**IE 5303 - 001, - 002**

**Fall 2016**

**TTH 3:30 - 4:50**

**Room WH 404**

**Instructor**: Dr. Donald H. Liles

**Office**: 325H Woolf Hall

**Office Hours**: TTH 10:00-12:00, 2:00-3:00

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**Required Textbooks** : Quality Improvement, Besterfield 9th Edition, SPC Simplified, Amsden et al

**Course Description**: Statistical and other process improvement methods. Principles and practices of industrial quality control. Topics include the Deming philosophy, process improvements, statistical process control, process capability analysis and product acceptance.

**Course Learning Goals/Objectives**: Students will be able to use modern quality systems techniques to include the design of statistical process control systems, acceptance sampling, and process analysis and design.

**Attendance and Drop Policy**: I do not take attendance. However, you are responsible for the material presented in class when you are absent. You may drop this course through the University published last day to drop.

**Tentative Exam Schedule:**

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| --- | --- | --- | --- |
| Exam | Coverage | Date | Comments |
| I | See Below | 27 Sep |  |
| II | See Below | 1 Nov |  |
| III | See Below | Finals week Dec 15 |  |

**Specific Course Requirements w/Descriptions**:

         Daily Quizzes/Homework/etc: 8-10 countable assignments

         Examinations: Three exams; No final

         Missed Exams: There is a single comprehensive make-up exam at the end of the semester.

         Missed Daily Quizzes/Homework: No make-up for daily work. One or two daily grades will be dropped.

         Semester project

         Key assignment

**Course Evaluation & Final Grade**:

         Three exams counting 20% each

         8-10 countable daily quizzes/homework plus key assignment counting 20% of the total grade. (Due on or before 8 Dec.)

         Project 20% (Written report due 24 Nov, Presentation slides due on 3 Dec. Presentations given on 3 Dec, 8 Dec, and 15 Dec.)

* There will be a PEER review at the end of the semester. This will give you an opportunity to report the contributions of the members of your team.

**Topics Covered**:

## Basic concepts

## Process documentation

## Process variation

## Process sampling and the control chart

## Process improvement with control chart

## Variables control charts

## Attributes control charts

## Process diagnosis, capability and improvement

## Specifications and inspection policy

## Review of Deming and variability reduction

Semester Schedule: I reserve the right to make changes to the daily schedule. The exams and project dates should not change.

|  |  |
| --- | --- |
| Date | Activity |
| 25 Aug | Class roll, Course Administration, Syllabus, Project and Key assignments. See Blackboard |
| 30 Aug | Class roll, Course Administration, Syllabus, Project and Key assignments. Lecture on Basic Concepts 1 (Introduction Lecture notes and Chapter 1). |
| 1 Sep | Form Teams, Do in-class exercise for Basic Concepts 1. Prepare a short presentation of your findings. |
| 6 Sep | Lecture on Basic Concepts 2, (Ch 2 and Ch 3, plus handouts)  Lecture on Basic Concepts 3, (Lecture notes).  Do in-class exercise for Basic Concepts 2 |
| 8 Sep | Do in-class exercise for Basic Concepts 3. Prepare a short presentation of your findings. |
| 13 Sep | Lecture on Basic Concepts 4, (Ch 4: Tools of SPC) |
| 15 Sep | Do in-class exercise for Basic Concepts 4 (a,b). Prepare a short presentation of your findings. |
| 20 Sep | Do in-class exercise for Basic Concepts 4 (c). Prepare a short presentation of your findings. |
| 22 Sep | Review (lecture) probability and statistics, (Ch 5 and 8). Quiz on Ch 5 and 8. |
| 27 Sep | Exam I |
| 29 Sep | Process Documentation (handout), Discussion of project and key assignment (Ch 6) |
| 4 Oct | Process variation (Ch 6) |
| 6 Oct | Process Control, example (Ch 6) |
| 11 Oct | Control Charts (Ch 6) |
| 13 Oct | Variable Control Charts (Ch 6) |
| 18 Oct | Patterns (Ch 6) |
| 20 Oct | Subgroups (Ch 6) |
| 25 Oct | Specifications and Capability (Ch 6) |
| 27 Oct | Other Charts (Ch 6 and 7)) |
| Nov 1 | Exam II |
| Nov 3 | Attribute Charts (Ch 9) |
| 8 Nov | Acceptance Sampling (Ch 10) |
| 10 Nov | Acceptance Sampling (Ch 10) |
| 15 Nov | Additional techniques (Ch 12) |
| 17 Nov | Design of experiments (Ch 13) |
| 22 Nov | Written Project Reports due |
| 24 Nov | Thanksgiving |
| 29 Nov | Key Assignment due, misc. |
| 1 Dec | Presentation materials due, Project Presentations |
| 6 Dec | Last Class Day All remaining daily work due, Project Presentations |
| Dec 15 | Exam III (not a final but held on the day of the final) (75 Min) and Project Presentations (75 Min) |

**Drop Policy:** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/fao/>).

**Disability Accommodations:** UTArlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of **a letter certified** by the Office for Students with Disabilities (OSD).Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

**The Office for Students with Disabilities, (OSD)** [www.uta.edu/disability](http://www.uta.edu/disability) or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability).

Counseling and Psychological Services, (CAPS) [www.uta.edu/caps/](http://www.uta.edu/caps/) or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

**Non-Discrimination Policy:** *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit*[*uta.edu/eos*](http://www.uta.edu/hr/eos/index.php)*.*

**Title IX Policy:** The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated.*For information regarding Title IX, visit* [www.uta.edu/titleIX](http://www.uta.edu/titleIX) or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or [jmhood@uta.edu](file:///C:\Users\dliles.UTA\Documents\AA%20Classes\QC\Syllabus%20etc\jmhood@uta.edu).

**Academic Integrity:** Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents’ Rule* 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

**Student Support Services:** UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include [tutoring](http://www.uta.edu/universitycollege/current/academic-support/learning-center/tutoring/index.php), [major-based learning centers](http://www.uta.edu/universitycollege/resources/college-based-clinics-labs.php), developmental education, [advising and mentoring](http://www.uta.edu/universitycollege/resources/advising.php), personal counseling, and [federally funded programs](http://www.uta.edu/universitycollege/current/academic-support/mcnair/index.php). For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

**The IDEAS Center (**2nd Floor of Central Library) offers **free** tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email [IDEAS@uta.edu](mailto:IDEAS@uta.edu) or call (817) 272-6593.

**Electronic Communication:** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Campus Carry:** Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week:** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

**Emergency Exit Procedures:** Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the stairs, which is located to your immediate right as you leave the room. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.