## CATALOG YEAR <u>2014-2015</u>

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** *Engineering Statistics and Quality Control* Three semester hours. (\*)

Introduction to probability distribution and statistical methods; hypothesis testing; regression analysis; single factor ANOVA; randomized blocks and Latin squares, and two factorial design experiments; monitoring and improving product quality; variable and attribute control charts; reliability and life cycle testing. Use of software packages 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 the concepts of probability theoretical concepts measures 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 and their corresponding P-value.
- set up and run basic factorial and screening experiments and analyze experimental outcomes;
- identify significant effects on process performance and consistency and factors for further study or implementation;
- apply probability theories to model and solve simple engineering problems;
- conduct single factorial ANOVA, multi-variable ANOVA, using software packages such as SPSS, Minitab and JMP for data 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:**

Based on ABET Accreditation board and IAB members, the title of this course needs to be changed to reflect as a MATH course. With this change it can be represented to the ABET that the Systems Engineering curriculum has 34 credit hours in Mathematics and Sciences as per requirement.

**<u>Response Required</u>:**   **New** course will introduce ___, reinforce ___, or apply ___ concepts

If new, provide Course Prefix, Number, Title, **<u>Measurable</u>** 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 |
|---|---|---|
| Chair Department Curriculum Committee | Qingwen Ni  *Digitally signed by Qingwen Ni DN: cn=Qingwen Ni, o=TAMIU, ou=TAMIU, email=qni@tamiu.edu, c=US Date: 2014.01.29 13:24:38 -06:00* | |
| Chair Department | Rohitha Goonatilake, Ph.D.  *Digitally signed by Rohitha Goonatilake, Ph.D. DN: cn=Rohitha Goonatilake, Ph.D., o=Texas A and M International University (TAMIU), ou=Department of Engineering, Mathematics, and Physics/COAS, email=harag@tamiu.edu, c=US Date: 2014.01.29 14:51:21 -06:00* | |
| Chair College Curriculum Committee | Lynne L. Manganaro  *Digitally signed by Lynne L. Manganaro DN: cn=Lynne L. Manganaro, o, ou, email=lynne.manganaro@tamiu.edu, c=US Date: 2014.02.10 14:59:25 -06:00'* | |
| Dean | Frances Bernat  *Digitally signed by Frances Bernat DN: cn=Frances Bernat, o=COAS, ou=Public Affairs and Social Research, email=frances.bernat@tamiu.edu, c=US Date: 2014.02.10 16:30:05 -06:00'* | |

Provost's Signature
Date                    _____