

# INTERDISCIPLINARY COURSES (ENGINEERING) (INTEREGR)

## INTEREGR 102 – INTRODUCTION TO SOCIETY'S ENGINEERING GRAND CHALLENGES

2 credits.

Description and discussion of how engineering disciplines address specific engineering grand challenges in society. Focus on societal and multicultural issues encountered in engineering, as well as economic, ethical and political constraints on engineering solutions. Development of students' professional skills.

**Requisites:** None

**Repeatable for Credit:** No

**Last Taught:** Spring 2016

## INTEREGR 110 – INTRODUCTION TO ENGINEERING

1 credit.

For first-year students in the College of Engineering. Introduction to engineering disciplines and professional fields; engineering design process; grand challenges; sustainability, societal, multicultural and global issues encountered in engineering; economic and ethical constraints on engineering solutions; and employment and educational opportunities in engineering.

**Requisites:** None

**Repeatable for Credit:** No

**Last Taught:** Spring 2018

## INTEREGR 111 – INTRODUCTION TO THE ENGINEERING DESIGN PROCESS AND PROFESSION

2 credits.

Introduction to the engineering design process and profession through applied problem-solving. Emphasis on the engineering design process in industry, teamwork and communication skills; the engineer's responsibilities to customers and society; and the role of engineers in improving the human condition.

**Requisites:** None

**Repeatable for Credit:** No

**Last Taught:** Fall 2015

## INTEREGR 150 – DIRECTED STUDIES IN ENGINEERING FOUNDATION COURSES

0 credits.

Directed study through College of Engineering Supplementary Instruction program. Group discussion and problem-solving coaching to enhance understanding of physics and its applications to engineering.

**Requisites:** None

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2023

## INTEREGR 160 – INTRODUCTION TO ENGINEERING DESIGN

3 credits.

This course provides the incoming freshman with an overview of engineering based on a "hands-on" experience with a client-centered engineering design project, which includes: 1) a team-based design project, 2) a survey of engineering disciplines, and 3) an introduction to computer tools and lab techniques.

**Requisites:** None

**Repeatable for Credit:** No

**Last Taught:** Spring 2016

## INTEREGR 170 – DESIGN PRACTICUM

3 credits.

Introduction to design via the invention, fabrication and testing of a device that solves a problem proposed by a real world client. Information retrieval techniques, specification writing, methods for enhancing creativity, analysis techniques, scheduling, selection methodologies, cost estimating, sustainability in design, shop safety, engineering ethics, opportunities for engineering students (ie, study abroad, internships, co-ops), major exploration, fabrication equipment and techniques, and oral and written communication.

**Requisites:** None

**Repeatable for Credit:** No

**Last Taught:** Spring 2023

## INTEREGR 301 – ENGINEERING AND BIOLOGY: TECHNOLOGICAL SYMBIOSIS

1-4 credits.

Combining engineering with biology can result in fascinating new technologies. This course explores 3 topics at the very forefront of bio-engineering innovation as well as the social, political, and ethical issues that can affect realization.

**Requisites:** M E 306, E M A 303, BSE 249, E C E 230, B M E 320, M S & E 330, or CIV ENGR 320, or member of Engineering Guest Students

**Repeatable for Credit:** No

**Last Taught:** Fall 2014

## INTEREGR 303 – APPLIED LEADERSHIP COMPETENCIES IN ENGINEERING

3 credits.

Introduction to basic leadership theories and perspectives; application of said theories to real-life experiences (both engineering and otherwise) through reflections, course discussion, readings, and experiential education in their local communities. Social Change Model of Leadership Development and Servant Leadership theory, viewed through an Applied Critical Leadership Theory lens.

**Requisites:** None

**Repeatable for Credit:** No

**Last Taught:** Spring 2023

### **INTEREGR 397 – ENGINEERING COMMUNICATION**

3 credits.

Communication for engineering, science, and technology; theory and practice in planning, preparing, and critiquing reports, proposals, and workplace correspondence; persuasive argumentation, ethical decision-making strategies, multidisciplinary communication skills, research strategies, collaborative work; oral presentations.

**Requisites:** Satisfied Communications A requirement and junior or senior standing only

**Course Designation:** Gen Ed - Communication Part B

**Repeatable for Credit:** No

**Last Taught:** Summer 2023

### **INTEREGR 413 – CURRENT ISSUES IN INTERNATIONAL ENGINEERING**

1 credit.

Provides a comparative examination and analysis of global trends and regional variations for engineering concepts, standards and practices. Using organizational case studies, the course will describe and analyze multi-national engineering operations and summarize best practices and caveats.

**Requisites:** Declared in International Engineering Certificate

**Repeatable for Credit:** No

**Last Taught:** Fall 2022

### **INTEREGR 477 – TOOLS FOR PROTOTYPING AND MANUFACTURING**

1-3 credits.

Tools for prototyping and manufacturing physical objects along with some of the underlying theory for how the tools work. Tools include 3D printers, 3D scanners, thermoformers, CNC routers, welders, wood saws, mills, lathes, laser cutters, waterjets, machine tools, general electronics, microcontrollers and Virtual Reality.

**Requisites:** None

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Summer 2022

### **INTEREGR 601 – TOPICS IN INTERDISCIPLINARY ENGINEERING**

1-3 credits.

Interdisciplinary topics of special interest to undergrad and grad students in engineering.

**Requisites:** None

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2023

### **INTEREGR 941 – COLLABORATIVE CAPSTONE II**

3 credits.

Explore chosen opportunity area through prototyping, user testing, and iteration. Creation of final, high resolution design, with communication and launch plan for startup, product or service. Practice behaviors of design thinking - ethics, critique, and storytelling.

**Requisites:** INTER-HE 940

**Course Designation:** Grad 50% - Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Spring 2023