SOUTH CAROLINA TECHNICAL COLLEGE SYSTEM
New Program Planning Summary Submission Form

College Name Aiken Technical College

Program Title Associate of Applied Science**, with a major in** Nuclear Quality Systems

CIP Code Enter CIP Code **Credit Hours** 64 credit hours

Academic Unit Technical Education

Implementation Date (Proposed) Fall 2013

Questions about this planning summary should be directed to Dr. Gemma Frock

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CAO Signature _____ Date _____

I. Proposal Narrative: Justification

a) State the purpose(s) and objectives of the program. Provide details on the employment for which graduates will be prepared.

Aiken Technical College (ATC) seeks to implement an Associate in Applied Science, major in Nuclear Quality Systems (NQS). The proposed program is based on industry-recognized standards established through the Institute of Nuclear Power Operations. The curriculum addresses the need for qualified nuclear quality control inspectors and nuclear quality assurance auditors in the local area. Graduates will help local companies sustain infrastructure and implement new construction projects.

Upon completion of the program, graduates will be able to:

- Provide inspection verification in the areas of Mechanical, Electrical, Instrument & Controls, Receiving, Civil, and Welding disciplines, as appropriate.
- Provide program oversight in the role of a Surveillance Specialist, Auditor, Lead Auditor, and Quality Engineer, as appropriate.
- Categorize the roles and responsibilities of a quality program in the culture of the nuclear industry.
- Practice radiological, industrial and nuclear safety and environmental compliance.
- Demonstrate a working knowledge of nuclear quality assurance program standards

The NQS degree will support local and regional workforce needs created by the presence of four new reactor builds and three existing reactors. Additionally, the program will respond to demands for technicians in the Central Savannah River Area (CSRA), a seven-county region along the South Carolina/Georgia border. The CSRA is home to several nuclear facilities, including commercial, nuclear power stations that are licensed by the Nuclear Regulatory Commission (NRC), in addition to the Mixed Oxide Fuel Fabrication facility at the Department of Energy's Savannah River Site.

b) Explain how the program will support and/or complement the college's mission?

ATC is a public, open-door, two-year, comprehensive institution of higher education established to provide citizens of greater Aiken County opportunities for educational, economic, professional, social and personal development. The college educates and trains students to provide an effective workforce to support economic growth and community development through its focus on teaching and service. The proposed NQS degree program directly impacts this mission by preparing students to be qualified nuclear quality systems technicians that become an integral component in the local and regional economy and workforce.

c) Discuss general student interest in the program.

The proposed program will provide a career path that does not currently exist for students in the ATC service area. The college expects significant student interest in the program, particularly due to the recent approval from NRC for Plant Vogtle within the CSRA. The NQS degree will also be of interest to students enrolled in welding, industrial maintenance, and engineering technology, and nuclear-related programs.

d) Discuss local, state, and national employment trends for program-specific occupations. Include full-time and part-time wage information at the state and regional/national level.

The US Department of Labor, Bureau of Labor Statistics Occupational Outlook Handbook 2010-2011, states that nuclear technicians should grow by 9 percent nationally. This growth is about as fast as average, as more are needed to monitor the nation's aging fleet of nuclear reactors and research future advances in nuclear power. Energy demand has recently renewed interest in this form of electricity generation. Technicians will be needed to work in defense-related areas, to develop nuclear medical technology, and to improve and enforce waste management and safety standards. The number of jobs in Nuclear Technician field is expected to increase from 7100 to 8000 from the years 2010 to 2020.

A targeted study of workforce needs has confirmed the potential for a worker shortfall in the CSRA. In June, 2009, the Savannah River Site Community Reuse Organization (SRSCRO) initiated a nuclear workforce study to obtain reliable estimates of the need for new nuclear workers at the Savannah River Site and other nuclear-related industries and facilities in the CSRA. The study, conducted by Booz-Allen-Hamilton, indicated a need for 164 quality assurance and nuclear quality systems personnel by 2020; 101 of these will be needed by 2014. A subsequent validation study involving SRSCRO's Nuclear Workforce Initiative (NWI) employer participants ranked quality assurance as the primary need following operators (NWI Staffing Committee). The study focused upon the SRSCRO region; however, the study acknowledged that there are 16 current nuclear power units and plans to build as many as eight more in neighboring regions. These facilities are close enough to the SRSCRO region that they will compete for trained nuclear workers, which compounds the urgent challenge to train job-ready graduates for nuclear-related industries.

According to the US Department of Labor, Bureau of Labor Statistics, the mean annual salary for nuclear technicians in SC was $63,000 and $30 per hour in May 2010. This is consistent with the national average of $67,000 annually and $32 per hour.

e) Include a list of all related existing programs within the institution. Compare/contrast the proposed program to related programs.

ATC currently offers four nuclear technology certificates – Nuclear Quality Assurance Auditing, Nuclear Quality Engineering Principles, Mechanical & Nuclear Quality Control Inspection, and Electrical & I/C Nuclear Quality Control. Enrolled is expected to grow and student interest is strong in each of these areas. Coursework from each of the certificates will transfer into the proposed associate degree.

It should be noted that ATC currently offers an Associate in Applied Science, major in Radiation Protection Technology (RPT). The advisory committee feels strongly that the objectives of the proposed NQS degree are vastly different from the RPT program. The nuclear field has a specific set of quality standards that differ from the quality management, process continuous improvement, lean processes, and other quality initiatives.

f) Compare/contrast the program to those with similar objectives at other SC technical colleges. Where possible, summarize enrollment, graduates, and placement rates for existing programs. This information can be found in the State Board's annual Program Evaluation Report.

There are no similar programs offered in the SCTCS. The nearest programs that offered similar curriculum were Chattanooga State Community College in Tennessee, and Central Piedmont Community College in North Carolina.

g) Discuss any existing articulation or collaborative agreements in related program areas with other SC technical colleges.

There are no formal plans for articulation with other technical colleges at this time. However, students enrolled in the NQS program will receive transfer credit for coursework taken at another technical college within the SCTCS.

h) Indicate whether this is a terminal degree program (occupational in intent). If there is potential for students to transfer into a baccalaureate program, provide narrative on the progress to date concerning articulation agreements with potential transfer institutions.

The proposed degree is designed primarily as a terminal degree leading to employment upon graduation.

II. Proposal Narrative: Anticipated Program Demand and Productivity

a) Briefly summarize/analyze the needs survey results. For at least a three-year period, estimate the anticipated number of full-time and part-time openings. Discuss any specific employer interests and support for the program.

The nuclear employers are committed to the development of the proposed NQS program as evidenced by their commitment to the already formed NQS Advisory Committee. The Advisory Committee is comprised of 15 members representing the Savannah River Site contractors, the Commercial Nuclear power sector, and nuclear vendors.

The support of the advisory committee and local employers is further evidenced in the results of the local needs assessment. Results showed the need for a total of 39 full-time technicians within the college's service area over the first three years of the program as outlined in the chart below.

	Year One	Year Two	Year Three
Part-time openings	0	0	0
Full-time openings	15	18	6

b) State the anticipated total number of enrollment for the first year of the program. Include the total number of transfer students from other internal programs and new students to the institution. Provide the estimated attrition rate. Also include the anticipated number of graduates from the program.

Anticipated Total Enrollment:20 Total # of Transfer: 5 Total # of New: 15

Estimated Attrition Rate: 40% Estimated Graduation Rate: 60%

c) Explain the rationale for determining the attrition rate. Include possible causes for attrition.

The estimates above are based on current performance in other associate degree programs at the college. Possible causes of attrition include a combination of issues including lack of student preparedness, personal issues, and rigor of material.

III. **Proposal Narrative: Total Costs (General Estimates Only)**

	1st Year	2nd Year	3rd Year
Salaries	$75,000	$75,000	$75,000
Supplies and Materials	$10,000	$1,000	$1,000
Library Resources	$500	$500	$250
Equipment	$192,000	$25,000	$0
Facilities	$0	$0	$0
Accreditation	$0	$0	$0
Totals	$277,500	$101,500	$76,500

ATC has secured approximately $700,000 in grant funding from the Department of Energy and the Nuclear Regulatory Commission to assist with start-up costs during the first three years of program implementation.

One new full-time instructor will be hired for the program. Additional instructional and administrative support will be provided by existing personnel.

It is expected that all equipment will be purchased and onsite by the end of the second year of the program.

Existing facilities will be adequate to house the proposed program. ATC's Industrial Maintenance, Radiation Protection, Machine Tool and Engineering Technology labs provide the ideal setting for teaching the NQS curriculum.