Course Syllabus

Department: Science & Technology

Date: Fall 2014

I. Course Prefix and Number: TECH 116

   Course Name: Introduction to Emerging Technologies

   Credit Hours and Contact Hours: 3 Credit Hours - 3 Contact Hours

   Catalog Description including pre- and co-requisites: supporting data required for grade prerequisite of ‘C’ or higher. The purpose of this "First Year Seminar" course is to introduce students to the emerging technologies careers as observed at site visits of area high technology businesses, and made tangible in classroom through hands on-experiences with tools (LabVIEW) and techniques used in the curriculum. Students will practice industry recommended soft-skills such as communication and team work. Students will learn how other courses including mathematics and physics are crucial for the AAS Instrumentation and Control Technologies degree program. Students will learn to articulate the relevance of the curriculum for local and regional economic development based on high technologies. Prerequisites: MAT 097 or placement into Level 2 Math or higher.

   Relationship to Academic Programs and Curriculum including SUNY Gen Ed designation if applicable: The proposed "First Year Seminar" course introduces students to skills and characteristics necessary to succeed in pursuit of career opportunities in emerging technologies in local, regional and national theatres.

II. Course Student Learning Outcomes: State the student learning outcome(s) for the course (e.g. Student will be able to identify…)

The student will:

- Demonstrate understanding of problem solving methodology in a technical career.
- Articulate importance of mathematics and computer modeling to emerging technologies.
- Articulate importance of assessing information sources
- Articulate the range and depth of co-op opportunities and requirements
- Articulate the crucial role of the technical tools for the program
- Articulate relevance of soft-skills for a career in emerging technologies
- Describe relevance of the degree program in local and regional high-tech ecosystem.

College Learning Outcomes Addressed by the Course: (check each College Learning Outcome addressed by the Student Learning Outcomes)

☐ writing  x☐ computer literacy
☐ oral communications ☐ ethics/values
☐ reading ☐ citizenship
☐ mathematics ☐ global concerns
☐ critical thinking x☐ information resources

III. Assessment Measures (Summarize how the college and student learning outcomes will be assessed): For each identified outcome checked, please provide the specific assessment
List identified College Learning Outcomes(s) | Specific assessment measure(s)
---|---
eg: writing | eg: student will complete a research paper
Mathematics | Student will complete assignment to mathematical model “Diffusion of Innovation.”
Critical Thinking | Student will complete problem solving assignment.
Computer Literacy | Student will complete assignment implementing mathematical model using EXCEL and LabVIEW software.
Information Resources | Student will complete assignment comparing and assessing sources of information.

IV. Instructional Materials and Methods

Types of Course Materials:
NI myDAQ Hardware with Software: LabVIEW, Multisim and Ultiboard

Methods of Instruction (e.g. Lecture, Lab, Seminar …):
Mini-lectures, active learning, hands-on activities, site visits & career shadowing

V. General Outline of Topics Covered:

Innovative problem solving, tools, teams, and dynamics of successful innovation
Introduction to quantitative modeling skills using Excel and LabVIEW
Adaptable tools and techniques of instrumentation and control technologies
Introductory examples of automation and control of equipment using computers
Contextualization of other courses in the multidisciplinary degree program
Objectives of communication, physics, mathematics, and technological courses
Interdependence of subjects, tools, personnel across diverse fields
Characteristics of adaptable technologist in 21st Century
Professionalism, Standards & Certification
Code of Ethics (Instrumentation, Systems, and Automation Society)
Co-op and Job opportunities in local high-tech industries
Emerging Technologies and Automation in the wired world
The relevance of the curriculum for local and regional economic development based on high technologies.
Options for further education, Careers and Professional Development

7/12