

Joint Submission of
Career and Technical Education Plan
Virginia Tech and Virginia State University

Be it enacted by the General Assembly of Virginia:

1. Virginia Polytechnic Institute and State University and Virginia State University shall jointly develop and report to the State Council of Higher Education for Virginia, the House Committee on Education, and the Senate Committee on Education and Health no later than October 1, 2019, a plan for the establishment of a baccalaureate or other degree program that prepares graduates to be effective career and technical education teachers in order to address persistent teacher shortages in career and technical education subject areas in the Commonwealth.

A Proposal

This proposal is being submitted in response to the Virginia General Assembly directive for faculty members from Virginia Tech (VT) and Virginia State University (VSU) to collaboratively develop a plan for establishing an undergraduate career and technical teacher education (CTE) degree program. This proposal is divided into three sections: Virginia State University's Undergraduate CTE Degree plan, Virginia Tech's Undergraduate Degree plan, and potential joint endeavors designed to positively impact the persistent teacher shortages in career and technical education in the Commonwealth.

Rationale

The teacher shortage in Virginia is persistent and pervasive, with the number of unfilled teacher positions, across all subject areas, rising from 760 in 2006 to 1,080 in 2017¹. These unfilled positions, which mirror national trends, presage the long-term occupational projections for primary and secondary CTE school teacher shortfalls, shortfalls of 40 and 264 for primary and second CTE school teachers, respectively². Indeed, in the yearly list of the top 10 critical shortage teaching endorsement areas in Virginia, between 2010 and 2019, CTE has ranked #4 every year except 2019-2020, when it ranked #3. This continual CTE shortfall was examined by the Virginia Department of Education³ in early 2019, yielding two conclusions, that: (a) CTE is still perceived primarily as a pathway for academically underperforming students: and relatedly, (b) CTE is still known more as "vocational education" than "career and technical education." In addition, the shortfall can also be attributed to the Virginia General Assembly's decision in 1990 to eliminate undergraduate teacher education degree programs in Virginia and the decision of the U.S. Congress to change the funding formula for distributing funds from the Carl D. Perkins CTE Act around the same time. This shortfall exists against a backdrop that "demand for Virginia CTE has continued to grow" and that one central avenue toward positively impacting the misperceptions of CTE would be to develop and implement a high-visibility marketing plan.⁴

¹ Preliminary Report from the Advisory Committee on Teacher Shortages (October 2017)

² Long and Short-Term Occupational Projections; www.vec.virginia.gov

³ House Bill 1530 – H.S. Diploma Options and Stigma in Career and Technical Education

⁴ see footnote 3, page 4

Part One: Virginia State University

Overall Background Information

Virginia State University has continued to operate Career and Technical Education programs in the areas of Family and Consumer Science and Agriculture Education. These program areas have produced a limited number of teachers who are currently successful CTE educators in the state. Recent graduate follow-up by the College of Education indicates that 83% of the graduates are employed as public school teachers. The Department of Teaching and Learning in the College of Education collaborates with the academic program areas to provide the professional studies courses required to meet the licensure requirements in the state. The College has identified faculty in the CTE program areas who identify the candidates in their programs who desire to teach. Those students are assigned a co-advisor in the college who assist the candidate in meeting the licensure requirements for the state.

Virginia State University has developed a plan to address the CTE teacher shortage by creating a degree track in Middle School (Science) Innovative Technology Education that will meet the requirements for a CTE teacher. The College of Education will collaborate with the State Advisor for the Technology Students Association, who is housed at VSU, to recruit students into the degree program. The last element of the VSU plan is to restore the Masters Level Career and Technical Education degree to encourage CTE teachers and Administrators to expand their CTE knowledge-base and become CTE Directors and administrators in school divisions across the state.

Enrollment in the Virginia State University CTE degree programs will come from three sources. The first source will be high school seniors who are in CTE programs across the state. These students have foundational knowledge of CTE and could become strong teacher candidates. Recruitment of these potential candidates will be aided by a collaborative relationship with the TSA state advisor housed at the university. The College of Education will also collaborate with local Community Colleges to develop articulation agreements which will assist candidates make a seamless transition to VSU thus reducing the cost of a four year degree. Current VSU students are the last source of recruitment for the CTE programs. Candidates in related degree areas will be encouraged to pursue CTE as a career path.

Resources: The College of Education currently has identified resource needs for the expansion of CTE at the University. Funds will be requested to assist in the recruitment of CTE students across the state. The Collaboration with Virginia Tech has the potential of offering some unique educational opportunities to degree candidates who typically come from rural parts of the state. Virginia State University will require at least two fulltime faculty in CTE to handle both undergraduate and graduate needs of the candidates. Resources will also be needed to acquire instructional resources to equip the classrooms with equipment needed to prepare CTE educators.

Proposed Undergraduate Program

The proposed BS in Career and Technical Education (CTE) Multiple Levels program will prepare candidates to help students acquire challenging academic, technical, and employability skills needed to succeed in postsecondary education and in-demand careers. Candidates will learn to

assess student progress and teach workplace competencies. Candidates will learn how to make academic content accessible to students by providing it in a hands-on context. Through experiential learning, students will be exposed to people with varying abilities and CTE needs which will prepare them to serve as professionals to diverse populations including youth and adults, and people from various ethnic backgrounds. Graduates will be prepared to work in public and private schools in Career and Technical Education programs that seek to improve the education of children and youth in technology.

Formal Admission to the BSED

In order to be admitted to the Bachelor of Science in Teacher Education, candidates must meet the following requirements:

- 2.5 cumulative GPA
- “C” or above in EDUC 201 (Seminar in Education) and EDUC 202 (Foundations of Education)
- Passing scores on the Core Academic Skills for Educators (CASE) Math Assessment
- Passing score on the Virginia Communications and Literary Assessment (VCLA)
- Successful interview with the Admission and Retention Committee

Curriculum

The curriculum for these degree programs has been designed to meet the state licensure program requirement standards and the national standards for the concentration areas of two organizations. Core courses and courses required for the concentration in elementary and middle education will meet the professional standards of the National Education Association. The Career and Technical Multiple Levels Education degree program will meet the standards for the Career and Technical Education standards.

Program Requirements

General Education Requirements – 33-34 credit hours

The Virginia State University (VSU) General Education Program is founded on the principles of academic excellence and personal growth and includes the following classes/subjects:

English Composition – 6 credits

ENGL 110 Composition I (3 cr) and ENGL 111 Composition II (3 cr)

History – 3 credits

HIST 122/123 U.S History I or II (3 cr)

Humanities – 3 credits

MUSI 200 or ARTS 199 Blacks in American Music or Art App (3 cr)

Global Studies – 3 credits

HIST 114/115 World History I or II (3 cr)

Literature – 3 credits

ENGL 201/202 Intro to Literature/ African or American Lit (3 cr)

Wellness/Health – 2 credits

HPER 170 Health and Wellness (2 cr)

Mathematics – 6 -7 credits

MATH 130 Numbers and Operation (3 cr)/MATH 131 Algebra and Functions (3 cr)/

MATH 150 Pre-Calculus

Social Science – 3 credits

ECON 100 Basic Economics (3 cr)

Natural Science and Lab. – 4 credits

BIOL 116/AGRI 100/PHYS 100 Biology/Environment Science/Earth Science (4 cr)

Bachelor of Science (BS) in Career and Technical Education Multiple Levels

Multiple Level Education Core Courses 56 credits

EDUC 202 Foundation of Education (3 cr)

EDUC 200 Technology in the Classroom (3 cr)

EDUC 427 Reading in the Content Areas (3 cr)

ELED 429 Language Acquisition and Reading (3 cr)

EDUC 315 Data Driven Instructional Design (3 cr)

EDUC 328 Curriculum and Instruction (3 cr)

SPED 403 Classroom Management in Educational Settings (3 cr)

EDUC 424 Culturally Responsive Pedagogy (2 cr)

EDUC 401 Student Teaching Seminar (3 cr)

EDUC 402 Student Teaching (9 cr)

ENGR 101 - Introduction to Engineering I (2 cr)

ENGR 102 - Introduction to Engineering II (2 cr)

TEDU 151 Fundamentals of Work (3 cr)

TEDU 355 Vocational Program Design (Student Organizations) (3 cr)

TEDU 452 Technology Design (3 cr)

TEDU 453 Principles and Practices for Teaching Technology Education (3 cr)

TEDU 455 - Instructional Materials (2 cr)

TEDU 402 Student Teaching in Content (3)

Additional Required Require Courses 19 credit hours

EDUC 201 Seminar in Teacher Education (3 cr)

BIOL 116/AGRI 100/PHYS 100 Biology/Environment Science/Earth Science (4 cr)

MATH 230 Geometry & Measurement (3 cr)

PSYC 212 Human Growth and Development (3 cr)

SPEE 214 Public Speaking (3 cr)

SPED 325 Survey of Exceptional Children (3 cr)

Restricted Electives - 6 credits

Students may choose to add additional endorsements or knowledge in another teaching area. They may choose to add the Middle School Methods Courses, or take additional coursework in Special Education.

Free Elective 6 credits

Total Hours 121credits

Student Assessment

Students who complete the proposed BS will possess the appropriate knowledge, skills, and abilities needed to educate and improve the knowledge, skills, and dispositions of children and adolescents in (K-12) schools. Student learning will be assessed throughout the program through a variety of formative and summative measures. Assessment measures will include, but are not limited to, assigned papers, quizzes, tests, and projects assigned during classroom instruction. In laboratory and in field-based learning experiences students will be expected to demonstrate knowledge and skills in a practical, “real world” sense and assessment measures will include presentations.

During the internship and student teaching experiences, students will be assessed by on-site professionals as well as by university faculty supervisors. Each of these professionals monitors and notes the students’ performance during multiple observations and each will write clinical reviews of the performances both as formative and as summative evaluations. Students will also be required to complete an internship portfolio agreed upon by the student, and the university faculty supervisor. This project will include compilation of evidence-based knowledge of education practices applicable to K-12 schools.

The student learning outcomes for the core program and the concentration areas are based on national professional guidelines. The program learning outcomes are derived from the Interstate New Teacher and Support Consortium (InTASC) Standard, CAEP 2018 K-6 elementary teacher preparation standards, Council for Exception Children (CEC) standards, and the Association for Middle Level Education (AMLE). Program faculty will maintain awareness of the standards from this organization through professional development activities such as conference attendance, workshop training, and keeping abreast of the professional literature.

Learning Outcomes

Students will acquire knowledge, skills, and dispositions that are critical to the development of students in K-12 schools. Students will be able to meet the following standards:

Multiple Level – Career and Technical

Students in this concentration will be able to meet the following learning outcomes:

- Understanding the nature of technology including, characteristics, scope, physical, biological, and informational technologies.
- Understanding the relationships between technology and society.
- Comprehension and utilization of engineering design, including the attributes of technological design; constraints, optimization, and intentional integration of mathematics and science concepts and practices.

- Ability to succeed in a technological world, including a capacity to employ the design process in the engineering of technological products and systems.
- Knowledge, skills, and processes required for teaching in a STEM laboratory environment.
- Demonstration of the knowledge, abilities, and capacity necessary to teach leadership skills, organize and manage an effective co-curricular student organization, and implement the organization's activities as an integral part of instruction.
- Understanding of and proficiency in grammar, usage, and mechanics and their integration in formal technical writing.
- Understanding of and proficiency in pedagogy to incorporate writing as an instructional and assessment tool for candidates to generate, gather, plan, organize, and present ideas in writing to communicate for a variety of purposes.
- Demonstrate and integrate workplace readiness skills in the classroom and real-world activities.
- Ability to plan, deliver, evaluate, and manage work-based learning methods of instruction such as internship, job shadowing, cooperative education, mentorship, service learning, clinical, and youth apprenticeship.

The following initial benchmarks will be used to gauge the growth and success of the proposed Career and Technical Education Multiple Level degree program. The benchmarks of success include:

Benchmarks of Success

Enrollment will reach at least 5 students by the target year.

- Eighty percent (80%) of students in the program will pass national and state tests standards for their specific content area, which is mandated by the Virginia Department of Education.
- Within three years of formal admission to the program, 80% of the admitted students will graduate.
- 80 percent (80%) of students who seek employment will be hired within one year of graduation.
- Employment feedback will indicate that school divisions are satisfied with the performance of program graduates

Education faculty will review the program annually to assess student satisfaction and track progress in terms of each stated benchmark. If any of the benchmarks of success are not being met, the faculty will re-evaluate and determine appropriate strategies to reach the benchmarks. For example, if less than 80% of the students are not passing the Praxis 2 or RVE one potential strategy would be to have faculty provide additional tutoring and test preparation sessions on the content for this test. These sessions would include the use of online modules, content materials, and test preparation guides.

Resource Needs

Virginia State University and the Department of Teaching and Learning has the resources needed to initiate and sustain the proposed BS in Special Education, Elementary Education, Career and Technical Multiple Level Education, and Middle School/ Intermediate Education. The department will have the faculty, staff, equipment, space, and library resources to launch and maintain the proposed program. The department will have 6 full-time faculty members committed to the program. Assessments of need for full-time, part-time, and adjunct faculty are based on a ratio of 1.0 FTE of instructional effort for every 20 FTE students in lower division courses and 14 FTE students in upper division courses. The program will therefore require a total of 2.8 FTE of instructional effort in 2019-2020 to initiate the program, rising to 6.7 FTE of instructional effort in the target enrollment year of 2023-2024.

Full-Time Faculty

Four (4) faculty in the Department of Teaching and Learning will dedicate 1.0 FTE to the proposed degree program. Two (2) faculty members from the College of Education and Learning will dedicate .5 FTE in the degree program. These six faculty currently teach in the existing Bachelor of Science in Interdisciplinary Studies.

One new faculty member will be hired for the proposed program. The position will require a Ph.D. in Curriculum and Instruction or a closely related field. The new faculty member will be hired at the rank of Assistant Professor with a salary range of \$55,000 to \$65,000 and benefits of \$16,500 to \$19,500.

Part-Time Faculty

The proposed degree program will require 1.75 FTE part-time faculty effort to teach required courses for the major and courses for the concentrations. The proposed program will require no part-time faculty in the 2019-20 initiation year, rising to 1.75 FTE part-time faculty by the target year.

Part Two: Virginia Tech

Part two provides overall background information regarding career and technical education (CTE) at Virginia Tech (VT) and a basic introduction to CTE. It also provides an historical overview of the CTE teacher education program at VT, the comprehensiveness of the program, current program offerings, the proposed undergraduate program, a proposed timeline, resources needed, and finally a summary.

Overall Background Information

The mission of the Career and Technical Education (CTE) program at Virginia Tech is to prepare teachers, administrators, and teacher educators for the field of CTE. In addition, it provides research, scholarship and outreach for the discipline of CTE. The program offers pre-service teacher education for initial preparation of individuals who want to become CTE teachers. It also

provides advanced instruction to serve as professional development for practicing teachers. Finally, it offers a doctoral program for individuals who wish to become CTE teacher educators or college professors at a small college or university in one of the CTE seven program area disciplines.

At the middle school, high school, and community college, CTE comprises seven distinct program areas, all of which have their own Virginia teacher license endorsement. These program areas include:

1. Agricultural Education
2. Business and Information Technology
3. Family and Consumer Sciences
4. Health and Medical Sciences Education
5. Marketing Education
6. Technology Education
7. Trade and Industrial Education

At the middle and secondary levels of education each of these program areas provide instruction to assist students in preparing for a career in a given occupational area and/or serve as a foundation for continuing their education to pursue a career. At community colleges, students continue their education to gain advanced preparation. In addition, many students continue their education at four-year colleges and universities after high school or community college graduation.

Currently in Virginia, and throughout the U.S., there is a critical shortage of teachers in each of the CTE program areas in middle and high schools. Local school systems have had to rely on hiring unqualified teachers because of this shortage through alternative licensure programs. These programs in Virginia include the Career Switcher program and the Provisional Licensure Program, which typically do not provide high quality instruction that is needed for students to pursue a career and/or post-secondary education in career and technical education. In addition, it has been found that most teachers who go through these programs only last a few years and then quit teaching.

History of CTE Teacher Education at VT

Before the critical shortage of CTE teachers, there were many teacher education programs throughout the U.S. that served as a pipeline for providing highly qualified teachers. In addition to providing these teachers, there were leadership development programs that prepared qualified CTE administrators for local school systems. Furthermore, research and scholarship flourished from these programs, contributing to teacher professional development and establishing state of the art education programs. However, the demise of teacher education programs across the U.S., including Virginia, began when the U.S. Congress switched their formula for providing federal support for CTE through the Carl D. Perkins Act. Up until 1989, the distribution of this federal support was divided such that 75% went to state departments of education and 25% to local school systems. The state departments of education could then determine the most beneficial way to utilize the majority of the funds, some of which were filtered down to local school systems (in addition to the 25% they already received). The funds were also used to partially support teacher education programs, professional/leadership development programs for CTE educators, and

curriculum development projects. Once the formula was switched to 80% going to local school systems and 20% going to state departments of education, all of the teacher education programs were downsized or eliminated altogether and most of the professional/leadership development programs disappeared.

In Virginia and at Virginia Tech, this change in the federal support for CTE could not have come at a worse time – a "perfect storm." In addition to losing the federal support, the Virginia General Assembly and state government education administration decided in 1990 that all teachers in Virginia should pursue an undergraduate degree in a relevant content area before becoming a certified teacher at the graduate level, therefore dismantling undergraduate teacher education degree programs in Virginia. Although at the time, CTE along with elementary education and physical education received an exception for this new requirement, the CTE undergraduate program was eventually dismantled at Virginia Tech. Thus began the demise of the much-needed comprehensive CTE teacher education program at Virginia Tech. At that time, in 1990, Virginia Tech's College of Education had 150+ tenured-track positions, of which CTE had 33 full-time faculty members. As the years went by, these tenured-track positions dwindled to its current position of roughly 45 tenure track positions within the School of Education and CTE tenured-track positions went from 33 to 1.

VT CTE Comprehensive Teacher Education Program

At the time of the "perfect storm," the Virginia Tech Career and Technical Education program was a nationally recognized program. For over thirty years the program was ranked anywhere from first to fifth in the United States by U.S. News and World Report and other ranking bodies within the field of CTE itself. It also had an international reputation as well. It was truly a comprehensive teacher education program at a research extensive U.S. land-grant university. It provided a vibrant undergraduate teacher preparation degree for all of the CTE program areas. It had a nationally ranked graduate program that provided professional development for practicing teachers and a doctoral program to prepare teacher educators at the university level. It ranked as one of the top grant recipients in the field and at Virginia Tech, receiving millions of dollars of federal and state grant funds for research and developmental projects. It was one of the main sources in CTE for conducting research and scholarship and greatly contributed to the body of knowledge for CTE. It maintained its ranking and comprehensive services to the CTE field for many years, even as the numbers of tenured-track faculty positions dwindled. However, the ranking eventually disappeared as the number of faculty went down to one and its comprehensiveness had to be downsized.

The reviving of the undergraduate degree program at Virginia Tech will require additional CTE faculty. With this increase, not only will it be able to offer an undergraduate degree, but it will also be able to build itself into the comprehensive program that it once was. A multi-faculty CTE program will be able to provide an undergraduate degree teacher licensure program, enhance its graduate teaching/advising, conduct more research and scholarship, and provide more outreach to the profession. Although, it will not be at the same scale it was when there were 33 faculty members, it will be able to make more comprehensive contributions to the field and thus, truly engage in Virginia Tech's entire tripartite mission. With additional faculty, the program will be able to once again become a comprehensive university CTE teacher education program. The elements of this program would include:

1. An undergraduate initial licensure degree that will provide more qualified teachers for all of the CTE program areas
2. A vibrant master's degree program for initial licensure or for professional development of practicing teachers
3. Outreach services to local school systems, the Virginia Department of Education (VDOE), and national agencies and organizations
4. Research and scholarship that will contribute to the body of knowledge for best practices in CTE (supported by external and internal grants)
5. International outreach to developing countries and provide international visibility for Virginia Tech

Current Offerings

Currently, the CTE program at Virginia Tech has two faculty members, one in a tenured-track position and the other in a collegiate faculty position. The program offers a master's degree, an education specialist degree, and doctoral degrees (EdD and PhD). The master's degree has two concentrations, an initial licensure concentration and a professional development concentration. The initial licensure concentration enables students to obtain a Virginia teaching license with an endorsement in one or more of the following CTE program areas: (a) Agricultural Education, (b) Business and Information Technology, (c) Family and Consumer Sciences Education, and (d) Marketing Education. The professional development concentration provides an opportunity for practicing teachers who hold a regular teaching license to obtain advanced knowledge and skills in education. It also provides professional development for practicing teachers holding a provisional license in one of the seven CTE program areas to assist them in gaining knowledge and skills in education and meet the requirements of the Virginia Department of Education for them to obtain their regular license.

In addition, the current program offers a doctoral degree for individuals who wish to go into CTE teacher education or to teach their CTE discipline at a small college or university. Although faculty members do contribute to the body of knowledge in CTE through research and scholarship, it is at a minimum as compared to what it could be with additional faculty members to share the load of providing courses, research/scholarship, and outreach services. Furthermore, the program has an international component in which it works with developing countries.

This proposal is being written to describe the plans for establishing an undergraduate CTE teacher education degree and how the additional resources required for establishing this degree will enable CTE faculty members to strengthen and build the program into a land-grant university comprehensive teacher education program.

Proposed Undergraduate Program

The CTE undergraduate degree will enable students to obtain a bachelor's degree in education and a Virginia teaching license with an endorsement in one or more of the seven CTE program areas. The undergraduate program will start with the endorsement areas listed below. In the long term, it is hoped the final two programs (i.e., Health and Medical Sciences Education, and Trade and Industrial Education) may be added.

1. Agricultural Education
2. Business and Information Technology
3. Family and Consumer Sciences
4. Marketing Education
5. Technology Education

The degree will satisfy all requirements for an education bachelor's degree and teaching licensure put forth by Virginia Tech (VT SOE), Virginia Department of Education (VDOE), and the State Council of Higher Education of Virginia (SCHEV). These requirements will include the following:

1. Course requirements for a bachelor's degree in education
2. Course requirements for a Virginia teaching license with an endorsement in one or more of the seven CTE program areas
3. Supervised business internship requirements for a teaching license
4. Supervised education internships requirements for a teaching license

Course requirements for a bachelor's degree. The following is a generic overview of the proposed course and internship requirements for a bachelor's degree in career and technical education.

Part 1: University and College Pathways Requirements 36 credit hours

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|---|-----------------|
| A. Writing and Discourse | 6 credit hours |
| B. Ideas, Cultural Traditions, and Values | 6 credit hours |
| C. Society and Human Behavior | 6 credit hours |
| D. Scientific Reasoning and Discovery | 8 credit hours |
| E. Quantitative and Symbolic Reasoning | 6 credits hours |
| F. Creativity and Aesthetic Experience | 1 credit hour |
| G. Critical Issues in a Global Context | 3 credit hours |

Part 2: Teaching Content Requirements 39 credit hours

- A. Content Area Courses 36 H, 36 C
- B. EDCT 3xxx Internship in Business 3H, 3C

Note: Students in each CTE endorsement area will be required to take 12 teaching content courses and a supervised business internship related to their respective occupational area. Content area courses will be taken from departments throughout the university that relate to the CTE endorsement areas. For example, if a student wishes to obtain a teaching license endorsement in marketing education, courses would be taken from the department of marketing and other related business departments. A student seeking an agricultural education endorsement would take courses offered in agriculture related departments, etc.

Part 3: Pedagogy Requirements

45 credit hours

A. Education Foundation Core (12 credit hours)

- a. EDEP 4xxx Psych Foundations of Ed. 3H, 3C
- b. EDCI 4xxx Foundations of Ed. 3H, 3C
- c. EDCI 4xxx Ed. Excep. Learners 3H, 3C
- d. EDCI 4xxx Comp Reading in Cont Area 3H, 3C

B. CTE Education Core (18 credit hours)

- a. EDCT 2604 Intro to CTE 3H, 3C
- b. EDCT 3xxx Advising and Implementing a CTSO in CTE. 3H, 3C
- c. EDCT 4xxx Student Assessment in CTE 3H, 3C
- d. EDCT 4614 Curriculum Develop in CTE 3H, 3C
- e. EDCT 4xxx Methods of Teaching CTE 3H, 3C
- f. EDCT 4624 Managing a CTE Program 3H, 3C

C. Supervised Internships/Field Studies (15 credit hours)

- a. EDCT 2xxx Early Field Experience I in CTE 1H, 1C
- b. EDCT 3xxx Early Field Experience II in CTE 2H, 2C
- c. EDCT 4xxx Field Studies in CTE 3H, 6C
- d. EDCT 4xxx Internship in Education 9H, 9C

Part 4: Free Electives

9 credit hours

Total: 129 credit hours

Of special note, the Agricultural Education CTE program is provided in conjunction with the Department of Agricultural, Leadership, and Communication Education (ALCE). A significant portion of the generic course curriculum listed above would be addressed through the ALCE department for the Agricultural Education CTE program. The exact details of the Agricultural Education curriculum will be determined in the coming year.

Sources for Undergraduate Students to Major in CTE

Based on past experiences when VT had a comprehensive CTE undergraduate degree program, the primary source for students for the degree were transfer students. This included internal transfer students (internal to Virginia Tech) and external transfer students (mainly from community colleges).

Internal Transfer Students. There are many students majoring in a department at Virginia Tech that relates to one or more of the CTE program areas (i.e. marketing, business, information technology, engineering), but discover they may not be interested enough in their major to work

in that area. From past experience, once students find out about the opportunity to teach courses related to their occupational area, they often transfer into the CTE major in order to prepare them for teaching. Or, they decide to double major in their current major and the CTE major. In addition, it is anticipated that many students graduating from the two-year agricultural associates degree program at Virginia Tech will also be interested in continuing their education to earn a bachelor's degree to become an agricultural education teacher.

Partnerships between the CTE program and different departments/colleges across the university (e.g., Pamplin College of Business, College of Agricultural and Life Science) will be established in order to provide information about teaching in one or more of the CTE program areas. Most department administrators and faculty members see the advantage to informing their students about additional career opportunities in which they may not be aware.

External Transfer Students. There is also a tremendous market for students who major in a CTE program area at one of the 23 Virginia community colleges. Again, from past experience, once they become aware of the career opportunity to teach courses related to their community college major, many of them become interested in transferring to Virginia Tech to prepare for a teaching career.

When CTE at Virginia Tech had an undergraduate program, it also had a special transfer program that allowed students from community colleges to transfer their occupationally related community college courses. This transfer program was considered special because most of the courses being transferred were not transferable to other VT departments. Since these community college courses led to an "applied" associate degree, most faculty members at Virginia Tech felt they were not equivalent to their own courses. The CTE faculty members, however, believed that the community college courses provided an excellent background for someone interested in teaching at the middle or high school levels. Therefore, university officials approved a special transfer program called the V-22 program. This special program allowed for occupationally related courses to transfer to VT for someone interested in majoring in CTE. Students were transferred in as juniors with the requirement to take CTE courses, education core courses, and courses to satisfy requirements to what is now call Pathways (general education) during their junior and senior years. If a student decided to switch out of CTE to another major in the university, he/she would lose all of their transfer credits.

It is being proposed that this transfer program be revived and approved to allow community college students to transfer to Virginia Tech as juniors and major in CTE. If approved, the program could be called the CTE-22 program (Career and Technical Education 2 + 2 program).

Program Operational Considerations

Program operations will require resources for personnel, program promotion, supplies and equipment, supervision of internships, networking with stakeholders to build partnerships, and travel involved in all of these areas.

Personnel. In order to achieve the directive from the Virginia General Assembly to produce and develop enough well-qualified CTE teachers to meet the demand, provide outreach to school

divisions and the state department of education, and to conduct research and resulting scholarship, six (6) new full-time faculty positions will be needed. These positions will be filled with individuals having a background in each of the five CTE program areas proposed, with two hires supporting the agricultural education program. In addition, one administrative assistant will be needed.

Program promotion. Building and sustaining a comprehensive CTE teacher education program will require a well thought out promotional plan (this plan aligns with the proposals of House Bill 1530⁵, the Preliminary Report from the Advisory Committee on Teacher Shortages⁶, and the draft of the Addressing Virginia's Teacher Shortage report⁷). This plan will include, but not be limited to, promoting in departments across the university that relate to the seven CTE program areas. Promotion will be conducted to recruit students and build professional relationships with faculty and administrators to allow CTE majors to take coursework in their departments. Types of promotion may include social media advertising, information emails and websites, presentations in classes and at student organization meetings, meeting with faculty members and administrators, and open houses. Various promotional materials will need to be developed to support this promotion as well.

Promotion outside of the university will require travelling to all of the Virginia community colleges on a bi-annual basis (once each semester). These visits will be used to develop partnerships with each community college to recruit students to transfer to Virginia Tech through the CTE-22 program. Promotional presentations to students will be conducted in classes and at student organization meetings. Emails would also be sent to students promoting the CTE-22 program. Visits to selected four-year colleges and universities will also be made to promote the CTE master's degree with a pre-service teacher education concentration.

Internship supervision. Early field experiences and student teaching will require placement in middle school and high school CTE programs across Virginia. Unlike the numbers of teachers in secondary academic departments, numbers of CTE teachers are limited in a given area. Placing all students, year-after-year, in CTE programs within a reasonable driving distance from Virginia Tech is not realistic. Therefore, faculty members will need to travel to these placements and many times it will require overnight lodging, meals, and transportation. Typically, supervision of early field experiences requires two visits to each site per semester. Student teaching supervision requires at least three visits to each site per semester.

In addition to internships in education, VDOE teaching license requirements include supervised, credit-bearing business internships related to the industry area in which a student wants to teach. Therefore, students will be required to participate in this type of internship and because it is required for these to be supervised by university personnel, faculty members will need to make at least one person-to-person visit to each internship site. The remainder of supervision can be conducted by email and telephone calls.

⁵ House Bill 1530: High School Diploma Options and Stigma in CTE, January 2019

⁶ DOE Preliminary Report from the Advisory Committee on Teacher Shortages, October 2017

⁷ Addressing Virginia's Teacher Shortage, Virginia Provost's Initiative, August 2019 (Draft)

Networking with stakeholders to build partnerships. Building and maintaining partnerships with various stakeholders will be critical to the success of the entire Virginia Tech CTE program. These partnerships will include, but not be limited to, working with the Virginia Department of Education, local school systems, community colleges, selected four-year colleges and universities, national education associations and councils, members of the Virginia General Assembly, and members of industry associated with each of the CTE program areas. The partnerships will vary among each stakeholder group depending on the needs of the CTE program and the stakeholder group at any given point in time. A special partnership will be sought with Amazon as part of the Virginia Tech Innovation Campus. Examples of partnership activities with each group are provided below. To help facilitate these partnerships, a VT CTE advisory committee will be established.

Virginia Department of Education. One of the most important partnerships that is and will be continued is with the Virginia Department of Education. The VDOE will play an integral role of assisting the VT CTE program to keep abreast of the ever-changing needs of local school communities throughout the Commonwealth and those of statewide significance as well. Faculty members from VT will work closely with the CTE VDOE state staff in identifying projects (in-service, research, leadership) needed to enhance CTE throughout Virginia.

Local School Systems. Examples of partnership activities with local school systems across Virginia will include, but not be limited to, establishing school sites for VT CTE students in which to conduct their early field experiences and student teaching.

For reasons provided earlier in this proposal, it will be necessary to identify and utilize sites throughout Virginia. Establishing this policy will not only provide enough field sites, but also exemplary experiences for students.

Partnerships with school divisions may also include VT students assisting local CTE student organizations with holding their district and regional competition conferences. This assistance could also be provided at the state conferences as well.

Collaboration with local CTE directors will be another key activity to establish and maintain partnerships with local school divisions. It is possible to work with this groups by attending CTE directors' regional meetings.

Finally, partnerships with local school divisions may be in the form of providing professional development workshops and/or consultations for teachers and administrators.

Virginia community colleges. Partnerships with Virginia community colleges will include promoting the career option of becoming a CTE teacher and transferring to Virginia Tech to earn a bachelor's degree in CTE teacher education. Virginia Tech CTE faculty members and community college representatives could also be used to review the CTE-22 transfer program for possible needed revisions.

VT CTE faculty members could also provide in-service professional development needs of community college teachers and administrators. A Graduate Professional Certificate in Pedagogy targeted to community college educators could also be an outcome of this partnership.

Four-year colleges and universities. Partnerships with four-year college and university departments associated with any of the CTE program area disciplines could be built to promote a seamless path for students to transfer to Virginia Tech to earn a CTE master's degree to become a CTE teacher. For example, currently the VT CTE program has a partnership with the College of Business at Virginia State University. This partnership is in place to inform students of the career option of teaching business in high schools. Students are also made aware of the one-year accelerated CTE teacher education master's degree that prepares them to become a business teacher and encourages attending VT to obtain this degree.

National organizations and/or agencies. Services and partnerships with national organizations and/or agencies will also help the VT CTE program build and maintain national prominence in the field of CTE. Active membership and leadership in the national Association for Career and Technical Education, the national Association for Career and Technical Education Research, national associations for each of the CTE program areas, and institutional membership in the national University Council for Workforce and Human Resource Education are examples of such associations.

Virginia General Assembly. Establishing a relationship with interested members of the Virginia General Assembly will help to maintain collaboration that would keep both parties informed of what is going on and what is needed to sustain a viable and active teacher education program to provide quality CTE teachers for the Commonwealth.

Industry community. Partnerships with industry groups will assist the VT CTE faculty in keeping abreast of industry advancements. It is also necessary to obtain business internships for VTE CTE students as they prepare to become a CTE teacher. Partnerships with industry may also result in obtaining financial support for the CTE program. In addition, the CTE faculty could provide pedagogy professional development for industry trainers.

Amazon and the Virginia Tech innovation campus. Partnerships with Amazon and participation in the VT Innovation Campus can be potentially limitless. Partnership activities could be developmental and/or research in nature. Business internships with Amazon for VT CTE students could result from this partnership. The Virginia Tech CTE program could collaboratively work with Amazon to partner with CTE programs in local school divisions in the Northern Virginia area. Collaborative projects with Amazon could relate to enhancing their training and development department.

VT CTE advisory committee. Guidance from an active advisory committee of key stakeholders will be used to obtain feedback regarding the operations of the program. Examples of areas in which feedback will be sought include, but not limited to, keeping the curriculum current, networking to obtain high quality education and business internships, networking to obtain special funding to support the program, and soliciting advice with regards to program branding and promotion. It is anticipated that representatives from the following stakeholders will be sought for membership:

- A. CTE teachers

- B. Local school administrators
- C. VDOE CTE state staff
- D. Business and industry
- E. VT CTE students
- F. VT School of Education administrators
- G. VT College of Liberal Arts and Human Sciences administrators
- H. VT University administrators
- I. Media personnel

It is anticipated that at least three meetings will be held each year (fall semester, spring semester, and summer). In addition, sub-committee meetings with selected committee members will be held in between the three main meetings to work on recommendations/activities identified in these meetings.

Proposed Timeline

The undergraduate VT CTE degree will require 18 months to get the courses and degree proposals through the VT and SCHEV approval process, resulting in the first undergraduate students matriculating into the VT CTE program in fall 2022. The undergraduate VT CTE courses and degree planning began in spring 2019, thus the courses and degree are already in the VT approval pipeline. The development of a comprehensive and integrated marketing and promotion plan needs to be created in 2019-2020, to be enacted in 2020-2021 to load the enrollment pipeline for fall 2022. Hiring the necessary personal would entail (a) the hiring of a visiting assistant professor to start in fall 2020 to enact the marketing plan, (b) the hiring of three new faculty members (one to replace an existing position) to begin fall 2021, (c) the hiring of two new faculty members and one new staff member to begin in fall 2022, and (d) the hiring of one new faculty member to begin in fall 2023.

2019-2020	<ul style="list-style-type: none"> • Curriculum planning within the SOE and approval of courses and degree within Virginia Tech (this is already underway) • Create a comprehensive and integrated marketing plan
2020-2021	<ul style="list-style-type: none"> • Submission and approval of the CTE baccalaureate degree by SCHEV and VDOE • Hire a visiting assistant professor to start in August 2020, to implement a comprehensive and integrated marketing plan
2021-2022	<ul style="list-style-type: none"> • Hire 3 new CTE faculty with specialties in Agricultural Education (2), and Marketing (one of these three positions will replace the current Marketing professor), to start August 2021 • Continue the comprehensive and integrated marketing plan
2022-2023	<ul style="list-style-type: none"> • First enrollments into the new SOE CTE baccalaureate degree

	<ul style="list-style-type: none"> • Hire 2 new CTE faculty with specialties in Technology Education and Family and Consumer Science to start August 2022 • Continue the comprehensive and integrated marketing plan
2023-2024	<ul style="list-style-type: none"> • Hire 1 new CTE faculty with specialty in Business Information Technology to start August 2023 • Continue the comprehensive and integrated marketing plan

Resources Needed

Faculty and Staff Positions. Between Fiscal Years 2019-2020 and 2022-2023, a total of 6 full-time faculty members and one full-time staff member will need to be hired. Funding for one of the full-time faculty positions will be reallocated from within the school. One visiting assistant professor will also be needed for Fiscal Year 2020-2021 only. The expertise of the full-time faculty members will be in the following areas:

- Agricultural Education
- Business Information Technology
- Family and Consumer Science
- Marketing
- Technology Education

Basic Overhead: New faculty and staff will require offices, technology support, and teaching spaces.

Marketing and Promotion: The comprehensive and integrated marketing plan will necessitate community college and high school visits, social media promotion materials.

Stakeholder Collaborations: Building and maintaining partnerships with various stakeholders will be critical to the success of the entire Virginia Tech CTE program. Stakeholder collaborations include:

- Faculty Attendance to State Conferences
- Visits to NOVA VT Amazon/Business Community
- VDOE Visits
- VSU and other
- Virginia Assembly
- Local CTE directors' regional meetings 2 per year in 8 different regions

Statewide Supervision. Supervision includes faculty travel and lodging to supervise students in early field experiences (2 times a semester), student teaching (3 times a semester), and business internships (1 time a semester), per student.

- Early Field Experiences
- Student Teaching
- Business internships.

Advisory Committee. Guidance from an active advisory committee of key stakeholders will be used to obtain feedback regarding the operations of the program. The Advisory Committee will meet three times a year and consist of 10 external members plus the CTE faculty.

Virginia Community College Partnership. Partnerships with Virginia community colleges will include promoting the career option of becoming a CTE teacher and transferring to Virginia Tech to earn a bachelor's degree in CTE teacher education.

	Fiscal Year				
	2019-20	2020-21	2021-22	2022-23	2023-24
Full-time Faculty FTE (Recurring)	-	-	3.00	5.00	6.00
salaries	\$ -	\$ -	\$ 240,000	\$ 400,000	\$ 480,000
fringe benefits	\$ -	\$ -	\$ 98,000	\$ 163,000	\$ 195,000
Full-time Faculty FTE (One-time)	-	1.00	-	-	-
salaries	\$ -	\$ 80,000	\$ -	\$ -	\$ -
fringe benefits	\$ -	\$ 33,000	\$ -	\$ -	\$ -
Classified Staff FTE (Recurring)	-	-	-	1.00	1.00
salaries	\$ -	\$ -	\$ -	\$ 50,000	\$ 50,000
fringe benefits	\$ -	\$ -	\$ -	\$ 25,000	\$ 25,000
Total Personnel FTE	-	1.00	3.00	6.00	7.00
salaries	\$ -	\$ 80,000	\$ 240,000	\$ 450,000	\$ 530,000
fringe benefits	\$ -	\$ 33,000	\$ 98,000	\$ 188,000	\$ 220,000
Total Personnel Costs	\$ -	\$ 113,000	\$ 338,000	\$ 638,000	\$ 750,000
recurring costs	\$ -	\$ -	\$ 338,000	\$ 638,000	\$ 750,000
one-time costs	\$ -	\$ 113,000	\$ -	\$ -	\$ -
Operating					
Faculty Startup					
recurring costs	\$ -	\$ -	\$ -	\$ -	\$ -
one-time costs	\$ -	\$ -	\$ 45,000	\$ 30,000	\$ 15,000
Marketing					
recurring costs	\$ -	\$ 5,000	\$ 10,000	\$ 15,000	\$ 15,000
one-time costs	\$ -	\$ -	\$ -	\$ -	\$ -
Travel & Lodging					
recurring costs	\$ -	\$ 5,000	\$ 10,000	\$ 20,000	\$ 25,000
one-time costs	\$ -	\$ -	\$ -	\$ -	\$ -
Other Costs					
recurring costs	\$ -	\$ -	\$ 33,800	\$ 63,800	\$ 75,000
one-time costs	\$ -	\$ 11,300	\$ -	\$ -	\$ -
Total Costs	\$ -	\$ 134,300	\$ 436,800	\$ 766,800	\$ 880,000
Recurring Costs	\$ -	\$ 10,000	\$ 391,800	\$ 736,800	\$ 865,000
One-Time Costs	\$ -	\$ 124,300	\$ 45,000	\$ 30,000	\$ 15,000

Part Three: Collaboration Between the Universities

While Virginia State University and Virginia Tech will each develop their own undergraduate baccalaureate degrees in career and technical education, there are several ways that the two universities may collaborate.

Shared Collaborative Mapping of Qualified Education & Business Internship Opportunities

As the CTE programs at VSU and VT expand, the location and maintenance of student teaching and business internships will become more challenging. It would help both institutions to create a "map" of qualified student teaching and business internship opportunities state-wide that could be used to place students. This map would take into account areas of need, origins of incoming students, and quality of student teaching and business internship opportunities and allow for the building of capacity to scale the student teaching and business internship opportunities needs.

Shared Online Synchronous and Asynchronous Courses

Students and faculty benefit from increased diversity of experiences. Creating shared online courses, both synchronous and asynchronous, would provide students the opportunity to interact with a great range of students. The use of synchronous tools – Zoom, WebEx, GoToMeeting – provides real-time interactions and with mobile computing can allow for interactions in virtually any location (e.g., classroom, business, corn fields). Shared online courses would allow students to take courses from experts at both institutions and faculty to build relationships at both institutions.

Shared Recruitment Opportunities/Materials/Strategies

The development of undergraduate CTE programs at both VSU and VT creates a large opportunity to jointly market career and technical education state-wide. Combining marketing plans would allow for greater reach and saturation of the Virginia is for Learners message. The goals of each program are similar, the development of CTE-knowledgeable students who will teach and motivate the next generation about agriculture, business, marketing, technology, and consumer science. A joint marketing approach also provides a deeper relationship between the VSU and VT institutions.

Shared Opportunities for Student and Faculty Exchanges

While the online courses will provide opportunities for students and faculty to interact at a distance, a faculty and student exchange program would allow for interactions to occur face-to-face. The exchange program would provide for an immersive experience of shared resources, culture, expertise, and personnel increasing the link between institutions and providing for the opportunity of larger shared programs and project to be developed. The use of exchanges would be a long-term investment in the development of truly shared VSU-VT CTE experience.