UCC Document # _____
College Document # COAS 140
Review Type: ___Edit ___ Exp ___Full

CATALOG YEAR 2012-2013

COLLEGE/SCHOOL/SECTION: _____ College of Arts and Sciences_____

Course: Add: ____ Delete: ___ Change: ___X____
(check all that apply)
Number ___ Title _X__ SCH ___ Description _X__ Prerequisite _____

Response Required: **New** course will be part of major ___ minor ___ as a required ___ or elective ___ course

Revised System Engineering Courses

ENGR 2372 ~~*Introduction to Design of Experiments*~~ *Engineering Statistics and Quality Control*

Three semester hours. (*)

Introduction to probability ~~and~~ distribution and statistical methods; single factor ANOVA; randomized blocks and Latin squares, and two-factorials; ~~robust parameter design and uncertainty analysis.~~ monitoring and improving product quality; variable and attribute control charts; reliability and life cycle testing. Use of software packages ~~are used~~ for data mining and interpretation, with application to engineering and/or other systems. Prerequisite: MATH 2414

Student Learning Outcomes
At successful completion of this course, the student will be able to**:**

- Use probability concepts to determine measures such as mean, mode, median, standard deviation, variance, etc. of a population;
- State the null and alternate hypotheses about the parameters of a probability distribution or the parameters of a statistical model;
- Test a stated hypothesis using the z-test (normal distribution), student-t test, chi-square test and F-distribution test for the corresponding P-value;
- Identify significant effects on process performance and consistency and factors for further study or implementation;
- Apply quality control technique to monitor and improve processes and to identify sources of process variation;
- Identify the reliability characteristics that are critical to the design and development of systems;
- Conduct single factor ANOVA, multi-variable ANOVA, using software packages such as SPSS, Minitab and JMP for analysis and interpretation; and
- Work together in a group of 2-3 students to design and conduct experiments and to write reports based on their findings.

Justification:

1. The course materials of ENGR 2372, SENG 3380, and SENG 4380 have considerable overlap.
2. Redesign of ENGR 2372 as titled "Engineering Statistics and Quality Control," will open two slots for new technical courses such as "Measurements and Devices" and "Advanced Software Development" to be part of the systems engineering curriculum. This change results in a better structured system engineering curriculum.

Response Required: **New** course will introduce ___, reinforce ___, or apply ___ concepts

If new, provide Course Prefix, Number, Title, **Measurable** Student Learning Outcomes, SCH Value, Description, prerequisite, and lecture/lab hours if applicable. If in current online catalog, provide change and attach text with changes in red and provide a brief justification.

Program: Delete: ___ Add: ___ Change: ___ Attach new/changed Program of Study description and 4-year plan. If in current online catalog, provide change and attach text with changes in red.

Minor: Add: ___ Delete: ___ Change: ___ Attach new/changed minor. If in current online catalog, provide change and attach text with changes in red.

College Introductory Pages: Add information: ___ Change information: ___
Attach new/changed information. If in current online catalog, provide change and attach text with changes in red.

Other: Add information: ___ Change information: ___ Attach new/changed information. If in current online catalog, provide change and attach text with changes in red.

Approvals:	Signature	Date
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04/2011