

DEPARTMENT OF AEROSPACE ENGINEERING AND ENGINEERING MECHANICS
COLLEGE OF ENGINEERING & APPLIED SCIENCE

APPLICATION DEADLINE: 03/01/2023

PROJECT TITLE: IntroSat Design and Development

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Project Description

The objective of this project is to design and develop a fundamental system to support studies and demonstration of the attitude control mechanism in satellites. Two UPRISE students will be recruited by the Intelligent Autonomous Systems Research Laboratory (IASRL) under the supervision of Dr. Kim. The UPRISE students will be trained in the domains of hardware and software system development.

Each UPRISE student will work on either Role 1 or Role 2.

Role 1: Modeling and Fabrication

1. Design structural components with proper materials to meet the given requirements;
2. Assemble machined and 3D-printed parts; and
3. Evaluate structural integrity.

An ideal candidate will:

- (a) use CAE/CAD software, such as SOLIDWORKS and AutoCAD;
- (b) have basic knowledge of engineering design; and
- (c) have a passion for learning and problem-solving.

Note that the student must be a US citizen.

Role 2: Software Design and Development

1. Write programs to fetch sensor data and control motors;
2. Develop software for independent control of the platform; and
3. Test and evaluate the performance of the platform under various conditions.

An ideal candidate will:

- (a) use C/C++ software, such as Arduino or PlatformIO;
- (b) have basic knowledge of C/C++; and
- (c) have a passion for robotics and problem-solving.

Note that the student must be a US citizen.