PLEASE NOTE: The following ABET Addendum is intended for Sub Project 1: Mechanical Loading Device

1. **Desired Needs**
    a. Capable of applying physiological loads (10N-45N) to a rabbit knee joint
    b. CT Compatible
    c. Capable of adjusting knee angle (Between 60^o and 150^o)
    d. Capable of adjusting total load on knee
2. **Constraints**
    a. Availability of Micro CT
    b. Need for device to be CT Compatible (no metallic parts)
    c. Wait times on ordering parts (specifically plastic springs)
    d. Availability of equipment in makerspace for 3D printing and laser cutting
3. **Engineering Standards**
    a. ISO 13485
    b. ISO 14971
    c. ISO 15708
4. **Ethical, Environmental, or Societal Concerns**
    a. **Ethical/Enviromental:** Minimize amount of rabbit knees used in order to minimize waste and suffering to lab animals
5. **Teamwork and Leadership**
    a. Our two subprojects collaborated to ensure that both our goals were met, ultimately expanding understanding on the project as a whole.
    b. I unofficially led my sub project due to being responsible for the design. I then delegated tasks for 3D printing, laser cutting, and testing amongst my team.
    c. We had set goals that were met, though our deadlines tended to vary depending on feedback from our mentor
    d. Our mentor Dr. Sah proved invaluable in providing constructive feedback each week, allowing us to create a device that ultimately exceeded our expectations.
6. **Significant Motivating Factors**
    a. Seeing the work done before for our generational project helped me to seek out and acquire new knowledge that could help this project improve.
    b. Seeing the work done by other senior design groups proved to be the most motivating thing for me to self initiate with this project.
    c. The constant support of our mentors helped me persist against setbacks.
7. **Innovative and/or Entrepreneurial Ideas**

    If developed further, this device can be standardized and used for a variety of research related to the study of cartilage deformation. Being able to image the deformation in real time, as well as determine the total load and angle of the knee, would allow for much more robust research. This device can be sold to labs and help in expanding cartilage research as a whole.