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IE 673-851: Total Quality Management

Paul Ranky

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IE673 Total Quality Management Course Syllabus (Fall 2019) ver. August 4, 2019.

IMPORTANT note: if due to various NJIT gmail server issues, my NJIT offered ranky@njit.edu email address does not work, please use my Apple offered email address: cimware@icloud.com

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: cimware@icloud.com

Thanks!

1. Course number and name

Warm welcome to IE673 eLearning (NJIT): Total Quality Management (TQM): Summer 2019 Course.

Please note, that, 'on-line' , or 'eLearning' means, that there are no face-to-face meetings for traditional classes. This is a well known terminology.

As you can see below, the course is scheduled based on this web-based syllabus. It also has a traditional textbook, as well as a social networking component, which is on-line, as well as YouTube videos, these are on-line too.

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

In the Summer we only have the on-line version running, but in the Fall and Spring semesters we have both. Just search for 'NJIT course schedule'; it is all there.

If you have registered for the eLearning class you are still welcome to attend the live class occasionally, or if you need help, subject to space in the live classroom (it fills up quickly).

In the live class, as an additional bonus, we also have interactive (laboratory) exercises, as well as team discussions. These deepen your learning opportunities and encourage critical thinking. This is a very important skill in real-life!

To summarize, please review the basic terminology in this syllabus (i.e. not every basic word is defined), read the syllabus carefully, and search on Google if the terminology is not clear, and then ask me anytime if you need help. Even on a Sunday I will 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 challenges'. Please note, that during the Summer class I might be away on research in remote areas, this means, that I might not have access to the Internet asap, therefore it might take a few days to respond to you. Nevertheless I'll try to respond asap, 7 days a week, 14 hrs a day.

The soc. netw. assignment links, as well as the welcome letter is also duplicated on Moodle.

Please note, that I assume, that you have carefully read my welcome email letter, the social networking assignment email, and this syllabus before you are asking me any questions. So, please again: read all above because it will most likely answer ALL your questions about this course. Again, this is an important professional skill in real life.

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; see detailed instructions in this syllabus below), reading and understanding the syllabus and starting to set up your web page for your assignments in this class (please see more in this syllabus), or submitting academic questions to the instructor that are related to the class, and perhaps not discussed in this syllabus.

Please note, that whenever you email me, I assume, that you have already read my Welcome! email, this course syllabus, as well as my social networking assignment related email.

Please note, that these are emailed to your NJIT registered email, as well as posted onto Moodle before the semester starts, as well as during the first week of the semester. I send these emails out to all of you at least 3 times. Kindly ask you not to ask me to repeat sections for you from these documents. At this stage we should all assume, that you have read them before you are asking me any questions. Of course if anything is not clear, I'll be happy to answer your questions anytime; just email me please.

Please note, that for me to be able to verify your presence in this class, as explained above, I must get an email from you max. 10 days into the course, else I must, according to the rules, as above, declare you as 'not present'.

Please read the above instructions carefully again and comply with federal and NJIT rules as an able, honest, responsible, ethical and mature student. Thank You!

First, a few words about... Quality-focused Project Management...

ASQ (American Society for Quality) Student Chapter at NJIT. ASQ is the largest quality society in the world. Join us, see what is going on, hear and network with

professionals! We have weekly short meetings at NJIT, as well as almost every month a really nice technical meeting with a presentation and FREE dinner (usually in a VERY nice restaurant in Newark, or New York City) with our parent section, ASQ Section 300. For the student membership information click here: https://asq.org/membership/become-a-member?utm_source=Google&utm_medium=text&utm_campaign=Direct%20Join&utm_content=0&gclid=EA1aIQobChMI5bWEvLq62QIVeB2BCh3qwwAIEAAYASAAEgIr consider joining ASQ. This is a perfect fit for this course as well as for the EM profession as a whole. Student member fees are very low.

2. Credits and contact hours

3 credit hours, 3 contact hours (including 20 minutes breaks for the live class)

3. Instructor's, or course coordinator's name

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

4. A printed text book, or traditional PDF digital text, title, author, that we have to follow is:

David L. Goetsch and Stanley Davis: Quality Management for Organizational Excellence; Introduction to Total Quality, by Pearson Publ., ISBN 0-13-255898-X, 2011 (latest, 7th ed., or 8th ed)

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 critical problems could be solved by using quality principles and methods we discuss in this class. Suggest you review this very exciting free resource too: <http://encyclopedia.uia.org/en/problems>

It is continuously developed and updated and published by UIA. *(The Union of International Associations (UIA) is a research institute and documentation centre, based in Brussels. 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 the research, 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.)*

All submissions MUST be electronic = by email / with a web URL in it; NOT several separate files please; sorry, I cannot accept several separate files, sorry, this is the 21st Century... we live in a digital age... Also, I cannot accept passworded web-sites. Please note, that despite this note in red, some students still submit in separate files / passworded sites; sorry cannot accept it!

5. Specific course information

1. 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 statistical process quality control. Presentation of recent methods in supplier management, quality assurance, process control, and competitor analysis. Includes Taguchi methods and quality function deployment. Description of ISO 9000 and Baldrige Award.

2. Prerequisites or co-requisites

Prerequisites: see NJIT requirements

3. Indicate whether a required, elective, or selected elective

Required course. Maximum points is **100 plus 20 for active participation in the class**. (Please note, that active participation in the live class means attending each class each week, as well as actively contributing to teamwork we perform in this class each week.)

6. Specific goals for the course

1. Specific outcomes of instruction:

1. This is a traditional TQM course, based on a traditional textbook. Students learn the 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 ISO 9000, and related international quality standards, quality tools, quality problem solving and decisions
6. Students learn the fundamentals of quality function deployment (QFD)
7. Students learn the importance of statistical process control, control charts and other statistical methods for quality improvement
8. Students solve quality problems, as well as validate results

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

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.cimwareukandusa.com/aboutpgr.htm

Other Related Graduate Courses Taught by This Professor

IE725-407 / EM725-407 (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 course with some research experience. This course was designed for modern real-life engineering management entrepreneurs with a quality focus. (Note, that I often discuss some of these subjects during my research seminars I give on invitation to USA, and European MBA Universities.) This elective course runs typically twice a year. Sample syllabus on the web (note, that the syllabus and the dates are updated every time the course is run): http://www.cimwareukandusa.com/All_IE673/EM725-407Spring2016.html

IE655 (eLearning). This is a very progressive course focusing on **Concurrent / Simultaneous Green PLM (Product Lifecycle Management)**. An excellent course for real-life engineering management entrepreneurs with a product design quality focus. (Note, that I often discuss some of these subjects during my research seminars I give on invitation to USA, and European MBA Universities.) An excellent course to prepare you for professional certification exams (e.g. ASQ, PMP). This elective course runs typically twice a year. Sample syllabus on the web (note, that the syllabus and the dates are updated every time the course is run): http://www.cimwareukandusa.com/All_IE655/IE655Spring2016.html

EM636 (eLearning). This is a novel and very progressive course focusing on modern **Engineering Project Management in a quality framework**. An excellent course for real-life engineering project management entrepreneurs who are looking for zero project failures. (Note, that I often discuss some of these subjects during my research seminars I give on invitation to USA, and European MBA Universities.) An excellent course to prepare you for professional certification exams (e.g. ASQ, PMP); This course runs typically once a year in the summer. Sample syllabus on the web (note, that the syllabus and the dates are updated every time the course is run): <http://www.cimwareukandusa.com/All-ProjManage-EM636Course/EM636Summer2016.html>

Instructor's office: NJIT ME Bldg. Room 310

Office Hours: Fall semester office hrs.: Tuesday 5.30 pm to 6 pm, or by appointment. Please note, that I'll be in touch on email, 14 hrs a day, 7 days a week. If you have a question or if you need help please let me know and I'll help by either email or during office hrs.

Class Schedule: Please see NJIT's web page

Grading Policy: Maximum points is **100 plus 20 for active participation in the live version of the class**. (Please note, that active participation in the live class means attending each class each week, as well as actively contributing to teamwork we perform in this class each week.) The 100 points are divided as follows: six major homework assignments, each 10 points max.; a major open book, take home Midterm Assignment 20 points max.; a social networking assignment, that runs throughout the entire semester in each assignment, including the Midterm, is 20 points max. The letter grade will follow NJIT regulations as follows: A>90%, B+>80%, B>70%, C+>60%, C>50 %

About positive psychology principles, implemented as 'flow'...

Please note, that in this class we follow positive psychology principles, implemented as 'flow' (please see below). Positive psychology is the scientific study of the strengths that enable individuals and communities to thrive. The field is founded on the belief that people want to lead meaningful and fulfilling lives, to cultivate what is best within themselves, and to enhance their experiences of love, work, and play. (Ref.: https://en.wikipedia.org/wiki/Positive_psychology).

Positive psychology is "the scientific study of what makes life most worth living", or "the scientific study of positive human functioning and flourishing on multiple levels that include the biological, personal, relational, institutional, cultural, and global dimensions of life". Positive psychology is concerned with eudaimonia, "the good life", reflection about what holds the greatest value in life – the factors that contribute the most to a well-lived and fulfilling life.

Positive psychology began as a new domain of psychology in 1998 when Martin Seligman chose it as the theme for his term as president of the American Psychological Association. Mihaly Csikszentmihalyi (born in Hungary in 1934, Europe, emigrated to the USA at the age of 22) and Christopher Peterson are regarded as co-initiators of this development.

Csikszentmihalyi is noted for his work in the study of happiness and creativity, but is best known as the architect of the notion of flow and for his years of research and writing on the topic. He is the author of many books and over 120 articles or book chapters. Martin Seligman, former president of the American Psychological Association, described Csikszentmihalyi as the world's leading researcher on positive psychology.

Csikszentmihalyi once said: "Repression is not the way to virtue. When people restrain themselves out of fear, their lives are by necessity diminished. Only through freely chosen discipline can life be enjoyed and still kept within the bounds of reason." His works are influential and are widely cited. (Ref.: https://en.wikipedia.org/wiki/Mihaly_Csikszentmihalyi).

In Csikszentmihalyi's seminal work, *Flow: The Psychology of Optimal Experience*, he outlines his theory that people are happiest when they are in a state of flow – a state of concentration or complete absorption with the activity at hand and the situation. It is a state in which people are so involved in an activity that nothing else seems to matter.

The idea of flow is identical to the feeling of being in the zone or in the groove. The flow state is an optimal state of intrinsic motivation, where the person is fully immersed in what they are doing. This is a feeling everyone has at times, characterized by a feeling of great absorption, engagement, fulfillment, and skill—and during which temporal concerns (time, food, ego-self, etc.) are typically ignored.

In an interview with *Wired* magazine, Csikszentmihályi described flow as "being completely involved in an activity for its own sake. The ego falls away. Time flies. Every action, movement, and thought follows inevitably from the previous

one, like playing jazz. Your whole being is involved, and you're using your skills to the utmost."

Csikszentmihalyi characterized nine component states of achieving flow including "challenge-skill balance, merging of action and awareness, clarity of goals, immediate and unambiguous feedback, concentration on the task at hand, paradox of control, transformation of time, loss of self-consciousness, and autotelic experience".

To achieve a flow state, a balance must be struck between the challenge of the task and the skill of the performer. If the task is too easy or too difficult, flow cannot occur. Both skill level and challenge level must be matched and high; if skill and challenge are low and matched, then apathy results. (Ref.: https://en.wikipedia.org/wiki/Mihaly_Csikszentmihalyi).

Homework assignments: a homework assignment is due on due dates (see below) unless otherwise notified due to snow, or other unexpected circumstances outside our control. Please upload your assignment to your webpage (that you have authored, created and control on the oen web) and send me an email with your URL (Universal Resource Locator, like <http://www.mywebpageaddress>) in it. Please do not password web pages because then I cannot read them and must give you a zero grade for the assignment.

Solutions to homework problems may be available on the web. Please, DO NOT COPY solutions from the web or any other source. This is unethical and unwise. Always try to solve the problem first. Refer to the solution (if available) ONLY after you have gotten stuck, and use it only to get unstuck. Getting stuck (finding out what you don't know) is an important step in the learning process.

Please contact me by email or during office hrs., or by appointment if you have any questions. I am keen to respond to your emails typically on the same day, including weekends and vacation days, nevertheless within max. 5 working days (depending on my work load and Internet availability; if I am away on research).

Your entire course work is assessed based on 6 major homework assignments, the take home midterm exam. assignment and the quality management focused social networking assignment, therefore we have no final exam.

Submission of homework assignments: please set up your own web page and submit every assignment on due date by emailing me the URL of your web page. One, that is = 1 (one) and only one (1) URL per assignment please. Often students miss this requirement and submit several links in different formats, like Word, PDF, .jpg, etc. and then hope, that I can figure out what belongs where. Sorry, no! Including the social networking assignment's executive summary, please submit one URL per assignment. (You can use any software too to do this!, e.g. www.weebly.com)

Please note, that this is a good definition of what an 'Executive Summary' is: From Wikipedia, the free encyclopedia:

An executive summary, sometimes known as a management summary, is a short document or section of a document, produced for business purposes, that summarizes a longer report or proposal or a group of related reports in such a way that readers can rapidly become acquainted with a large body of material without having to read it all. It usually contains a brief statement of the problem or proposal covered in the major document(s), background information, concise analysis and main conclusions. It is intended as an aid to decision-making by managers and has been described as possibly the most important part of a business plan. They must be short and to the point. An executive summary differs from an abstract in that an abstract will usually be shorter and is intended to provide a neutral overview or orientation rather than being a condensed version of the full document. Abstracts are extensively used in academic research where the concept of the executive summary would be meaningless. "An abstract is a brief summarizing statement... read by parties who are trying to decide whether or not to read the main document", while "an executive summary, unlike an abstract, is a document in miniature that may be read in place of the longer document".

The best solution for you is to learn how to set up a web page. It will take less than an hour to learn, and I can help you. In the case we are using Excel, please submit your work as an Excel spreadsheet linked to your web page. Please do not submit several attachments in an email. This is very unprofessional. Email me your URL and link all files to that URL. This is the professional solution. Please do not password web pages you have created.

In all cases I would prefer digital / electronic submission of all work in this course. Please note, that we are not using Moodle for classwork, only for social networking (if you choose so; again the software you choose is your decision). We are using NJIT's Highlander account for social networking / emailing within the class. You can find everybody's email address there; just sign in with a UCID and a password.

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...

Please note, that pass-worded student assignment web-sites and submissions are not accepted. Not even if it is the instructor's NJIT UCID and password that is needed to sign in (sorry, this is NJIT policy).

Other Policies

1. Students should be familiar with the NJIT Honor Code. This code will be upheld. Please follow NJIT regulations.
2. Students are expected to read the listed text sections prior to each lecture period. (See weekly outline below).
3. Please identify each of your assignment submission with your name, date and class code (i.e. IE673 live, or eLearning). Please identify the correct assignment in your email's subject field.
4. Regular class attendance and active participation is expected for the live course (this can earn you max. 20 extra points!).
5. Please use your NJIT offered email address when you are communicating with me. I will communicate with you via your NJIT email address. If you are using other email addresses I might not be able to reach you. Thanks!
6. In ALL Assignments, including the Midterm: please do not copy paste images, text or other media from copyrighted material, or the web. Try to create your own with your own data. (Data can be made up but try to be realistic.) Often students copy-paste images from textbooks too. This is illegal, unless you follow the US Copyright Laws. In order to conform with this law, the best and safest approach is to create your own work (i.e. text, images, artwork, videos, etc.) and use only those. If you are using anything else, please put in the credits (the source) of the media content with the proper references.

7. In all assignments, including the Midterm, please focus on sustainability, and in particular on green sustainability (i.e. toxic waste elimination, non-toxic production processes, green mobility, sustainable business practices, and others). These are very interesting videos, that you should watch to help to learn about this process: https://www.youtube.com/watch?time_continue=1035&v=mMlmjXtnlXI Also, if you want to read more about this, suggest to look up one of my articles here: Ranky, P.G.: An Integrated Architecture, Methods and Some Tools for Enhancing Sustainable Enterprises and Systems Article Published in Systems 2015, 3(2), 27-44; doi:10.3390/systems3020027; Abstract and Link to Full Article (FREE access) <http://www.mdpi.com/2079-8954/3/2/27>

Weekly Outline of the Course based on the traditional textbook we have to use; as above. (Please note, that this is just an approximate schedule, based on NJIT's academic calendar. The important dates are the assignment submission dates):

Week 1 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapter 1, as well as three social networking articles of your choice.

Your social networking homework assignment: During the semester, I will email you several links to short technical articles, that are really important for you to follow and understand what is going on in the world in our subject area. This is particularly important to some foreign students who are not used to get their technical news via the Internet.

You suppose to choose any three of these articles (for every assignment, including Assignment 1, as well as the Midterm) and then discuss at least three of them with at least one more member in your class, and then document your findings in your social networking part of each assignment. I would like to see that you are discussing the content of these articles. (Please note, that you should identify your discussion team members in the executive summary.) Since this is often misunderstood, let me repeat again: in other words, you read several articles I am sending you but you document only three of them per assignment. (Again, you don't have to read all of them and don't have to document all of them).

Please set up your own web page and submit every assignment, including the social networking assignment's executive summary on due date by emailing me the URL of your web page. One, that is = 1 (one) and only one (1) URL per assignment please. Often students miss this requirement and submit several links in different formats, like Word, PDF, .jpg, etc. and then hope, that I can figure out what belongs where. Sorry, no! Including the social networking assignment's executive summary, please submit one URL per assignment.

Usually in a semester I send out about 40-45 short and current articles to choose from. Through my editorial work with major journals I get hundreds of *just published* articles that I can choose from... I am looking for your executive summaries of the discussions you have documented with one or more of your classmates via tel., email, in-person, and/or video conferencing. These activities are all part of each assignment now and therefore should be documented preferably in your web page as an executive summary. (If you are not familiar with the professional management term 'executive summary', please look it up on the web or in the NJIT library.)

The detailed discussions of these articles could be saved on Moodle, or anywhere else (your choice), in a digital but NOT passworded format. Your executive summary in your assignment should hyperlink to the detailed discussions (where ever you have stored them). All in one; nice object-oriented principle; not zillions of separate files please!

This assignment is an ongoing assignment during the semester. I would like to see three articles discussed within each assignment, including the Midterm, and a final submission of the social networking assignment at the end of this course with Assignment 6 together.

In the live class, in every class (if we have time) we'll discuss quality-focused social networking articles together. Please read them during the semester, don't leave this task for the last week! Please note, that I have no commercial or other interest in these articles. I do not control their content either. The only reason I am distributing them to you because I would like you to learn about their quality / sustainability content.

Please set up your own, quality-focused, virtual product, process, service or engineering management company. It is very important to be quality-focused. Please create your own company's web site, using any software you like. (I suggest www.weebly.com, but again, it is your choice.) Explain what your value proposition is, what your company does, how it satisfies customers, what it does, what is novel about it, and how it makes money. In every assignment you'll be using this company, that you have created for yourself.

Week 2 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapters 2, 3, as well as three social networking articles of your choice.

Week 3 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapter 4, as well as three social networking articles of your choice.

Homework Assignment 1 DUE DATE! September 20, 11.59 pm (10 points): In your assignment, in about 200-250 words, and an original drawing with some text (as appropriate) for each problem, please explain and document the following (based on the textbook). Please note, that if you are using any images, diagrams, or graphs in your assignment, that you haven't authored/drawn/created by yourselves, you must identify the source! **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...

1. What is quality? How does your company interpret the term: 'quality'?
2. What is TQM?
3. How can we achieve organizational excellence with quality?
4. What is the Deming cycle? How is your company doing this?
5. What are the most common errors when starting quality initiatives?
6. Explain the cost of poor quality . How is your company doing this?
7. What are the quality characteristics of world-class organizations?
8. Responsibility and total quality . How is your company doing this?

9. Discuss some models for ethical quality decisions . How is your company doing this?
10. What is the engineering manager's role in quality ethics?

11. Sustainable Green focus. Please go on the web, Google YouTube, and then in the field at the top type in 'Paul Ranky' (this is a search field and you'll find it easily). It will show you over 120+ links to short video clips I put up on YouTube. The goal of this part of the assignment is for you to find any 6 short clips on Paul Ranky, 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 world, in ANY ways, ANY time... it **MUST BE SUSTAINABLE AND GREEN**; not just sustainable... but green too... these video clips show pristine marine eco-systems that must not be destroyed by greed, incompetence, or human error... To document this, please write a specific statement about how you will prevent any toxic waste or pollution to be generated and released into any eco-system (land, sea, river, or air) in about 150 words. Please make sure you reference the 6 videos you have chosen from 'Paul Ranky', 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.

12. Please don't forget the social networking assignment.

Week 4 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapters 5 and 6, as well as three social networking articles of your choice.

Week 5 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapters 7 and 8, as well as three social networking articles of your choice.

Week 6 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapter 9, as well as three social networking articles of your choice.

Homework Assignment 2 DUE DATE! October 4, 11.59 pm (10 points): In your assignment, in about 200-250 words, and an original drawing with some text (as appropriate) for each problem, please explain and document the following (based on the textbook): Please note, that if you are using any images, diagrams, or graphs in your assignment, that you haven't authored/drawn/created by yourselves, you must identify the source! **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...

1. Discuss the importance of quality partnering and strategic alliances. How is your company doing this?
2. Discuss the various forms of quality partnering and strategic alliances. Focus on the process model.
3. Discuss the importance of quality culture
4. Explain the difference between traditional and modern quality cultures
5. How do you understand who is a customer? How is your company doing this?
6. Explain customer defined value, value analysis and retention.
7. Discuss product innovation models for customer retention
8. Discuss employee empowerment . How is your company doing this?
9. Discuss leadership for quality . How is your company doing this?
10. How to lead for a better quality change? How is your company doing this?
11. Please don't forget the social networking assignment!

Week 7 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapter 10 and 11, as well as three social networking articles of your choice.

Week 8 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapters 12 and 13, as well as three social networking articles of your choice.

Homework Assignment 3 DUE DATE! October 18, 11.59 pm (10 points): In your assignment, in about 200-250 words, or a drawing with some text (as appropriate) for each problem, please explain and document the following (based on the textbook): Please note, that if you are using any images, diagrams, or graphs in your assignment, that you haven't authored/drawn/created by yourselves, you must identify the source! **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...

1. Discuss the importance of quality team works, and team building. How is your company doing this?

2. How would you handle conflicts in quality teams? How is your company doing this?
3. How do you reward quality achievements in a team? How is your company doing this?
4. How do you communicate effectively? Focus on communication skills and soft-skills.
5. Why are listening skills important? How is your company doing this?
6. What are the management strategies for quality-focused interpersonal needs?
7. What are the principles of overcoming negativity and conflicts in the workplace? How is your company doing this?
8. How can you manage conflict in the workplace? How is your company doing this?
9. How do you communicate in conflict situations? How is your company doing this?
10. Why does quality suffer if there is a major conflict? How is your company doing this?
11. Please don't forget the social networking assignment!

Week 9 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapter 14, as well as three social networking articles of your choice.

Week 10 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapters 15 and 16, as well as three social networking articles of your choice.

Homework Assignment 4 DUE DATE! November 1, 11.59 pm (10 points): In your assignment, in about 200-250 words, and an original drawing with some text (as appropriate) for each problem, please explain and document the following (based on the textbook): Please note, that if you are using any images, diagrams, or graphs in your assignment, that you haven't authored/drawn/created by yourselves, you must identify the source! **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...

1. Discuss the eight principles of the ISO 9000 standard. How is your company following these ISO standards?
2. Discuss Pareto Charts
3. Discuss fishbone diagrams . How is your company doing this?
4. Discuss histograms
5. Discuss control charts for variables. How is your company doing this?
6. Discuss flowcharts and give a simple example
7. Explain what is an FMEA (Failure Mode and Effects Analysis). How is your company doing this?
8. Provide an overview of the Toyota practical problem solving process
9. Explain a total quality decision making process . How is your company doing this?
10. Explain why quality tools are important. How is your company doing this?
11. Please don't forget the social networking assignment

Take Home Midterm Exam / Assignment: no class this week: please work on your Midterm: topic: This is a take home exam (max. 20%) DUE DATE: **November 15, 11.59 pm** (20 points)

Based on your OWN experiences (NOT the web or other sources, but your OWN!) write 12 human quality error detection and prevention cases. In each case, please try to include the following: How is your company doing this? How is your company dealing with human errors? This means a total of 12 cases, and for each human error case you should discuss the (1) **detection** as well as the (2) **prevention** aspects. Please illustrate each case with a photo, or a video clip. (Most of you have smart phones, this is really easy now...) You can use ANY resources for both, but it should have YOUR ideas, YOUR facts, YOUR experiences versus copy paste from the web! ... or from each other... that has no value... Each image must 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)'*. Please note, that a caption below an image stating: *'Source: web, or 'Source: phone', means absolutely nothing.*

Each human error detection & prevention case should be documented in about 200-250 words total. Pls. focus on the quality process aspect of any human error, such as process, procedure relate errors, quality issues, service quality issues, lack of understanding, education related errors, lack of quality procedure related to human errors, poor use of technology errors, and similar. I am keen to see the method; the analytical approach. The examples must be yours, but the methods can be explained as existing methods as applied to human error detection and prevention.

Please don't forget the social networking assignment !

Week 11 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapter 17, as well as three social networking articles of your choice.

Week 12 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapter 18, as well as three social networking articles of your choice.

Homework Assignment 5 DUE DATE! November 29, 11.59 pm (10 points): In your assignment, in about 200-250 words, and an original drawing with some text (as appropriate) for each problem, please explain and document the following (based on the textbook): Please note, that if you are using any images, diagrams, or graphs in your assignment, that you haven't authored/drawn/created by yourselves, you must identify the source!

1. Explain what is QFD (Quality Function Deployment)? How is your company doing this?
2. Explain the WHATs in a QFD matrix . How is your company doing this?
3. Explain the HOWs in a QFD matrix . How is your company doing this?
4. Explain the 1, or 3, or 9 interrelationship values in a QFD matrix with actual examples
5. Explain how you calculate the technical priorities in the design target matrix with actual examples
6. Define statistical process control with actual examples . How is your company doing this?
7. Explain control charts for variables, with a simple mathematical example
8. Explain control charts for attributes, with a simple mathematical example . How is your company doing this?
9. Discuss and explain various continual quality improvement methods and tools. How is your company doing this?
10. Explain the way control charts could be used for quality improvements. How is your company doing this?
11. Please don't forget the social networking assignment

Week 13 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapter 19, as well as three social networking articles of your choice.

Week 14 (dates as appropriate in each semester as per the NJIT academic calendar): Study Chapters 20 and 21, as well as three social networking articles of your choice.

Week 15 LAST week in this class; (dates as appropriate in each semester as per the NJIT academic calendar); Study Chapter 22, as well as three social networking articles of your choice.

Homework Assignment 6 DUE DATE! December 11, 11.59 pm (10 points): In your assignment, in about 200-250 words, and an original drawing with some text (as appropriate) for each problem, please explain and document the following (based on the textbook): Please note, that if you are using any images, diagrams, or graphs in your assignment, that you haven't authored/drawn/created by yourselves, you must identify the source! **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...

1. Explain why continual quality improvement is important. How is your company doing this?
2. What is management's role in continual quality improvement ?
3. Discuss the Kaizen approach. How is your company doing this?
4. How would you describe a lean system? How is your company doing this?
5. What is lean six-sigma and how would you apply it to a quality management system?
6. Define benchmarking. Define auditing. How does benchmarking and auditing relate to each other?
7. How can you apply benchmarking data in auditing processes, systems, designs, products, factories and services?
8. What is a JIT system? How is your company doing this?
9. What are the benefits of JIT/lean? How is your company doing this?
10. Discuss automation system ideas for JIT/lean . How is your company doing this?
11. Please don't forget the social networking assignment

All submissions MUST be 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...

Please note, that ALL assignments are due by December 11, 11.59 pm, 2019, 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 semester. This is an ABSOLUTE deadline, I cannot change it. Please note, that I'll grade what I have at hand on this day.

ASQ (American Society for Quality) Student Chapter at NJIT. ASQ is the largest quality society in the world. Join us, see what is going on, hear and network with professionals! We have weekly short meetings at NJIT, as well as almost every month a really nice technical meeting with a presentation and FREE dinner (usually in a VERY nice restaurant in Newark, or New York City) with our parent section, ASQ Section 300. For the student membership Information PDF file: [click here](#). More from your instructor, Dr. Ranky, the founding academic member of the NJIT ASQ Student Chapter. The actual [ASQ Chapter Section 300 web site we are part of is here](#). Please consider joining ASQ. This is a perfect fit for this course as well as for the EM profession as a whole.

Please feel free to join me on LinkedIn. (Look for Dr Paul Ranky). Social networking is an important part of our professional life now!