### Evaluation of

### Rowan College at Burlington County’s

### *NSF-ATE*

***Comprehensive Integration of Advanced Manufacturing Competencies throughout Associates degree and Stackable Certificate Curricula Grant***

**Year 1**

### September 16, 2016 – June 10, 2017

### Submitted to: David Spang, Ph. D.

### Senior Vice President and Principal Investigator

### Prepared by:

### Lisa D. Krausz, External Evaluator

**LDPlatt Strategies**

**June 12, 2017**

**Background**

The *Comprehensive Integration of Advanced Manufacturing Competencies Throughout Associates Degree and Stackable Certificate Curricula Program* is a three-year, $768,272 grant from the National Science Foundations’ Advanced Technological Education (ATE) program. The grant period is from September 15, 2016 to August 31, 2019.

The grant focuses on the education of technicians within the high-technology mechanical engineering and advanced manufacturing fields. The program involves partnerships between academic institutions and industry to promote improvement in the education of engineering technicians at the associate and baccalaureate levels. The ATE program supports curriculum development; professional development of college faculty and secondary school teachers; career pathways to two-year colleges from secondary schools and from two-year colleges to four-year institutions.

Rowan College at Burlington County is the lead institution and is partnering with Rowan University to provide seamless transition from the associate to baccalaureate degree. The project has two primary goals:

Goal 1: To strengthen an Engineering Technology program serving the southern New Jersey region.

Goal 2: To serve as a conduit for the creation of programs and educational l pathways that address unmet training needs and the needs of emergent high growth industries.

**Evaluation Scope, Approach, and Methodology**

Although the grant period for Year One is from September 15, 2016 – August 31, 2017, this evaluation covers only the first nine months of the project. The shortened timeframe is necessary to support the college as it prepares its Annual Performance Report, which is due June 14th.

During the first year of the grant, the evaluator is focusing primarily on program implementation activities. The evaluation included a review of the programmatic goals, objectives and planning activities, and an assessment of progress in meeting initial outputs. The evaluator met on site with the project’s co-PIs and staff in January and again in May 2017. Note that the college’s application envisioned a start date of June 16, 2016, but the college wasn’t notified of its award until September 6, 2016. As a result, the project timelines has been adjusted by a semester and the majority of the first year has focused on planning. Curriculum redesign will not occur until the end of the first year in July/August.

Accomplishments/Major Activities

The evaluator found that the college has made substantial progress in implementing the activities and tasks outlined in year one of its revised grant timeline. All personnel are in place - the college hired a full time project coordinator in April and a part time assistant in May. Other members of the Burlington team include the Senior Vice President, Dean of STEM, and the Director of Educational Programs and Grants Development, and from Rowan University a full time Mechanical Engineering professor, all of whom have been active participants in the planning and dissemination process.

During year one, project staff attended a number of professional development conferences including the 2016 NSF ATE Principal Investigators Conference held Oct. 26-28, 2016. Attending the conference were Dr. David Spang-PI, Dr. Edem Tetteh-Co-PI and Dr. Nicole Scott. Dr. Scott also attended the Pre-Conference Workshop A: "Getting Started for New Grantees". In addition, Dr. David Spang-PI, Dr. Edem Tetteh-Co-PI and Dr. Eric Constans Rowan University attended and presented at the annual conference for the American Society for Engineering Education.

As part of the year one planning process, the college leveraged workforce development initiatives and previous industry-centered collaborations and activities to illustrate how the ATE project will continue to build institutional commitment and sustainability. The college will use the competencies identified through these collaborations as a starting point with industry. The goal is to ultimately minimize the degree to which employers must deliver on the job training to recent graduates who lack the set of skills most valued by employers.

The college held its first Advanced Manufacturing Industry Forum, on June 8, 2017. The forum was to designed to hear from industry on the requisite skills and competencies needed in the fields of advanced manufacturing and mechanical engineering. Feedback from employers is being used to address both the competencies and more importantly how these competencies should be delivered. The ultimate goal is to ensure that RCBC graduates can secure gainful employment within the advanced manufacturing industry and add value to a company’s operation.

A total of xx industry representatives participated in the forum. The college is currently compiling forum results. The outcomes from June 8th will help set the agenda for the five-day faculty workshop set for July 10-13, 2017 and will be used by faculty as they begin the process of redesigning and aligning college curriculum with industry. Note that the evaluator surveyed industry participants and is in the process of analyzing results.

Opportunities for Training and Professional Development

The project has afforded staff the opportunity to attend conferences as well as meet with four year partners to discuss the continuum of education necessary for students to be successful in industry. Professional development for faculty will begin in July 2017. As previously stated the college will hold a 5-day professional development workshop with faculty from two and four-year partner institutions as well as several high schools who have articulation agreements with the colleges. During the workshops faculty will discuss institution-wide reform of the advanced manufacturing and mechanical engineering programs as well as new strategies for curriculum delivery. They will also be trained to used library resources.

Dissemination of Results and Products

Dr. David Spang-PI, Dr. Edem Tetteh-Co-PI and Dr. Eric Constans Rowan University presented a paper at the annual conference for the American Society for Engineering Education. The paper titled **“*Two-Year College and University Collaboration in Creating Advanced Manufacturing Curricula and Programs”.*** The paper details the beginning efforts of a multi-year project between a community college (Rowan at Burlington County) and a four-year institution (Rowan University) to create curriculum, academic programs, and career pathways resulting meaningful employment in the advanced manufacturing sector. The paper details the planning of close collaboration with industry partners and as well as the college Workforce Development Institute and how they will lead to associate, baccalaureate and stackable credentials. The paper leverages past activities as well as activities resulting from this NSF project and speaks to the institutional commitment of the college.

Plans for the Next Reporting Period

On July 10-13, 2017 the college will hold a summer institute to create curriculum, academic programs, and career pathways The summer institute is a major activity where faculty will be tasked with identifying a library that can be used to supplement application of learning. Faculty will have time to research and identify applications that will have a direct application to both the design and delivery of curriculum. The college is using the June 8th Industry Forum results to plan the agenda for a four-day curriculum workshop on advance manufacturing. A total of 75 faculty (full and part time) from Rowan University, Rowan College at Burlington County, Burlington Institute of Technology and other area high schools are expected to attend.

The college will use fall 2017 to begin the curriculum update. Faculty will be tasked with identifying an applications library and database that will serve as a resource for faculty to support curriculum and the teaching of industry relevant competencies. Modules and applications will be principals-based and may be simulations from different sources, case studies, and /or technologies. Faculty administrators and advisory committee members will meet regularly to further the development and incorporate the applications into the curriculum. Part of the process will include faculty training in application use and delivery.

During the next reporting period the college will work to create and complete a new academic program in Mechanical Engineering Technology, with a concentration in Advance Manufacturing. The program will be designed with discrete certificate elements that can be stackable. Appropriate texts, advising outlines detailing prerequisite pathways and a firm articulation between secondary and four year partners will be identified.

**Summary**

At this point it is too early to report on any impact the program has had on the development of the advanced manufacturing curriculum or any other discipline or infrastructure.

Based on the college’s activity to date, the evaluator does not see any concerns regarding its ability to complete the project on time and as planned.