Industry 4.0 and Manufacturing Ingenuity

INSTRUCTORS: Guest Speakers from Leading Connecticut Entrepreneurs and Innovators, Hosted by Dr. Edward Diehl
TIME: THURSDAY, 5:00 – 6:00 PM
LOCATION: UT 320 (UNITED TECHNOLOGIES BUILDING)
ONE CREDIT: OPEN TO ALL UHART STUDENTS WITH SOPHOMORE STANDING AND ABOVE
TO REGISTER: Sign up for the Thursday evening offering of ES-342 (CRN 13455)

This one-credit seminar course aims at a) providing students with exposure to emerging technologies in automation, cyber physical systems and informatics, focusing on advanced manufacturing, which is known as Industry 4.0 (i.e., the fourth industrial revolution); and b) fostering innovation and entrepreneurship mindsets of students through coordinated mentorship by faculty and industry experts. The course is built upon seminars by invited industrial speakers to introduce cutting-edge technologies and challenges, and culminated by workshops with students presenting innovative concepts to advance the state-of-the-art. The main themes of the seminars include various aspects of manufacturing devices and integration, and the associated process and data.

An optional two-credit, project-based, follow-on course is planned for the Fall 2019 semester

COURSE REQUIREMENTS:
1. Attendance – must attend at least 11 seminars and both workshops;
2. Journal entries – one journal entry per seminar on Blackboard due by the following Monday. Each journal entry consists of 3 short statements (one or two sentences) summarizing most important concepts from the seminar.
3. Option 1: Final exam – Open notes, multiple choice exam focusing on important concepts from seminars; or Option 2: Project proposals for students who plan to take the two-credit project-based course in Fall 2019 semester.

NOTE: This seminar course is offered under **ES-342 Engineering Practice** for CETA students. A study of the engineering process from conceptual design to the release to manufacturing/construction. Topics include feasibility studies, financial viability, environmental impact, societal concerns, licensing, and satisfying regulators. Multidiscipline teams of students will perform projects requiring oral and written presentations. Required of junior students majoring in biomedical, computer, civil, electrical, or mechanical engineering. Prerequisite(s): **ES 242**, Corequisite(s): One of the following courses: **BE 301, BE 302, CE 312, ECE 382, ME 470**.

BACKGROUND:
The rise of digital technologies not only continues to transform many aspects of daily life, but more importantly offers revolutionary opportunities to industrial sectors. Today’s manufacturing is undergoing paradigm-shift with new advancements in big data and analytics, autonomous robots, simulation, horizontal and vertical system integration, the industrial internet of things, cybersecurity, the cloud, additive manufacturing, and augmented reality. A partnership between
The University of Connecticut, Central Connecticut State University, University of Hartford, University of New Haven, Trinity College, and Connecticut Center for Advanced Technology (CCAT) has been formed to establish the **Industry 4.0 Synergistic Platform of Innovation-Rich Education (IN4SPIRE)**. IN4SPIRE will train students in the real-world application of advanced manufacturing technologies, foster industry connections that motivate students to develop ingenuity mindsets to become highly successful 21st-century workforce, and to bring proven innovation into the industrial base via the proofs of concept.

The seminar course is 1-credit, and at the end of each semester, a select number of project ideas by students will be awarded funding for proofs of concept. The proofs of concept will be developed in the subsequent semester, and the students conducting the development, advised jointly by faculty and industrial advisors, will earn 2 more credits.