

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)*

- | | |
|--|--|
| <input type="checkbox"/> writing | x <input type="checkbox"/> computer literacy |
| <input type="checkbox"/> oral communications | <input type="checkbox"/> ethics/values |
| <input type="checkbox"/> reading | <input type="checkbox"/> citizenship |
| x <input type="checkbox"/> mathematics | <input type="checkbox"/> global concerns |
| x <input type="checkbox"/> critical thinking | x <input type="checkbox"/> 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*

measure.

List identified College Learning Outcomes(s)	Specific assessment measure(s)
<i>eg: writing</i>	<i>eg: student will complete a research paper</i>
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