COURSE: IET 229  
EFFECTIVE DATE: Fall 2010  
NEXT REVIEW DATE: Fall 2011

TITLE: Statistical Quality Control  
CREDITS: 3  
CONTACTS: CLASS - LAB - TOTAL 3 0 3

PREREQUISITES: Math 155 or equivalent

DESCRIPTION: This course includes statistical sampling plans, the nature of variation in industrial processes, and the methods of statistically analyzing their variations. Quality assurance functions, variable sampling, control charts for variables and attributes are also topics covered in this course.


MATERIALS (specifying those to be purchased by student): Scientific calculator (TI30 or equivalent)


CLASS MANAGEMENT ACTIVITIES (Attendance, tardies, testing, etc.):

A. Attendance and Tardies
   No more than 10% (9 hours for a typical semester) of the scheduled class hours may be missed; attendance will be kept “by the hour,” including any tardiness or early leaving.

   1) There are no excused absences except those verified by other instructors for field trips or school related activities.

   2) A student is tardy if he/she arrives for class after the instructor has checked the class roll. Three tardies will count as one absence. Students should strive to get to class on time each day.

B. Academic Integrity
   During a test, as well as on any written assignment, paper, or project, anyone caught exchanging information or copying someone else’s work will be given a grade of “F” on that work and face further disciplinary action. Refer to the “Student Code Book” on “Academic Dishonesty”.
C. Timeliness of Work Turned In

All assignments and projects must be turned in at the beginning of class on the date they are due for them to be considered turned in on time. Otherwise, late penalties will be assessed.

**DISABILITIES STATEMENT:**

Students with disabilities are encouraged to contact the Dean of Student Services to discuss needs or concerns as they pursue an academic program and participate in campus life. The Dean of Student Services will provide guidance regarding official documentation of disabilities and/or accommodation of needs. (See College Catalog)

**STUDENT ID:**

It is mandatory that every student wear his or her student ID at all times when on the Cheraw Campus. During the first week of classes, the instructor will issue a reminder to wear the ID. This reminder is a warning.

After the first week of classes, instructors are required to dismiss students without ID from class. The student may get his/her ID (or a new one in Student Services for $3.00) and return to class before the midpoint of the class. If the student cannot get an ID and return to class by the midpoint, the instructor will record the absence.

**RESOURCES (A-V, persons, tools/equipment):**

Demonstration equipment

(Quincunx, Scott Sampling and Statistical Study Kit, Distribution Display Kit, Lightning Calculator Sampling Kit, etc.)

Handouts

Outline of class discussion

**COURSE TOPICAL OUTLINE (List topics and sub-topics of course) and Calendar or approximate length of time devoted to topic.**

**TENTATIVE COURSE OUTLINE**

<table>
<thead>
<tr>
<th>WEEK</th>
<th>CHAPTER</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Introduction to Quality Brief History of Statistical Quality Control (SQC)</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Total Quality Management (TQM) Philosophy</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>TQM Tools and Techniques Statistical Process Control (SPC)</td>
</tr>
</tbody>
</table>
**COURSE TOPICAL OUTLINE:** (Continued)

<table>
<thead>
<tr>
<th>WEEK</th>
<th>CHAPTER</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>3</td>
<td>Process Flow Diagrams, Cause &amp; Effect Diagrams, Check Sheets, Pareto Diagrams, Scatter Diagrams, Histograms</td>
</tr>
<tr>
<td>4</td>
<td>3 (Continue)</td>
<td>Control Charts and Review TEST #1 (Chapters 1-3)</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>Review Test #1 Statistics: Data Types, Variable Types, Significant Figures, Frequency Distributions and Analysis, Measures of Central Tendency and Dispersion</td>
</tr>
<tr>
<td>6</td>
<td>4&amp;5</td>
<td>Calculation of Control Charts Limits Process Capability</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>Control Charts (Continued) 6 Additional SPC Techniques</td>
</tr>
<tr>
<td>8</td>
<td>7</td>
<td>TEST #2 (Chapters 4-6) Review Test #2 Probability</td>
</tr>
<tr>
<td>9</td>
<td>7&amp;8</td>
<td>Probability (Continued) Control Charts for Attributes</td>
</tr>
<tr>
<td>10</td>
<td>H/O</td>
<td>Correlation Theory, Calculation and Analysis</td>
</tr>
<tr>
<td>11</td>
<td>H/O</td>
<td>TEST #3 (Chapters 7-8, h/o) Review Test #3 Design of Experiments Theory Introduction of Final Project; “SQC at Work”</td>
</tr>
<tr>
<td>12</td>
<td>9</td>
<td>Sampling Theory and Sampling Plans</td>
</tr>
<tr>
<td>13</td>
<td>10</td>
<td>Acceptance Sampling Discussion of Final Project Issues</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Final Project “SQC at Work” due and feedback on Final Project given</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Review for Final Exam and Course Evaluation</td>
</tr>
</tbody>
</table>
OBJECTIVES OF COURSE:
1. Define Quality and its dimensions.
2. Understand the overall Statistical Quality Control and Total Quality Management concepts.
3. Demonstrate ability to apply the seven Statistical Process Control tools to real work assignments.

INSTRUCTIONAL METHODS TO COMPLETE OBJECTIVES:
Quizzes, Take home assignments, Project, Constructing of charts and handling of data sets, and Final Exam

EVALUATIVE METHODS TO APPRAISE OBJECTIVES:
The final grade will be a compilation of points obtained from four sources:
4 Tests, including final \( x \) 150 points each = 600 (the lowest one will be dropped)
Take-home assignments, pop quizzes = 200
  If the assignment is late but turned in before the next class period, 20 points will be deducted.
  A grade of 0 will be given if the assignment is still not turned in before the next class period begins.
Final Project “SQC at Work” = 200
  Using each of the seven tools accurately (70)
  Showing the connectivity of three tools (15)
  Applying a Statistical Sampling Plan (20)
  Using a Design of Experiment Application (20)
  If project is late, 50 points will be deducted.

Total Points for final grade 1000

GRADING SCALE:
A = 1000 - 900
B = 899 - 800
C = 799 - 700
D = 699 - 600
F = BELOW 600