REGULAR COURSE SYLLABUS

College of: Professional Studies

Department: Engineering and Engineering Technology

Prefix & Course Number: SSE 3100

Course Title: Mathematical Modeling

Transcript Course Title (30 characters): Mathematical Modeling

Check All That Apply: 
- Required for Major: X
- Required for Minor: ___
- Specified Elective: ___
- Required for Concentration: ___
- Elective: ___
- Service Course: ___

To receive Title IV financial aid funds, all institutions of higher education must comply with the federal definition of a credit hour. The Higher Learning Commission requires institutions to maintain policies and procedures for verifying compliance with this definition.

**Federal Credit Hour Definition:** A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than:

1. one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or
2. at least an equivalent amount of work as required in paragraph (1) of this definition for other activities as established by an institution, including laboratory work, internships, practica, studio work, and other academic work leading toward the award of credit hours. 34 CFR 600.2 (11/1/2010)

Credit Hours: 1

Schedule Type: Q

Grade Mode: L

Face-to-Face or Equivalent Hours per course:

- Lecture __
- Lab __
- Internship ___
- Practicum ___
- Other (recitation): 15

Additional Student Work Hours per course: 30

Variable topics umbrella course: No X Yes ___

If yes, number of credits/repeats allowed ___
Prefix and Course Number: SSE 3100

Specified repeatable course: No X  Yes _____ If yes, number of credits/repeats allowed ____

Prerequisite(s): MTH 3420 with “C” or better or permission of instructor

Corequisite(s):

Prerequisite(s) or Corequisite(s):

Banner Enforced Coding:
Prerequisite(s): MTH 3420 with “C” or better
Corequisite(s): __
Prerequisite(s) or Corequisite(s):

Registration restrictions: Level _____ Class _____ Program/Major _____ Student attribute ____

Catalog Course Description:
In this course students develop the ability to describe complex real-world engineering systems with mathematical concepts. Mathematical modeling is presented through engineering application problems that students will tackle by working in teams and applying the theory they have learnt in other courses.

Specific Variable Topics Course Description (if applicable, umbrella course description included above):

Required Reading and Other Materials will be equivalent to:

Specific, Measurable Student Behavioral Learning Objectives:
Upon completion of this course the student should be able to:
1. Formulate mathematical models of engineering systems.
2. Analyze and evaluate models of engineering systems.

Detailed Outline of Course Content:
I. Modeling Concepts
   A. Variables
   B. Operators
   C. Complexity
   D. Evaluation
II. Linear or Nonlinear Operators
III. Explicit or Implicit Methods
IV. Deterministic or Stochastic Models
V. Discrete or Continuous Models

Evaluation of Student Performance:
1. Assignments
2. Presentations