5. UNC Degree Program Proposals ....Suzanne Ortega

Situation: North Carolina A&T State University requests authorization to establish a Bachelor of Science (B.S.) in Information Technology degree program (CIP 11.0103).

Background: Per UNC 400.1, UNC General Administration, in consultation with the campuses, brings recommendations to the UNC Board of Governors for new degree programs that meet identified academic program needs.

Assessment: Establishment of the program is recommended.

Action: This item requires a vote.

**Request for Authorization to Establish a
Bachelor of Science in Information Technology at
North Carolina A&T State University**

North Carolina A&T State University requests authorization to establish a Bachelor of Science in Information Technology degree program (CIP 11.0103).

I.   Program Highlights

- Currently offered as a Concentration in Information Technology (IT) in the B.S. in Electronics Technology degree program
- Will focus on the IT area of *Mainframe Education and Enterprise System Support*
- Will be offered online as well as on-campus
- 125 semester credit hours
- 120 full-time, 12 part-time students projected at steady state
- Because this is currently a fully operating program as a Concentration (with 153 majors), there are no additional funding resources needed to implement the new degree.

II.   BOG Academic Program Planning Criteria (UNC Policy 400.1)

1. **Existing Programs (Number, Location, Mode of Delivery).** Four baccalaureate programs exist in CIP 11.0103 (Information Technology): East Carolina University's B.S. in Information and Computer Technology, and the B.S. in Information Technology degree programs at UNCP, UNCW, and WSSU. ECU's program is offered online, as will NCA&T State's proposed program.

   None of the programs at ECU, UNCP, UNCW or WSSU have a similar focus as the proposed program, as the focus of the proposed program is mainframe/enterprise system education. This is a niche discipline area that is only offered by four universities in the country.

2. **Relation to Campus Distinctiveness and Mission.** North Carolina Agricultural and Technical State University is an 1890 land-grant doctoral research university whose programs emphasize the STEM disciplines and also promote economic competitiveness for the State as a whole.

   The proposed program is in direct alignment with the mission of NCA&T State as it offers a new baccalaureate degree program in information technology, one of the STEM disciplines, which will focus on the niche area of *Mainframe Education and Enterprise System Support*. NCA&T State is one of only four universities in the country that has an IBM z9 mainframe computer (worth more than $20 million) on campus that is used to support the program.

3. **Demand (Local, regional, state).** The State of North Carolina Office of Information Technology, with approximately 1800 IT professionals serving the state, provided a letter of support for the proposed program and signed a Memorandum of Understanding with NCA&T State to place student interns, to begin cooperative education programs, to provide professional development for state IT professionals, and to complete various collaborative projects. The State of North Carolina has several mainframe computers that support the eight Cabinet Agencies.

The Industrial Advisory Board of NCA&T State's Department of Computer Systems Technology recommended that the department make a formal request to establish this degree due to the expected growth in available positions in Information Technology both nationally and within North Carolina. The advisory board consists primarily of local industry partners (such as John Deere, IBM, BB&T, Wells Fargo, Cisco, Red Hat, Dell, CA Associates, Met Life, State Farm, Fidelity Investments, and others) who are interested in hiring students from the proposed program, who will be the next generation of support personnel for large Enterprise Systems or mainframes.

A survey responder from one of the other UNC campuses wrote: "I was excited to see a program that offers a focus in mainframe IT… over 2000 large companies around the world run IBM System z Mainframes… 96 of the world's top 100 banks, 23 of the 25 top US retailers, and nine out of 10 of the world's largest insurance companies run IBM's System z mainframes… 71% of global Fortune 500 companies are System z clients… Nine out of the top ten global life and health insurance providers process their high-volume transactions on a System z mainframe… mainframes process roughly 30 billion business transactions per day, including most major credit card transactions, stock trades, money transfers, and manufacturing processes. So, with an emphasis in the UNC System and the NC Legislature that is clearly on creating marketable skills, this program presents a tremendous opportunity."

The number of students enrolled in the Information Technology concentration at NCA&T State has been steadily increasing. From 2008 to 2013, the total enrollment in the IT concentration has increased from 100 to 153 students, a 53% increase.

4. **Potential for Unnecessary Duplication.**
   This program would not create unnecessary duplication because its focus is on *Mainframe Education and Enterprise System Support*. There are only four universities in the country with a z-System mainframe that offer programs for students on supporting the mainframe. The proposed program is the only one in the UNC System, and one of the few in the world, that offers a full set of mainframe courses.

   Six campuses responded to the system-wide survey reviewing the proposal (ASU, ECU, NCSU, UNCP, UNCW, and WCU); all supported establishment of the proposed program, and none raised the issue of unnecessary duplication.

5. **Employment Opportunities for Graduates.**
   The request to establish this program was driven by direct input from NCA&T State's Industry Advisory Board and the IT industry at large. Industry sources have validated that the proposed degree program is unique in the program's efforts to map the curriculum to the mainframe support skills needed by industry. Letters of support for the proposed program from the State CIO and other Industry Advisory Board members were submitted with the application. Industry has made it clear that the lack of programs teaching mainframe technology is contributing to an Information Technology "skills shortage," and that if students have exposure to mainframe systems and support skills, they will be stronger candidates for a larger number of employment opportunities.

   In 2012, Gartner predicted that 1.9 million IT jobs would be needed to support "big data" in the U.S. by 2015; graduates of this program would be strong candidates for many of those positions.

Furthermore, an increasing number of positions are becoming available, as retirement of current personnel is adding to the "skills shortage."

6. **Faculty Quality and Number.** Fifteen faculty members (of whom ten are full-time) are currently supporting the existing Concentration in Information Technology in the B.S. in Electronics Technology degree program. As all programs in the School of Technology at NCA&T State University are accredited by the Association for Technology Management and Applied Engineering (ATMAE), the number and quality of faculty designated for the proposed program meet the accreditation requirements of ATMAE.

7. **Availability of Campus Resources (library, space, etc.).** Existing resources are adequate; no new library resources, facilities, or information technology infrastructure and services are needed to implement the program. Courses in the proposed program are currently being taught within the existing Concentration in Information Technology.

8. **Relevant Lower-level and Cognate Programs.** In addition to the mainframe course content in the proposed program, important more general Information Technology discipline content remains in the program's curriculum. This more general Information Technology content increases the employability of program graduates. For example, the Department of Computer Systems Technology (home of the proposed program) is a Cisco Academy site, offering courses that train students for relevant Cisco certifications.

9. **Impact on Access and Affordability.** All students will have access to the new program as it will be offered both on-campus and online. Students enrolled in related discipline programs from community colleges across the state will also be able to take courses in the proposed degree program. The program will require no additional fees for students.

10. **Expected Quality.** The curriculum, campus resources, and the number and quality of faculty designated for the program meet the related guidelines of the national accreditation agency ATMAE. In addition, the department has been assessing its B.S. in Electronics Technology degree program using ABET, Inc. (Accreditation Board for Engineering and Technology, Inc.) outcomes for the past three years, and plans to seek accreditation by ABET in the near future for both the Electronics Technology and the proposed B.S. in Information Technology programs.

11. **Feasibility of Collaborative Program.** NCA&T State has established a collaboration plan with ECU. (The program at ECU is accredited by ATMAE as are all programs in the School of Technology at NCA&T State.) The institutions will collaborate in three key areas: sharing computing resources, sharing courses, and research collaboration. Also, NCA&T State has ongoing collaboration activities with Winston-Salem State University in this discipline area.

12. **Other Considerations.** The proposed program will build upon the existing M.S. in Information Technology degree program, ranked by US News and World Report as the 15th best online program in the US.

III.   Summary of Review Processes

Campus Review Process and Feedback.
This new program proposal has been processed according to the regular curriculum development and review procedure on the NCA&T State campus, as follows. The academic department, the Department Chair, and the appropriate Dean prepared the Appendix A (Request for Authorization to Plan) and Appendix C (Request for Authorization to Establish) documents. Both the Dean's Council and the Provost approved those proposals for the requested B.S. in Information Technology degree program. The Chancellor approved the final proposal sent to UNC-GA for system-wide and Board of Governors review and approval. After BOG approval is obtained, the Appendix C proposal will then be moved through the campus faculty peer review process, which includes review and approval by the campus Faculty Senate.

In the Dean's Council, Provost, and Chancellor's review of the proposed program, there were no areas of concern raised and no significant revisions made to the program proposal. The Provost's Office offered some suggestions to strengthen the overall proposal.

UNC General Administration Review Process and Feedback. After submitting the Request to Establish a Bachelor of Science in Information Technology document, North Carolina A&T State University responded to questions from UNC General Administration staff on student demand, evidence of societal demand and employability of graduates, and funding of the proposed program. Highlights of NCA&T State's response are included in this summary.

Six campuses responded to the system-wide survey reviewing the Request to Establish proposal (ASU, ECU, NCSU, UNCP, UNCW, and WCU); all were supportive of the new degree program. The only question raised (by one campus) concerned faculty teaching loads and number of faculty in the proposed program. NCA&T State responded that it is currently recruiting one additional full-time tenure-track faculty member for this program.

Current enrollment numbers demonstrate student demand at North Carolina A&T State University, and evidence exists for the employability of graduates of the proposed degree program. Quality is indicated by the fact that the existing concentration is accredited by the Association for Technology Management and Applied Engineering (ATMAE); further, the program will pursue ABET accreditation upon BOG approval. Because this is currently a fully operating program as a Concentration (with 153 majors), there are no additional funding resources needed to implement the new degree. NCA&T State has committed in writing that if enrollment growth funding is not available, "the university will carefully manage the overall growth of all its degree programs, including the BS in Information Technology, to ensure that available resources will support all [of its] degree programs."

IV.   Recommendation

It is recommended that the Board of Governors approve North Carolina A&T State University's request to establish a Bachelor of Science in Information Technology degree program (CIP 11.0103) effective June 2014.