Research Development Fund – Fall 2022 Application Template

Application Title: RISE Program

Lead contact for RDF Application:

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Key Participating Units: **College of Engineering:** Engineering Technology & Industrial Distribution

RDF Amount Requested ($): 500,000

Executive Summary

This proposal is intended to establish a cutting-edge STEM and Outreach Robotics program utilizing the Cobotics lab space in the department of Engineering Technology & Industrial Distribution (ETID). The proposed program is called RISE, which stands for Robotics Innovation in STEM Education and aims to develop a hub for robotics education and competitions at TAMU to support STEM education in the Brazos County. The proposed facility and program will greatly interest high school students and teachers, TAMU undergraduate students, and researchers in the STEM fields. RISE program objectives include:

- providing an accessible, well-equipped, and safe environment to conduct STEM and outreach programs in robotics to serve the community of Brazos County
- creating a training and competition event center for local high schools as well as TAMU engineering departments
- encourage and support female students and minorities to participate in RISE activities and pursue STEM education and careers
- utilizing the facility to conduct research in STEM education in an actual hands-on STEM laboratory
- attracting external funding to expand RISE programs in Texas
- conducting professional development workshops for STEM teachers in robotics
- serving the STEM education track for the undergraduate students in the multidisciplinary engineering (MXET) program at the ETID department

The prospective program and facility will provide opportunities for educators from different schools at TAMU to convert their STEM ideas into educational workshops and implement them in a well-established facility and structured procedure with the support of experts in STEM education. Researchers in STEM education can conduct surveys to support their studies, while the workshops are conducted for students and teachers. The facility will also support future NSF grant applications in STEM education field. This will encourage cross-disciplinary research and multiversity collaboration at TAMU. With the expected growth, this facility will make TAMU a centralized hub for STEM education in Texas.