Request for Technology Fee Funds: FY19
NOTE: A separate request should be made for each initiative.

I.

Department Number/Department Name:	**360** | **College of Computing/GVU Center**
Title of Request (please be brief):	GVU Rapid Prototyping Lab Moderization

Amount of Request (formula from detailed budget below): **$65,500**

Type of Proposal: Atlanta   or   Dist Lrng/Non-Atl   Atlanta

Was this project request funded in FY18?   No   (Yes or No)

Are there installation/renovation costs associated with this request?   No   (Yes or No)

If "Yes" then indicate the source of approved funding:
(Note: Tech Fees are not allowed for installation/renovation)

Executive Summary of Request (100 words or less):

In order to meet the needs of researchers and students affiliated with the GVU center, the prototyping lab requires upgrades to many of the tools that receive the heaviest use.

Specific class and/or lab initiative(s) if applicable:

Contact person for this request (incl. phone #):   Tim Trent (5-7610) Keith Edwards (5-7683)

Indicate priority per department if applicable: Number _____ of _____

Indicate priority per college or unit: Number __3__ of __7__

II.   Impact on Students - Provide course title, course number, and anticipated enrollments:

Titles/Numbers of Course(s)   (see Section III)

Anticipated Enrollments	Graduate:	268	(per	yr	) sem or yr
	Undergraduate:	253	(per	yr	) sem or yr
	Total:	521			

NOTE: Other impacts on students should be described in narrative.

III.   Narrative - Provide narrative justification for your intended use of the technology fee funds. Include narrative on how the education or research of the students will be enhanced. Also include how the request aligns with the Strategic Plan of Georgia Tech. Continue in the block below if necessary.

Affected Courses: CS2698, CS2699, CS3651, CS4605, CS4903, CS4980, CS4698, CS4699, CS7470, CS8903

The GVU Center's Rapid Prototyping Lab, celebrating its 15th year of operation, is a central hub on Georgia Tech's campus for development of research projects, as well as a space for students to create polished and working prototypes for coursework in all fields. Many of Georgia Tech's high profile hardware prototypes (in human-robot collaboration, wearable computing, etc.) got their start in the lab. The lab is available to any member of the Georgia Tech community that has completed an orientation session, and thus provides a highly accessible environment for students to learn, develop, and innovate. The lab currently has over 100 active users from multiple schools on campus and offers unique collaboration space for planning, brainstorming and executing projects. By providing cutting edge resources in a centralized location next door to Centergy, ATDC, and the start-up culture in Tech Square, the lab offers students and researchers alike the ability to bring products and systems from their respective areas of interest into reality without the limitation of acquiring the necessary tools. The GVU lab is unique on campus in that it actively (cont)

IV.   Detailed Budget - Requested Items by Category List separately any equipment, software, and other allowable expenses (see Tech Fee Guidelines). There is a formula in the "total column" that multiplies the number of items times the unit price. You may enter a figure into the total column if the unit pricing is not applicable. If you need additional rows, contact the Budget Office to receive a modified form.

Supporting documentation is required- Include price justification in some form, such as quotations, published price lists, etc. as a separate PDF attachment. All supporting information should be in a single PDF.

	Proposed Number of Items	Estimated Price per Unit	Total ($)
Up! Box+ 3D Printer	4	$2,000	$8,000
Bantam Tools PCB Mill + Recommended Accessories	1	$4,200	$4,200
Epilog Laser Engraver/Cutter Repair Parts	1	$6,600	$6,600
Benchtop Planer	1	$700	$700
Stratasys F270	1	$46,000	$46,000
Total (linked to the total amount of request line above)			$65,500

strives to emulate the multidisciplinary nature of the GVU center, promoting the collaboration across fields that is necessary for modern technology. By nature of being a lab keeping pace with the innovations created on campus through coursework, research, and entrepreneurial pursuits such as the Inventure Prize, it is necessary to update and augment the tools within the lab to meet the growing demands and user base of the community. While the Prototyping lab features many tools for students' use, including a professional grade 3D printer, woodworking tools, and a PCB circuit mill, some of these tools were added when the lab was first created and are now out of date or are overused. 3D printing is often the bottleneck in the lab; however, most students do not need the high resolution printer when roughing out a project. Adding several low cost 3D printers will alleviate the demand and reduce the wear on our expensive machines. The low cost printers will also add an opportunity for students and researchers to learn how to maintain tools of this nature. Whereas the current printers in the lab are too complex to allow for an untrained user to make repairs or perform troubleshooting, the low cost printers are more user-friendly and can introduce users to the intricacies of the machines without as many delicate systems to worry about. A replacement for the Printed Circuit Board milling machine (10 years old and fragile) will allow for rapid iteration on electronic board designs and antennas. The PCB mill currently in the studio was state of the art at the time, but advancements have been made to create more usable interfaces, applications, and techniques necessitating an upgrade to the machinery in order to allow broader access. The addition of a planing machine will allow for more efficient use of materials, as the raw wood used in many prototypes often must be thrown out if there are irregularities, whereas a planer would allow both new material and scrap to be brought to reliable uniformity. Additionally, the planer would allow for 3D printing to be accomplished more quickly, as it could be used to remove excess material from the print plates between prints. The demand for prototyping space for students continues to rise, and these additions to the lab are necessary to meet the needs of researchers and students alike. The lab has a large base of active users, and directly benefits over 2000 students in a variety of Georgia Tech classes. The modernization of the prototyping lab is an investment in the long-term success of Tech, aligned with the first three of Georgia Tech's Strategic Goals: Be among the most highly respected technology focused learning institutions: Giving students the cross-disciplinary training and experience with cutting-edge rapid prototyping technologies allows graduates to be immediately valuable to employers. Sustain and enhance excellence in scholarship and research: Creating devices as part of classwork or research is a "hands and minds" approach to education. Individual students and researcher labs cannot afford state-of-the-art tools for only occasional use, however the GVU Prototyping lab enables personal experiences with tools that, for many students, are discussed but never directly used in class. Ensure innovation, entrepreneurship, and public service: The prototyping space offered by the lab facilitates prototypes for companies and products from GT courses, research, and individual study. This capability gives users the freedom and resources to create developments that align with their passions, often focusing on underserved populations that are ignored by profit-driven companies.