

Title: Enhancement of Student Enrolment at Albany State University through Four Year Engineering Technology Program

A. Assessment of Need:

In the last 50 years, more than half of America's sustained economic growth has been fueled by its engineers, scientists and advanced-degree technologists because of their education, scientific knowledge, and technological innovation, which still remains critical to America's economic power, national security and healthcare. In particular, technological innovation has long been the key to US growth and prosperity, and engineering has been an important driver of this innovation.

As society develops and evolves the current infrastructure, products & public services that we have become outdated at lightning speed. The complexity of improving these utilities also increases which can place a huge burden on some Governments and economies. However, one group of people have the responsibility to tackle these complex problems and move things towards a better future. They are Engineers who have the ability to create this future!

Therefore, there will always be a high demand for skilled engineers in many different fields, which heavily relies on the graduates provided by universities. However, the shortfall in the STEM field is a longstanding issue, which exacerbates the shortage of engineering majors, particularly in the minority university. Minority youth, as an untapped reservoir of talent, could bolster engineering workforce, provided that they are encouraged and given opportunity to pursue engineering education. Allowing minorities to access jobs in engineering fields and building diversified workforce are crucial to sustaining the nation's productivity and strengthen the national competitiveness.

Albany State University (ASU) founded in 1903, as a Historically Black University (HBCU) in rural Southwest Georgia, is a comprehensive, coeducational liberal arts institution which offers undergraduate and graduate curricula that build on a strong liberal arts foundation. ASU proudly serves its historical role of improving the quality of African Americans, while focusing on the effective delivery of academic and research services to all students. Unfortunately, ASU is not immune to decline in enrollment, low retention and graduation rates in STEM fields. For instance, ASU is suffering from low enrolment for past several years. Even after merging with

Darton State College, our enrollment was not at the number that was predicted. Therefore, to alleviate this situation, we are proposing to introduce one new STEM program called Bachelor of Applied Science in Engineering Technology.

B. Project Goal

The purpose of this new program is to attract local students who graduate from Albany Technical College with two year associate degree. The transferred students will study two more years at Albany State University and receive their four year engineering degree with one of the following concentrations – Bachelor of Applied Science in Electrical & Electronic Engineering Technology or Bachelor of Applied Science in Electrical & Computer Science Technology.

C. Objectives

(a) ***Curriculum Development:*** After a series of discussions with ASU and ATC authorities, a course check sheet is developed for two concentrations of engineering technology programs as provided in Appendix 1 and 2. According to the check sheet, there are seven new courses have to be developed. Among those seven new courses, four of those are associated with laboratory components which have to be developed too. With present faculty strength, two adjunct faculties will have to be hired to teach two new courses.

(b) ***Math and Science Tutorials:*** Transferred students will be provided special tutorials during after school time for solid foundation in math, science and engineering courses. These tutorials will help students for better results in exams.

(c) ***STEM Engineering Competitions:*** STEM curriculum at ASU, among other colleges and universities, suffers two major drawbacks; the curriculum is neither project based nor the materials do not cover the state-of-the-art knowledge because they address fundamental knowledges that were developed at least a century ago. This program is designed to overcome all these weaknesses mentioned head on. Students will be supervised to design and construct NASA Human Exploration Rover vehicle and UAV (Unmanned Arial Vehicle) Drones.

(d) ***Community Engagement:*** Chemistry and Forensic Science Department will host bridge building and Robotics competition in every semester for local middle and high school students. Through these activities local people will know about Albany State University and its faculties, capacity and resources.

(e) ***STEM Summer Institute:*** Selected 15 local high school students will be provided with special training in summer time to develop math skills and scientific reasoning

(f) ***Technology Improvement:*** Current Engineering Lab has 7 computers which are outdated. Those need to be replaced with new computers and one printer.