General Engineering Spring 2024 Creative Inquiry Project List

Creative Inquiry (CI) is the imaginative combination of engaged learning, cross-disciplinary interactions and undergraduate research that is unique to Clemson University. Team-based investigations are led by faculty mentors and typically span a year or more. Students take on problems that spring from their own curiosity, from a professor's challenge or from the pressing needs of the world around them. These invaluable experiences produce exceptional graduates.

The following list of CI projects in the College of Engineering, Computing, and Applied Sciences (CECAS) has been compiled for Spring 2024 General Engineering (GE) students. All projects on this list are appropriate for freshmen and new transfers. This list is comprised of several projects that are two or more semesters, meaning it can be continued once you have transitioned to your engineering major. Other projects may only last one or two semesters. Many of these CI projects are interdisciplinary and provide exposure to multiple fields of engineering (e.g., civil engineering, environmental engineering, electrical engineering, etc.).

All projects are open to any GE student. Projects with a "TBA" time, mean the faculty will work with students to decide on a meeting time. Information for each of the CI projects is presented as follows:

Project # | Title **Project Course Information**

Primary Faculty (*Faculty Dept./Program*)	Duration of Project-Credits	Project Meeting Day and Time
Description of CI Project		

During registration for Spring 2024 classes, students may directly add themselves to open sections of CI courses. There is no holding section . If consent of instructor is required, students must contact the instructor directly for permission to enroll. Students are added to the course when permission is granted.

Questions, please contact Monica Sint at msint@clemson.edu.

CI Projects for General Engineering Students

Project #1 | Robot Networks **ECE 2990/3990/4990**

Dr. Yongqiang Wang (*Electrical and Computer Engineering*)	Multiple Semesters- 3 credit	TBA
This CI seems to use decentralized learning to enable a network of robots to cooperatively finish a network-level task in a self-organized manner.		

Project #2 | Robotic Systems Research **ECE 1990-001**

Dr. Hassan Raza, Dr. William Reid III (*Electrical and Computer Engineering*)	2 Semesters- 1 credit	TBA
CI project to prepare for IEEE SouthEastCon Robotics competition.		

Project #3 | Nanotechnology **ECE 1990-002**

Dr. Hassan Raza (*Electrical and Computer Engineering*)	1 Semester- 1 credit	TBA
This CI's purpose is to learn about nanotechnology and its applications.		

Project #4 | Circuit Cellar **ECE 1990-006**

Dr. Hassan Raza, Dr. William Reid III (*Electrical and Computer Engineering*)	Possibly multiple semesters- 1 credit	TBA
The purpose of this CI is to learn about electronic circuits and devices.		

CI Projects for General Engineering Students

Project #5 | Advanced Manufacturing by Ultrafast Lasers **ME 2900/3900/4900 - 037**

Dr. Xin Zhao (*Mechanical Engineering*)	2+ Semesters- 1 credit	TBA
This project includes hands-on participation to learn the state-of-the-art ultrafast laser and use it for micro-manufacturing, material strengthening, and multi-functional surface processing.		

Project #6 | Microfluidics and Lab-on-a-Chip for Point of Care Technology **ENGR 1900-031**

Dr. Xiangchun Xuan (*Mechanical Engineering*)	1+ Semesters- 1 credit	TBA
We explore the use of electric, magnetic or flow field for the transport and control of biological and synthetic particles in engineered microchannels with lab-on-a-chip applications to chemistry and biomedicine for point of care technology.		