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Page 1: Supplies, Equipment, Furniture, and Other Request Form

Q1 Contact Person:

Name	**Keenan Murray**
Email Address	**keenan.murray@gcccd.edu**

Q2 Department:

Engineering

Q3 Title of Request:

Permanent Engineering Budget Augmentation

Q4 Location of Request:

F-301

Q5 Type of Request:

Other: Please specify the non-operational other request:: Budget

Q6 Description of Request:Please provide a description of the supplies, equipment, furniture or other request. When making your request, please be as specific as possible and include information such as make, model, manufacturer, color, quantity, etc.

Our current lab budget is $1,900.

In 2017 our expenditures, not including software licenses totaled $2700. Back then our budget was $800/year. Since then we have increased enrollment including lab sections in ENGR 100, 210, and we plan to add a lab to ENGR 260. As these offerings, increase so do expenses. For comparison all other sciences with similar lab offerings have budges more than double our own. We estimate in order to maintain what we have and add growth we would require $5000.

Engineering is a broad subject covering many, increasingly technical fields. As such, we would also like to request an augmentation of $1000/FT faculty member to attend regular conferences so that we may stay current in our rapidly-changing fields.

Q7 Estimated Cost:

$7000/year

Q8 Please attach quote, if available

Respondent skipped this question

Q9 Total Cost of Ownership:Can this request be maintained with existing funding sources? If not, please explain your plan to maintain this request. Example: potential yearly service agreements, warranties, and replacement costs.

n/a

Q10 Justification of Request:Please select the applicable criteria and provide the details how the criteria relate to your request.

Health and safety,

Equipment replacement,

Critical need,

Program expansion,

Impact on student success and access,

Innovation,

Provided details::

Health and safety - a higher budget will allow us to buy safer equipment and better maintain it. Equipment replacement - much of our equipment, particularly our electronics, is aging out of usefulness. Students need modern equipment that looks similar to what they will use in jobs and internships. Critical Need - We are reaching the limits of what we can offer because of supply shortages. Program expansion - We cannot maintain enrollment growth or offer new courses or services to the college on our current budget. Impact on student success and access - we are being forced to charge students lab fees to cover costs, this limits access for lower income students. Innovation - We cannot currently afford to do this, but we would like to have students participate in national competitions for engineering but that requires supplies and equipment we cannot currently afford. We would also like to send our faculty to important conferences and professional development opportunities regularly.

Q11 Program Goal:Please identify the program goal(s) this request would help your program achieve and provide a brief explanation of how it would do so.

Goal 2: Increase student success in sophomore-level engineering courses through increased support for ENGR 100 and all other lab classes
There is ample evidence to suggest that success in ENGR 100: Introduction to Engineering and Design leads to increased success in subsequent classes. For example, students in ENGR 200: Statics who have previously taken ENGR 100 have historically enjoyed a 6.5 percent grade differential over the class average (which includes the same students, meaning that the advantage over those students who haven't had ENGR 100 is even more dramatic). In response to this clear signal we have increased the annual number of sections of ENGR 100 from 0, 17 years ago, to 7 in the 2019-2020 school year. In addition, this course would be included as the gateway course in the STEM guided pathways meta-major, hopefully drawing even more students into the program. This costs money, as do other lab classes which we have added over the years. Meanwhile, the supplies budget has increased slightly from $500 in 2001 to $800 in 2016, an increase that fails even to keep up with inflation. Actual expenditures average $2700. Where has the money come from? From begging from other disciplines, from McGehee's pocket, and from uncertain budget augmentations that, when we do receive them, arrive in December, after we've done our scheduling for the year, and from asking students to pay for supplies which we do not like to do.

New Goal 1: Create Maker Space to support labs, student projects, engineering club, and national competition teams
A Maker Space would be a lab space that could be used by all engineering courses as a resource but also be open to students outside of class and the campus community at large. Engineers design and build things, and they need practice in a low-stakes environment. Our current curriculum has by necessity been more theoretical than practical which puts our students at a disadvantage versus four-year students who immediately have access to tools and software as part of their tuition and fees. This space would allow our lectures to use applications and our labs to be much more interesting and diverse. Assuming we had staff for this space, student workers and/or a lab technician, we could also open this space up for collaborations with Graphic Design, Art, CADD, CIS's Mechatronics, or anyone else that has an interest. We could also use it to cheaply 3D print equipment for anyone on the campus.

New Goal 3: STEAM Collaborations
Collaboration with other programs including Art, Graphic Design, Anatomy, and Physics. We would like to share resources, plan cross-disciplinary curriculum, and plan events like a STEAM day. We hope this would be a way to maximize college resources, make students aware of all the options available to them for careers, plan dynamic curriculum, and provide useful community outreach.