

NTID NEW PROGRAM CONCEPT PAPER

I. Title/Department/College

- a. Title: **Civil Technology (CT)**
- b. Department: **Engineering Studies (DES)**
- c. College: **National Technical Institute of Technology (NTID)**

II. Goals and Justification of Proposed Program

The proposed new program in Civil Technology (CT) is designed as an AAS associate+bachelor's degree program in the Department of Engineering Studies (ES) at NTID. It provides an effective and efficient alternative for deaf and hard of hearing students who need academic preparation in order to succeed in the Civil Engineering Technology (CVET-BS) program in the College of Applied Science and Technology (CAST). There have been increasing numbers of deaf and hard-of-hearing students who come to NTID/RIT desirous of earning BS degrees. The CT proposal is consistent with NTID's Strategic Vision 2020 recommendations for development of programs that facilitate a seamless transition to baccalaureate studies.

The proposed AAS in Civil Technology (CT) program is intended to attract students who currently come to NTID desirous of a baccalaureate degree but need additional preparation before entering such a program, as well as potential students with a composite ACT score of 18 (Math 20, Reading 16) who currently might not choose NTID. This proposal is viewed as an important programmatic alternative for deaf and hard-of-hearing students who increasingly want to complete a baccalaureate program.

Currently, NTID-supported students who are not accepted directly into the CVET-BS program enter either a one-year NTID pre-baccalaureate program (PBENG-UND) or an NTID associate degree engineering studies program. Neither pathway provides students with an efficient means for transferring to CVET-BS, primarily due to the lack of alignment with the curricular elements of the CVET-BS programs. The proposed CT program incorporates CVET-BS coursework and also includes course experiences that specifically prepare students to succeed once they enter CAST's CVET-BS program. The following are the Academic Program Goals for the proposed Civil Technology program:

1. Understand how to use productivity software to solve technical problems
2. Prepare for entry to CAST Civil Engineering Technology program
3. Prepare for success in course work required in CAST Civil Engineering Technology program
4. Prepare for success in CAST BS Civil Engineering Technology program
5. Achieve student satisfaction with CT courses and program

The proposed CT program also has an important advantage over the current pre-baccalaureate (PBENG-UND) program. If a student completes the pre-baccalaureate program, but does not complete the bachelor's program, the student may leave the institute

without a degree. However, if that student completes the CT program but does not complete the bachelor's program, he/she will still have earned an AAS degree. According to Scott Wolcott, the chair of the CVET-BS program, the proposed CT provides students with an "excellent stopping point for people who feel they need training, but aren't quite ready for a 4 year experience. They can always build off the AAS at a later time." (Wolcott, 1/25/2013 via email) Some typical jobs that AAS graduates may seek include CAD draftsman, field technician, survey assistant, construction inspector, assistant construction (project) manager, and estimator.

The design of the proposed CT program, based in part on discussions with CVET-BS faculty, maximizes the number of course credits accepted by the CVET-BS program. Graduates of the CT AAS program should be as well prepared as any student transferring to RIT with a two year college educational experience. The program will also enable students to apply for admission to other BS CAST engineering technology programs or other four year engineering technology programs outside RIT, though the number of transfer credits may be less.

III. Description of Proposed Program Curriculum

The proposed CT AAS program offers a comprehensive curriculum of 64 total semester credit hours taken over four semesters. It closely follows the first two years of the CVET-BS program, and 61 semester credit hours (95%) are accepted for transfer into the CVET-BS program (see Appendix A, Articulation Agreement). Compared to the CVET-BS program: 1) CT students take courses which accommodate minor deficiencies in math, science or English areas and allow them to "catch up" to students who directly enter the CAST BS programs.; 2) CT students take three NTID courses in the engineering and Computer Aided Drafting Technology (CADT) areas which, as a group, are structured to provide a more comprehensive technical foundation than the two courses in the first year of the CVET-BS program which address the same skill sets; and 3) CT provides enhanced academic support and accommodations inside and outside the classroom to foster student success.

IV. Proposed Program's Fit with RIT's Mission and Strategic Directions

The CT program includes curricular offerings that prepare students for the demands of today's workplace and provide experiences based on RIT's published educational and access goals. NTID students will acquire not only foundation skills necessary for success in the field of civil engineering technology, but also skills in communication, critical thinking, problem solving and mathematics. Students' technical and general education courses will provide a basis for their life-long learning by incorporating opportunities for gathering, organizing and presenting information. Personal integrity, ethical behavior and professionalism will be expected in all classes. NTID students will be encouraged to grow in civic and cultural awareness and social responsibility through participation in multiple NTID and RIT living and learning offerings.

The AAS CT program is consistent with several of the priority recommendations in NTID's 2010 document, *Strategic Vision 2020*:

- To expand A+B transfer degree programs, particularly in partnership with those colleges of RIT where such programs do not yet exist.
- To create new paths for qualified students to obtain a baccalaureate degree.
- To offer an array of transfer programs that match the curriculum structure of other colleges of RIT
- To develop programs jointly with the respective RIT college in order to promote a seamless transition to baccalaureate studies.

Furthermore, the AAS CT program goals are consistent with the established mission of the CAST Civil Engineering Technology program, which also fits with RIT Strategic Goals:

- Provide an environment in which faculty and staff can deliver a strong, innovative program in Civil Technology.
- Provide state-of-the-art facilities that encourage learning, student project work and applied research.
- Provide an environment for continuous improvement of faculty, staff, facilities and curriculum.

V. Synergy with Other Programs

This proposal was developed in consultation with the Chairperson of the Civil Engineering Technology program of CAST, Scott Wolcott. NTID has an articulation proposal with CAST which will allow students in good academic standing to potentially transfer 61 of the 64 semester credits (95%) shown in the CT-CVET course transfer table (see Appendix A).

In addition, the CT program is designed to share resources with the Computer Aided Drafting Technology (CADTEC-AAS) program in the DES. Three technical courses in the first year are existing courses in the CADTEC-AAS program. Also, the CT program will share the Materials and Methods Lab with the CADTEC-AAS program.

VI. Administrative Structure for the New Program

The Department of Engineering Studies will be responsible for the implementation and assessment of this program. Many of the technical courses will be delivered using facilities and faculty within the Engineering Studies department. Some technical courses, particularly during the second year, will be shared with the CVET-BS program through a prior agreement.

VII. Enrollment Management Expectations and Sustainment

Projections for program enrollment are based on the expectation that overall NTID enrollment will continue at current levels of approximately 1,530 students. It is expected that an average of 5 students will enroll in the AAS CT program per year over the next 5 years. These students are projected to come from the following groups:

- students directly admitted to NTID with an ACT composite score of 18 (20 Math, 16 Reading) who are interested in Civil Engineering Technology
- those who now enroll in the CBGS Pre-Baccalaureate program (PBENG-UND) hoping to transfer into either the College of Engineering or a CAST program
- Underprepared students who, without the proposed CT program, would be placed in a career preparatory Engineering Studies (ES) program
- an occasional “internal transfer” student entering the CT program following a stay in another program at NTID
- students not presently attracted to NTID/RIT who would come because of the new program

The following table includes enrollment expectations for the first five years of the program:

	First Year # of Entering Students	Second Year # of Returning Students	Total Program Enrollment
Year 1	3		3
Year 2	4	2	6
Year 3	5	3	8
Year 4	5	4	9
Year 5	5	4	9

The demand for civil engineering appears to be strong. According to data retrieved from the NTID Student Records/Registrar Officer, Rhonda Sliker, 43 deaf and hard-of-hearing students have matriculated into CVET-BS since 2005, and 8 students graduated during the same time period. Currently, 15 deaf and hard-of-hearing students are matriculated in CVET-BS, including 6 students who graduated from the CADT program at NTID. The six students who began their college education at NTID have an average ACT score of 15. The remaining students who were directly admitted to CVET-BS have an average ACT score of 24.75. Furthermore, of the 8 students who graduated since 2005, 4 had an average ACT score of 17 (3 were transfer students and 1 had an SAT score of 1100). These data lend confidence to the proposed requirement of an ACT composite score of 18 for entry to the CT AAS program.

Additional data retrieved from the NTID Admissions Department also shows an increasing interest in civil engineering. In 2006, 22 prospective students contacted NTID with a specific interest in civil engineering. In 2007, this number increased to 27, and in both 2008 and 2009 the number of prospective civil engineering students increased to 32. For the years 2009 to 2012, 33 enrolled deaf and hard-of-hearing students selected civil engineering as

their preferred major. Clearly, there is a growing interest in civil engineering studies among prospective deaf and hard-of-hearing students.

Regarding the program's comparative advantage, the only rival at RIT to the proposed CT program will be the first two years in the CVET-BS program. Beyond RIT, the competing programs will typically be 2-year transfer degree programs at area community colleges. According to the CVET-BS chairperson, Scott Wolcott, the major feeder schools for CVET-BS are Monroe C.C., Hudson Valley C.C., SUNY Canton, Broome C.C., Erie C.C. and Genesee C.C.

The proposed CT program has two key advantages over the primary competing programs. First, it is designed to provide a foundation optimizing the success of deaf and hard-of-hearing students. Second, NTID has a long history of providing deaf and hard-of-hearing students the support needed to succeed academically. At NTID, students can expect small classrooms, equipped labs and faculty who use sign language. For courses offered through other RIT colleges, NTID-supported students will have assigned faculty tutors, peer tutors and access services such as interpreters, real time captioning, and note takers. In addition, an array of both academic and academic-related support services is available. Finally, in contrast to any college in the country, except Gallaudet University in Washington, DC, students can experience an active vibrant deaf community offering social, recreational and cultural opportunities both on and off campus.

VIII. Impact on Resources

There are no new resource implications for this program. All of the technical courses are existing courses within the CADTEC-AAS program or the CVET-BS program. If student enrollment remains at projected levels, the CT program will use courses, faculty, equipment, space and support services already available within RIT's colleges. In the event that enrollment increases to more than 15 students, the Engineering Studies department will seek additional instructional and tutoring resources.

IX. Conclusion

The NTID Department of Engineering Studies believes that the proposed Civil Technology program will be a valuable alternative for those students who desire a bachelor's degree in Civil Engineering Technology. Students who enter the CT program will receive the additional support opportunities that they need in order to be successful when they transfer to the bachelor's degree program. With minimal impact on the institute's resources, we believe that this is a worthwhile program to establish to serve our students.

Appendix A: Articulation Agreement

Civil Technology Program
National Technical Institute for the Deaf
Rochester Institute of Technology

Transfer Agreement
with

Civil Engineering Technology Program
College of Applied Science & Technology
Rochester Institute of Technology

January 2013

The purpose of this transfer agreement is to:

- Attract qualified students to RIT's College of Applied Science & Technology (CAST);
- Facilitate the transition of qualified transfer students from the National Technical Institute for the Deaf (NTID) to CAST;
- Encourage academic cooperation and exchange of information between the NTID and CAST.

TERMS

RIT's College of Applied Science & Technology agrees to accept into the Civil Engineering Technology program (CVET-BS) those qualified students who have successfully completed the Associate of Applied Science (AAS) in Civil Technology offered through the NTID's Engineering Studies Department. Qualified students should demonstrate success and a student in good standing at NTID. Transfer credit will be awarded for courses completed with a grade of B or better for courses coded "NCAD" and "NMTH" and a grade of C or better for other courses. In addition, a minimum overall GPA of 2.5 or better must be achieved to be accepted into the CVET-BS program. A review of this transfer agreement can be initiated by either college in the case of significant curriculum changes. However, this agreement will be reviewed no less than every five (5) years.

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Dr. Gerard Buckley, President/Dean
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ARTICULATION AGREEMENT

National Technical Institute for the Deaf / RIT CAST

AAS Degree – Civil Technology
BS Degree – Civil Engineering Technology

NTID CIVIL TECH AAS		RIT CAST BS	
Year 1		Year 1	
NCAD-150 Engineering Graphics in AEC	3	CVET-150 Computer Aided Design and Drafting	3
NCAD-255 Constr. Materials & Methods I	3	CVET-140-Materials of Construction	2
First Year Seminar (LAS-F1)	3	CVET-141-Materials of Construction Lab	1
LAS-Elective (NMTH-275 Advanced Math)	3	First Year Seminar (LAS-F1)	3
Free Elective (preparatory course)	3	MATH-111-Precalculus (LAS-P7A)	3
NCAD-180 Civil Technology Graphics	3	CVET-180-Civil Engineering Graphics	2
UWRT-150 First Year Writing (LAS-F2)	3	CVET-181-Civil Engineering Graphics Lab	1
MATH-171 Calculus A	3	Writing Seminar (LAS-F2)	3
PHYS-111 Physics I w/ lab (LAS-P6)	4	MATH-171-Calculus A (LAS-P7B)	3
LAS-P1 (ethical)	3	PHYS-111-Physics I w/lab (LAS-P6)	4
		GE Perspective (LAS-P1)	3
Year 2		Year 2	
CVET-160 Surveying	3	CVET-160-Surveying	3
CVET-161 Surveying Lab	1	CVET-161-Surveying Lab	1
MCET-220 Principles of Statics	3	CVET-210 Statics	3
MATH-172 Calculus B	3	MATH-172-Calculus B	3
PHYS-112 Physics II w/ lab	4	PHYS-112-Physics II	4
LAS-P2 (artistic)	3	GE Perspective: (LAS-P2)	3
CVET-170 Elements of Building Construction	3	CVET-170-Elements of Building Construction	3
MCET-221 Strength of Materials	4	CVET-220-Strength of Materials	4
CHMG-121 Chemical Princ. & Apps.	3	CHMG-121 Chemical Princ. & Apps. (LAS-P5)	3
LAS-P3 (global)	3	GE Perspective: (LAS-P3)	3
LAS-P4 (social)	3	GE Perspective: (LAS-P4)	3
Notes:			
<p>If possible, students are encouraged to take the CVET courses in Statics and Strength of Materials, rather than the MCET courses listed above for the AAS degree. However, the CVET-BS program will accept the MCET courses as substitutes, as shown above.</p> <p>NTID students will need to pick up two technical courses (Elementary Structures and Elementary Soil Mechanics shown below) in the third year of RIT CAST. The reason for this movement is to satisfy the AAS requirement of Liberal Arts (AAS students are taking two LAS courses that the BS students do not take in their first two years).</p>			
		CVET-230-Elementary Structures	3
		CVET-240-Elementary Soil Mechanics	3
		CVET-241-Elementary Soil Mechanics Lab	1