Also, a typical mistake is, that some of your answers are much shorter, dimmer than requested. Not professional enough...

Please discuss each assignment question with this in mind:
1. What does the question require me to analyze and then answer?
2. What existing solutions are there?
3. How can I search and then design a better solution that would work well in this case?
4. What analytical methods should I apply and how?
5. How could I test / validate my solution(s)? What have others done in similar situations?
6. Is my solution better? Why?
7. How can I prove the above?

Some students claim, that this is an easy class... because they completely ignore the above... easy now, not so forgiving in real professional life out there in the real world...

ABOUT TECHNICAL DRAWINGS, ILLUSTRATIONS in your assignments, versus ARTWORK.

According to Wikipedia (ref.: https://en.wikipedia.org/wiki/Technical_drawing), a Technical drawing, drafting or drawing, is the art and discipline of composing drawings that visually communicate how something functions or is constructed.

Technical drawing is essential for communicating ideas in industry and engineering. To make the drawings easier to understand, people use familiar (standard) symbols, perspectives, suits of measurement, notation systems, visual styles, and page layout. Together, such conventions constitute a visual language and help to ensure that the drawing is unambiguous and relatively easy to understand.

Many of the symbols and principles of technical drawing are codified in an international standard called ISO 128.
The need for precise communication in the preparation of a functional document distinguishes technical drawing from the expressive drawing of the visual arts. Artistic drawings are subjectively interpreted; their meanings are multiply determined. Technical drawings are understood to have one intended meaning.

A Technical Illustration is illustration meant to visually communicate information of a technical nature. Technical illustrations can be components of technical drawings, but can also be used separately to illustrate "general ideas" "to generate expressive images [and/or line diagrams] that effectively convey certain information to the visual channel to the human observer"

Technical illustrations generally have to describe and explain the subjects to a nontechnical audience. Therefore, the visual image should be accurate in terms of dimensions and proportions, and should provide "an overall impression of what an object is or does, to enhance the viewer's interest and understanding".

Rasky's extension is clarify the above: many students create art/work, instead of technical drawings and/or illustrations. These often look nice but truly don't serve anything in an assignment in this course... because they cannot be defended... because they can mean infinite different things... therefore don't carry any real value in this class...

The BIG difference is that good, professional technical drawings and/or illustrations can only be interpreted one way because they are technically, scientifically accurate, therefore they communicate one or more well-defined non-ambiguous messages / facts, that are defendable. Artwork can be interpreted in infinite different ways (and that is BTW one of the many purposes of any quality artwork....).

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1. What is quality? How does your company interpret the term 'quality'? Explain the dimensions of quality. What are the key quality attributes to look for? How to assess quantify quality by using attributes / variables? (1 point of 10).

2. What is TQM? How does your company interpret the term 'TQM'? Design a simple quality-focused example, that you have created. What is TQC (Total Quality Control) and what is the difference between TQM and TQC? Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

3. How can we achieve organizational excellence with quality? Systems thinking principles for quality management in my organization. Design a simple example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

4. Deming's 14 rules of quality management system. What is the Deming cycle? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

5. What are the most common errors when starting quality initiatives in the real-world (versus the academic textbook world)...? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

6. Explain the true cost of poor quality, considering several different attributes. How is your company doing this? Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

7. What is QSO (Quality Management System) and how does a QMS prevent poor quality? What are the key modules of a QMS and how do they interact with each other? Are engineering managers interested in QMS? What can a good QMS do for your company? Explain WHY? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

8. What are the quality characteristics of world-class organizations? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

9. Responsibility and total quality. Who should be responsible for total quality in an organization? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

10. Discuss some models for ethical quality decisions. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

Please don't forget the social networking assignment. This is also part of your active participation requirement. If I can see, that you are actively discussing the social networking articles I am emailing you during the semester, then I can see, that you are actively participating in this class. This active participation earns you 10 points = 10% extra in this class.

Week 4 (also as appropriate in each semester as per the NJIT academic calendar): In preparation for the next assignment:
1. Study the Dr. Rasky created teaching / learning resources,
2. Study Chapters 5 and 6 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Week 5 (also as appropriate in each semester as per the NJIT academic calendar): In preparation for the next assignment:
1. Study the Dr. Rasky created teaching / learning resources,
2. Study Chapter 7 and 8 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Week 6 (also as appropriate in each semester as per the NJIT academic calendar): In preparation for the next assignment:
1. Study the Dr. Rasky created teaching / learning resources,
2. Study Chapters 9 and 10 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Homework Assignment 2 DUE DATE? February 22, 11.59 pm (10 points): In your assignment, in about 300-350 words, and an original drawing / image / illustration for each question below, that you have created versus copy-pasted from the book or from the Internet, with some text (as appropriate), please explain and document the following:

IMPORTANT NOTE: THIS APPLIES FOR EACH ASSIGNMENT: If you are using an image / line diagram / video clip, or any other illustration in your assignments, then please note, that each image should have a caption, indicating the figure / image number, what it describes, and who has taken the image (i.e. the source of the image). As an example, consider this: Figure 12b: This image illustrates a broken cell phone due to human error (image by myself: Mr/Ms. ABC). If you are using copyright images / illustrations from your book or from the Internet, that has zero value, because those are not your original contributions! Try to create your own, always... no copy-pasting please!

Please note, that I would like to see many illustrations in your assignments, that you have created. NOT COPY-PASTED. Nice, professionally done, good-quality figures, pictures, line diagrams, even video clips, that are not copy-pasted from the book or the Internet, but created by you? I hope you agree, that an engineering manager should be able to do this...

Based on my 40+ years of professional experience these are the assignment improvement opportunities (for every question in every assignment): Please add more of your own illustrations, with proper captions as described in the syllabus. As an example MS Word is not the right tool to create illustrations... please learn a semi pro-drawing tool. There are many for free; just search the Internet or download them from the NJIT student IT resources sites for FREE. As an engineering manager in the future you MUST be able to draw, illustrate and create meaningful, logical, technical, professional presentations / reports. It is a MUST. I am trying to teach you these concepts because I know these will help you to prosper in real life. In the professional world out there poor quality, copy/pasted illustrations will drag you down and most audiences will turn away from you....

Also, a typical mistake is, that some of your answers are much shorter, dimmer than requested. Not professional enough... Please discuss each assignment question with this in mind: What does the question require me to analyze and then answer? What existing solutions are there? How can I search and then design a better solution that would work well in this case? What analytical methods should I apply and how? How could I test / validate my solution(s)? What have others done in similar situations? Is my solution better? Why? How can I prove the above? Some students claim, that this is an easy class... because they completely ignore the above... easy now, not so forgiving in real professional life out there in the real world...

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1. Explain and discuss what a system is and how we can model systems, including quality management systems. Introduce the object-oriented, layered quality management system / process model. What are the interacting objects, layers, inputs, outputs, controls and resources. How does a multi-layer quality process model help engineering management to assess high quality in any organization? Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

2. Discuss product innovation process models for customer retention. Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

3. Discuss quality partnering and strategic alliance process models. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

4. Explain the difference between traditional and modern quality cultures. How did quality control and quality management work / or not in the past and what is the new thinking? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

5. What is the new thinking in Quality 4.0 plus systems? Let the key quality dimensions and explain how you can quantify each of them? What are the new big ideas, methods, tools and technologies in Quality 4.0 plus systems? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

6. Discuss the importance of quality culture. How is your company doing this? How can you establish a positive, sustainable quality culture with a continuous improvement focus? What are the key steps to do this? Design a simple quality-focused example, that you have created. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

7. How do you understand what is a customer? Explain customer defined value, value analysis and retention. Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

8. Discuss employee empowerment. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

9. Discuss leadership for quality. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

10. How is lead for a better quality change? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

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Week 7 (also as appropriate in each semester as per the NJIT academic calendar): In preparation for the next assignment:
1. Study the Dr. Rasky created teaching / learning resources,
2. Study Chapters 11 and 12 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Week 8 (also as appropriate in each semester as per the NJIT academic calendar): In preparation for the next assignment:
1. Study the Dr. Rasky created teaching / learning resources,
2. Study Chapters 12 and 13 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Homework Assignment 3 DUE DATE? March 8, 11.59 pm (10 points): In your assignment, in about 300-350 words, or a drawing / image / illustration, that you have created versus copy-pasted from the book or from the Internet, with some text (as appropriate) for each problem, please explain and document the following:

IMPORTANT NOTE: THIS APPLIES FOR EACH ASSIGNMENT: If you are using an image / line diagram / video clip, or any other illustration in your assignments, then please note, that each image should have a caption, indicating the figure / image number, what it describes, and who has taken the image (i.e. the source of the image). As an example, consider this: Figure 12b: This image illustrates a broken cell phone due to human error (image by myself: Mr/Ms. ABC).

If you are copy-pasting images / illustrations from your book or from the Internet, that has zero value, because those are not your original contributions! Try to create your own, always... no copy-pasting please!

Please note, that I would like to see many illustrations in your assignments, that you have created. Nice, professionally done, good-quality figures, pictures, line diagrams, even video clips, that are not copy-pasted from the book or the Internet, but created by you? I hope you agree, that an engineering manager should be able to do this...

Based on my 40+ years of professional experience these are the assignment improvement opportunities (for every question in every assignment): Please add more of your own illustrations, with proper captions as described in the syllabus. As an example MS Word is not the right tool to create illustrations... please learn a semi pro-drawing tool. There are many for free; just search the Internet or download them from the NJIT student IT resources sites for FREE. As an engineering manager in the future you MUST be able to draw, illustrate and create meaningful, logical, technical, professional presentations / reports. It is a MUST. I am trying to teach you these concepts because I know these will help you to prosper in real life. In the professional world out there poor quality, copy/pasted illustrations will drag you down and most audiences will turn away from you....

Also, a typical mistake is, that some of your answers are much shorter, dimmer than requested. Not professional enough... Please discuss each assignment question with this in mind: What does the question require me to analyze and then answer? What existing solutions are there? How can I search and then design a better solution that would work well in this case? What analytical methods should I apply and how? How could I test / validate my solution(s)? What have others done in similar situations? Is my solution better? Why? How can I prove the above? Some students claim, that this is an easy class... because they completely ignore the above... easy now, not so forgiving in real professional life out there in the real world...

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1. Discuss the importance of quality team works, and team building for quality management. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

2. How would you handle conflicts in quality teams? How to handle conflict in the workplace? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

- How to talk to the other person...
- Understand the other side too... find facts!
- Don't be afraid of conflict and create, soften on personalities, not on politics; stick to the facts...
- How to listen carefully...
- How to focus and identify points of agreement and then disagreement...
- How to be open-minded and flexible...
- How to develop a (process) plan to work on each conflict...
- How to follow through on your agreed process / plan... have a clear idea of 1.O., C. and R. (Inputs, Outputs, Controls and Resources)
- How to be aware of your feelings...
- How to deal with conflicts like this: your boss or your boss's boss stuck your great idea; then Design it to somebody else to develop it, and totally leave you out of the picture... doesn't even answer your emails... always have a Plan B! (you'll often need a Plan C and even a Plan D!).
- How to never stress yourselves out on issues like the above!

3. How do you reward quality achievements in a team? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

4. How do you communicate effectively for quality management? Focus on communication skills and soft-skills. Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

5. Why are listening skills important for quality management? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

6. What are the management strategies for quality-focused interpersonal needs? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

7. What are the principles of overcoming negativity and conflicts in the workplace? How do you conduct productive quality meetings? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

8. How are you manage conflict in the workplace? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

9. How do you communicate in conflict situations? How is your company doing this? Design a quality-focused simple example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

10. Why does quality suffer if there is a major conflict? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

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Week 9 (also as appropriate in each semester as per the NJIT academic calendar): In preparation for the next assignment:
1. Study the Dr. Rasky created teaching / learning resources,
2. Study Chapter 14 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Week 10 (also as appropriate in each semester as per the NJIT academic calendar): In preparation for the next assignment:
1. Study the Dr. Rasky created teaching / learning resources,
2. Study Chapter 15 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Homework Assignment 4 DUE DATE? March 22, 11.59 pm(10 points): In your assignment, in about 300-350 words, and an original drawing / illustration / image, that you have created versus copy-pasted from the book or from the Internet, with some text (as appropriate) for each problem, please explain and document the following:

IMPORTANT NOTE: THIS APPLIES FOR EACH ASSIGNMENT: If you are using an image / line diagram / video clip, or any other illustration in your assignments, then please note, that each image should have a caption, indicating the figure / image number, what it describes, and who has taken the image (i.e. the source of the image). As an example, consider this: Figure 12b: This image illustrates a broken cell phone due to human error (image by myself: Mr/Ms. ABC). If you are copy-pasting images / illustrations from your book or from the Internet, that has zero value, because those are not your original contributions! Try to create your own, always... no copy-pasting please!

Please note, that I would like to see many illustrations in your assignments, that you have created. Nice, professionally done, good-quality figures, pictures, line diagrams, even video clips, that are not copy-pasted from the book or the Internet, but created by you? I hope you agree, that an engineering manager should be able to do this...

Based on my 40+ years of professional experience these are the assignment improvement opportunities (for every question in every assignment): Please add more of your own illustrations, with proper captions as described in the syllabus. As an example MS Word is not the right tool to create illustrations... please learn a semi pro-drawing tool. There are many for free; just search the Internet or download them from the NJIT student IT resources sites for FREE. As an engineering manager in the future you MUST be able to draw, illustrate and create meaningful, logical, technical, professional presentations / reports. It is a MUST. I am trying to teach you these concepts because I know these will help you to prosper in real life. In the professional world out there poor quality, copy/pasted illustrations will drag you down and most audiences will turn away from you....

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1. Explain and discuss what a process is. Explain the 6 process attributes. Explain the 4 process dimensions. Explain the 3 process levels. Explain the 3 process types. Explain the 3 process views. Explain the 3 process perspectives. Explain the 3 process hierarchies. Explain the 3 process flows. Explain the 3 process relationships. Explain the 3 process scopes. Explain the 3 process boundaries. Explain the 3 process interfaces. Explain the 3 process constraints. Explain the 3 process assumptions. Explain the 3 process risks. Explain the 3 process failures. Explain the 3 process errors. Explain the 3 process defects. Explain the 3 process variations. Explain the 3 process improvements. Explain the 3 process changes. Explain the 3 process controls. Explain the 3 process audits. Explain the 3 process reviews. Explain the 3 process assessments. Explain the 3 process measurements. Explain the 3 process metrics. Explain the 3 process models. Explain the 3 process standards. Explain the 3 process guidelines. Explain the 3 process procedures. Explain the 3 process work instructions. Explain the 3 process documentation. Explain the 3 process records. Explain the 3 process reports. Explain the 3 process presentations. Explain the 3 process training. Explain the 3 process education. Explain the 3 process certifications. Explain the 3 process accreditations. Explain the 3 process licenses. Explain the 3 process permits. Explain the 3 process approvals. Explain the 3 process rejections. Explain the 3 process appeals. Explain the 3 process escalations. Explain the 3 process resolutions. Explain the 3 process closures. Explain the 3 process terminations. Explain the 3 process archives. Explain the 3 process backups. Explain the 3 process recoveries. Explain the 3 process disasters. Explain the 3 process emergencies. Explain the 3 process crises. Explain the 3 process opportunities. Explain the 3 process challenges. Explain the 3 process problems. Explain the 3 process solutions. Explain the 3 process benefits. Explain the 3 process costs

1. Study the Dr. Ranky created teaching / learning resources,
2. Study Chapter 18 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Homework Assignment 5 DUE DATE! April 12, 11.59 pm (10 points): In your assignment, in about 300-350 words, and an original drawing / image / illustration, that you have created versus copy-pasted from the book or from the Internet, with some text (as appropriate) for each problem, please explain and document the following:

Based on my 40+ years of professional experience these are the assignment improvement opportunities (for every question in every assignment): Please add more of your own illustrations, with proper captions as described in the syllabus. As an example MS Word is not the right tool to create illustrations… please learn a semi pro-drawing tool. There are many for free; just search the Internet or download them from the NJIT student IT resources sites for FREE. As an engineering manager in the future you MUST be able to draw, illustrate and create meaningful, logical, technical, professional presentations / reports. It is a MUST. I am trying to teach you these concepts because I know these will help you to prosper in real life. In the professional world out there poor quality, copy/pasted illustrations will drag you down and most audiences will turn away from you…

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1. With a quality system design focus explain what QFD (Quality Function Deployment) is? How is your company doing this? Design a simple quality-focused example proving, that you understood the basic concepts well. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

2. Explain the WHATs in a QFD matrix. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

3. Explain the HOWs in a QFD matrix . How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

4. Explain the 1, or 3, or 9 interrelationship values in a QFD matrix with actual examples. Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

5. Explain how you calculate the technical priorities in the design target matrix with actual examples. Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

6. Define statistical process control and lean six-sigma with actual mathematical examples for modern quality management. Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

7. Explain control charts for variables, with a simple mathematical example. Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

8. Explain control charts for attributes, with a simple mathematical example. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10)..

9. Discuss and explain various continual quality improvement methods and tools. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10)..

10. Explain the way integrated process modeling, customer requirements analysis, risk analysis and statistical methods, like control charts could be used for quality improvements. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

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Week 13 (dates as appropriate in each semester as per the NJIT academic calendar). In preparation for the next assignment:
1. Study the Dr. Ranky created teaching / learning resources,
2. Study Chapter 19 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Week 14 (dates as appropriate in each semester as per the NJIT academic calendar). In preparation for the next assignment:
1. Study the Dr. Ranky created teaching / learning resources,
2. Study Chapters 20 and 21 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Week 15 (dates as appropriate in each semester as per the NJIT academic calendar). In preparation for the next assignment:
1. Study the Dr. Ranky created teaching / learning resources,
2. Study Chapter 22 in the optional textbook, as well as
3. Read and discuss at least three social networking articles of your choice.

Homework Assignment 6 DUE DATE! April 25, 11.59 pm (10 points): In your assignment, in about 300-350 words, and an original drawing / illustration / image, that you have created versus copy-pasted from the book or from the Internet, drawing with some text (as appropriate) for each problem, please explain and document the following:

IMPORTANT NOTE: THIS APPLIES FOR EACH ASSIGNMENT! If you are using an image / line diagram / video clip, or any other illustration in your assignments, then please note, that each image should have a caption, indicating the figure / image number, what it describes, and who has taken the image (i.e. the source of the image). As an example, consider this: 'Figure 123: This image illustrates a broken cell phone due to human error (image by myself: Mr/Ms. ABC)'. If you are copy-pasting images / illustrations from your book or from the Internet, that has zero value, because those are not your original contributions! Try to create your own; always... no copy-pasting please!

Please note, that I would like to see many illustrations in your assignments, that you have created. Nice, professionally done, good quality figures, pictures, line diagrams, even video clips, that are not copy-pasted from the book or the Internet, but created by you! I hope you agree, that an engineering manager should be able to do this...

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1. Explain why continual quality improvement is important and how IIoT (Industrial Internet of Things) plays a major role in this? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

2. What is management's role in continual quality improvement? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

3. Discuss the Kaizen approach. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

4. How would you describe a lean system? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

5. What is a JIT (just-in-time) system? How is your company doing this? Design a simple example, that you have created. Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

6. Define benchmarking. Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

7. Define auditing as per the ISO9001 set of standards. How does benchmarking and auditing relate to each other? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

8. How can you apply benchmarking data in auditing processes, systems, designs, products, factories and services? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

9. What is jidoka?/ human centered automation, and why is it important for quality? How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

10. Discuss automation system ideas for JIT/lean / flexible quality management systems. Design an example of a real-time quality feedback controlled system in an automated factory / enterprise. How is your company doing this? Design a simple quality-focused example, that you have created. Don't forget to include a technical illustration / image, that you have created to illustrate this challenge / solution (1 point of 10).

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All submissions MUST be 100% digital, electronic by email / with a web URL in it; NOT several separate files please; I cannot accept several separate files, sorry, this is the 21st Century... we live in a digital age… and each of you will have a webpage.

Optional Webex on-line presntations on all assignments for a bonus 10% extra for the entire course grade.

Please note, that ALL assignments, including ALL reworked assignments are due by May 2, 11.59 pm, current calendar year, latest. Any assignments submitted later than this date cannot be accepted. Please don't be late!

PLEASE NOTE, that following NJIT rules and regulations in order to finish all work, I must submit all grades by the end of the semester. This is an ABSOLUTE deadline, I cannot change it. Please note, that I'll grade what I have at hand on this day.