• **MISSION:** To educate Thinkers, Leaders and Entrepreneurs by integrating education, research and innovation in medical technology aligned with Clemson’s land-grant mission.

• **VISION:** To become a global competitor and national leader in biomedical technology research and innovation by developing a highly skilled workforce, and diversifying our research portfolio for a societal impact to address health disparity.

• **GOALS (2010):**
  1. Provide a collaborative environment for clinically driven medical technology research and innovation.
  2. Develop novel education programs targeting innovation skills.
  3. Create specialized space for cutting-edge biomedical technology research.
  4. Develop clinical and industrial partnerships.
  5. Start up companies and provide jobs for the state’s population.
A. Frank H. Stelling & C. Dayton Riddle Orthopaedic Res Lab; Translational Musculoskeletal Health Research
B. Bioimaging Facility (Philips Medical Systems)
C. Regenerative Medicine Laboratory
D. Translational Research Laboratory
E. Materials Analysis and Characterization Facility
F. NIH COBRE SCBioCRAFT
G. GreenMED- Recycling and Reprocessing of Medical Devices; Translational Musculoskeletal Health Research
H. Incubation Space – Corporate lease
I. Bioskills Lab and Surgery Center

~6,000 sq.ft. Human Cadaver Skills Lab & Conference Center
~4,000 sq.ft. Start-ups/Lease
~14,000 shared research labs and networking
The Engage Knee System | Image by: Eric Lucas | Clemson University
The DeFINE Program

Design Fundamentals in Needs-Finding Experience

Outcomes:

• NIH Funded (Clemson and GHS)
• Program Length: 6 weeks/yr
• Students Participating: 18
• Clinicians Participating: 40+/yr
• Surgical Procedures Observed: 106/yr
• Person Hours of Observation in the Clinic: 227/yr
• Person Hours of Observation in the OR: 723/yr
• Person Hours Devoted to Needs Documentation: 470+/yr
• Number of Clinical Needs Identified: 1000+
CUBEInC Research Port-Folio

Human Tissues
Human Cells
IRB

- Stem cell engineering and regenerative medicine
- Advanced biomaterial design, fabrication, and testing
- Nanotechnology
- Biomedical imaging and bioinstrumentation
- Biomechanics and computational modeling
- Cancer and drug delivery
- Cardiovascular biomaterials
- Orthopaedic reconstruction
- Sports rehabilitation
- Medical Device Recycling and Reprocessing

Discovery
Innovation
Intellectual Property
CUBEInC Leveraged Economic Development
CUBEnC: A Value Proposition

- **Student Perspective:**
  - Innovation **opportunities**; access to businesses and clinicians
  - Unique environment; unique education; **increased degree market value**

- **Research Perspective**
  - Provides unique faculty/clinical **expertise** and research **resources/facilities** unavailable at Clemson University to conduct superior fundable health focused and diseased oriented research.
  - Enhances **national visibility and credibility** of Clemson as a biomedical research university (clinical, IP)
  - Strengthens research funding opportunities (AHA, NIH, COBRE)
  - Gives access to funding sources that would not be available if not associated with a **medical university/clinicians**.
  - Clemson as flagship for innovation in bioengineering/biomedical engineering research in South Carolina.

- **Faculty Perspective:**
  - Top **talent recruitment**, Access to clinicians/patients/Greenville area/environment