ADVANCE-CoE Retreat White Paper

August 15-17, 2022

On August 15-17, 2022, 30 members of the College of Engineering (CoE) gathered at Callaway Gardens to discuss and advocate for their shared vision for the college. The participants, pictured and listed in Figure 1 and Table 1, respectively, include faculty of all ranks, staff and postdocs. Activities included skits, presentations by and discussion with campus leaders, and small group discussion on priority topics identified by the group. Priority topics included Recruitment, Retention and Transfer, Faculty Development and Leadership, Faculty/Staff Training & Reorientation, Measurement of Teaching, Graduate Student Life, and Postdocs' Success; each are discussed in more detail below. Conversations among the group continued over shared meals and social activities. As presented in Section A, the group developed a Call to Action for CoE, based on summaries of the small group discussions as provided in Section B.

A. Call to Action

The College of Engineering should

1. define a method for measuring teaching that is informed by best practices, does not rely on student opinion surveys, and serves to help improve teaching,
2. prioritize graduate student funding in the Capital Campaign, especially full funding for PhD students in their first semester, and
3. prioritize career development for faculty at different stages of their career, with programs such as proposal writing workshops for junior faculty, leadership workshops for mid-career faculty, and reinvigoration workshops for senior faculty.

Figure 1. Picture of participants.

Table 1. List of participants, not in the order pictured.

Mahsa	Abbaszadeh	ME		Diley	Hernandez	IDEI
Yolande	Berta	MSE		Xiaoming	Huo	ISyE
Joe	Bozeman III	CEE		Tuba	Ketenci	COE
Victor	Breedveld	ChBE		Kim	Kurtis	COE
Brandon	Dixon	ME		Jye-Chyi	Lu	ISyE
LaJauna	Ellis	COE		Pete	Ludovice	ChBE
Salar	Esfahani	ME		Neda	Madi	CEE
Bonnie	Ferri	ECE		Alexis	Martinez	IDEI
Rosario	Gerhardt	MSE		Akanksha	Menon	ME
Nancey	Green Leigh	CoD		Greg	Mihalik	ECE
Martha	Grover	ChBE		Lauren	Stewart	CEE
Joy	Harris	ECE		Ying	Wang	ECE
Tequila	Harris	ME		May	Wang	BME
Jennifer	Hasler	ECE		Bo	Yang	ME
Laura	Haynes	ECE		Minami	Yoda	ME

Organizing Committee: Tequila Harris, Joy Harris, LaJauana Ellis, Martha Grover

Playwright: Janece Shaffer

Additional participants on Monday afternoon: Steve McLaughlin, Dawn Baunach, Kyla Ross

B. Priority Topics - Group Reports

I. Recruitment, Retention and Transfer

Team: Joe F. Bozeman, LaJauna F. Ellis, Rosario A. Gerhardt, Laura S. Haynes, Diley Hernandez, Tuba Ketenci, Gregory Mihalik, Jye-Chyi Lu

a) Recruitment (start at K-12 levels)
Discussion:
- ISyE has some outreach programs (e.g., Tuba does K-12; another handles the higher education aspects)
- Maybe we can organize one meeting between like entities (e.g., CEED, CESIMC, OMED, Lifelong Learning College)

Actions:
- **Recommend newly appointed COE Associate Dean for Inclusive Excellence coalesce and leverage COE outreach programs through COE Cross-Communication, Collaboration, and Community-Building, intentionally connecting all COE faculty and staff who manage DEI initiatives -** make budgeting more efficient, (e.g., duplication of K-12 programming, databases of contacts could be shared to reduce labor hour needs and increase admin/faculty morale; leveraging focus; promoting CEED; Women in Engineering has a K-12 arm). Could this be a CEISMC objective?
- In Gwinnett County, high school engineering teachers get together annually and could be a path to build programming (e.g., Mill Creek is a relatively diverse student population)
- Consider sponsoring and/or running a school that serves as a GT feeder (e.g., CTL/Lifelong learning)

b) Retention (Graduate Students)

Discussion:
- Example: Students came with wonderful recommendations but some of them lack math skills
- Money issues with food (e.g., $1600 a month is simply not enough)
- Good students pick another school due to living expenses and stipend dynamics
- Faculty grant management is a real issue given budgeting dynamics, e.g., UMich is offering more money, how?
- Takes longer for minority undergrads to graduate (Is this supported by GT data?)

Actions:
- We should have a Challenge like program for graduate students
- Enrichment and training before they start. Can this synergize with GT 6000?
- Provide targeted math courses (e.g., ECE has a model for that)
- Explore financial assistance that provides tuition waiver for graduate students and/or increase stipends
- University provides tuition waivers to allow for increased stipend for students
- Have indirect costs support students
- **Run a school pilot program** to assess effective funding structure (e.g., ECE, ME, CEE?)

c) Transfer (URM recruits)

Discussion:
- ISyE gets a healthy amount of transfer students
- How do we increase the # of URM in our college?
- There are pathway programs with other universities (e.g., KSU, GSU, other HBCUs -> engineering dual degree program?)
- They can easily transfer credits and degree programs (Agnes Scott, …)
- Orientation for transfer students within the first year of arrival (e.g., ChBE)

Action:
- **Fully understand/identify and promulgate the programs that already exist to increase active transfer student recruitment** (e.g., Transfer Pathway Programs)
- Use these programs as an avenue to enhance belongingness (direct this intuitive to those responsible for transfer student recruitment)

II. Faculty Development and Leadership

Team: Akanksha Menon, Tequila Harris, Lauren Stewart, May Wang

a) Writing Scholars Program

Action:
- Provide clear ideas of value-added components of the program
- Support creating graphics
- Support with proofreading
- Better support creating communities of practice, e.g., Career Proposal writing group for think-pair-sharing

b) Goal planning

Action:
- Guiding and supporting faculty along the pathway of their choice, administration, NAE and Regents, start-up and entrepreneurship, starting global programs (on-campus and off-campus), etc.
- Cultivate leaders through various programing and mentoring with GT senior leadership and industry leaders.
- Play to everyone's strength
- Faculty reinvigoration – mini-sabbaticals to pivot or accelerate one's program, peer (junior)-to-peer (senior) connections, bridge/seed funding for faculty needing to reinvigorate their program
- Develop time-to-think and time-to-grow programs.
- Make more announcements about large grants for teaming purposes.
- Create a Fact Book and Resource document
  - Resources for teaching one's first class.
  - Resources for managing laboratories.
  - Grant management

c) Mentoring

<u>Action:</u>
- Better support creating communities of practice, e.g., Career Proposal writing group for think-pair-share
- Support junior faculty on proposal writing
- More development programs at the College level
    - Provost - Emerging Leaders program
    - IDEI - Leading Women
    - Career coaching

III. Faculty/Staff Training & Reorientation

Team: Unknown

a) Training

<u>Discussion and Action:</u>
- Identification of what trainings already exist? Who is leading?
  Should faculty/staff search out training they desire or should the trainings be put forward by the administration or the departments? How about a weekly/monthly listing of available trainings with links to details, such as virtual or in-person, what will be covered, dates/times?

- How can trainings be better structured/organized/become more accessible (e.g., user friendly interface)
  Maybe arrange by topic, or required, or recommended, or optional, or seasonal (at the start of a semester)

- What trainings are needed but not available? Who should/would be responsible for leading those?
  Faculty/staff may be surveyed to find out what they perceive is needed; students may have suggestions, also; administration may recommend topics;
  Use skits, dramatizations (in-house? student theater actors?)

- Institute-level trainings that are limited/hidden (we don't know what we don't know); do some of the below training topics already exist?
    - Faculty-student interaction
      What outlook do incoming students have, based on their age or world circumstances? This may change every few years or maybe even every year; who would be knowledgeable about this topic? Academic advisors? Admissions?
    - Distress prevention (some uncomfortable attending Suicide Prevention)
      Relieving distress could prevent a series of situations which may set about a student contemplating suicide; train faculty/staff to recognize distress and arrange effective intervention.
    - Grant writing (e.g., Graphics, peer-review, critical writing, …)

Formal training exists but could it be expanded to include help with graphics/figures, helpful, critical, peer review, technical writing? more frequent offering of grant writing workshops.

b) **Reorientation**

Discussion and Action:
- Why reorientation is needed? Each school year, each group of students presents different views, situations and variations on goals. Reorientation provides the opportunity to approach each school year with a customized strategy to achieve the Institute's goals. Ways that the reorientation may be done include:
  - State of the College annual or semi-annual retreat
  - School-level Faculty reorientation retreats; school-level staff reorientation retreats
  - Reorientation (+ Continuous training) on:
    - Teaching
    - Research (e.g., GRA Recruitment/Retention)
    - Service (e.g., who is serving on what committee, who is doing what? Equity in the service faculty/staff provide to the school/institute; rotation of duties, as a means of training faculty/staff in different aspects of the whole organization)
- Continuing Education model tied to annual reviews (required + extra credits)
  Some continuing education required, and some may be chosen from a list of topics recommended by the school chair
- Faculty-Dean one-on-ones/small group meetings
  - Pre-define topics for conversation, to be inviting, but stay flexible
  - Communicating in this informal setting will encourage discussions on what is working and what is not

c) **Network of DEI Units on Campus:**
- School/Unit levels are leading the effort
- A list server or Teams channel among schools/units would allow sharing of best practices and avoid duplicated trial-and-error;
- Participation benefits and incentives (e.g., sense of community, leaders in each school/unit to lead efforts, social gatherings)

IV. Measurement of Teaching

Team: Joy Harris, Victor Breedveld, Peter Ludovice

The goal of proposed new teaching metrics would be to expand the basis of the current CIOS score metric to include more dimensions of the instructors teaching. This will inherently include some qualitative data similar to a teaching portfolio. Given that teaching portfolios are too large for our needs, **we propose a smaller version of the portfolio called the Teaching Evolution Narrative (TEN) that highlights efforts at continuous teaching improvement.**

The **TEN should address** the following issues:

- Discuss class organization, such as updates to the syllabus or course structure.

- Demonstrate how you obtain feedback and implement continuous improvement.
- Identify a teaching innovation that you tried in your course and reflect what you learned.

Data and information use in the TEN should go beyond the single question 19 result from the CIOS. Instructors may include several relevant numbers from the CIOS program. It would be helpful if it was made easier for individual instructors to add a few additional questions to the CIOS for data collection purposes. In addition to various CIOS scores the data used in this section can also include:

- CIOS scores
- Qualitative peer evaluations, such as curriculum reviews or class observations
- Specialist evaluations, e.g., CETL

This TEN should provide a brief summary of teaching improvement efforts to be included in the annual report. Instructors should also include educational outreach outside of class. Guidelines should be provided to the faculty to guide them into (i) highlighting their unique educational strengths, (ii) to prepare brief and effective feedback instruments that avoid survey fatigue, (iii) how to collect this feedback using CANVAS, Qualtrics or other platforms, and (iv) to interpret CIOS and other metrics and provide context therein.

V. Graduate Student Life

Team: Brandon Dixon, Xiaoming Huo, Minami Yoda, Bo Wang, Martha Grover

a) Building
- A sense of community
  - Dedicated advocacy and ombudsperson
  - Support informal networks
  - Industrial affiliates
  - Financial security
- Affordable housing (wrt current stipends)
  - Short-term disability insurance and family leave
  - Reduce tuition remission and increase student stipend past proposal
- A foundation for success during the Ph.D.
  - Nurture informal learning community
  - Decouple first semester support from research

b) Culture
- Can do
  - More with less
  - On the cheap
  - Pressure squeezing everyone
- Whatever you do it's never good enough …

VI. Postdocs' Success

Team: Mahsa Abbaszadeh and Salar Esfahani

We discussed the issues and topics to answer the big question on whether Georgia Tech is meeting the critical need for postdoc success? And what is the most effective approach and at what level the postdoc needs more help? Would the support be advisor level, unit level, or institution level? We concluded that time management is key for postdocs. Therefore, lots of suggestions are not practical, such as coffee hours or long workshops. However, postdocs are always allowed to join faculty professional development programs which will be a help to them.

a) Why postdocs are here at GT
- Faculty's expectations & Motivation
  - High-quality research delivery at an accelerated time.
  - General lab management and safety (e.g., equipment, data).
  - Meet the grant goals for addressing specific research questions.
  - Collaboration.
- Postdocs' expectations & Motivation
  - Extended training in new areas.
  - New skillset development.
  - Career development (academia vs. industry) opportunities (future faculty application package guidance, social hours with industry experts or senior academics), workshop series for proposal writing.
  - Leadership and mentorship skills.
- Are the expectations matched?
- Transparency in the job posting

b) We discussed that the current CareerBuzz platform for GTech candidates to apply for the industry does not function appropriately as job postings specify what major they look for, the job posting only allows the candidate from a specified major to apply. This means a postdoc who is in a different unit compared to their Ph.D. major unit, gets excluded from applying for the job. As an example, a postdoc in mechanical engineering with a Ph.D. in chemical engineering cannot apply for a job that needs chemical engineers through CareerBuzz because the postdoc is in ME currently. We need that fixed immediately if possible.

c) What is the most critical thing that stops you from succeeding as a postdoc?
- We need detailed feedback (different genres of scientific writing and research)
- Mentors and postdocs need to do self-reflection
- We need to learn how to manage time better (workshops on time management)
- We need to expand my research by working with more faculty and students

d) We discussed what is the best method for a postdoc to develop mentoring, leadership, writing, and research skills.
   We discussed the apprenticeship model meaning a postdoc learns through doing.
   We discussed learning by observation.

   We also discussed learning through more resources.

C. **Recommended next steps**

   As next steps, we recommend that this white paper serves as a resource for any stakeholder who leads the areas discussed herein. The action items proposed above can be used as a springboard for future conversations. We recognize that every recommendation may not be implemented. Nevertheless, we recommend that this collection be used as an idea bank for future programs, initiatives, funding requests, and improvements within the College of Engineering.