REGULAR COURSE SYLLABUS

School of: Professional Studies

Department: Engineering Technology

Prefix & Course Number: EET 2350  Crosslisted With*: 

Course Title: Advanced Technical Programming

Banner course title (30 characters): Advanced Technical Programming

Check All That Apply: Required for Major: X  Required for Minor: X  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: L  Grade Mode: L

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: EET 2350

Prerequisite(s): MTH 1400 or (MTH 1110 and MTH 1120) or higher level math course, with a grade of "C" or better.

Corequisite(s): ____

Prerequisite(s) or Corequisite(s): ____

Banner Enforced:
Prerequisite(s): MTH 1400 or (MTH 1110 and MTH 1120) or higher level math course, with a grade of "C" or better.
Corequisite(s): ____
Prerequisite(s) or Corequisite(s): ____

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

Catalog Course Description:
This is an advanced-level programming course using the C programming language and National Instruments LabView virtual instrumentation software. Methods for solving circuit and electronics problems using the C programming language are studied. The use of LabView for the creation of virtual instrumentation in simulations and data acquisition is introduced.

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. Analyze and solve basic engineering problems.
2. Decompose a problem into a flow-chart 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 LabView.
5. Perform simple data acquisition using LabView.
6. Create top-down designs and construct modular programs using functions, parameters, local variables, and scope rules.
7. Develop solutions for topical problems
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
Prefix and Course Number: EET 2350

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
   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 LabView Instrumentation and Modeling Software
   A. LabView Virtual Instruments (VI)
      1. Front Panel
      2. Block Diagram
      3. VI creation and execution
      4. Object Oriented programming and structures
   B. Data Acquisition with LabView

XI. Efficient Programming
   A. Multiple Indirection
   B. Bit-Structures and Units
   C. Indexing vs. Address Arithmetic

Evaluation of Student Performance:
1. Written exams
2. Programming assignments
3. Team and individual projects