EYP minutes

To:	Attendees	Date of meeting:	May 20, 2019
Project Name:	Bull Run Hall Addition	Time of meeting:	1:00-3:15
Project No.:	1019004.01	Location of meeting:	Sci Tech, IABR, Conf Rm 1004
		Meeting Number:	1.3

Meeting Purpose: Programming for Instructional Wet Labs & Support Spaces

Attendees:

George Mason University:

- Ben Allen, ITS
- Crystal Clemons, ITS
- Oscar Barton, VSE
- Johnnie Hall, VSE Mech
- Joyce Rose, VSE
- Tony Falsetti, COS-FRSC
- Martha Wescoat-Andes, COS
- Barney Bishop, COS-Chem & Bio Chem
- Carrie McVicker, COS
- Peggy Einhorn, COS
- Pilgyn Kang, VSE Mech
- Remi Veneziano, Bioengineering
- Mary Ellen O'Toole, COS
- Mehdi Amiri, VSE Mech
- Pei Dong, VSE Mech
- Laura Manno, Provost/Planning
- Colby Grant, Sci Tech Admin
- Debbie Brady, Facilities
- Virginia Steele, Facilities
- Joy Staulcup, Facilities

EYP:

- Melissa Burns, Academic Planner
- Brian Tucker, Lab Planner
- Rick Clarke, Lead Architectural Designer
- Rebecca Ross, Planner/Architect
- Suzanne Klein, Project Director

Minutes:

General Comments:

The group met on George Mason University's SciTech campus to discuss functional space needs for Bull Run Hall Addition and Academic VII Buildings. This meeting focused on needs specifically related to instructional wet labs and support spaces

EYP minutes

1. **Introductions:** Laura Mano provided an introduction of the design team EYP which was followed by introductions of all participants.
2. **Project Overview:** Laura explained that the Sci Tech campus will be a standalone campus and GMU is committing resources to make that happen. The first step is Bull Run Hall Addition followed by a 200,000gsf building, Academic VIII, listed as the number one priority to request capital funds. She asked the group to identify functional space needs to refine the program for the Bull Run Hall Addition and identify new needs for the expansion into Academic VIII.

   Brian and Melissa lead a programming exercise which divided the large group into two smaller discussion groups to identify functional space types related to instructional wet labs and support spaces. Afterward, each group reported out to the larger group on their discussions to create consolidated list of functional space types.

3. Group 1

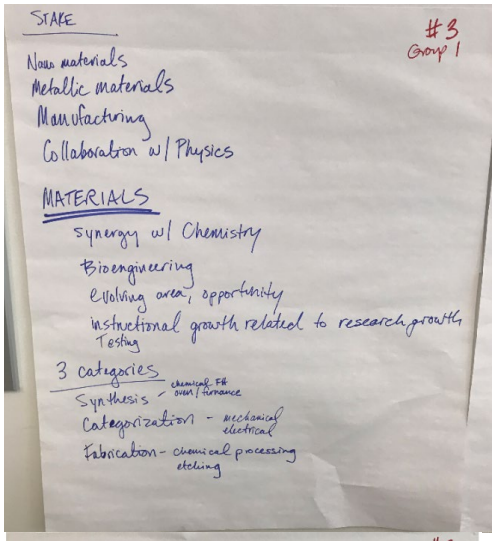
   Synergies with Materials study:

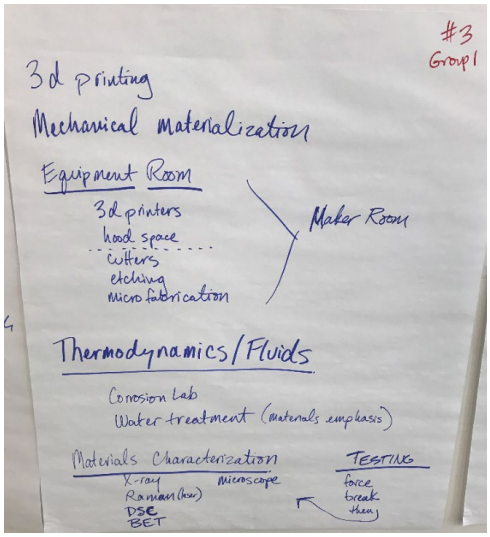
   - Chemistry and Bioengineering Synergies:
     - Chemistry Synthesis Lab - 16 students per section
   - Collaborations with Physics
   - Nanomaterials
   - Metallic Materials
   - Manufacturing
     - Equipment room – makerspace with 3D printing and hood space
     - Cutting
     - Etching
     - Micro-fabrication
     - Materials testing
   - Instructional growth related to research growth
   - Thermodynamics & Fluids
     - Corrosion Lab
     - Water Treatment (materials emphasis)
   - Materials Characterization
     - X-ray
     - Microscopy
     - Raman
     - DSC
     - BET

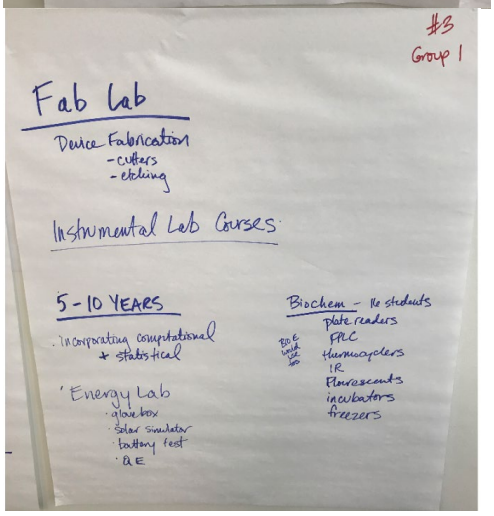
   Three Categories of Materials Science / Engineering:

   - Synthesis
     - Chemical Fume Hoods
     - Ovens / Furnaces
   - Characterization: Driver for reliability, mechanics and failure
     - Corrosion, fracture, fatigue
     - Fabricate specimens and look at them through necropsy
     - Fume hood
   - Fabrication:

- Chemical processing
- Etching







4. Group 2

Engineering Tech Program:

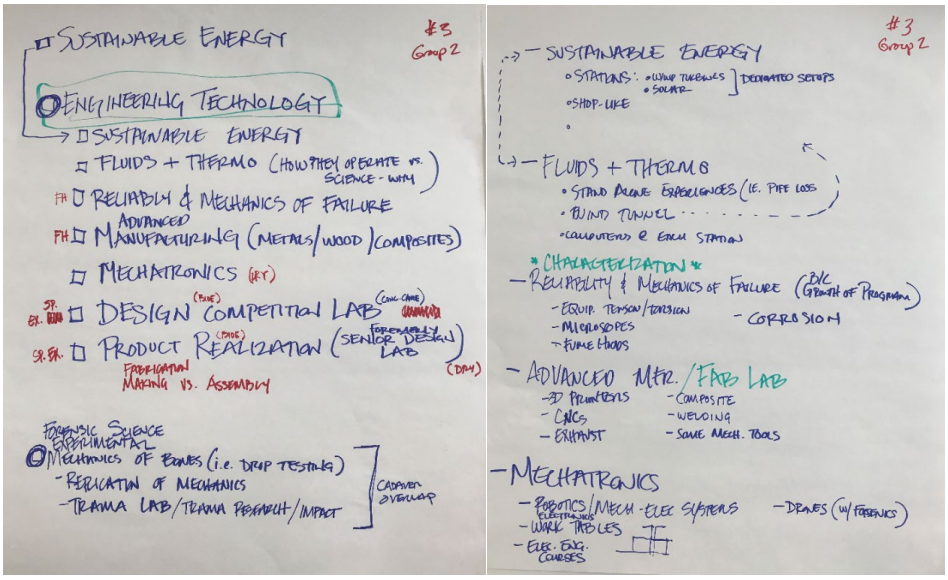
Oscar B. explained his vision for the Sci-Tech campus is to "not mirror what we currently do" but create a program for Engineering technology students. This is an applied study program – students learn the how versus more traditional study of the science behind the why.

- Sustainable Energy (some overlap with Fluids / Thermo)
  - Stand-alone experiments; lab stations
  - Wind Tunnels, Solar Energy
  - 10 years out: Battery and energy storage
- Fluids and Thermodynamics (some overlap with Sustainable Energy)
  - Applied understanding focused on how systems operate, not the why behind it
  - Computer processing stations
  - Stand-alone experiments; lab stations

- Reliability and Mechanics of Failure (Characterization)
  - Corrosion
  - Equipment to test tension and torsion
  - Microscopes
  - Fume Hoods
- Advanced Manufacturing / Fab Lab
  - 3D printers, CNC machines, welding
  - metals, woods, composites
  - Need specialty exhaust
  - Some mechanical tools
- Mechatronics (Dry Lab)
  - Synergy between electrical and mechanical engineering
  - Robotics
  - Worktables
  - Drones (tie-in with Forensics)
- Design Competition Lab (see Student Design Spaces for more information)
  - National Competitions
  - Storage is important
  - Space to build an idea
  - Not all space needs to be inside of a building; but could utilize a secure outdoor area.
  - Example projects: Solar Planes, Formula 1 cars, etc.
- Product Realization Lab (see Student Design Spaces for more information)
  - Students Senior Project Lab
  - Larger audience of undergrad students
  - Group workstations

Forensic Synergies:

- Mechanics of Bones (testing of how a bone failed)
- Trauma Lab / Impact Testing
- 3D printing
- Drones
- Forensics will better understand the bone over time, more opportunities to replicate in a lab setting.

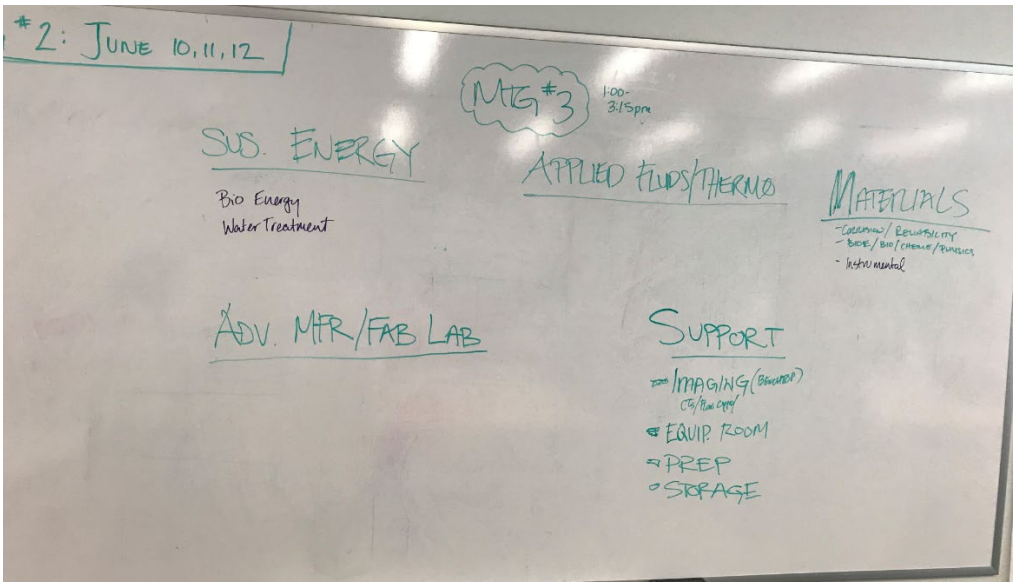


Future considerations (Academic VIII):

- Batteries and energy storage study
- Energy Lab (glovebox, solar simulator, battery tester)
- Aerospace courses (Drones)
- Limited future for Bioengineering without a teaching animal facility

5. Led by Melissa and Brian, the group began organizing spaces into functional space types to identify overlap between departments.
    - <u>Sustainable Energy</u>
        - Bio Energy
        - Water Treatment
        - Ideally renewable energy and water treatment courses would each be in a separate space
        - Safety concerns with multiple experiments in one space
    - <u>Applied Fluids/Thermodynamics Lab</u>
        - Multiple lab experiences within a course. New lab per week.
        - No overlap with Chemistry and Biology
        - Could investigate a Physics overlap
        - Imagining a large open “shop-like” space with infrastructure
    - <u>Materials</u>
        - Materials characterization, corrosion, reliability
        - Connection to Bio Engineering / Biology / Chemistry
        - Instrumental Lab
    - <u>Advanced Manufacturing/Fabrication Lab</u>
    - <u>Support Space</u>
        - Imaging Suite (benchtop – i.e. CTs, Flow cytometers, spectrometers)
        - Prep space

- Equipment Room (i.e. incubators)
- Storage Space



End of Meeting

The above constitutes my understanding of the items discussed and the decisions reached. If there are any additions or corrections, please, contact the undersigned.

Signed:	Suzanne Klein
Cc:	Attendees
Date:	May 25, 2019