UCC Document # _____
College Document # COAS 141
Review Type: ___Edit ___ Exp ___Full

CATALOG YEAR 2012-2013

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

Course: Add: _X__ Delete: ___ Change: _____
(check all that apply)
Number _X__ Title _X__ SCH _X__ Description _X__ Prerequisite __X___
Response Required: **New** course will be part of major _X__ minor ___ as a required ___ or elective ___ course

Revised System Engineering Courses

SENG 3337 *Software Development* Three semester hours. (*)

This course will cover advanced software development techniques including object-oriented programming, inheritance, polymorphism, formatted file access, recursion, functional and operator overloading, parsing using a FSM, stacks and queues using linked list, search algorithms using binary search trees, and shortest path algorithms.
Prerequisites: SENG 3320; Course Fee: $35.

STUDENT LEARNING OUTCOMES
Upon successful completion of the course, the student will be able to:

- Demonstrate a basic understanding of object-oriented programming;
- Demonstrate a basic understanding of some advanced programming techniques including file access, recursion, and functional overloading;
- Design data structures based on linked list;
- Design basic graph theory algorithms;
- Implement parsing algorithms using finite-state machines.

Justification

In this age of computers and technology there is very little work that an engineer can do that does not involve computer software. Likewise today all engineers are expected to have mastered these software development skills in their education in order to be ready for the workforce or graduate studies. Our current curriculum only has a very basic programming class which does not cover the most fundamental software development technique of recent times, object-oriented programming. Without this knowledge our systems engineering graduates will be at a great disadvantage when competing with other engineers for either a job or acceptance into a graduate school. Also, a course fee of $35 needs to be added for this course.

Justification for Adding Course Fee

This course requires several softwares such as Microsoft Academic Licenses (MSDN Licenses), LabView, ARENA, and MatLAB. The cost of the above mentioned softwares and renewal fees per year are:

1. LabView—$7,999 For Academic Department License with $500 renewal fees after 5 years.
2. ARENA—$2,500 for 30 users Academic licenses with a renewal fee of $500 per year after 3 years.
3. Matlab—$9,000 for 100 concurrent users licenses for with $90 per user per year renewal fees.
4. MSDN Academic Alliance (Microsoft softwares)—$1,200 for the Department Licenses with renewal fee of $500 per year after 3 years.

Therefore, an average cost of $35 needs to be added as a course fee for SENG 4310 to pay the renewal fees for the software licenses.

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
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: 2012.03.07 21:06:07 -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: 2012.03.08 17:18:32 -06'00'	
Chair College Curriculum Committee	James A Norris Digitally signed by James A Norris DN: cn=James A Norris, o=Texas A&M International University, ou=Dept of Social Sciences, email=jnorris@tamiu.edu, c=US Date: 2012.03.09 11:54:00 -06'00'	
Dean	Kevin Lindberg Digitally signed by Kevin Lindberg DN: cn=Kevin Lindberg, o=COAS, ou=COAS Dean's Office, email=klindberg@tamiu.edu, c=US Date: 2012.03.14 11:11:26 -05'00'	

04/2011