TECH 5320  Total Quality Management
Dr. Heshium Lawrence
Spring 2014

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I. Course Description:

This is a 3 semester hour course oriented toward the undergraduate student in technology. The quality of products and services directly affects a company's market share, profitability, and reputation for responsibly serving the interests of its customers and the public as a whole. This course will provide coverage of quality control and quality improvement concepts and will emphasize Total Quality Management (TQM), Six Sigma Quality Concepts and the use of statistics to measure the quality of manufacturing and service related processes.

II. Textbooks:

III. Course Objectives:

A. instill within the student the concept of total quality control
B. to develop the statistical process control requirements for a total quality control program.
C. to identify the types and levels of quality control techniques applied to a manufacturing setting.
D. to become proficient in the application of statistical quality control principals.
E. to become proficient in the use of various types of sampling and process control charts.

IV. Statement of Learning Objectives:

By the end of this course, students should be able to:

<table>
<thead>
<tr>
<th>Program Outcomes</th>
<th>TECH 5320</th>
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</thead>
<tbody>
<tr>
<td>A Make application of quality measurement criteria in their place of employment</td>
<td>X</td>
</tr>
<tr>
<td>B Compare in quality design and function of products and services</td>
<td>X</td>
</tr>
<tr>
<td>C Perform quality improvement graphical problem-solving functions.</td>
<td>X</td>
</tr>
<tr>
<td>D Recognize the need for and implement quality improvement measures in their service industry.</td>
<td>X</td>
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</table>
V. **Course Competencies:**

A. **Computer-based skills** - By use of standard software the student will store and manipulate data and make analysis of data by the presentation of SPC charts and graphs.

B. **Communication skills** - The student will conduct and write a term project related to quality improvement problem solving and quality control measurement.

C. **Interpersonal skills** - Students will work in quality improvement teams to experience the use of graphical problem solving techniques.

D. **Problem-solving** - Each student will interpret SPC charts to determine the status of industrial processes by gathering data, using statistical skills. Through SPC analysis students will use brainstorming techniques to solve problems and improve processes by using the plan-do-check-access cycle.

E. **Personal accountability for achievement** - Each student will follow the designated suspense dates for course work as listed in the course syllabus.

F. **Competence in basic technology principles** -
   1. By the study of the major "quality guru's", the student will develop a foundation for the total quality management movement.

VI. **Course Requirements:**

A. **Assignments**

   1. seven written topic summaries
   2. complete assigned outside work (written & computer)
   3. complete midterm exam
   4. complete final exam
   5. complete individual semester paper

B. **Grading and Evaluation:**

<table>
<thead>
<tr>
<th></th>
<th>Points</th>
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<tbody>
<tr>
<td>Homework assignments (x10)</td>
<td>100</td>
</tr>
<tr>
<td>Exams (x2)</td>
<td>200</td>
</tr>
<tr>
<td>Projects (x2)</td>
<td>100</td>
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<tr>
<td>Presentation</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>500</td>
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</table>

C. Students are required to log on and use Blackboard Learning Management Software at least twice a day to access their electronic gradebook, related course materials and other information that the instructor may post.
D.  Suspense Dates:

<table>
<thead>
<tr>
<th>Class Start Date</th>
<th>Mon, Jan 13</th>
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</thead>
<tbody>
<tr>
<td>Topic Summary #1</td>
<td>Wed, Jan 23</td>
</tr>
<tr>
<td>Topic Summary #2</td>
<td>Wed, Feb 5</td>
</tr>
<tr>
<td>Topic Summary #3</td>
<td>Wed, Feb 19</td>
</tr>
<tr>
<td>Topic Summary #4</td>
<td>Wed, Mar 5</td>
</tr>
<tr>
<td>Topic Summary #5</td>
<td>Wed, Mar 26</td>
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<tr>
<td>Topic Summary #6</td>
<td>Wed, Apr 9</td>
</tr>
<tr>
<td>Topic Summary #7</td>
<td>Wed, Apr 23</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>as scheduled</td>
</tr>
<tr>
<td>Individual Semester Paper</td>
<td>TBA</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>TBD</td>
</tr>
<tr>
<td>Final Exam</td>
<td>TBD</td>
</tr>
<tr>
<td>Final Exam Week</td>
<td>May 5-10</td>
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</tbody>
</table>

You will complete and submit all assignments on time. (Late assignments will not be accepted, for any reason. Technology related issues are not acceptable excuses, submit early!)

VII. IDEA Statement

If you have a disability, including a learning disability, for which you request disability support services/accommodations(s), please contact Ida MacDonald in the Disability Support Services office so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodation must provide documentation of his/her disability to the Disability Support Services counselor. In order to assure approved services the first week of class, diagnostic, prognostic, and prescriptive information should be received 30 days prior to the beginning of the semester services are requested. For more information, call or visit the Student Services Center located in the University Center, Room 282. The telephone number is 566-7079 (TDD 565-5579). Additional information may also be obtained at the following UT Tyler Web address: http://www.uttyler.edu/disabilityservices.

VIII. Academic Honesty Statement

“Academic dishonesty, such as unauthorized collusion, plagiarism and cheating, as outlined in the Handbook of Operating Procedures, University of Texas at Tyler, will not be tolerated. University regulations require the instructor to report all suspect cases of academic dishonesty to the Dean of Students for disciplinary action. In the event disciplinary measures are imposed on the student, it becomes part of the student’s official school records.” Also, please note that the handbook obligates you to report all observed cases of academic dishonesty to the instructor.
IX. Grade Replacement Statement

If you are repeating this course for a grade replacement, you must file an intent to receive grade forgiveness with the registrar by the 12th day of class. Failure to file an intent to use grade forgiveness will result in both the original and repeated grade being used to calculate your overall grade point average. A student will receive grade forgiveness (grade replacement) for only three (undergraduate student) or two (graduate student) course repeats during his/her career at UT Tyler. (2006-2008 Catalogue, p. 35).

X. University Policies Regarding Academic Processes:

The following University policies must appear on each course syllabus or be provided as an informational sheet (web-links to these policies may be used in the print or electronic syllabus)

http://www.utttyler.edu/academicaffairs/syllabuspolicies.pdf

Students Rights and Responsibilities
To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link:
http://www.utttyler.edu/wellness/StudentRightsandResponsibilities.html

Grade Replacement/Forgiveness
If you are repeating this course for a grade replacement, you must file an intent to receive grade forgiveness with the registrar by the 12th day of class. Failure to do so will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates will receive grade forgiveness (grade replacement) for only three course repeats; graduates, for two course repeats during his/her career at UT Tyler.

State-Mandated Course Drop Policy
Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the 12th day of class (See Schedule of Classes for the specific date).
Exceptions to the 6-drop rule include, but are not limited to, the following: totally withdrawing from the university; being administratively dropped from a course; dropping a course for a personal emergency; dropping a course for documented change of work schedule; or dropping a course for active duty service with the U.S. armed forces or Texas National Guard.
Petitions for exemptions must be submitted to the Registrar's Office and must be accompanied by documentation of the extenuating circumstance. Please contact the Registrar's Office if you have any questions.

Disability Services
In accordance with federal law, a student requesting accommodation must provide documentation of his/her disability to the Disability Support Services counselor. If you have a disability, including
a learning disability, for which you request an accommodation, please contact Ida MacDonald in the Disability Support Services office in UC 282, or call (903) 566-7079.

**Student Absence due to Religious Observance**
Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester.

**Student Absence for University-Sponsored Events and Activities**
If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

**Social Security and FERPA Statement:**
It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

**Emergency Exits and Evacuation:**
Everyone is required to exit the building when a fire alarm goes off. Follow your instructor’s directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

**XI. Topic Summaries:**

**Directions:** Write article summaries from the following topics listed below. These articles should be taken from recent periodicals, not handbooks or textbooks. Each summary shall be one (1) page in length. Each summary must come from a separate periodical of a different titled publication. The articles you choose to review must have relevance to principles of quality control and reflect current trends in the quality movement. **SEE EXAMPLE ON LAST PAGE.**

1. just-in-time production technology
2. quality circles, teams, or work groups
3. supplier quality and certification programs
4. process capability studies and applications
5. quality in design
6. integrating quality control into manufacturing
7. KANBAN
8. statistical process control charts and applications
9. integrating quality control into the service industry
10. budget control of quality
11. quality service
12. total quality management
13. quality function deployment  
14. process control studies  
15. employee empowerment and management  
16. Six Sigma Quality  
17. Benchmarking Processes  
18. Supply Chain Management  
19. Five S’s (5 Ss’)  
20. material requirements planning  
21. cost of quality  
22. product life-cycle management

Note: The instructor reserves the right to modify the syllabus. All modifications will be communicated to the students in a timely manner.

The author believes active suspension will replace springs and shocks with a computer and high-speed hydraulics. The primary benefit of the system is to isolate one suspension characteristic from another. Essentially, MacPherson struts are replaced with hydraulic struts which can react within 3/1000 second, and can cycle up to 1500 times/minute. A computer responds to tiny changes in body and wheel movement by controlling double-acting struts. As well as sensing bumps, the system reads the forces acting on the car body preventing it from banking to the outside of a curve. The idea of active suspension is credited to Britain's great interest in its application. American auto manufacturers have characterized the system as expensive, noisy, and consuming power, however, it may appear on some "expensive" U.S. automobiles.

*Reaction*

This article had good appeal for automobile enthusiasts who want to keep abreast of the latest technology. The reporting of this innovative suspension system was very consistent and well documented through interviews. Several pictures of the system components were shown as well as a pictorial schematic of the complete suspension system. Upon reading this article, anyone would have a good working knowledge of the computer controlled suspension.

Note: Margins are to be set at the following dimensions:

- Left = 1.25”
- Right = 1.00”
- Top = 1.00”
- Bottom = 1.00”