REGULAR COURSE SYLLABUS

College of: Professional Studies
Department: Engineering and Engineering Technology
Prefix & Course Number: SSE 2350
Crosslisted With*: _____
Course Title: Engineering Programming
Transcript course title (30 characters): Engineering Programming
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. 34CFR 600.2 (11/1/2010)

Credit Hours: 3(3+0)

Face-to-Face or Equivalent Hours per course:
Lecture 45  Lab  Internship  Practicum  Other (please specify type and hours):

Additional Student Work Hours per course: 90

Schedule Type:  Grade Mode:  
Variable topics umbrella course: No X Yes  If Yes, number of credit hours allowed 

Specified repeatable course: No X Yes 

APPROVED:  

Department Chair OR Program Director  Date  
Dean OR Associate Dean  Date  
Associate VP, Academic and Student Affairs  Date  

*If crosslisted, attach completed Course Crosslisting Agreement Form
Prefix and Course Number: SSE 2350

Prerequisite(s): SSE 2100 with a grade of “C” or better grades, or permission of instructor

Corequisite(s): 

Prerequisite(s) or Corequisite(s):

Banner Enforced:

Prerequisite(s): SSE 2100 with a grade of “C” or better grades
Corequisite(s): 
Prerequisite(s) or Corequisite(s): 

Registration restrictions: Level ______ Class ______ Program/Major ______ Student attribute ______

Catalog Course Description:
In this course students will study methods for solving engineering problems using the C programming language and the use of Lab View. Students will apply the C programming language and National Instruments Lab View virtual instrumentation software.

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

Required Reading and Other Materials will be equivalent to:
Reddy, Rama; Ziegler, Carol. (Latest Edition). C Programming for Scientists and Engineers with Applications: Jones & Bartlett Learning

Specific, Measurable Student Behavioral Learning Objectives:
Upon completion of this course the student should be able to:
1. Analyze and solve basic engineering problems.
2. Decompose a problem into a flowchart of constituent tasks and decisions.
3. Write and run programs in the C Programming language using variables, arrays, strings, files, flow control statements, recursion and pointers.
4. Create and run simulations and virtual instruments using NI Lab View.
5. Perform simple data acquisition using Lab View.
6. Create top-down designs and construct modular programs using functions, parameters, local variables, and scope rules.
8. Identify and correct program errors using standard debugging methods.

Detailed Outline of Course Content:
I. Structured Programming Using C
   A. Concepts
   B. Applications
II. Data Structures
III. Arithmetic and Logic
   A. Pointers
   B. Operations
IV. Conditional, branching and control flow
V. Subprograms
VI. Library
   A. Math Functions
   B. PC Libraries
   C. Third party engineering libraries (i.e. National Instruments CVI Library)
VII. Numerical Methods
   A. Fourier Analysis
   B. Sorting
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C. Searching

VIII. Circuit Applications
A. Series Circuits
B. Parallel Circuits
C. Series-Parallel Circuits

IX. Electronics Applications
A. Analysis of Circuits Containing
   1. Resistors
   2. Inductors
   3. Capacitors
   4. Combinations of Above
B. Design
   1. Filters
   2. Oscillators

X. An Introduction to Lab View Instrumentation and Modeling Software
A. Lab View Virtual Instruments (VI)
   1. Front Panel
   2. Block Diagram
   3. VI creation and execution
   4. Object oriented programming and structures
B. Data Acquisition with Lab View

XI. Efficient Programming
A. Multiple Indirection
B. Bit-Structures and Units

**Evaluation of Student Performance:**
1. Assignments
2. Exams
3. Team or individual projects