

Faculty Member Contact Information

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Contact Info	
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1 Funded, 1 Unfunded URCA Assistant(s)

Are you willing to work with students from outside of your discipline? If yes, which other disciplines?

- Yes

How many hours per week will your student(s) be required to work in this position?
(Minimum is 6 hours per week; typical is 9)

- 6-8 hours

Will it be possible for your student(s) to earn course credit?

- Yes, in ECE 491 Independent Study for 3 credit hours credit hours.

Location of research/creative activities:

- EB 3036

Brief description of the nature of the research/creative activity?

- This project involves hand-on assembly, testing, and documentation of a lab-scale truss bridge used to study structural behavior under load. The student will work with an existing hardware composed of aluminum bars and pin connections. The experience combines mechanical assembly, experimental testing using strain measurement tools, and documenting the process. The student will assemble the truss bridge system given documentation, test different locations on the bridge by suspending load and using a strain sensor, and finally, document the process and results obtained.

Brief description of student responsibilities?

- + Assemble the truss bridge using provided hardware components (members, joints, supports, and decking) and documentation on assembly.
- + Interpret diagrams and ensure proper alignment and structural integrity of the bridge.
- + Organize and inventory components prior to assembly.
- + Apply controlled loads at different positions along the bridge deck.
- + Use a mechanical strain gauge to measure strain in selected truss components.
- + Record and organize experimental data for different loading conditions.
- + Observe and document how load placement affects tension and compression in different points on the bridge.
- + Capture photos and/or videos of the assembly and testing process.
- + Develop a clear, step-by-step assembly guide or standard operating procedure .
- + Maintain a clean and organized workspace and ensure safe handling of equipment.

URCA Assistant positions are designed to provide students with *research or creative activities* experience. As such, there should be measurable, appropriate outcome goals. What exactly should your student(s) have learned by the end of this experience?

- Student would have gained the following skills:
 1. Hands-on experience in assembling and configuring a lab-scale truss bridge system using mechanical components and documentation.
 2. Practical training in experimental testing, including applying controlled loads and measuring structural response using a mechanical strain gauge.
 3. Ability to interpret structural behavior by relating load placement to tension and compression patterns in truss components.
 4. Proficient technical documentation skills through development of assembly guides, standard operating procedures (SOPs), and organized experimental records.
 5. Enhanced problem-solving and independent working skills through troubleshooting assembly, testing procedures, and ensuring repeatable results.

Requirements of Students

If the position(s) require students to be available at certain times each week (as opposed to them being able to set their own hours) please indicate all required days and times:

- Work hours can be flexible but since the work has to be performed in a lab, the student would need to be available during regular working hours when the engineering building is accessible (roughly 7 am through 7 pm). Student will have access to the lab and can work on their own time.
- Weekly meeting times will be discussed and planned based on student's and mentor's availability.

If the location of the research/creative activities involves off campus work, must students provide their own transportation?

- The work will be performed in Engineering Building, EB 3036 on campus.

Must students have taken any prerequisite classes? Please list classes and preferred grades:

- Prerequisite classes are not required but any class or lab experience involving assembly, manufacturing (school related or personal project), documentation, following a written procedure, etc. will be helpful.

Other requirements or notes to applicants:

- Though the working hours are flexible, student will be expected to log their hours and the work performed on a shared excel sheet.