NORTH CAROLINA
CAREER AND TECHNICAL EDUCATION ESSENTIAL STANDARDS

PUBLIC SCHOOLS OF NORTH CAROLINA
State Board of Education | Department of Public Instruction :: Career and Technical Education

2012

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North Carolina
CAREER AND TECHNICAL EDUCATION
ESSENTIAL STANDARDS

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State Board of Education • Department of Public Instruction

For information, contact ctecurriculum@dpi.state.nc.us or 919-807-3822

June 2011

This document goes into effect in July 2012.

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INTRODUCTION

CAREER AND COLLEGE READY

The mission of Career and Technical Education (CTE) is to empower students to be successful citizens, workers, and leaders in a global economy. CTE programs are designed to contribute to the broad educational achievement of students, including basic skills, as well as their ability to work independently and as part of a team, think creatively and solve problems, and utilize technology in the thinking and problem-solving process.

Career and Technical Education fulfills an increasingly significant role in school reform efforts. Students who concentrate in a CTE area, earning at least four related technical credits and meeting other criteria, are better prepared for the further education and advanced training required to be successful in 21st century careers. Career and Technical Educators at the state and local levels partner with business and industry and with community colleges and other postsecondary institutions to ensure Career and Technical Education serves the needs of individual students and of the state.

The federal Carl Perkins Career and Technical Education Act of 2006 provides the framework for Career and Technical Education. North Carolina's Five-Year Plan for Career and Technical Education specifies how Career and Technical Education programs will be carried out in the state. Additional information about planning for Career and Technical Education is found in the CTE Planning Guide.

ESSENTIAL STANDARDS

The 2012 CTE Essential Standards document was approved by the North Carolina State Board of Education in June 2011 and goes into effect for the 2012-2013 academic year. The document contains program area and course descriptions and links to essential standards by course. This information was previously part of the Career and Technical Education Standard Course of Study Guide, but has been revised as part of the North Carolina Department of Public Instruction Accountability and Curriculum Reform Effort and emphasis on Essential Standards. Local Education Agency (LEA) CTE administrators work with individual schools to select appropriate courses from among those in this document.

Career Clusters in North Carolina
http://www.ncpublicschools.org/docs/cte/standards/careerclusters2012.pdf

CTE Planning Guide
http://www.ncpublicschools.org/docs/cte/standards/2012cteplanning.pdf

Each year the NC Department of Public Instruction publishes an Index of Curriculum, which lists the latest version of each course and each supporting blueprint and curriculum, and an Assessment Index, which indicates the source of assessments used with courses in the Essential Standards.

Career and Technical Education in the North Carolina Department of Public Instruction is responsible for managing courses in the Essential Standards. Four types of courses are available.

Courses Developed by the Department of Public Instruction

Courses developed by the state are designed to aligned with program area national standards and meet the needs/standards of business and industry. They include a blueprint of essential standards, supporting objectives, and relative objective weights. These courses provide a curriculum product and aligned assessments. All products developed since 2006 are aligned using the Revised Bloom's Taxonomy.

Courses Adapted by the Department of Public Instruction

In some cases, curriculum is available from multiple vendors and a blueprint is needed to direct the learning of students. An Adapted Course Blueprint is developed with essential standards, indicators, and relative essential standard weights. This type of blueprint is often used when an industry credential is available for the course.

Courses Using Adopted Curriculum

In some cases, a sole source is recognized as a provider of curriculum in a specialty area, and the course is adopted fully from a third-party vendor. Materials for these courses are usually purchased by the LEA and typically include assessments.

Courses Approved as Local Course Options

If a LEA recognizes needs that are not addressed by courses in the Essential Standards, that LEA can request authorization to offer a Local Course Option. A Local Course Option requires considerable advance planning and preparation. Each local course must be approved before it is advertised and offered to students. More information about Local Course Options appears in Appendix A.

CAREER CLUSTERS™ AND PROGRAMS OF STUDY

Career Clusters™ are broad groupings of occupations/career specialties, organized by common knowledge and skills required for career success. There are 16 Career Clusters™ and 79 related pathways (subgroupings of occupations/career specialties). Supported by the 2006 Perkins legislation, Career Clusters™ are an organizing tool for curriculum design, school guidance, and a framework for seamless transition to career and college.

All NC CTE courses align to the Career Clusters™. Each course is placed in a Career Cluster based on a set of knowledge and skills common to all careers in the entire Career Cluster. Industry-validated knowledge and skills statements of student expectations identify what the student should know and be able to do. They prepare students for success in a broad range of occupations/career specialties. Some CTE courses cross over all 16 Career Clusters™. The 16 Career Clusters™ are:

- Agriculture, Food & Natural Resources
- Architecture &Construction
- Arts, A/V Technology & Communications
- Business Management & Administration
- Education &Training
- Finance
- Government & Public Administration
- Health Science
- Hospitality & Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections & Security
- Manufacturing
- Marketing
- Science, Technology, Engineering & Mathematics
- Transportation, Distribution & Logistics

Career Clusters in North Carolina
http://www.ncpublicschools.org/docs/cte/standards/careerclusters2012.pdf

CTE Planning Guide
http://www.ncpublicschools.org/docs/cte/standards/2012cteplanning.pdf

In North Carolina, Career Clusters™ are supported by eight program areas, with each area having school-based, work-based, or community-based learning opportunities.

- Agricultural Education
- Business, Finance, and Information Technology Education
- Career Development
- Family and Consumer Science Education
- Health Science Education
- Marketing and Entrepreneurship Education
- Technology Engineering and Design Education
- Trade and Industrial Education

Federal law requires each school receiving Perkins funds to offer at least one Program of Study (POS). A Program of Study provides a clear pathway for students to reach their career goals through secondary CTE courses, opportunities for postsecondary credit while in high school, and academic coursework, combined with a smooth transition to postsecondary education and advanced training. Students are to have a career development plan outlining courses to be taken that will move them toward their tentative career objective, meet high school graduation requirements, and provide a foundation for further education and advanced training.

MORE INFORMATION

A list of definitions of terms used in this document appears in Appendix B.

The Career and Technical Education Essential Standards are available online at http://www.ncpublicschools.org/cte

For additional information about North Carolina Career and Technical Education or how to use this document, contact ctecurriculum@dpi.state.nc.us

AGRICULTURAL EDUCATION

PROGRAM DESCRIPTION

Agricultural Education is a systematic program of instruction available to students desiring to learn about the science, business, technology of plant and animal production, and/or about the environmental and natural resources systems.

Agricultural Education prepares students for successful careers and a lifetime of informed choices in the global agriculture, food, fiber, and natural resources systems. Agricultural Education prepares students for more than 300 careers in the agricultural industry including production, financing, processing, marketing, and distribution of agricultural products. Agricultural Education develops leaders for the vast network of supporting careers that provide the supplies, services, management, and conservation of our natural resource systems.

The Agricultural Education program is built on the three core areas of classroom and laboratory instruction, supervised agricultural experience programs, and FFA student organization activities. The quality Agricultural Education program is designed for delivery through a balance of these three core educational strategies:

- Classroom/Laboratory Instruction – Quality instruction in and about agriculture that utilizes a "learning by doing" philosophy. Agricultural Education is an applied science that incorporates math, reading, social studies, and physical, chemical and biological sciences into each course.
- Supervised Agricultural Experience (SAE) Programs – Students put knowledge and theory to use through relevant, experiential, agricultural learning projects. While completing SAE projects, students learn to apply the concepts and principles taught in their agriculture classes to real-world problems and scenarios.
- FFA Student Organization Opportunities – FFA activities are an integral part of the Agricultural Education program in which students experience numerous opportunities for developing premier leadership, personal growth, and career success.

The major program outcomes for students enrolled in an Agricultural Education program are:

- Opportunity to explore career options available in agriculture-related fields and to assist them in planning for a future career.
- Technical skills training for success in an agriculture-related career.
- Connectivity of school-based instruction with work-based learning.
- Leadership and personal development training needed to succeed in an agriculture-related career including teamwork, problem solving, and communications.
- Competitive advantage for students to succeed in an international economy.
- Commitment to community development and service through projects that require interaction with parents, agribusiness leaders, and other community organizations.
- Development of skills necessary for lifelong learning in agriculture leading to career advancement and success.

NATIONAL STANDARDS

Agricultural Education curriculum is designed to reflect national standards in:

- National Agriculture, Food and Natural Resources Career Cluster Content Standards
- National Quality Program Standards in Secondary Agricultural Education

CAREER CLUSTER ALIGNMENT

Agricultural Education includes curriculum offerings for students in grades 7 through 12. Agricultural Education is designed to provide students with appropriate, comprehensive preparation for career and postsecondary education in the Agriculture, Food and Natural Resources Career Cluster. All Agricultural Education courses are contained in the following five career pathways.

- Agribusiness Systems
- Animal Systems
- Natural Resources Systems
- Plant Systems
- Power, Structural and Technical Systems

CERTIFICATIONS AND CREDENTIALING

Currently, there are no credential assessments administered for Agricultural Education.

CAREER AND TECHNICAL STUDENT ORGANIZATION

FFA

The FFA is a national organization of Agricultural Education students. FFA makes a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education. The opportunities that are available for FFA members include:

- Career Development Events – FFA members earn recognition by utilizing their classroom and laboratory knowledge in team and individual events.
- Degree Programs – FFA members advance in the organization by meeting rigorous standards to obtain degrees.
- Proficiency Awards – Members are recognized for success in their respective Supervised Agricultural Experience Program.
- Scholarships – FFA awards students over $2 million annually in college scholarships.
- Personal Growth Conferences – Teamwork and personal growth conferences are held each summer at the North Carolina FFA Center.

- Leadership Conferences and Conventions – FFA conducts events throughout the year that promote premier leadership, personal growth and career success.
- Service Activities – Students are engaged in numerous projects and activities to serve communities throughout North Carolina.

For more information on FFA opportunities, visit the following web sites.

North Carolina FFA Web Site: www.ncffa.org
National FFA Web Site: www.ffa.org

Agricultural Education
Course Descriptions

Agribusiness Management Trends & Issues I

Course Number: 6911
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Three credits in Agricultural Education

This course focuses on management decision making by food, fiber, horticulture, and forestry agribusinesses. Emphasis is placed on current agribusiness topics such as information utilization, strategic planning, organization structures, competitor intelligence, pricing, crisis management, ethics, and human resource management. Additionally, the course infuses current agricultural trends and issues throughout to set an agriculturally related context. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Agribusiness Management Trends & Issues II

Course Number: 6912
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6911 Agribusiness Management Trends & Issues I

This course focuses on management decision making by food, fiber, horticulture, and forestry agribusinesses. Emphasis is placed on creating marketing plans for agricultural industries, human relations and ethics, environmental and labor relations that affect agriculture, income and estate taxation, and understanding government agriculture programs. Additionally, the course infuses current agricultural trends and issues throughout to set an agriculturally related context. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Agricultural Mechanics I

Course Number: 6831
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course develops knowledge and technical skills in the broad field of agricultural machinery, equipment, and structures. The primary purpose of this course is to prepare students to handle the day-to-day problems and repair needs they will encounter in their chosen agricultural career. Topics include agricultural mechanics safety, agricultural engineering career opportunities, hand/power tool use and selection, electrical wiring, basic metal working, basic agricultural construction skills related to plumbing, concrete, carpentry, basic welding, and leadership development. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, mentorship, school-based enterprise, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Course enrollment limited to 20 to ensure safety in laboratory settings.

Agricultural Mechanics II

Course Number: 6832
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6831 Agricultural Mechanics I

In this course, the topics of instruction emphasized are non-metallic agricultural fabrication techniques, metal fabrication technology, safe tool and equipment use, human resource development, hot/cold metal working skills and technology, advanced welding and metal cutting skills, working with plastics, and advanced career exploration/decision making. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Course enrollment limited to 20 to ensure safety in laboratory settings.

Agricultural Mechanics II-Small Engines

Course Number: 6833
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6831 Agricultural Mechanics I

This course provides hands-on instruction and emphasizes small engine systems including the compression, fuel, electrical, cooling and lubrication systems. Troubleshooting methods are emphasized. Students learn how to select engines for specific applications. Materials are covered to prepare students for the Master Service Technician Exam. Safety skills are emphasized. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Course enrollment limited to 20 to ensure safety in laboratory settings.

Agricultural Production I

Course Number: 6811
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course focuses on the basic scientific principles and processes related to the production of plants and animals for the food and fiber systems. Topics of instruction include basic understanding of the livestock/poultry industry and its various components, career opportunities, soil science, crop science/agronomy, weed science, basic agricultural machinery and related industry careers, environmental stewardship, and leadership/personal development. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, internship, mentorship, school-based enterprise, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Course enrollment limited to 20 to ensure safety in laboratory settings.

Agricultural Production II

Course Number: 6812
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6811 Agricultural Production I

This course provides scientific knowledge and technical skills with heavy emphasis on topics including pesticide use and safety, herbicide use and safety, wildlife habitat concerns, irrigation, agricultural equipment technology and safety, global industry issues, career planning, and human resource development. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Course enrollment limited to 20 to ensure safety in laboratory/shop settings.

Agriscience Applications

Course Number: 6810
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course focuses on integrating biological/physical sciences with technology as related to the environment, natural resources, food production, science, and agribusiness. Topics of instruction include agricultural awareness and literacy, employability skills and introduction to all aspects of the total agricultural industry. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Animal Science I

Course Number: 6821
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course focuses on the basic scientific principles and processes that are involved in animal physiology, breeding, nutrition, and care in preparation for an animal science career major. Topics include animal diseases, introduction to animal science, animal nutrition, animal science issues, career opportunities, and animal evaluation. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Animal Science II

Course Number: 6822
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6821 Animal Science I

This course includes more advanced scientific principles and communication skills and includes animal waste management, animal science economics, decision making, global concerns in the industry, genetics, and breeding. English language arts, mathematics, and science are reinforced in this class. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Animal Science II – Small Animal

Course Number: 6823
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6821 Animal Science I

This course provides instruction on animal science topics related to small animals that are served by a veterinarian. Content related to the breeding, grooming, care and marketing of animals that fit into this category are taught in this course. English language arts, mathematics, and science are reinforced in this class. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Biotechnology & Agriscience Research I

Course Number: 6871
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course provides instruction in the technologically advanced world of agriculture and life sciences. Students are exposed to the latest techniques and advances in plant and animal biotechnology with a strong emphasis on hands-on activities. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Agriscience Applications is recommended as preparation for this course.

Biotechnology & Agriscience Research II

Course Number: 6872
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6871 Biotechnology & Agriscience Research I

This course provides instruction in laboratory and safety skills needed by agricultural research scientists. Current applications of biotechnology in animal science, environmental science, food science and plant science are emphasized. Basic concepts of genetics and microbiology are applied to the agriculture industry and its success in providing food and fiber for the world. Opportunities exist for students to conduct individual or team research experiments. Hands-on laboratories and current topic discussions provide students an understanding of careers in agriscience research. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

CTE Advanced Studies

Course Number: 8595
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

This culminating course is for juniors and seniors who have earned two technical credits, one of which is a completer course, in one Career Cluster. The Advanced Studies course must augment the content of the completer course and prepare students for success in transitioning to postsecondary education and future careers. Students work under the guidance of a teacher with expertise in the content of the completer course in collaboration with community members, business representatives, and other school-based personnel. The four parts of the course include writing a research paper, producing a product, developing a portfolio, and delivering a presentation. Students demonstrate their abilities to use 21st century skills. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

CTE Apprenticeship

Course Number: 8596
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

Students who participate in apprenticeships or pre-apprenticeships through the North Carolina Department of Labor, Apprenticeship and Training Bureau can also earn CTE credit while they earn hours and experience toward an adult apprenticeship leading to a completed journeyman certificate. This course is appropriate for occupations that do not require a college degree but require a high level of skill and knowledge.

CTE Internship

Course Number: 8597
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

A CTE Internship allows for additional development of career and technical competencies within a general career field. Internships allow students to observe and participate in daily operations, develop direct contact with job personnel, ask questions about particular careers, and perform certain job tasks. This activity is exploratory and allows the student to get hands-on experience in a number of related activities. The teacher, student, and the business community jointly plan the organization, implementation, and evaluation of an internship, regardless of whether it is an unpaid or paid internship.

CTE Community College

Course Number: 8598
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: Does not apply
Prerequisite: None

Students may include one or more Community College courses, either online or face-to-face, in their program of studies that leads to a concentration in a Career Cluster. The course must meet requirements of the Operating Procedures for the Enrollment of High School Students in Community College Courses.

CTE University

Course Number: 8599
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: Does not apply
Prerequisite: None

Students may include one or more courses from a four-year college or university, either online or face-to- face, in their program of studies that leads to a concentration in a Career Cluster.

Environmental & Natural Resources I

Course Number: 6851
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course provides an introduction to environmental studies, which includes topics of instruction in renewable and non-renewable natural resources, history of the environment, personal development, water and air quality, waste management, land use regulations, soils, meteorology, fisheries, forestry, and wildlife habitat. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Environmental & Natural Resources II

Course Number: 6852
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6851 Environmental & Natural Resources I

This course covers instruction in best management practices in methods of environmental monitoring and conservation, air and water regulations, sampling methodologies, prescribing conservation techniques, and wildlife and forestry management. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Equine Science I

Course Number: 6825
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course focuses on the basic scientific principles and processes related to equine physiology, breeding, nutrition, and care in preparation for a career in the equine industry. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Equine Science II

Course Number: 6826
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6825 Equine Science I

The course focuses on more advanced applications of feeding, breeding, and management practices involved in the horse industry. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Exploring Agricultural Science

Course Number: 6829
Recommended Maximum Enrollment: 25
Hours of Instruction: Local Decision, Middle School
Prerequisite: None

This middle school course introduces students to the industry of agriculture. Topics of instruction include animal science, agricultural science and technology, plant science, agricultural issues, natural resources, food science, stewardship, consumer agriculture, and careers in agricultural science. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Exploring Biotechnology in Agriculture

Course Number: 6828
Recommended Maximum Enrollment: 30
Hours of Instruction: Local Decision, Middle School
Prerequisite: None

This middle school course focuses on the agricultural and medical industry with emphasis on the relationship of science and technology that affects agriculture, medicine, and health care. Topics include career concepts in the agriculture and medical fields. English language arts, mathematics, and science are reinforced. This course contributes to the development of a career development plan. Work-based learning strategies appropriate for this course are mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Horticulture I

Course Number: 6841
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course provides instruction on the broad field of horticulture with emphasis on the scientific and technical knowledge for a career in horticulture. Topics in this course include plant growth and development, plant nutrition, media selection, basic plant identification, pest management, chemical disposal, customer relations, and career opportunities. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, internship, mentorship, school-based enterprise, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Horticulture II

Course Number: 6842
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6841 Horticulture I

This course covers instruction that expands scientific knowledge and skills to include more advanced scientific computations and communication skills needed in the horticulture industry. Topics include greenhouse plant production and management, bedding plant production, watering systems, light effects, basic landscape design, installation and maintenance, lawn and turfgrass management, and personal development. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Horticulture II - Landscaping

Course Number: 6882
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6841 Horticulture I

This course provides hands-on instruction and emphasizes safety skills needed by landscape technicians in the field. This course is based on the North Carolina Nursery and Landscape Association skill standards for a Certified Landscape Technician. Students are instructed in interpreting landscape designs, identifying landscape plants, and planting/maintaining trees, shrubs, and turf. Landscape construction is emphasized in the areas of grading and drainage, irrigation, paver installation, and the use/maintenance of landscape equipment. Current topics discussions provide students an understanding of careers and the employability skills needed to enter the landscape industry. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Horticulture II – Turfgrass Management

Course Number: 6843
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6841 Horticulture I

This course provides hands-on instruction and emphasizes eight units of instruction including fundamentals of soils and pests, environmental issues related to turf management, landscape basics, lawn care and turf production, golf course management, sports turf and turf irrigation, turf equipment and maintenance, and human resources and financial management. Safety skills will be emphasized. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course are apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, job shadowing, and supervised agricultural experience. FFA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management I

Course Number: 8510
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course will introduce students to the principles, concepts, and software applications used in the management of projects. Through project-based learning, students will understand how to use the framework of initiating, planning, executing, monitoring and controlling, and closing a project in authentic situations. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Global

Course Number: 8511
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the impact of cultural differences and exchange rate fluctuations on business practices and the marketing mix in global markets. Students will understand factors that affect manufacturing and research location selection, the impact of local government policies and procedures on market decision making, and the use of strategic alliances to acquire additional necessary experience. Finally, students will learn to identify and manage risk in global market development. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Technology

Course Number: 8512
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the use of information technology to increase the effectiveness and efficiency of project management and integrated enterprise. Students will learn operational strategies for managing advanced technology and innovation as well as how to map the high technology operations environment to business settings. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management III

Course Number: 8513
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8511 Project Management II – Global
OR
8512 Project Management II – Technology

This project-based, culminating course covers the management of a complete project in an authentic environment. Students will be responsible for planning, monitoring, controlling, and completing a series of smaller projects as well as a capstone project. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

BUSINESS, FINANCE, AND INFORMATION TECHNOLOGY EDUCATION

PROGRAM DESCRIPTION

Business, Finance, and Information Technology Education prepares students for successful transition from school to work and postsecondary education. It empowers them to use business principles and concepts while they manage their current and future responsibilities as informed consumers and productive workers in the 21st century.

Business, Finance, and Information Technology Education is a broad, comprehensive curriculum at the middle and high school levels that provides students with meaningful instruction for and about business, finance, and information technology. Business, Finance, and Information Technology Education plays a major role in preparing a competent, business-literate, and skilled workforce. The program area is designed to integrate business, finance, and information technology skills into the middle and high school curriculum.

Business, Finance, and Information Technology Education is designed to prepare graduates as viable competitors in the business world and for advanced educational opportunities. The instructional program begins in the middle grades with the development of proficiency in basic computer software applications. Exploratory experiences in business, marketing, and entrepreneurship are also included in the middle school curriculum. This experience continues at the high school level with career pathways that provide knowledge and skill development in these Career Clusters™:

- Business, Management, and Administration
- Finance
- Information Technology

Literacy and numeracy skills are an integral part of the Business, Finance, and Information Technology Education program. Computer literacy and proficiency in the various applications are emphasized throughout the curriculum. Development of 21st century skills including collaboration, critical thinking, economic literacy, entrepreneurial skills, and problem-solving is a part of each of the career pathways. Opportunities to develop and apply leadership, social, civic, and business-related skills are provided through Future Business Leaders of America (FBLA), the Career-Technical Student Organization for Business, Finance, and Information Technology Education students. Integration of the Business, Finance, and Information Technology Education program with appropriate academic concepts/courses is strongly encouraged.

NATIONAL STANDARDS

Business, Finance, and Information Technology Education curriculum is designed to reflect national standards in

- Business Education
  - National Business Education Association www.nbea.org
  - MBA Research http://www.mbaresearch.org/2.0/Joomla/index.php
- Career Clusters™ http://www.careerclusters.org/
- Consortium for Entrepreneurship Education http://www.entre-ed.org/

- IT and Computer Science Education http://csta.acm.org/

CAREER CLUSTER ALIGNMENT

The Business, Finance and Information Technology Education program is designed to provide students with appropriate, comprehensive preparation for careers and postsecondary education in the Business Management and Administration, Finance, and Information Technology Education Career Clusters™. The Program of Studies is constructed to provide maximum career opportunities to students in those Career Clusters™. Business, Finance and Information Technology Education courses also provide students core instruction in the other Career Clusters™.

CERTIFICATIONS AND CREDENTIALING

Business, Finance, and Information Technology Education courses provide students multiple opportunities to obtain industry credentials. Students may earn credentials ranging from Microsoft Office Specialist to Oracle SQL and PL/SQL certifications as well as SAS Base Programming certification.

CAREER AND TECHNICAL EDUCATION STUDENT ORGANIZATION

FUTURE BUSINESS LEADERS OF AMERICA (FBLA)

Future Business Leaders of America-Phi Beta Lambda is a nonprofit 501 (c) (3) education association with a quarter-million students preparing for careers in business and business-related fields. The association has four divisions:

- Future Business Leaders of America (FBLA) for high school students
- FBLA-Middle Level for junior high, middle, and intermediate school students
- Phi Beta Lambda (PBL) for postsecondary students
- Professional Division for business people, FBLA-PBL alumni, educators, and parents who support the goals of the association

FBLA-PBL is organized on local, state, and national levels. Business teachers, advisers, and advisory councils (including school officials, business people, and community representatives) guide local chapters. State advisers and committee members coordinate chapter activities for the national organization. FBLA-PBL is the largest business career student organization in the world.

The mission of NC FBLA is to help build and sustain Business, Finance, and Information Technology Education programs of excellence in order to serve our communities, state, and nation. It provides students with leadership opportunities at the local, regional, and state levels. Student FBLA members may seek elected office or serve in positions of committee leadership. Students gain valuable hands-on, authentic leadership skills by taking an active part in the student-led student organization.

NC FBLA is an integral part of North Carolina's Business, Finance, and Information Technology Education program. The experiences that FBLA members receive are directly related to their classroom instruction. Participation in FBLA provides students with the critical soft-skill development that is essential in the 21st century employee.

Student FBLA members are provided with the opportunity to compete with other students in regional, state, and national conferences. The competitive events are aligned to the classroom instruction that students receive or to workplace skills needed for success in the Business, Finance, and Information Technology Education career areas.

North Carolina FBLA Web Site: www.ncfbla.org
National FBLA Web Site:www.fbla-pbl.org

Business, Finance, and Information Technology Education
Course Descriptions

Accounting I

Course Number: 6311
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course is designed to help students understand the basic principles of the accounting cycle. Emphasis is placed on the analysis and recording of business transactions, preparation, and interpretation of financial statements, accounting systems, banking and payroll activities, basic types of business ownership, and an accounting career orientation. Mathematics is reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Accounting II

Course Number: 6312
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6311Accounting I

This course is designed to provide students with an opportunity to develop in-depth knowledge of accounting procedures and techniques utilized in solving business problems and making financial decisions. Emphasis includes departmental accounting, corporate accounting, cost accounting, and inventory control systems, managerial accounting and budgeting, and further enhancement of accounting skills. Mathematics is reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

AP Computer Science

Course Number: 2508
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This is a college-level introductory course in computer science. Because the design and implementation of computer programs to solve problems involve skills that are fundamental to the study of computer science, a large part of the course is built around the development of computer programs that correctly solve a given problem. These programs should be understandable, adaptable, and when appropriate, reusable. At the same time, the design and implementation of computer programs is used as a context for introducing other important aspects of computer science, including the development and analysis of algorithms, the development and use of fundamental data structures, the study of standard algorithms and typical applications, and the use of logic and formal methods. In addition, the responsible use of these systems is an integral part of the course. The course is designed to be the equivalent of a first-semester college course in computer science. Mathematics is reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

Further information about the course and the AP Computer Science Exam can be found at http://www.collegeboard.com/student/testing/ap/sub_compscia.html

Business Law

Course Number: 6215
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8721 Principles of Business and Finance

This course is designed to acquaint students with the basic legal principles common to all aspects of business and personal law. Business topics include contract law, business ownership including intellectual property, financial law, and national and international laws. Personal topics include marriage and divorce law, purchasing appropriate insurance, renting and owning real estate, employment law, and consumer protection laws. Social studies and English language arts are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, internship, and job shadowing. Apprenticeship and cooperative education are not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Business Management

Course Number: 8710
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8721 Principles of Business and Finance

This course expands student understanding of management, including customer relationship management, human resources management, information management, knowledge management, product-development management, project management, quality management, and strategic management. Economics, finance, and professional development are also stressed throughout the course. English language arts are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Computer Programming I

Course Number: 6421
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course is designed to introduce the concepts of programming, application development, and writing software solutions in the Visual Basic environment. Emphasis is placed on the software development process, principles of user interface design, and the writing of a complete Visual Basic program including event-driven input, logical decision making and processing, and useful output. Mathematics is reinforced. Work-based learning strategies appropriate for this course include entrepreneurship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

Computer Programming II

Course Number: 6422
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6421 Computer Programming I

This project-based course is designed to teach students to access and manipulate data in a variety of data structures including Access, Structured Query Language (SQL), XML and text files. Emphasis is placed on advanced functionality, packaging and deploying business solutions, and program life-cycle revision and maintenance. Mathematics is reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

Computer Skills and Applications

Course Number: 6207
Recommended Maximum Enrollment: 25
Hours of Instruction: **Local Decision, Middle School**
Prerequisite: None

This middle school course is composed of instructional modules designed to provide hands-on instruction in basic keyboarding skills, computer concepts, and software applications. The software applications include word processing, desktop publishing, presentation software, spreadsheets, and databases. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include mentorship, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

CTE Advanced Studies

Course Number: 8595
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

This culminating course is for juniors and seniors who have earned two technical credits, one of which is a completer course, in one Career Cluster. The Advanced Studies course must augment the content of the completer course and prepare students for success in transitioning to postsecondary education and future careers. Students work under the guidance of a teacher with expertise in the content of the completer course in collaboration with community members, business representatives, and other school-based personnel. The four parts of the course include writing a research paper, producing a product, developing a portfolio, and delivering a presentation. Students demonstrate their abilities to use 21st century skills. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

CTE Apprenticeship

Course Number: 8596
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

Students who participate in apprenticeships or pre-apprenticeships through the North Carolina Department of Labor, Apprenticeship and Training Bureau can also earn CTE credit while they earn hours and experience toward an adult apprenticeship leading to a completed journeyman certificate. This course is appropriate for occupations that do not require a college degree but require a high level of skill and knowledge.

CTE Internship

Course Number:	8597
Recommended Maximum Enrollment:	Does not apply
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	None

A CTE Internship allows for additional development of career and technical competencies within a general career field. Internships allow students to observe and participate in daily operations, develop direct contact with job personnel, ask questions about particular careers, and perform certain job tasks. This activity is exploratory and allows the student to get hands-on experience in a number of related activities. The teacher, student, and the business community jointly plan the organization, implementation, and evaluation of an internship, regardless of whether it is an unpaid or paid internship.

CTE Community College

Course Number:	8598
Recommended Maximum Enrollment:	Does not apply
Hours of Instruction:	Does not apply
Prerequisite:	None

Students may include one or more Community College courses, either online or face-to-face, in their program of studies that leads to a concentration in a Career Cluster. The course must meet requirements of the Operating Procedures for the Enrollment of High School Students in Community College Courses.

CTE University

Course Number:	8599
Recommended Maximum Enrollment:	Does not apply
Hours of Instruction:	Does not apply
Prerequisite:	None

Students may include one or more courses from a four-year college or university, either online or face-to- face, in their program of studies that leads to a concentration in a Career Cluster.

e-Commerce I

Course Number:	6415
Recommended Maximum Enrollment:	20*
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	6414 Multimedia and Webpage Design

This course is designed to help students master skills in the design and construction of complex web sites for conducting business electronically. Emphasis is on skill development in advanced web page construction and entrepreneurial applications of conducting business electronically as well as economic, social, legal, and ethical issues related to electronic business. Students learn through project-based applications as they plan, design, create, publish, maintain, and promote an e-commerce website. Art is reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. FBLA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

e-Commerce II

Course Number: 6416
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6415 e-Commerce I

This course is designed to help students master advanced skills in electronic commerce security, payment infrastructure, secure electronic commerce transactions, and electronic commerce order entry, tracking and fulfillment. Emphasis is placed on marketing techniques for electronic commerce websites, tracking and using customer and sales data, and other uses of databases in electronic commerce sites as students develop a capstone project. Arts and English language arts are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

Entrepreneurship I

Course Number: 8716
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

In this course students evaluate the concepts of going into business for themselves and working for or operating a small business. Emphasis is on the exploration of feasible ideas of products/services, research procedures, business financing, marketing strategies, and access to resources for starting a small business. Students develop components of a business plan and evaluate startup requirements. English language arts and social studies are reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) and Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. The courses Principles of Business and Finance or Marketing are recommended as preparation for this course.

The Entrepreneurship I and II courses can help prepare students for the Assessment of Skills and Knowledge (A*S*K), http://www.askinstitute.org/, credential.

Entrepreneurship II

Course Number: 8717
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8716 Entrepreneurship I

In this course students develop an understanding of pertinent decisions to be made after obtaining financing to open a small business. Students acquire in-depth understanding of business regulations, risks, management, and marketing. Students develop a small-business management handbook. English language arts and social studies are reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) and Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

The Entrepreneurship I and II courses can help prepare students for the Assessment of Skills and Knowledge (A*S*K), http://www.askinstitute.org/, credential.

Exploring Business, Marketing, and Entrepreneurship

Course Number: 6208
Recommended Maximum Enrollment: 25
Hours of Instruction: Local Decision, Middle School
Prerequisite: None

This middle school course is designed to explore the nature of business in an international economy and to study related careers in fields such as entrepreneurship, financial services, information technology, marketing, office systems technology, public relations and promotion, and travel and tourism. Emphasis is on using the computer while studying applications in these careers along with problem solving and thinking skills. This course contributes to the development of a career development plan. English language arts, mathematics, and social studies are reinforced. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Foundations of Information Technology

Course Number: 8811
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This introductory course provides students with the foundation to pursue further study in information technology. Emphasis is on network systems, information support and services, programming and software development, and interactive media. Mathematics is reinforced. Work-based learning strategies appropriate for this course include entrepreneurship, mentorship, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Microsoft Excel and Access

Course Number: 6419
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

Students in Microsoft IT Academies benefit from world-class Microsoft curriculum and cutting-edge software tools to tackle real-world challenges in the classroom environment. The first part of the class is designed to help you use the newest version of Microsoft Excel interface, commands, and features to present, analyze, and manipulate various types of data. Students will learn to manage workbooks as well as how to manage, manipulate, and format data. In the second part of the class, students will learn how to create and work with a database and its objects by using the new and improved features in newest version of Microsoft Access. Students will learn how to create, modify, and locate information as well as how to create programmable elements and share and distribute database information. Mathematics is reinforced. Work-based learning strategies appropriate for this course include cooperative education, internship, service learning, and job shadowing. Apprenticeship is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

This course can help prepare students for the Microsoft Office Specialist (MOS) in Excel and/or Access, http://www.microsoft.com/learning/en/us/certification/mos.aspx.

Microsoft Word, PowerPoint, and Publisher

Course Number: 6417
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

Students in Microsoft IT Academies benefit from world-class Microsoft curriculum and software tools to tackle real-world challenges in the classroom environment. In the first part, students will learn to use the newest version of Microsoft Word interface, commands, and features to create, enhance, customize, share and create complex documents, and publish them. In the second part, students will learn to use the newest version of Microsoft PowerPoint interface, commands, and features to create, enhance, customize, and deliver presentations. In the last part, students will learn to use the basic features of the newest version of Publisher to create, customize, and publish a publication. English language arts are reinforced. Work-based learning strategies appropriate for this course include cooperative education, internship, service learning, and job shadowing. Apprenticeship is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

This course can help prepare students for the Microsoft Office Specialist (MOS) in Word and/or PowerPoint, http://www.microsoft.com/learning/en/us/certification/mos.aspx.

Multimedia and Webpage Design

Course Number: 6414
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course focuses on desktop publishing, graphic image design, computer animation, virtual reality, multimedia production, and webpage design. Communication skills and critical thinking are reinforced through software applications. English language arts and arts are reinforced. Work-based learning strategies appropriate for this course include cooperative education, internship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Network Administration I

Course Number:	6341
Recommended Maximum Enrollment:	20*
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	None

This course provides a broad-based foundation in the engineering and administration of computer network systems. Emphasis is on PC/network hardware and operating systems, architecture, protocols, design and security, and career development. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, mentorship, service learning, and job shadowing. Apprenticeship is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

This course can help prepare students for the A+ certification exam, http://www.comptia.org/certifications/listed/a.aspx, or Certified Cisco Network Administrator certification exam, http://www.cisco.com/web/learning/le3/le2/le0/le9/learning_certification_type_home.html

Network Administration II

Course Number:	6347
Recommended Maximum Enrollment:	20*
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	6341 Network Administration I

This course is based on industry-validated skill standards. Topics of this course include networking security, administrator responsibilities, and documentation of work-based experiences. English language arts are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, service learning, and job shadowing. Apprenticeship is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

This course can help prepare students for the Windows 7 MCITP certification assessment, http://www.microsoft.com/learning/en/us/certification/cert-windowsclient.aspx.

Network Administration III

Course Number:	6348
Recommended Maximum Enrollment:	20*
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	6347 Network Administration II

This course is based on industry-validated skill standards. Topics of this course include desktop application issues, networking issues, managing and maintaining systems that run Windows 7 Client, supporting mobile users, and identifying the cause of and resolving security issues. English language arts are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, service learning, and job shadowing. Apprenticeship is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

This course can help prepare students for the Microsoft Certified Desktop Support Technician (MCDST) certification, http://www.microsoft.com/learning/en/us/certification/mcdst.aspx. Students prepare to take the Microsoft Exam 70-271: Supporting Users and Troubleshooting a Microsoft Windows XP Operating System, which is part one of the MCDST, which also completes requirements for the Microsoft Certified Professional (MCP).

Oracle Database Programming I

Course Number:	6451
Recommended Maximum Enrollment:	20*
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	None

This introductory course provides a foundation in database, programming, and professional skills curriculum. Students learn to analyze complex business scenarios and develop a data model, a conceptual representation of an organization's information. Students implement their database design by creating a physical database using SQL, the industry-standard database programming language. Mathematics is reinforced. Work-based learning strategies appropriate for this course include apprenticeship, internship, entrepreneurship, mentorship, service learning, and job shadowing. Cooperative education is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Algebra I is recommended as preparation for this course.

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

This course can help prepare students for the Oracle Database 11g:SQL Fundamentals I, http://education.oracle.com/pls/web_prod-plq-dad/db_pages.getpage?page_id=41&p_org_id=1001&lang=US&p_exam_id=1Z0_007

Oracle Database Programming II

Course Number:	6452
Recommended Maximum Enrollment:	20*
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	6451 Oracle Database Programming I

This course covers PL/SQL, a procedural language extension to SQL. Through an innovative project-based approach, students learn procedural logic constructs such as variables, constants, conditional statements and iterative controls. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, internship, cooperative education, entrepreneurship, mentorship, service learning, and job shadowing. Apprenticeship is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

This course can help prepare students for the Oracle Exam # 1Z0-147--Program with PL/SQLhttp://education.oracle.com/pls/web_prod-plq-dad/db_pages.getpage?page_id=41&p_org_id=1001&lang=US&p_exam_id=1Z0_147

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

Personal Finance

Course Number:	8726
Recommended Maximum Enrollment:	25
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	None

This course prepares students to understand economic activities and challenges of individuals and families, the role of lifestyle goals in education and career choices, procedures in a successful job search, financial forms used in independent living, and shopping options and practices for meeting consumer needs. The course also prepares students to understand consumer rights, responsibilities, and information, protect personal and family resources, and apply procedures for managing personal finances. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA) and Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Principles of Business and Finance

Course Number: 8721
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course introduces students to topics related to business, finance, management, and marketing to cover business in the global economy, functions of business organization and management, marketing basics, and significance of business financial and risk management. English language arts, social studies, and mathematics are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) and Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management I

Course Number: 8510
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course will introduce students to the principles, concepts, and software applications used in the management of projects. Through project-based learning, students will understand how to use the framework of initiating, planning, executing, monitoring and controlling, and closing a project in authentic situations. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Art, English language arts, and mathematics are reinforced. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Global

Course Number: 8511
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the impact of cultural differences and exchange rate fluctuations on business practices and the marketing mix in global markets. Students will understand factors that affect manufacturing and research location selection, the impact of local government policies and procedures on market decision making, and the use of strategic alliances to acquire additional necessary experience. Finally, students will learn to identify and manage risk in global market development. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Technology

Course Number: 8512
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the use of information technology to increase the effectiveness and efficiency of project management and integrated enterprise. Students will learn operational strategies for managing advanced technology and innovation as well as how to map the high technology operations environment to business settings. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management III

Course Number: 8513
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8511 Project Management II – Global
OR
8512 Project Management II – Technology

This project-based, culminating course covers the management of a complete project in an authentic environment. Students will be responsible for planning, monitoring, controlling, and completing a series of smaller projects as well as a capstone project. Mathematics and English language arts are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

SAS Programming I

Course Number: 6428
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: One course in another computer programming language

This course is the entry point for students to learn SAS programming. Students will learn how to plan and write SAS programs to solve common data analysis problems. Instruction provides practice running and debugging programs. The emphasis is placed on reading input data, creating list and summary reports, defining new variables, executing code conditionally, reading raw data files and SAS data sets, and writing the results to SAS data sets. Mathematics is reinforced. Work-based learning strategies appropriate for this course include apprenticeship, internship, entrepreneurship, mentorship, service learning, and job shadowing. Cooperative education is not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

This course can help prepare students for the SAS Base Programming Exam for SAS 9 <http://support.sas.com/certify/creds/testbp9.html> certification exam.

SAS Programming II

Course Number: 6429
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6428 SAS Programming I

This course is for experienced SAS student programmers who will learn how to prepare data for analysis. The comparisons of manipulation techniques and resource cost benefits are designed to help student programmers choose the most appropriate technique for their data situation. This course also teaches students how to process SAS data using Structured Query Language (SQL) and how to use the components of the SAS macro facility to design, write, and debug macro systems that are reusable and dynamic. Emphasis is placed on understanding how programs with macro code are processed**.** Mathematics is reinforced. Work-based learning strategies appropriate for this course include apprenticeship, internship, cooperative education, entrepreneurship, mentorship, service learning, and job shadowing. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 due to the technology-intense nature of instruction.

This course can help prepare students for the SAS Advanced Programming Exam for SAS 9<http://support.sas.com/certify/creds/testap9.html> certification exam.

CAREER DEVELOPMENT EDUCATION

PROGRAM DESCRIPTION

The Career Development Process involves students, parents, school counselors, teachers and the community. It helps students understand the lifelong, sequential process of determining self and career identity. Career Development includes delivery of curriculum and career development services that are focused on completing self-assessments, matching interests to career choices, exploring the world of work, conducting career research and education, and career planning to middle and high school students. Development and implementation of a career development plan is an essential part of the process. This prepares students for success in 21st century careers and education.

Career Development curriculum is designed to expose students to the process of career awareness, exploration, and planning. The middle grades curriculum provides exploratory experiences in understanding self and the relationship to the world of work. The high school curriculum provides a more focused exploration of self, careers, and career planning.

Career Development services, coordinated by Career Development Coordinators, support Career and Technical Education. These services provide exposure to, and exploration of, careers within the Career Clusters™ and experiences that assist student transition to careers and college.

NATIONAL STANDARDS

The Career Development program area is aligned to National Career Development Guidelines and the National Standards for School Counseling Programs.

- National Career Development Association
  www.ncda.org
- The American School Counselor Association (ASCA)
  http://www.schoolcounselor.org/

CAREER CLUSTER ALIGNMENT

Career Development courses align to, and are included in, all 16 Career Clusters™.

- North Carolina Career Clusters™ documents
  www.ncpublicschools.org/cte/publications/career
- States' Career Clusters™
  www.careerclusters.org

CAREER AND TECHNICAL STUDENT ORGANIZATION

Opportunities for leadership development and further exploration of careers are provided through participation in Career and Technical Student Organizations.

Career Development Education
Course Descriptions

Career Management

Course Number: 6145
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course prepares students to locate, secure, keep, and change careers. Emphasis is placed on self-assessment of characteristics, interests, and values; education and career exploration; evaluation of career information and creation of a career plan. Based on the National Career Development Guidelines, skills learned in this course include, but are not limited to communications, interpersonal skills, problem solving, personal management and teamwork. English language arts are reinforced. Work-based learning strategies appropriate for this course include business/industry field trips, internships, job shadowing, and service learning. Student participation in Career and Technical Student Organization, (CTSO) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Exploring Career Decisions

Course Number: 6158
Recommended Maximum Enrollment: 30
Hours of Instruction: Local Decision, Middle School
Prerequisite: None

This middle school course provides an orientation to the world of work. Emphasis is placed on self-awareness, understanding the world of work, and the career planning process. Based on the National Career Development Guidelines, skills learned in this course include, but are not limited to, communication, personal management, and teamwork. English language arts are reinforced. Work-based learning strategies appropriate for this course include business/industry field trips and job shadowing. Student participation in Career and Technical Student Organization (CTSO) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

FAMILY AND CONSUMER SCIENCES EDUCATION

PROGRAM DESCRIPTION

Family and Consumer Sciences (FACS) Education empowers individuals to manage the challenges of living and working in a diverse global society. Students develop human literacy as they master a complex set of essential skills and knowledge needed to achieve quality of life. They gain career preparedness as they acquire readiness to participate in a rapidly changing workforce and global economy.

Family and Consumer Sciences students prepare for family life, work life, and careers in eight core areas:

- Consumer Education and Resource Management
- Early Childhood Education and Services
- Family and Interpersonal Relationships
- Food Production and Services
- Foods, Nutrition and Wellness
- Housing, Interiors, and Design
- Parenting Education and Human Development
- Textiles, Apparel, and Fashion

FACS Education currently offers middle school and high school courses that are part of five career pathways within five Career Clusters™.

Family and Consumer Sciences Education empowers individuals and families across the life span to manage the challenges of living and working in a diverse global society. The unique focus is on families, work, and their interrelationships. The mission of Family and Consumer Sciences Education is to prepare students for family life, work life, and careers in Family and Consumer Sciences by providing opportunities to develop the knowledge, skills, attitudes, and behaviors needed.

NATIONAL STANDARDS

The National Standards for Family and Consumer Sciences Education were written and revised by the National Association of State Administrators for Family and Consumer Sciences Education (NASAFACS) to promote the study of family and consumer sciences. Content is designed to promote human literacy by empowering individuals and fostering life span development and career preparedness.

There have been two editions of National Standards for Family and Consumer Sciences Education. The First Edition, released in 1998, provided a strong, clear direction for Family and Consumer Sciences at national, state, and local levels. The Revised Standards, released in 2008, reconfirmed the Vision and Mission of Family and Consumer Sciences Education and demonstrate relevancies to Career Clusters™, 21st Century Skills, and programs of Family, Career and Community Leaders of America (FCCLA). Both First and Second Editions reflect recommendations from FACS educators, specialists, business, industry, and related agencies.

For additional information, go to:
www.aafcs.org

http://moodle.teachsharp.com/course/view.php?id=5

CAREER CLUSTER ALIGNMENT

Family and Consumer Sciences Education provides students with knowledge and skills needed to realize human potential and prepare for career success. Curricula reflect the scope and diversity of FACS content and the potential to prepare learners of all ages for optimum quality of living and working.

Family and Consumer Sciences content is a complex set of knowledge and stills that builds human literacy and leads to quality of life for individuals and families. Human literacy is achieved in three ways:

(1) Individual empowerment – making informed decisions – e.g., evaluating reliability of information, analyzing pros/cons of choices, and applying information to novel situations.
(2) Life span development – focusing on skills and strategies for meeting human needs from such basic needs as food, apparel, housing, and safety to parenting, early childhood education, food technology and enterprise, personal finance, resource management, and interior design.
(3) Career preparedness – learning to access professional opportunities through employability skills, technical expertise, development of work ethic, lifelong learning, and skills for work-life issues.

Family and Consumer Sciences courses provide a context within which reading, math, science, and social studies concepts are applied. Many FACS courses are projects-based. Students apply content from core subjects to solve problems, apply strategies, and design systems related to foods, apparel, housing, child development, and personal finance concepts. Students learn to read a lease, interpret instructions, read stories to children, measure, and estimate. These academic applications provide a rich context within which core subject skills are used while abstract concepts gain deeper meaning and clearer relevance.

NC FACS courses fall into five Career Clusters™. They are Agriculture, Food and Natural Resources; Architecture and Construction; Arts, AV Technology and Communications; Hospitality and Tourism; and Human Services.

Use links for more details
http://www.ncpublicschools.org/cte/family/
http://www.careerclusters.org/
http://www.careerclusters.org/clusters/16cc.php?cluster=ag
http://www.careerclusters.org/resources/web/ks.php

CERTIFICATIONS AND CREDENTIALING

Early Childhood Education Credential

NC Division of Child Development Lead Teacher Equivalency and North Carolina Community College Articulation for Approved High School Coursework for (DCD.0162). Go to https://ncccs.cc.nc.us/Numbered_Memos/docs/MemosFor2010/cc10-020.pdf for the articulation approval, agreement, and application for articulated credit.

ProStart® I and II Credential

The ProStart® National Certificate of Achievement is a recognized food service industry credential for students who scored 75% or better on a national exam for both ProStart® I and II and completed the 400 hour mentored. Go to http://prostart.restaurant.org/about/certificate.aspx for more details on earning the ProStart® I and II credential.

ServSafe®

ServSafe® is a recognized food service industry safety and sanitation credential. A minimum of 12 hours of instruction and a score of 75% or better are required for the credential. Go to www.servsafe.com for information for taking the exam.

CAREER AND TECHNICAL EDUCATION STUDENT ORGANIZATION

FAMILY, CAREER & COMMUNITY LEADERS OF AMERICA (FCCLA)

Family, Career and Community Leaders of America (FCCLA) is a national student organization for middle and high school students that promotes youth-centered leadership and opportunities for contextual learning. It is the only Career and Technical Education in-school student organization with the family as its central focus. Members address important personal, family, work, and societal issues through projects, national programs, and competitive events related to content of Family and Consumer Sciences Education and integrated within course instruction.

NC FCCLA is affiliated with the national FCCLA organization. All Family and Consumer Sciences curriculum in North Carolina is aligned with state and national FCCLA programs and projects to give students the full benefit of all available opportunities.

FCCLA National: http://www.fcclainc.org/
http://www.fcclainc.org/content/star-events/
http://www.fcclainc.org/content/programs/
FCCLA State: www.NCFCCLA.org

Family and Consumer Sciences Education
Course Descriptions

Apparel I

Course Number: 7035
Recommended Maximum Enrollment: 20*(or 2 per sewing machine)
Hours of Instruction: 135(block) 150 (regular)
Prerequisite: None

In this course students are introduced to clothing production in the areas of preparation for clothing construction, basic clothing construction techniques, consumer decisions, textiles, historical perspectives and design, and career opportunities. Emphasis is placed on students applying these construction and design skills to apparel and home fashion. Art, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and Cooperative education are not available for this course. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*For safety reasons, enrollment is not to exceed 20 in this course.

Apparel II-Enterprise

Course Number 7036
Recommended Maximum Enrollment: 20* (or 2 per sewing machine)
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7036 Apparel I

In this course students are introduced to advanced clothing and housing apparel development skills. The use of fibers and fabrics is combined with design and construction techniques to develop and produce clothing or housing apparel products. A real or simulated apparel business enterprise and FCCLA activities allow students to apply instructional strategies and workplace readiness skills to an authentic experience and to develop a portfolio. Mathematics and science are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning and job shadowing. Apprenticeship is not available for this course. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*For safety reasons, enrollment is not to exceed 20 in this course.

CTE Advanced Studies

Course Number: 8595
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

This culminating course is for juniors and seniors who have earned two technical credits, one of which is a completer course, in one Career Cluster. The Advanced Studies course must augment the content of the completer course and prepare students for success in transitioning to postsecondary education and future careers. Students work under the guidance of a teacher with expertise in the content of the completer course in collaboration with community members, business representatives, and other school-based personnel. The four parts of the course include writing a research paper, producing a product, developing a portfolio, and delivering a presentation. Students demonstrate their abilities to use 21st century skills. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

CTE Apprenticeship

Course Number: 8596
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

Students who participate in apprenticeships or pre-apprenticeships through the North Carolina Department of Labor, Apprenticeship and Training Bureau can also earn CTE credit while they earn hours and experience toward an adult apprenticeship leading to a completed journeyman certificate. This course is appropriate for occupations that do not require a college degree but require a high level of skill and knowledge.

CTE Internship

Course Number: 8597
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

A CTE Internship allows for additional development of career and technical competencies within a general career field. Internships allow students to observe and participate in daily operations, develop direct contact with job personnel, ask questions about particular careers, and perform certain job tasks. This activity is exploratory and allows the student to get hands-on experience in a number of related activities. The teacher, student, and the business community jointly plan the organization, implementation, and evaluation of an internship, regardless of whether it is an unpaid or paid internship.

CTE Community College

Course Number: 8598
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: Does not apply
Prerequisite: None

Students may include one or more Community College courses, either online or face-to-face, in their program of studies that leads to a concentration in a Career Cluster. The course must meet requirements of the Operating Procedures for the Enrollment of High School Students in Community College Courses.

CTE University

Course Number: 8599
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: Does not apply
Prerequisite: None

Students may include one or more courses from a four-year college or university, either online or face-to- face, in their program of studies that leads to a concentration in a Career Cluster.

Culinary Arts and Hospitality I

Course Number 7121
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7120 Introduction to Culinary Arts and Hospitality

This course focuses on basic skills in cold and hot food production, baking and pastry, and service skills. Art, English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Family, Career and Community Leaders of America (FCCLA) leadership activities provide the opportunity to apply instructional competencies and workplace readiness skills to authentic experiences.

*For safety reasons, enrollment should not exceed 20 in this course.

Culinary Arts and Hospitality II

Course Number: 7122
Recommended Maximum Enrollment: 20*
Hours of Instruction: 270 (block) 300 (regular)
Prerequisite: 7121 Culinary Arts and Hospitality I

This course provides advanced experiences in cold and hot and food production, management (front and back of the house), and service skills. Topics include menu planning, business management, and guest relations. Art, English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning and job shadowing. Family, Career and Community leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*For safety reasons, enrollment should not exceed 20 in this course.

Early Childhood Education I

Course Number: 7111
Recommended Maximum Enrollment: 20*
Hours of Instruction: 270 (block) 300 (regular)
Prerequisite: Students must be 16 by October 1^

This two-credit course prepares students to work with children in early education and child care settings. Areas of study include personal and professional preparation, child development from birth to age 12, techniques and procedures for working with young children, and history, trends and opportunities in this field. An internship makes up 50 percent of instructional time. Work-based learning strategies appropriate for this course include internship, mentorship, service learning, and job shadowing. Cooperative education and apprenticeship are not available for this course. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Parenting and Child Development is recommended as preparation for this course.

^Because they intern in early childhood centers that must meet NC Child Care General Statute 110.91, Section 8, students must be 16 years of age prior to October 1 to enroll in this course. http://www.ncga.state.nc.us/EnactedLegislation/Statutes/HTML/BySection/Chapter_110/GS_110-91.html

*For safety reasons, enrollment should not exceed 20 in this course.

Early Childhood Education II

Course Number:	7112
Recommended Maximum Enrollment:	20*
Hours of Instruction:	270 (block) 300 (regular)
Prerequisite:	7111 Early Childhood Education I Students must be 16 by October 1^

This two-credit course provides advanced experiences in working with children from infancy to age 12 in early education and child care settings. Areas of study include program planning and management, developmentally appropriate practice, procedures and strategies for working with special groups of children, and career development and professionalism. An internship makes up 50 percent of instructional time. Work-based learning strategies appropriate for this course include internship, mentorship, service learning, and job shadowing. Cooperative education and apprenticeship are not available for this course. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

^Because they intern in early childhood centers that must meet NC Child Care General Statute 110.91, Section 8, students must be 16 years of age prior to October 1 to enroll in this course. http://www.ncga.state.nc.us/EnactedLegislation/Statutes/HTML/BySection/Chapter_110/GS_110-91.html

*For safety reasons and number of interns placed in the field, enrollment should not exceed 20 in this course.

Exploring Life Skills

Course Number:	7018
Recommended Maximum Enrollment:	25
Hours of Instruction:	Local Decision, Middle School
Prerequisite:	None

This middle school course allows students to explore life skills essential for their roles as managers, consumers, workers, and family members both now and in the future. Areas of study include managing resources, relating with others, making healthy food choices, learning about children, and preparing for careers. Art, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Fashion Merchandising

Course Number: 6631
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

In this course students are introduced to the fashion and merchandising industries. Students acquire transferable knowledge and skills among the concepts of the business of fashion, fashion promotion events, the evolution and movement of fashion, the fashion industry, career development, merchandising of fashion, and the selling of fashion. Mathematics and science are reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) and Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Foods I

Course Number: 7045
Recommended Maximum Enrollment: 20* (or 4-5 per laboratory kitchen)
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course examines the nutritional needs of the individual. Emphasis is placed on the relationship of diet to health, kitchen and meal management, food preparation and sustainability for a global society, and time and resource management. English language arts, mathematics, science, and social studies are reinforced. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*For safety and sanitation reasons, enrollment should not exceed 20 in this course.

Foods II - Enterprise

Course Number	7046
Recommended Maximum Enrollment:	20* (or 4-5 per laboratory kitchen)
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	7045 Foods I OR 7121 Culinary Arts and Hospitality I

This course focuses on advanced food preparation techniques while applying nutrition, food science, and test kitchen concepts using new technology. Food safety and sanitation receive special emphasis, with students taking the exam for a nationally recognized food safety credential. Students develop skills in preparing foods such as beverages, salads and dressing, yeast breads, and cake fillings and frostings. A real or simulated in-school food business component allows students to apply instructional strategies. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning and job shadowing. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*For safety and sanitation reasons, enrollment should not exceed 20 in this course.

Go to http://www.servsafe.com/ for information on the student credentialing program and testing information

Foods II Technology

Course Number:	7075
Recommended Maximum Enrollment:	20* (or 4-5 per kitchen)
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite/Corequisite:	7045 Foods I or 7121 Culinary Arts and Hospitality I or Environmental Science or Physical Science or Biology or Chemistry

This course explores the food industry from the farm to the table using skills in food science, technology, engineering, and mathematics. Government regulations, emerging trends, biotechnology, and technological career opportunities from scientists to technicians will be presented. The student examines production, processing, preparation, preservation, and packaging principles along the farm to table continuum. The student begins to understand how food technology affects the food that he/she eats. English language arts are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, school-based enterprise, service learning, and job shadowing. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*For safety and sanitation reasons, enrollment should not exceed 20 in this course.

Interior Applications

Course Number: 7153
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7152 Interior Design II

This course prepares students for entry-level and technical work opportunities in interior design. Students develop interior applications to meet clients' needs using components found in residential and non-residential settings. Students apply design, selection, production, and renovation skills to wall and floor coverings, lighting, windows, case goods, and upholstered furniture. Art and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. Family Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Interior Design I

Course Number: 7151
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course focuses on housing needs and options of individuals and families at various stages of the life cycle. Emphasis is placed on selecting goods and services and creating functional, pleasing living environments using sound financial decisions and principles of design. Topics of study include elements and principles of design, backgrounds and furnishings, architectural styles and features, and functional room design. Art and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. Family, Career Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Interior Design II

Course Number: 7152
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7151 Interior Design I

This course prepares students for entry-level and technical work opportunities in the residential and non-residential interior design fields. Students deepen their understanding of design fundamentals and theory by designing interior plans to meet living space needs of specific individuals or families. Topics include application of design theory to interior plans and production, selection of materials, and examination of business procedures. Art and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Introduction to Culinary Arts and Hospitality

Course Number 7120
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

In this course, basic safety and sanitation practices leading to a national industry-recognized food safety credential are introduced. Commercial equipment, smallwares, culinary math, and basic knife skills in a commercial foodservice facility are taught. Art, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Foods I is recommended as preparation for this course.

*For safety reasons, enrollment should not exceed 20 in this course.

Go to http://www.servsafe.com/ for information on the student credentialing program and testing information.

Parenting and Child Development

Course Number: 7065
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course introduces students to responsible nurturing and basic applications of child development theory with children from infancy through age six. Areas of study include parenthood decisions, child care issues, prenatal development and care, and development and care of infants, toddlers, and children three through six. Emphasis is on responsibilities of parents, readiness for parenting, and the influence parents have on children while providing care and guidance. Art, English language arts, and science are reinforced. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Personal Finance

Course Number: 8726
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course prepares students to understand economic activities and challenges of individuals and families, the role of lifestyle goals in education and career choices, procedures in a successful job search, financial forms used in independent living, and shopping options and practices for meeting consumer needs. The course also prepares students to understand consumer rights, responsibilities and information, protect personal and family resources, and apply procedures for managing personal finances. English language arts and mathematics are reinforced in this course. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA) and Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management I

Course Number: 8510
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course will introduce students to the principles, concepts, and software applications used in the management of projects. Through project-based learning, students will understand how to use the framework of initiating, planning, executing, monitoring and controlling, and closing a project in authentic situations. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Global

Course Number: 8511
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the impact of cultural differences and exchange rate fluctuations on business practices and the marketing mix in global markets. Students will understand factors that affect manufacturing and research location selection, the impact of local government policies and procedures on market decision making, and the use of strategic alliances to acquire additional necessary experience. Finally, students will learn to identify and manage risk in global market development. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Technology

Course Number: 8512
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the use of information technology to increase the effectiveness and efficiency of project management and integrated enterprise. Students will learn operational strategies for managing advanced technology and innovation as well as how to map the high technology operations environment to business settings. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management III

Course Number: 8513
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8511 Project Management II – Global
OR
8512 Project Management II – Technology

This project-based, culminating course covers the management of a complete project in an authentic environment. Students will be responsible for planning, monitoring, controlling, and completing a series of smaller projects as well as a capstone project. Mathematics and English language arts are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

ProStart I®

Course Number: 7171
Recommended Maximum Enrollment: 20* (or 4-5 per kitchen)
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite None

This national credentialing and fundamental food service course allows students to master kitchen basics, such as foodservice equipment, nutrition, breakfast foods, salads and garnishes, and fruits and vegetables. A heavy emphasis is placed on safety and sanitation, including preparing and serving safe food and preventing accidents and injuries. Students learn about successful customer relations and working with people, business math, and controlling foodservice cost. A required, one-credit paid or unpaid 200-hour internship will count toward the National ProStart ® Certificate of Achievement at the conclusion of ProStart® II. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. Students are eligible to compete at the state and national levels of Family, Career and Community Leaders of America (FCCLA) and/or ProStart® competitive events. Community service and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*For safety reasons, enrollment should not exceed 20 in this course.

Go to http://prostart.restaurant.org/ for information on the student credentialing program and testing information.

ProStart II®

Course Number: 7172
Recommended Maximum Enrollment: 20* (or 4-5 per laboratory kitchen)
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7171 ProStart I®

In this national credentialing, one credit, and second level fundamental food service course, students study advanced skills hospitality industry, including tourism and the retail industry, the history of foodservice, and the lodging industry. Advanced food service skills include potatoes and grains, meat, poultry, seafood, stocks, soups and sauces, desserts, and baked goods. Service skills are refined through the art of service and communicating with customers. Students learn purchasing and industry control, standard accounting practices and how to build restaurant sales through marketing and the menu. Students will complete the remainder of a required 400-hour paid or unpaid one-credit internship, which will count toward the National ProStart® Certificate of Achievement. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Students are encouraged to compete at the state and national levels of Family, Career and Community Leaders of America (FCCLA) and/or ProStart® competitive events. Community service and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*For safety reasons, enrollment should not exceed 20 in this course.

Go to http://prostart.restaurant.org/ for information on the student credentialing program and testing information.

Teen Living

Course Number: 7015
Recommended Maximum Enrollment: 20
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course examines life management skills in the areas of personal and family living, wellness, nutrition and foods, financial management, living environments, appropriate child development practices, fashion and clothing, and job readiness. Emphasis is placed on students applying these skills during their teen years. Through simulated experiences, they learn to fulfill their responsibilities associated with the work of the family and community. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include mentorship and service learning. Apprenticeship and cooperative education are not available for this course. Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*For safety and sanitation reasons, enrollment should not exceed 20 in this course.

HEALTH SCIENCE EDUCATION

PROGRAM DESCRIPTION

Health Science Education is a broad curriculum at the middle and high school levels that provides students with meaningful instruction for and about health care careers. Health Science Education plays a major role in meeting present and predicted needs for health care professionals within a health care delivery system characterized by diversity and changing technologies.

Health Science Education is designed to prepare graduates as viable competitors in the health care industry and for advanced educational opportunities.

Literacy and numeracy skills are an integral part of the health science program. Development of 21st century skills including collaboration, critical thinking, economic literacy, entrepreneurial skills, and problem-solving is a part of each of the career pathways. Opportunities to develop and apply leadership, social, civic, and health care skills are provided through Health Occupation Students of America (HOSA), the Career and Technical Student Organization for health science education. Integration of the health science program with appropriate academic concepts/courses is strongly encouraged.

NATIONAL STANDARDS

Health Science Education curriculum is designed to reflect national standards in Health Science.

- National Consortium for Health Science Education www.healthscienceconsortium.org
- National Healthcare Foundation Standards and Accountability Criteria http://www.healthscienceconsortium.org/docs/foundation-standards-ac-may-09.pdf
- Career Clusters™ http://www.careerclusters.org/

CAREER CLUSTER ALIGNMENT

The Health Science Education program is designed to provide students with appropriate, comprehensive preparation for careers and postsecondary education in the Health Science Career Cluster.

CERTIFICATIONS AND CREDENTIALING

Health Science Education courses provide students opportunities to obtain industry certifications. Students may prepare to earn certifications in Nurse Aide I and Pharmacy Technician.

CAREER AND TECHNICAL STUDENT ORGANIZATION

HEALTH OCCUPATIONS STUDENTS OF AMERICA (HOSA)

HOSA's twofold mission is to promote career opportunities in the health care industry and to enhance the delivery of quality health care to all people. HOSA's mission is especially critical when considering the acute shortage of qualified workers for the health care industry.

HOSA is organized on local, state, and national levels. Health Science teachers, advisors, and advisory councils guide local chapters. State advisors and committee members coordinate chapter activities for the national organization. HOSA provides a unique program of leadership development, motivation, and recognition.

HOSA works best when it is integrated into the Health Science Education curriculum and classroom. Participation in HOSA provides students with the critical soft-skill development that is essential in the 21st century employee.

State HOSA website www.nchosa.org
National HOSA website www.hosa.org

Health Science Education
Course Descriptions

Biomedical Technology

Course Number: 7200
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course challenges students to investigate current medical and health care practices using technology and advances in health care research. Topics include ethics, forensic medicine, infectious diseases, organ transplants, cell biology and cancer, and biomedical research. English language arts and science are reinforced in this course. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Health Occupations Students of America (HOSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

CTE Advanced Studies

Course Number: 8595
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

This culminating course is for juniors and seniors who have earned two technical credits, one of which is a completer course, in one Career Cluster. The Advanced Studies course must augment the content of the completer course and prepare students for success in transitioning to postsecondary education and future careers. Students work under the guidance of a teacher with expertise in the content of the completer course in collaboration with community members, business representatives, and other school-based personnel. The four parts of the course include writing a research paper, producing a product, developing a portfolio, and delivering a presentation. Students demonstrate their abilities to use 21st century skills. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

CTE Apprenticeship

Course Number: 8596
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

Students who participate in apprenticeships or pre-apprenticeships through the North Carolina Department of Labor, Apprenticeship and Training Bureau can also earn CTE credit while they earn hours and experience toward an adult apprenticeship leading to a completed journeyman certificate. This course is appropriate for occupations that do not require a college degree but require a high level of skill and knowledge.

CTE Internship

Course Number: 8597
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

A CTE Internship allows for additional development of career and technical competencies within a general career field. Internships allow students to observe and participate in daily operations, develop direct contact with job personnel, ask questions about particular careers, and perform certain job tasks. This activity is exploratory and allows the student to get hands-on experience in a number of related activities. The teacher, student, and the business community jointly plan the organization, implementation, and evaluation of an internship, regardless of whether it is an unpaid or paid internship.

CTE Community College

Course Number: 8598
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: Does not apply
Prerequisite: None

Students may include one or more Community College courses, either online or face-to-face, in their program of studies that leads to a concentration in a Career Cluster. The course must meet requirements of the Operating Procedures for the Enrollment of High School Students in Community College Courses.

CTE University

Course Number: 8599
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: Does not apply
Prerequisite: None

Students may include one or more courses from a four-year college or university, either online or face-to- face, in their program of studies that leads to a concentration in a Career Cluster.

Exploring Biotechnology in Health Science

Course Number: 7205
Recommended Maximum Enrollment: 30
Hours of Instruction: Local Decision, Middle School
Prerequisite: None

This course introduces students to biotechnology. Topics include medical math, safety issues, cellular design, biomedical research, bioethics, and careers in biotechnology. English language arts and science are reinforced in this course. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Health Occupations Students of America (HOSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Health Science I

Course Number: 7240
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course focuses on human anatomy, physiology and human body diseases and disorders, and biomedical therapies. Students will learn about health care careers within the context of human body systems. Projects, teamwork, and demonstrations serve as instructional strategies that reinforce the curriculum content. English language arts and science are reinforced in this course. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Health Occupations Students of America (HOSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Biology is recommended as preparation for this course.

Health Science II

Course Number: 7242
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7240 Health Science I OR
7271 PLTW Human Body Systems

This course is designed to help students expand their understanding of financing and trends of health care agencies, fundamentals of wellness, legal and ethical issues, concepts of teamwork, and effective communication. Students will learn health care skills, including current CPR and first aid training. English language arts and science are reinforced in this course. Work-based learning strategies appropriate for this course include internship, mentorship, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Health Occupations Students of America (HOSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 to establish a foundation of knowledge critical to the application of patient care skills.

Health Team Relations

Course Number: 7210
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) (150 (regular)
Prerequisite: None

This course is designed to assist potential health care workers in their role and function as health team members. Topics include terminology, the history of health care, health care agencies, ethics, legal responsibilities, careers, holistic health, human needs, change, cultural awareness, communication, medical math, leadership, and career decision making. English language arts are reinforced. Work-based learning strategies appropriate for this course include service learning, field trips, and job shadowing. Apprenticeship and cooperative education are not available for this course. English language arts and social studies are reinforced in this course. Health Occupations Students of America (HOSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills to authentic experiences.

Nursing Fundamentals

Course Number: 7243
Maximum Enrollment: 10*
Hours of Instruction: 270 (block) 300 (regular)
Prerequisite: 7242 Health Science II

This course is designed for students interested in medical careers where personal care and basic nursing skills are used. This course is an enhanced adaptation of the North Carolina Division of Health Service Regulation (DHSR) Nurse Aide I (NAI) curriculum and helps prepare students for the National Nurse Aide Assessment (NNAAP). Students who pass the NNAAP become listed on the NC NAI Registry. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include a required clinical internship in a long-term care agency. Healthcare agencies may require testing for tuberculosis and/or other diseases and a criminal record check for felonies related to drugs. Cooperative education is not available for this course. HOSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Enrollment is limited per North Carolina Board of Nursing (BON) Administrative Rule 21 NCAC 36.0318(i), which requires the ratio of teacher to nurse aide students be 1:10 or less while in the clinical area. DHSR applies BON Rule to the classroom training area.

Pharmacy Technician

Course Number: 7242
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7242 Health Science II

This course has self-paced, on-line instruction designed to prepare high school seniors for a pharmacy technician career. Topics included in this course are federal law, medication used in major body systems, calculations, and pharmacy operations. Mathematics is reinforced in this course. Work-based learning strategies appropriate for this course include an apprenticeship, cooperative education, internship, or mentorship. Health Occupations Students of America (HOSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. This course is accredited by the Accreditation Council for Pharmacy Education (APCE). Upon successful completion of this course and after graduation, the student is eligible to take the Pharmacy Technician Certification Board (PTCB) exam.

*Class enrollment limited to 20 to establish a foundation of knowledge critical to the application of patient care skills.

PLTW Biomedical Innovations

Course Number: 7273
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite 7272 PLTW Medical Interventions

This course allows students to apply their knowledge and skills to answer questions or solve problems related to biomedical sciences. Students design innovative solutions to the health care challenges of the 21st century. Students work on independent projects and may work with a mentor in the healthcare industry. English language arts and science are reinforced in this course. Work-based learning strategies appropriate for this course include internship, mentorship, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Health Occupations Students of America (HOSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 to establish a foundation of knowledge critical to the application of patient care skills.

PLTW Human Body Systems

Course Number: 7271
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7270 PLTW Principles of Biomedical Sciences

In this course students examine the human body systems, design experiments and use data acquisition software to monitor body functions and often play the role of the biomedical professional. English language arts and science are reinforced in this course. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Health Occupations Students of America (HOSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 to establish a foundation of knowledge critical to the application of patient care skills.

PLTW Medical Interventions

Course Number: 7272
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7271 PLTW Human Body Systems

This course allows students to investigate the interventions involved in the prevention, diagnosis and treatment of disease. It is a "How-To" manual for maintaining overall health. English language arts and science are reinforced in this course. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Health Occupations Students of America (HOSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 to establish a foundation of knowledge critical to the application of patient care skills.

PLTW Principles of Biomedical Sciences

Course Number: 7270
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course is designed for students to investigate the human body systems and various health conditions. They determine factors that lead to the death of a fictional person and investigate lifestyle choices. English language arts and science are reinforced in this course. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Health Occupations Students of America (HOSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Class enrollment limited to 20 to establish a foundation of knowledge critical to the application of patient care skills.

MARKETING AND ENTREPRENEURSHIP EDUCATION

PROGRAM DESCRIPTION

Marketing and Entrepreneurship Education provides opportunities for students to apply problem solving and analytical skills. Students are prepared for advancement in marketing, management, and entrepreneurship careers.

Marketing, management, and entrepreneurship are vast and diverse disciplines. Their functions exist in all industries. These disciplines encompass activities of ideation of products and services, better use of resources, and the aspects of consumption of products and services. These activities prepare students with the knowledge and skills as specific as procedures for research and, at the same time, as general as the creativity needed in promotion.

Based upon the National Marketing Education Standards and the National Curriculum Framework, courses in Marketing and Entrepreneurship Education program provide students with essential skills necessary to be college and career ready in a global economy. The program includes courses for students in grades 9-12. Students may develop knowledge and skills in career pathways available through four Career Clusters™:

- Arts, A/V Technology & Communication
- Hospitality & Tourism
- Marketing
- Transportation, Distribution & Logistics

NATIONAL STANDARDS

Marketing and Entrepreneurship Education curriculum is designed to reflect national standards in:

- Career Clusters™ http://www.careerclusters.org/
- Consortium for Entrepreneurship Education http://www.entre-ed.org/
- International Council on Hotel, Restaurant and Institutional Education www.chrie.org
- MBA Research http://www.mbaresearch.org/2.0/Joomla/index.php
- National Business Education Association www.nbea.org
- National Retail Federation www.nrf.com

CAREER CLUSTER ALIGNMENT

The Marketing and Entrepreneurship Education program is designed to provide students with appropriate, comprehensive preparation to be college and career ready in the following Career Clusters™:

- Arts, A/V Technology & Communication
- Hospitality & Tourism
- Marketing
- Transportation, Distribution & Logistics

The program of studies is designed to provide maximum career opportunities to students in those Career Clusters™. The program also provides students core instruction in the other Career Clusters™.

CERTIFICATIONS AND CREDENTIALING

Marketing and Entrepreneurship Education courses provide students multiple opportunities to obtain industry certifications.

- Assessment of Skills and Knowledge (A*S*K), http://www.askinstitute.org/
- Professional Certification, www.nrffoundation.com
- Sales & Marketing Executives International, www.smei.org

CAREER AND TECHNICAL EDUCATION STUDENT ORGANIZATION

DECA (an association for Marketing Education students)

- DECA for high school students
- DECA for college students
- Professional Division for business people, DECA alumni, educators, and parents who all support the goals of the association

DECA prepares emerging leaders and entrepreneurs for careers in marketing, finance, hospitality, and management. It provides students with leadership opportunities at the local, state, and national levels. Members may seek elected office or serve in positions of committee leadership. Students gain valuable hands-on, authentic leadership skills by being active in the student-led student organization.

DECA enhances the preparation for college and careers by providing co-curricular programs that integrate into classroom instruction, applying learning in the context of business, connecting to business and the community, and providing unique opportunities to extend classroom learning through competitive events. Members leverage their DECA experience to become academically prepared, community oriented, professionally responsible, and experienced leaders.

State DECA website www.ncdeca.org
National DECA website www.deca.org

Marketing and Entrepreneurship Education
Course Descriptions

CTE Advanced Studies

Course Number: 8595
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

This culminating course is for juniors and seniors who have earned two technical credits, one of which is a completer course, in one Career Cluster. The Advanced Studies course must augment the content of the completer course and prepare students for success in transitioning to postsecondary education and future careers. Students work under the guidance of a teacher with expertise in the content of the completer course in collaboration with community members, business representatives, and other school-based personnel. The four parts of the course include writing a research paper, producing a product, developing a portfolio, and delivering a presentation. Students demonstrate their abilities to use 21st century skills. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

CTE Apprenticeship

Course Number: 8596
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

Students who participate in apprenticeships or pre-apprenticeships through the North Carolina Department of Labor, Apprenticeship and Training Bureau can also earn CTE credit while they earn hours and experience toward an adult apprenticeship leading to a completed journeyman certificate. This course is appropriate for occupations that do not require a college degree but require a high level of skill and knowledge.

CTE Internship

Course Number: 8597
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

A CTE Internship allows for additional development of career and technical competencies within a general career field. Internships allow students to observe and participate in daily operations, develop direct contact with job personnel, ask questions about particular careers, and perform certain job tasks. This activity is exploratory and allows the student to get hands-on experience in a number of related activities. The teacher, student, and the business community jointly plan the organization, implementation, and evaluation of an internship, regardless of whether it is an unpaid or paid internship.

CTE Community College

Course Number:	8598
Recommended Maximum Enrollment:	Does not apply
Hours of Instruction:	Does not apply
Prerequisite:	None

Students may include one or more Community College courses, either online or face-to-face, in their program of studies that leads to a concentration in a Career Cluster. The course must meet requirements of the Operating Procedures for the Enrollment of High School Students in Community College Courses.

CTE University

Course Number:	8599
Recommended Maximum Enrollment:	Does not apply
Hours of Instruction:	Does not apply
Prerequisite:	None

Students may include one or more courses from a four-year college or university, either online or face-to-face, in their program of studies that leads to a concentration in a Career Cluster.

Entrepreneurship I

Course Number:	8716
Recommended Maximum Enrollment:	25
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	None

In this course, students evaluate the concepts of going into business for themselves and working for or operating a small business. Emphasis is on the exploration of feasible ideas of products/services, research procedures, business financing, marketing strategies, and access to resources for starting a small business. Students develop components of a business plan and evaluate startup requirements. English language arts and social studies are reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) and Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. The courses Principles of Business and Finance or Marketing are recommended as preparation for this course.

The Entrepreneurship I and II courses can help prepare students for the Assessment of Skills and Knowledge (A*S*K), http://www.askinstitute.org/, credential.

Entrepreneurship II

Course Number: 8717
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8716 Entrepreneurship I

In this course, students develop an understanding of pertinent decisions to be made after obtaining financing to open a small business. Students acquire in-depth understanding of business regulations, risks, management, and marketing. Students develop a small-business management handbook. English language arts and social studies are reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) and Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

The Entrepreneurship I and II courses can help prepare students for the Assessment of Skills and Knowledge (A*S*K), http://www.askinstitute.org/, credential.

Exploring Business, Marketing, and Entrepreneurship

Course Number: 6208
Recommended Maximum Enrollment: 25
Hours of Instruction: Local decision, Middle School
Prerequisite: None

This middle school course is designed to explore the nature of business in an international economy and to study related careers in fields such as entrepreneurship, financial services, information technology, marketing, office systems technology, public relations and promotion, and travel and tourism. Emphasis is on using the computer while studying applications in these careers along with problem solving and thinking skills. This course contributes to the development of a career development plan. English language arts, mathematics, and social studies are reinforced. Work-based learning strategies appropriate for this course include service learning and job shadowing. Apprenticeship and cooperative education are not available for this course. Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Fashion Merchandising

Course Number: 6631
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

In this course students are introduced to the fashion and merchandising industries. Students acquire transferable knowledge and skills among the concepts of the business of fashion, fashion promotion events, the evolution and movement of fashion, the fashion industry, career development, merchandising of fashion, and the selling of fashion. Mathematics and science are reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) and Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Hospitality and Tourism

Course Number: 6645
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6621 Marketing or
6670 Sports and Entertainment Marketing I

In this course, students are introduced to the industry of travel, tourism, and recreational marketing. Students acquire knowledge and skills on the impact of tourism, marketing strategies of the major hospitality and tourism segments, destinations, and customer relations. Emphasis is on career development, customer relations, economics, hospitality and tourism, travel destinations, and tourism promotion. Mathematics and social studies are reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Marketing

Course Number: 6621
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

In this course, students develop an understanding of the processes involved from the creation to the consumption of products/services. Students develop an understanding and skills in the areas of distribution, marketing-information management, market planning, pricing, product/service management, promotion, and selling. Students develop an understanding of marketing functions applications and impact on business operations. Mathematics and social studies are reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

The Marketing and Marketing Management courses can help prepare students for credentials:
Assessment of Skills and Knowledge (A*S*K) http://www.askinstitute.org/
Professional Certification http://www.nrffoundation.com
Sales & Marketing Executives International, http://www.smei.org

Marketing Management

Course Number: 6622
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6621 Marketing OR
6631 Fashion Merchandising

In this course, students acquire an understanding of management environments of marketing concepts and functions. Topics include human resources, marketing information, products/services, distribution, promotion, and selling. Students develop an understanding of marketing functions applications and impact on business decisions. English language arts and social studies are reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Marketing Management can help prepare students for credentials:
Assessment of Skills and Knowledge (A*S*K) http://www.askinstitute.org/
Professional Certification http://www.nrffoundation.com
Sales & Marketing Executives International, http://www.smei.org

Personal Finance

Course Number: 8726
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course prepares students to understand economic activities and challenges of individuals and families, the role of lifestyle goals in education and career choices, procedures in a successful job search, financial forms used in independent living, and shopping options and practices for meeting consumer needs. The course also prepares students to understand consumer rights, responsibilities, and information, protect personal and family resources, and apply procedures for managing personal finances. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA) and Family, Career and Community Leaders of America (FCCLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Principles of Business and Finance

Course Number: 8721
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course introduces students to topics related to business, finance, management, and marketing to cover business in the global economy, functions of business organization and management, marketing basics, and significance of business financial and risk management. English language arts, social studies, and mathematics are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) and Future Business Leaders of America (FBLA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management I

Course Number: 8510
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course will introduce students to the principles, concepts, and software applications used in the management of projects. Through project-based learning, students will understand how to use the framework of initiating, planning, executing, monitoring and controlling, and closing a project in authentic situations. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Global

Course Number: 8511
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the impact of cultural differences and exchange rate fluctuations on business practices and the marketing mix in global markets. Students will understand factors that affect manufacturing and research location selection, the impact of local government policies and procedures on market decision making, and the use of strategic alliances to acquire additional necessary experience. Finally, students will learn to identify and manage risk in global market development. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Technology

Course Number: 8512
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the use of information technology to increase the effectiveness and efficiency of project management and integrated enterprise. Students will learn operational strategies for managing advanced technology and innovation as well as how to map the high technology operations environment to business settings. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management III

Course Number: 8513
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8511 Project Management II – Global
OR
8512 Project Management II – Technology

This project-based, culminating course covers the management of a complete project in an authentic environment. Students will be responsible for planning, monitoring, controlling, and completing a series of smaller projects as well as a capstone project. Mathematics and English language arts are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Sports and Entertainment Marketing I

Course Number: 6670
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

In this course, students are introduced to the industry of sports, entertainment, and event marketing. Students acquire transferable knowledge and skills among related industries for planning sports, entertainment, and event marketing. Topics included are branding, licensing, and naming rights; business foundations; concessions and on-site merchandising; economic foundations; human relations; and safety and security. Mathematics and social studies are reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Sports and Entertainment Marketing II

Course Number: 6671
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6670 Sports and Entertainment Marketing I

In this course, students acquire an understanding of sports, entertainment, and event marketing. Emphasis is on business management, career development, client relations, contracts, ethics, event management, facilities management, legal issues, and sponsorships. Mathematics and social studies are reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Strategic Marketing

Course Number:	6626
Recommended Maximum Enrollment:	30
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	None

This course challenges students by combining into one course the content of Marketing and Marketing Management courses. Topics include economics, marketing research and decision making, domestic and international markets and influences, human resource development, ethics, management, and financial analysis. Mathematics is reinforced. Work-based learning strategies appropriate include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Strategic Marketing can help prepare students for credentials:
Assessment of Skills and Knowledge (A*S*K), http://www.askinstitute.org/
Professional Certification, www.nrffoundation.com
Sales & Marketing Executives International, www.smei.org

TECHNOLOGY ENGINEERING AND DESIGN

PROGRAM DESCRIPTION

The Technology Engineering and Design program is designed to provide middle and high school students essential and enduring 21st century skills. Technology Engineering and Design is a STEM (Science, Technology, Engineering, and Math) program that uses the arts, engineering, languages, technologies, AND sciences to understand, communicate, and design.

NATIONAL STANDARDS

The Standards for Technological Literacy were initiated by the International Technology Engineering Education Association (ITEEA) and funded by the National Science Foundation (NSF) and the National Aeronautics and Space Administration (NASA). The project, Technology for All Americans, has created a rationale, structure, and framework for Technology Education K-12. These standards identify what all students should know and be able to do with respect to understanding technology. The North Carolina Technology Engineering and Design Core and Visualization strands have been designed by the (ITEEA) STEM Center for Teaching and Learning, to reflect the Standards for Technological Literacy standards and benchmarks.

The International Technology and Engineering Educators Association's STEM Center for Teaching and Learning has developed the only standards-based national model for Grades K-12 that delivers technological literacy. The model, Engineering by Design™ is built on Standards for Technological Literacy (ITEEA); Principles and Standards for School Mathematics (NCTM); and Project 2061, Benchmarks for Science Literacy (AAAS).

CAREER CLUSTER ALIGNMENT

The Technology Engineering and Design program is designed to provide students with appropriate, comprehensive preparation for careers and postsecondary education in the Science, Technology, Engineering, and Mathematics (STEM) and Arts, A/V Technology & Communications Career Clusters™. The Program of Studies is constructed to provide maximum career opportunities to students in those Career Clusters™. Technology Engineering and Design courses also provide students core instruction in other Career Clusters™.

CERTIFICATIONS AND CREDENTIALING

Technology Engineering and Design courses provide students multiple opportunities to obtain industry certifications.

CAREER AND TECHNICAL EDUCATION STUDENT ORGANIZATION

TECHNOLOGY STUDENT ASSOCIATION (TSA)

North Carolina Technology Student Association (NC TSA) is an essential element of the state's Technology Education Program. This student organization provides the opportunity for students to engage in activities directly reflecting the curriculum. Along with learning collaboration and leadership skills, students have the opportunity to engage in student-centered, complex tasks that are authentic and developed over an extended period. Beyond the powerful influence of the activities, participation in the NC-TSA helps transform one's program by affording both the teacher and his or her students the opportunity to learn from others by attending regional, state, and national conferences.

North Carolina TSA Site: http://www.nctsa.org
National TSA Site http://www.tsaweb.org/

Technology Engineering and Design
Course Descriptions

Advanced Game Art and Design

Course Number: 8222
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8221 Game Art and Design

This course is a continuation in the study of game design and interactivity. Emphasis is placed on visual design, evaluating, scripting and networking protocols, and legal issues as well as 3D visual theory. Students compile a game portfolio. Advanced topics include the use of audio and visual effects, rendering, modeling, and animation techniques. Students work in collaborative teams to develop a final 3D game project. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

CTE Advanced Studies

Course Number: 8595
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

This culminating course is for juniors and seniors who have earned two technical credits, one of which is a completer course, in one Career Cluster. The Advanced Studies course must augment the content of the completer course and prepare students for success in transitioning to postsecondary education and future careers. Students work under the guidance of a teacher with expertise in the content of the completer course in collaboration with community members, business representatives, and other school-based personnel. The four parts of the course include writing a research paper, producing a product, developing a portfolio, and delivering a presentation. Students demonstrate their abilities to use 21st century skills. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

CTE Apprenticeship

Course Number: 8596
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

Students who participate in apprenticeships or pre-apprenticeships through the North Carolina Department of Labor, Apprenticeship and Training Bureau can also earn CTE credit while they earn hours and experience toward an adult apprenticeship leading to a completed journeyman certificate. This course is appropriate for occupations that do not require a college degree but require a high level of skill and knowledge.

CTE Internship

Course Number: 8597
Recommended Maximum Enrollment: Does not apply
Hours of Instruction 135 (block) 150 (regular)
Prerequisite: None

A CTE Internship allows for additional development of career and technical competencies within a general career field. Internships allow students to observe and participate in daily operations, develop direct contact with job personnel, ask questions about particular careers, and perform certain job tasks. This activity is exploratory and allows the student to get hands-on experience in a number of related activities. The teacher, student, and the business community jointly plan the organization, implementation, and evaluation of an internship, regardless of whether it is an unpaid or paid internship.

CTE Community College

Course Number: 8598
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: Does not apply
Prerequisite: None

Students may include one or more Community College courses, either online or face-to-face, in their program of studies that leads to a concentration in a Career Cluster. The course must meet requirements of the Operating Procedures for the Enrollment of High School Students in Community College Courses.

CTE University

Course Number: 8599
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: Does not apply
Prerequisite: None

Students may include one or more courses from a four-year college or university, either online or face-to-face, in their program of studies that leads to a concentration in a Career Cluster.

Engineering Design

Course Number: 8212
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8210 Technology Engineering and Design

This course continues to apply the skills, concepts, and principles of engineering. Students explore various technological systems and engineering processes in related career fields. Topics include investigating technological system, design optimization, and problem solving. Students utilize CAD and physical and virtual modeling concepts to construct, test, collect, and report data. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Game Art and Design

Course Number: 8221
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8006 Scientific and Technical Visualization I

This course introduces students to techniques used in the electronic game industry. Students will focus on the principles used in game design including mathematical and virtual modeling. Emphasis is placed on areas related to art, history, ethics, plot development, storyboarding, programming, 2D visual theory, and interactive play technologies. Students develop physical and virtual games using hands-on experiences and a variety of software. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Invention and Innovation

Course Number: 8202
Recommended Maximum Enrollment: 20*
Hours of Instruction: Local Decision, Middle School
Prerequisite: None

This middle school course focuses on students exploring invention and innovation, and the core concepts of technology. Through engaging activities and hands-on projects, students are introduced and apply the following concepts: problem solving, design, troubleshooting, research and development, and experimentation. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Technology Design and Innovation is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Principles of Technology I

Course Number: 8011
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course provides a project based learning approach to understanding the fundamental principles and concepts of physics and associated mathematics. Emphasis is placed on understanding mechanical, electrical, fluid, and thermal systems as they relate to work, force, rate, resistance, energy, and power. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Algebra I and Technology Engineering and Design are recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Principles of Technology II

Course Number: 8012
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8011 Principles of Technology I

This course is a continuation of project based learning experiences where students focus on mechanical, electrical, fluid and thermal systems as they relate to force transformers, momentum, waves and vibrations, energy convertors, transducers, radiation theory, optical systems, and time constants. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Aerospace Engineering

Course Number: 8032
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: **Pathway to Engineering (PTE)** Foundation Courses

In this specialization Project Lead the Way (PLTW) **Pathway to Engineering (PTE) course,** students design problems related to aerospace information systems, astronautics, rocketry, propulsion, the physics of space science, space life sciences, the biology of space science, principles of aeronautics, structures and materials, and systems engineering. Using 3-D design software, students work in teams utilizing hands-on activities, projects, and problems and are exposed to various situations encountered by aerospace engineers. Art, English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education and apprenticeship are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Biotechnical

Course Number: 8032
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: **Pathway to Engineering (PTE)** Foundation Courses

In this specialization Project Lead the Way (PLTW) **Pathway to Engineering (PTE) course,** students are exposed to the diverse fields of biotechnology including biomedical engineering, molecular genetics, bioprocess engineering, and agricultural and environmental engineering. Lessons engage students in engineering design problems related to biomechanics, cardiovascular engineering, genetic engineering, agricultural biotechnology, tissue engineering, biomedical devices, forensics, and bioethics. Students apply biological and engineering concepts to design materials and processes that directly measure, repair, improve and extend living systems. Art, English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Civil Engineering and Architecture

Course Number: 8331
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: **Pathway to Engineering (PTE)** Foundation Courses

In this specialization Project Lead the Way (PLTW) **Pathway to Engineering (PTE) course,** students apply what they learn about various aspects of civil engineering and architecture to the design and development of a property. Working in teams, students explore hands-on activities and projects to learn the characteristics of civil engineering and architecture. In addition, students use 3D design software to help them design solutions to solve major course projects. Students learn about documenting their project, solving problems, and communicating their solutions to their peers and members of the professional community of civil engineering and architecture. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Computer Integrated Manufacturing

Course Number: 8030
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: **Pathway to Engineering (PTE)** Foundation Courses

In this specialization Project Lead the Way (PLTW) **Pathway to Engineering (PTE) course,** students answer the questions: How are things made? What processes go into creating products? Is the process for making a water bottle the same as it is for a musical instrument? How do assembly lines work? How has automation changed the face of manufacturing? As students find the answers to these questions, they learn about the history of manufacturing, a sampling of manufacturing processes, robotics and automation. The course is built around several key concepts: computer modeling, Computer Numeric Control (CNC) equipment, Computer Aided Manufacturing (CAM) software, robotics, and flexible manufacturing systems. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Digital Electronics

Course Number: 8022
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

In this foundation Project Lead the Way (PLTW) **Pathway to Engineering (PTE) course,** students focus on the process of combinational and sequential logic design, teamwork, communication methods, engineering standards, and technical documentation. Digital electronics is the foundation of all modern electronic devices such as cellular phones, MP3 players, laptop computers, digital cameras, and high-definition televisions. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Engineering Design and Development

Course Number: 8040
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: **Pathway to Engineering (PTE)** Specialization Course

In this capstone Project Lead the Way (PLTW) **Pathway to Engineering (PTE) course,** students will work in teams to research, design, test and construct a solution to an open-ended engineering problem. The product development life cycle and a design process are used to guide and help the team to reach a solution to the problem. The team presents and defends their solution to a panel of outside reviewers at the conclusion of the course. The EDD course allows students to apply all the skills and knowledge learned in previous Project Lead the Way courses. The use of 3D design software helps students design solutions to the problem their team has chosen. This course also engages students in time management and teamwork skills, a valuable skill set for students in the future. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Gateway to Technology

Course Number: 8056
Recommended Maximum Enrollment: 20*
Hours of Instruction: Local Decision, Middle School

Project Lead the Way (PLTW) **Gateway to Technology (GTT)** is an activities-oriented program designed to challenge and engage the natural curiosity and imagination of students. Taught in conjunction with a rigorous academic curriculum, the program is divided into six independent, nine-week courses listed below. Course code 8056 is used for all six courses.

PLTW Automation and Robotics

In this middle school course, students trace the history, development, and influence of automation and robotics. They learn about mechanical systems, energy transfer, machine automation and computer control systems. Students acquire knowledge and skills in problem solving, teamwork collaboration, and innovation. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Design and Modeling

In this course, students use solid modeling software, a sophisticated mathematical technique for representing solid objects, as part of the design process. Utilizing this design approach, students understand how design influences their lives. Students also learn sketching techniques and use descriptive geometry as a component of design, measurement, and computer modeling. Students brainstorm, research, develop ideas, create models, test and evaluate design ideas, and communicate solutions. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Energy and the Environment

In this course, students investigate the importance of energy in our lives and the impact energy use has on the environment. They design and model alternative energy sources and participate in an energy expo to demonstrate energy concepts and innovative ideas. Students evaluate ways to reduce energy consumption through energy efficiency and waste management techniques. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

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PLTW Flight and Space

In this course, students study the history of aerospace through hands-on activities, research, and a presentation in the form of an infomercial. Students explore the science behind aeronautics and use their knowledge to design, build, and test a model glider. Simulation software is used to expose students to traveling and living in space. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Science of Technology

In this course, students trace how science has affected technology throughout history and learn about applied physics, chemical engineering, and nanotechnology though exploratory activities and projects. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW The Magic of Electrons

In this middle school course hands-on projects are used for students to explore the science of electricity, the movement of atoms, circuit design, and sensing devices. Students acquire knowledge and skills in basic circuitry design and explore the impact of electricity on our lives. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Cooperative education is not available for this course. Apprenticeship is not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Global Challenges

Course Number: 8023
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

In this Project Lead the Way (PLTW) **Pathway to Engineering (PTE) course,** students investigate and design innovative solutions to address the broad challenges facing local, national, and global communities such as access to clean water, a sufficient and safe food supply, adequate healthcare, and sustainable energy sources. Global Challenges is not specific to engineering or biomedical sciences but, in fact, blends science, technology, engineering, and mathematics concepts to present students with a rigorous and relevant curriculum that promotes global awareness and citizenship. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Introduction to Engineering Design

Course Number: 8020
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

In this foundation Project Lead the Way (PLTW) **Pathway to Engineering (PTE) course,** students are exposed to the design process, research and analysis, teamwork, communication methods, global and human impacts, engineering standards, and technical documentation. Students use 3D solid modeling design software to help them design solutions to solve proposed problems and learn how to document their work and communicate solutions to peers and members of the professional community. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

PLTW Principles of Engineering

Course Number: 8021
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

In this foundation Project Lead the Way (PLTW) **Pathway to Engineering (PTE) course,** students survey engineering and are exposed to major concepts they will encounter in a postsecondary engineering course of study. Students employ engineering and scientific concepts in the solution of engineering design problems. They develop problem-solving skills and apply their knowledge of research and design to create solutions to various challenges, documenting their work and communicating solutions to peers and members of the professional community. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Project Management I

Course Number: 8510
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course will introduce students to the principles, concepts, and software applications used in the management of projects. Through project-based learning, students will understand how to use the framework of initiating, planning, executing, monitoring and controlling, and closing a project in authentic situations. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Global

Course Number: 8511
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the impact of cultural differences and exchange rate fluctuations on business practices and the marketing mix in global markets. Students will understand factors that affect manufacturing and research location selection, the impact of local government policies and procedures on market decision making, and the use of strategic alliances to acquire additional necessary experience. Finally, students will learn to identify and manage risk in global market development. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Technology

Course Number: 8512
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the use of information technology to increase the effectiveness and efficiency of project management and integrated enterprise. Students will learn operational strategies for managing advanced technology and innovation as well as how to map the high technology operations environment to business settings. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management III

Course Number:	8513
Recommended Maximum Enrollment:	30
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	8511 Project Management II – Global OR 8512 Project Management II – Technology

This project-based, culminating course covers the management of a complete project in an authentic environment. Students will be responsible for planning, monitoring, controlling, and completing a series of smaller projects as well as a capstone project. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Scientific and Technical Visualization I

Course Number:	8006
Recommended Maximum Enrollment:	20*
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	None

This course introduces students to the use of complex graphic tools. Emphasis is placed on the principles, concepts, and use of complex graphic and visualization tools as applied to the study of science and technology. Students use complex 2D graphics, animation, editing, and image analysis tools to better understand, illustrate, explain, and present technical, mathematical, and/or scientific concepts and principles. Emphasis is placed on the use of computer-enhanced images to generate both conceptual and data-driven models, data-driven charts and animations. Science, math, and visual design concepts are reinforced throughout the course. Activities are structured to integrate physical and social sciences, mathematics, English language arts, and art. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Scientific and Technical Visualization II

Course Number:	8007
Recommended Maximum Enrollment:	20*
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	8006 Scientific and Technical Visualization I

This course provides students with advanced skills in the use of complex visualization tools for the study of science, technology, or mathematical concepts. Students design and develop increasingly complex data and concept-driven visualization models. Students use complex 2D and 3D graphics, animation, editing, and image analysis tools to better understand, illustrate, and explain concepts. Students present technical, mathematical, and/or scientific concepts and principles. Activities are structured to integrate physical and social sciences, mathematics, English language arts, and art. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Technological Design

Course Number:	8211
Recommended Maximum Enrollment:	20*
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	8210 Technology Engineering and Design

This course continues to apply the skills, concepts, and principles of design. The design fields of graphics, industrial design, and architecture receive major emphasis. Engineering content and professional practices are presented through practical application. Working in design teams, students apply technology, science, and mathematics concepts and skills to solve engineering and design problems. Students research, develop, test, and analyze engineering designs using criteria such as design effectiveness, public safety, human factors, and ethics. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Technological Systems

Course Number: 8203
Recommended Maximum Enrollment: 20*
Hours of Instruction: Local Decision, Middle School
Prerequisite: None

This middle school course focuses on students' understanding how technological systems work together to solve problems and capture opportunities. As technology becomes more integrated and systems become dependent upon each other, this course gives students a general background on the different types of systems, with specific concentration on the connections between these systems. Art, English language arts, mathematics and science are reinforced. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Technology Design and Innovation is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Technology Design and Innovation

Course Number: 8201
Recommended Maximum Enrollment: 20*
Hours of Instruction: Local Decision, Middle School
Prerequisite: None

This middle school course focuses on applying the design process in the invention or innovation of a new product, process, or system. Through engaging activities and hands-on projects, students focus on understanding how criteria, constraints, and processes affect designs. Emphasis is placed on brainstorming, visualizing, modeling, testing, and refining designs. Students develop skills in researching information, communicating design information, and reporting results. Activities are structured to integrate physical and social sciences, mathematics, English language arts, and art. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Technology Engineering and Design

Course Number: 8210
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course focuses on the nature and core concepts of technology, engineering, and design. Through engaging activities and hands-on project-based activities, students are introduced to the following concepts: elements and principles of design, basic engineering, problem solving, and teaming. Students apply research and development skills and produce physical and virtual models. Activities are structured to integrate physical and social sciences, mathematics, English language arts, and art. Work-based learning strategies appropriate for this course include mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship and cooperative education are not available for this course. Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

TRADE AND INDUSTRIAL EDUCATION

PROGRAM DESCRIPTION

Trade and Industrial Education is a secondary education program to prepare students for careers in eight of the 16 Career Clusters™. While completing course sequences in these Career Clusters™, students participate in instructional units that educate them in standardized industry processes related to concepts, layout, design, materials, production, assembly, quality control, maintenance, troubleshooting, construction, repair, and service of industrial, commercial, and residential goods and products. Where applicable, courses are aligned to industry certifications and/or credentials allowing students the opportunity to prepare for the associated specific certification/credential. Development of 21st century skills including collaboration, critical thinking, entrepreneurial skills, and problem solving is a part of each of the career pathways.

Trade and Industrial Education provides students the opportunity to advance in a wide range of trade and industrial occupations. They are prepared for initial employment, further education at the community college or university level, and/or business ownership. A balanced program of classroom study and practical work experiences produces competent workers who can manage resources, work cooperatively, organize and use information, understand complex systems, and apply appropriate technology. Work-based learning strategies including apprenticeship, cooperative education, mentorship, school-based enterprise, service learning, and job shadowing are available through the Trade and Industrial Education program.

NATIONAL STANDARDS

The United States Departments of Education and Labor have initiated public-private partnerships to develop voluntary skill standards for various industries. Skills and performance levels needed by the American workforce to be competitive have been identified.

The National Voluntary Occupational Skill Standards used as guides in Trade and Industrial Education follow.

Architecture & Construction

National Center for Construction Education and Research (NCCER) - With construction technologies training programs nationwide, NCCER has created performance-based curricula to unite the construction industry with secondary and postsecondary construction technology (carpentry), masonry, electrical trades and welding technology programs.
National Electrical Contractors Association (NECA) - NECA's Codes and Standards group works to influence the content of regulatory codes, and develops and publishes National Electrical Installation Standards (NEIS), the first quality standards for Electrical Trades.

Arts, A/V Technology & Communications

Graphic Arts Education Research Foundation (GAERF) - Secondary and postsecondary printing graphics programs align their curriculum to PrintED, GAERF's National Certification Skill Standards for the Graphic Communication Industry.

Information Technology

CompTIA is the information technology organization for vendor-neutral industry skill standards. CompTIA works to provide continuing and emerging technician's credentials for courses in computer engineering technology and network engineering technology.
CISCO is the world leader in Networking equipment and technology. Cisco Networking Academy provides curriculum and assessments to prepare students for employment in this constantly changing field of information technology.

Law, Public Safety, Corrections & Security

North Carolina Office of State Fire Marshall (OSFM) is the only provider of accredited certification for NC Fire Fighter I & II. OSFM curriculum and assessments are aligned to national standards. These certifications are transferrable to other states.

Manufacturing

The American Welding Society (AWS) sets skill standards for the welding trades. Its national skill standards are used in welding technology.
The Electronic Technicians Association – International (ETA-i) is the largest organization of electronic technicians in the United States. ETA-I provides industry recognized certifications for the electronics and green technology fields.

Transportation, Distribution & Logistics

National Automotive and Technicians Education Foundations, Inc. (NATEF)NATEF sets skills for the automotive and collision repair courses. In North Carolina, Service Technology and Collision Repair Technology are aligned to these national skill standards.

CAREER CLUSTER ALIGNMENT

Trade and Industrial Education programs align to the following Career Clusters™:

Architecture & Construction – Construction, Architectural Drafting
Arts, A/V Technology & Communications – Digital Media, Graphic Communications
Information Technology – Computer/Network Engineering
Law, Public Safety, Corrections & Security – Fire Fighting
Manufacturing – Metals Manufacturing, Electronics, Cabinetmaking, Alternative Energy
Science, Technology, Engineering & Mathematics - Engineering Drafting
Transportation, Distribution & Logistics – Automotive

CERTIFICATIONS AND CREDENTIALING

Numerous industries offer national credentialing, certification, documentation, and registry services to accredit high school Trade and Industrial Education programs. Each has rigid inspection, testing, and acceptance criteria and maintains a national registry that provides portable credentials.

North Carolina also requires certain trades, crafts, and technicians to be licensed. Licensure usually requires meeting age, education, experience, and examination criteria. Most Trade and Industrial Education programs provide the skills and knowledge appropriate to acquire credentialing.

CAREER AND TECHNICAL STUDENT ORGANIZATION

SkillsUSA

SkillsUSA is the premier student leadership organization in the country with over 300,000 members nationwide. North Carolina is proud to be a strong component of the national organization and is one of the original states chartered in 1965 when the organization was started as VICA.

We offer many activities to enrich our students, advisors, and professional members throughout the year. The activities include professional and leadership development conferences, competitions that measure both technical and employability skills, and opportunities for scholarships, employment, and networking

Competitive skills and leadership events are held for regional, state, national, and international levels.

North Carolina site: http://www.skillsusanc.org
National site: http://www.skillsusa.org

Trade and Industrial Education
Course Descriptions

Advanced Digital Media

Course Number: 7936
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7935 Digital Media

This course provides students with industry knowledge and skills in the overall digital media design field. Areas covered in these two courses include graphics, animation, video, and web design. An emphasis is placed on the fundamental concepts of graphic design, various digital media technologies, non-linear editing, product development and design, and career development. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Automotive Brakes

Course Number: 7512
Recommended Maximum Enrollment: 20*
Hours of Instruction: 35 (block) 150 (regular)
Prerequisite: None

This course teaches installation, inspection, and troubleshooting of automotive brake systems. Automotive Service Technology programs in North Carolina are National Automotive Technician Education (NATEF) certified. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, and job shadowing. 7511 Automotive Service is recommended as preparation for this course. This course helps prepare students for the Automotive Service Excellence (ASE) certification in brakes. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Automotive Computer System Diagnostics

Course Number: 7513
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7512 Automotive Brakes

This course is based upon the use of computer system diagnostic tools to read and diagnose computer codes in a variety of automotive types. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Automotive Electrical

Course Number: 7514
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course emphasizes automotive electrical/electronics and is basic for electrical/electronic automotive preparation. Basic inspection, troubleshooting, and repair of automotive electrical/electronic systems will be included in this course. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, and job shadowing. This course helps prepare students for the Automotive Service Excellence (ASE) certification in electrical/electronics. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. 7511 Automotive Service is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Automotive Electrical Advanced

Course Number: 7515
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7514 Automotive Electrical

This course emphasizes advanced electrical/electronics. Advanced inspection, troubleshooting, and repair of automotive electrical/electronic systems will be included in this course. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, and job shadowing. This course helps prepare students for the Automotive Service Excellence (ASE) certification in electrical/electronics. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Automotive Service

Course Number: 7511
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course introduces basic automotive skills and job opportunities in the auto repair industry. Topics include engine theory, automotive service preventive maintenance, brake repair, electrical systems troubleshooting, safety, test equipment, and measuring. English language arts are reinforced. Work-based learning strategies appropriate for this course include job shadowing. Apprenticeship and cooperative education are not available for this course. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Binding and Finishing

Course Number: 7919
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7917 Offset Press Operations

This course focuses on the hands-on skills needed to program and run offset press printing operations. Knowledge needed in this accreditation area requires students to describe procedures and identify equipment and materials, use folding equipment, and perform preventative maintenance on folders and cutters. Students learn tools and procedures for quality control, as well as knowledge of common problems and solutions. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Cabinetmaking I

Course Number: 7621
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course introduces career information, employment opportunities, and skills required for work in the furniture and cabinetmaking industry. Topics include tools and equipment, theory and practice, types of woods, finishes, styles, bonds, and fasteners. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Cabinetmaking II

Course Number: 7622
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7621 Cabinetmaking I

This course teaches the development of knowledge and skills in the furniture and cabinetmaking industry. Emphasis is placed on construction principles applied to mass production and the construction and installation of cabinet drawers and doors. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Cabinetmaking III

Course Number: 7623
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7622 Cabinetmaking II

This course teaches the development of advanced knowledge and skills in the furniture and cabinetmaking industry. Further emphasis is placed on construction principles applied to mass production and the construction and installation of cabinet drawers and doors. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Carpentry I

Course Number: 7721
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course covers basic carpentry terminology and develops technical aspects of carpentry with emphasis on development of introductory skills. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for National Center for Construction Education and Research (NCCER) certification. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Carpentry II

Course Number: 7722
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7721 Carpentry I

This course covers additional technical aspects of carpentry with emphasis on development of intermediate skills. The course content includes floor systems, wall and ceiling framing, roof framing, introductions to concrete, reinforcing materials and forms, windows and exterior doors, and basic stair layout. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for National Center for Construction Education and Research (NCCER) certification. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Carpentry III

Course Number: 7723
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7722 Carpentry II

This course develops advanced technical aspects of carpentry with emphasis on development of skills. The course content includes roofing applications, thermal and moisture protection, exterior finishing, cold formed steel framing and drywall installations. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for National Center for Construction Education and Research (NCCER) certification. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Carpentry IV

Course Number: 7724
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7723 Carpentry III

This course develops advanced technical aspects of carpentry with emphasis on development of skills. The course content includes doors and door hardware, commercial drawing, drywall finishing, suspending ceilings, window, door, floor and ceiling trim, cabinet fabrication, and installation. English language arts are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, and job shadowing. This course helps prepare students for National Center for Construction Education and Research (NCCER) certification. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Computer Engineering Technology I

Course Number: 7991
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course includes basic computer hardware, software, applications, troubleshooting, and customer service as integral parts of the course requirements. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for the CompTIA A+ credential. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Computer Engineering Technology II

Course Number: 7992
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7991 Computer Engineering Technology I

This course includes advanced computer hardware, software, applications, troubleshooting, and customer service as integral parts of the course requirements. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for the CompTIA A+ credential. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

CTE Advanced Studies

Course Number: 8595
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

This culminating course is for juniors and seniors who have earned two technical credits, one of which is a completer course, in one Career Cluster. The Advanced Studies course must augment the content of the completer course and prepare students for success in transitioning to postsecondary education and future careers. Students work under the guidance of a teacher with expertise in the content of the completer course in collaboration with community members, business representatives, and other school-based personnel. The four parts of the course include writing a research paper, producing a product, developing a portfolio, and delivering a presentation. Students demonstrate their abilities to use 21st century skills. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

CTE Apprenticeship

Course Number: 8596
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: Two technical credits in one Career Cluster

Students who participate in apprenticeships or pre-apprenticeships through the North Carolina Department of Labor, Apprenticeship and Training Bureau can also earn CTE credit while they earn hours and experience toward an adult apprenticeship leading to a completed journeyman certificate. This course is appropriate for occupations that do not require a college degree but require a high level of skill and knowledge.

CTE Internship

Course Number: 8597
Recommended Maximum Enrollment: Does not apply
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

A CTE Internship allows for additional development of career and technical competencies within a general career field. Internships allow students to observe and participate in daily operations, develop direct contact with job personnel, ask questions about particular careers, and perform certain job tasks. This activity is exploratory and allows the student to get hands-on experience in a number of related activities. The teacher, student, and the business community jointly plan the organization, implementation, and evaluation of an internship, regardless of whether it is an unpaid or paid internship.

CTE Community College

Course Number:	8598
Recommended Maximum Enrollment:	Does not apply
Hours of Instruction:	Does not apply
Prerequisite:	None

Students may include one or more Community College courses, either online or face-to-face, in their program of studies that leads to a concentration in a Career Cluster. The course must meet requirements of the Operating Procedures for the Enrollment of High School Students in Community College Courses.

CTE University

Course Number:	8599
Recommended Maximum Enrollment:	Does not apply
Hours of Instruction:	Does not apply
Prerequisite:	None

Students may include one or more courses from a four-year college or university, either online or face-to-face, in their program of studies that leads to a concentration in a Career Cluster.

Digital File Preparation

Course Number:	7916
Recommended Maximum Enrollment:	25
Hours of Instruction:	135 (block) 150 (regular)
Prerequisite:	7915 Introduction to Graphic Communications

This course focuses on the digital aspects of designing and programming needed in the digital printing age. Knowledge needed in this area requires students to understand the basic concepts and procedures in each step of file preparation. Students learn about file-related issues and to demonstrate various skills in creating and exporting images and laying out a page in appropriate software. Presses are not required. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Digital Media

Course Number: 7935
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 6414 Multimedia & Webpage Design

This course provides students with industry knowledge and skills in the overall digital media design field. Areas covered in these two courses include graphics, animation, video, and web design. Industry certifications are used to align curriculum with industry needs. An emphasis is placed on the concepts of graphic design, various digital media technologies, non-linear editing, product development and design, and career development. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

Drafting I

Course Number: 7921
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course introduces students to the use of simple and complex graphic tools used to communicate and understand ideas and concepts found in the areas of architecture, manufacturing, engineering, science, and mathematics. Topics include problem-solving strategies, classical representation methods such as sketching, geometric construction techniques, as well as computer assisted design (CAD), orthographic projection, and 3-D modeling. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Drafting II - Architectural

Course Number: 7962
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7921 Drafting I

This course focuses on the principles, concepts, and use of complex graphic tools used in the field of architecture, structural systems, and construction trades. Emphasis is placed on the use of computer assisted design (CAD) tools in the creation of floor plans, wall sections, and elevation drawings. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Drafting III - Architectural

Course Number: 7963
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7962 Drafting II - Architectural

This course introduces students to advanced architectural design concepts. Emphasis is placed on the use of computer assisted design (CAD) tools in the design and execution of site and foundation plans as well as topographical information and detail drawings of stairs and wall sections. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

Drafting II - Engineering

Course Number: 7972
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7921 Drafting I

This course focuses on engineering graphics introducing the student to symbol libraries, industry standards, and sectioning techniques. Topics include coordinate systems, principles of machine processes and gearing, and the construction of 3-D wireframe models using computer assisted design (CAD). English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Drafting III - Engineering

Course Number: 7973
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7972 Drafting II - Engineering

This course introduces the student to advanced engineering concepts using computer assisted design (CAD) tools. Topics studied include descriptive geometry, geometric tolerancing, and advanced engineering design concepts such as surface and solid modeling. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

Electrical Trades I

Course Number: 7741
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course covers basic electrical trades terminology and develops technical aspects of electrical trades with emphasis on development of introductory skills such as residential wiring, electrical installation, and service. Topics include basic electricity, electrical construction codes and practices, the National Electrical Code, the use of test equipment, and electrical hand and power tools. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for National Center for Construction Education and Research (NCCER) certification. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Electrical Trades II

Course Number: 7742
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7741 Electrical Trades I

This course builds on skills mastered in Electrical Trades I and provides an introduction to the National Electric Code, devices boxes, hand bending, raceways and fittings, conductors and cables, construction drawings, residential services, test equipment, alternating circuits, grounding and bonding. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for National Center for Construction Education and Research (NCCER) certification. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Electrical Trades III

Course Number: 7743
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7632 Electrical Trades II

This course content includes motors, electric lighting, conduit bending, pull and junction boxes, conductor installations, cable tray, conductor terminations and splices, circuit breakers and fuses, control systems, and concepts. Upon successful completion of the this course, students should be prepared to enter the workforce as an electrical helper and/or continuing education towards degrees in Construction Management or Electrical Engineering. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for National Center for Construction Education and Research (NCCER) certification. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Electronics I

Course Number: 7631
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course covers electronic practices and fundamentals, roles of electronics in communications and industry, and career development based upon the Electronic Technicians Association (ETA) areas of digital and direct current. Topics include safety, tools, schematics, soldering, measuring electricity, Ohm's/Watt's/Kirchhoff's Laws, power, and circuits. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for ETA certification in Digital and Direct Current. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Algebra I is recommended as good preparation for this course.

Electronics II

Course Number: 7632
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7631 Electronics I

This course covers advanced practices, principles, and special equipment and materials based upon the Electronic Technicians Association (ETA) areas of analog and alternating current. Topics include safety, alternating current, inductive/capacitive/RCL circuits, semiconductor devices, rectifiers/filter circuits, and bipolar transistors. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for ETA certification in Analog and Alternating Current. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Algebra I is recommended as good preparation for this course.

Electronics III

Course Number: 7633
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7632 Electronics II

This course is based upon the Electronic Technicians Association (ETA) areas of Comprehensive Basics. Topics include soldering, desoldering, tools, electrical conductors, AC power distribution, circuit protection, circuit controls, generators, motors, interfacing of electronics products, and technician work procedures. Mathematics, science, and English language arts are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course can help prepare students for ETA certification in Comprehensive Basics. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Algebra I is recommended as preparation for this course.

Fire Fighter Technology I

Course Number: 7835
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course covers part of the NC Fire Fighter I/II combination certification modules required for all fire fighters in North Carolina. The modules include: Fire Department Orientation and Safety; Fire Prevention, Education, and Cause; Fire Alarms and Communications; Fire Behavior; Personal Protective Equipment; Portable Fire Extinguishers; and Fire Hose, Streams, and Appliances. English language arts are reinforced. Work-based learning strategies appropriate for this course including job shadowing. Apprenticeship and cooperative education are not available for this course. This course prepares students for the North Carolina Fire Fighter I/II certification modules. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Fire Fighter Technology II

Course Number: 7836
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7835 Fire Fighter Technology I

This course covers additional NC Fire Fighter I/II combination certification modules required for all fire fighters in North Carolina. The modules include: Ropes; Ladders; Forcible Entry; Ventilation; Water Supply; Sprinklers; and Foam Fire Stream. English language arts are reinforced. Work-based learning strategies appropriate for this course including job shadowing. Apprenticeship and cooperative education are not available for this course. This course prepares students for the North Carolina Fire Fighter I/II certification modules. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Fire Fighter Technology III

Course Number: 7837
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7836 Fire Fighter Technology II

In this course, students select one specific occupation in the Career Cluster and conduct research to include the nature of the work, work environment, training, education, and advancement, and job prospects. Work-based learning strategies appropriate for this course including job shadowing and internship. Apprenticeship and cooperative training are not available for this course. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Introduction to Graphic Communications

Course Number: 7915
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course provides students an overall understanding of the printing industry, its major operations, and the fundamental measurement, math, and interpersonal skills needed for a career in the printing industry. The content is theory-based and requires students to learn production-related issues, rather than to demonstrate performance. Art, English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include job shadowing. Apprenticeship and cooperative education are not available for this course. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Introduction to Public Safety

Course Number: 7834
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course provides basic career information in public safety including corrections, emergency and fire management, security and protection, law enforcement, and legal services. Additionally students will develop a personal plan for a career in public safety. The course includes skills in each area, using resources from the community to help deliver instruction to the students. English language arts are reinforced. Work-based learning strategies appropriate for this course include job shadowing. Apprenticeship and cooperative education are not available for this course. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Masonry I

Course Number: 7711
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course covers basic masonry terminology and develops technical aspects of masonry with emphasis on development of introductory skills. This course introduces the nature of masonry technology, materials and supplies, and employability skills. Topics include safety, layout, tools, leveling, plumbing, use of straight-edge, and jointing brick and block in wall construction. Mathematics and English language arts are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for National Center for Construction Education and Research (NCCER) certification. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Masonry II

Course Number: 7712
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7711Masonry I

This course builds on skills mastered in Masonry I and provides advanced masonry skills including measurements, drawing and specifications, mortar, masonry units, and installation techniques. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. Geometry is recommended as preparation for this course. This course helps prepare students for National Center for Construction Education and Research (NCCER) certification. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Masonry III

Course Number: 7713
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7712 Masonry II

This course develops advanced technical aspects of Masonry with emphasis on development of skills introduced in Masonry II. The course content includes residential plans and drawing interpretation, residential masonry, grout and other reinforcement, and metalwork in masonry. Introductory skills for the Crew Leader are also introduced in this course. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for National Center for Construction Education and Research (NCCER) certification. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Masonry IV

Course Number: 7714
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7713 Masonry III

This course develops advanced technical aspects of Masonry with emphasis on development of skills introduced in Masonry III. The course content includes advanced laying techniques, construction techniques and moisture control, construction, inspection, and quality control. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for National Center for Construction Education and Research (NCCER) certification. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Metals Manufacturing Technology I

Course Number: 7641
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course introduces various processes and job opportunities in manufacturing with emphasis on machining metal parts. Topics include safety, math, measurement, blueprint reading, layout, bench work, sawing, drilling, turning, and milling. Mathematics and English language arts are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Metals Manufacturing Technology II

Course Number: 7642
Recommended Maximum Enrollment: 20*
Hours of Instruction: 270 (block) 300 (regular)
Prerequisite: 7641Metals Manufacturing Technology I

This course provides advanced instruction in manufacturing and introduces computer-assisted drafting/manufacturing and numerical control processes. Topics include safety, environmental protection, quality control, metallurgy, materials, layout, assembly, sawing, turning, milling, grinding, computer numerical control, computer-aided manufacturing, welding, and maintenance. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Network Engineering Technology I

Course Number: 7980
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course provides a hands-on introduction to networking and the Internet using tools and hardware commonly found in home and small business environments. Content includes personal computer hardware and operating systems, connection to networks and to the Internet through an ISP, network addressing, network services, wireless technologies, basic security, and troubleshooting networks. This course uses *Cisco CCNA Discovery -Networking for Home and Small Businesses* curriculum and must be conducted using the Cisco Networking Academy connection. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course helps prepare students for the Cisco Certified Entry Networking Technician (CCENT) certificate. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Network Engineering Technology II

Course Number: 7981
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7980 Network Engineering Technology I

This course provides a basic overview of routing and remote access, addressing, security, email services, web space, and authenticated access. Content includes the Internet and its uses, Help Desk operations, planning network upgrades, planning the addressing structure, configuring network devices, Routing, ISP services, ISP responsibilities, troubleshooting, and Cisco Certified Entry Networking Technician (CCENT) exam preparation. This course uses *Cisco CCNA Discovery -Working at a Small-to-Medium Business or ISP* curriculum and must be conducted using the Cisco Networking Academy connection. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. This course can help prepare students for the CCENT certificate. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Network Engineering Technology III

Course Number: 7982
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7981 Network Engineering Technology II

This course provides content for advanced networking engineering. Content includes networking in the Enterprise including infrastructure, switching, addressing, routing, WAN Links, filtering traffic, troubleshooting, design concepts, network requirements, identification of application impacts on network design, creating the design, prototyping, and preparing the proposal. This course is designed for networking students who are seeking their Cisco Certified Network Associate (CCNA) certificate. This course uses both *CCNA Discovery -Introducing Routing and Switching in the Enterprise* curriculum and *CCNA Discovery -Designing and Supporting Computer Networks* curriculum. These courses must be conducted using the Cisco Networking Academy connection. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Offset Press Operations

Course Number: 7917
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7915 Introduction to Graphic Communications

This course focuses on the hands-on skills needed to program and run offset press printing operations. Students learn press parts and basic operations procedures, and to demonstrate their ability to perform make ready, print different types of one- and two-color jobs, evaluate and adjust print quality, color measurement, and perform clean-up functions. English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Print Advertising and Design

Course Number: 7918
Recommended Maximum Enrollment: 25
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7916 Digital File Preparation

This course covers digital aspects of designing and programming needed in the digital printing. Hands-on activities for this course include the use of computer equipment and digital input devices. No presses are required. The course involves the application of creative thinking and development of design problems. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management I

Course Number: 8510
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course will introduce students to the principles, concepts, and software applications used in the management of projects. Through project-based learning, students will understand how to use the framework of initiating, planning, executing, monitoring and controlling, and closing a project in authentic situations. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Global

Course Number: 8511
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the impact of cultural differences and exchange rate fluctuations on business practices and the marketing mix in global markets. Students will understand factors that affect manufacturing and research location selection, the impact of local government policies and procedures on market decision making, and the use of strategic alliances to acquire additional necessary experience. Finally, students will learn to identify and manage risk in global market development. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management II – Technology

Course Number: 8512
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8510 Project Management I

This project-based course focuses on the use of information technology to increase the effectiveness and efficiency of project management and integrated enterprise. Students will learn operational strategies for managing advanced technology and innovation as well as how to map the high technology operations environment to business settings. Art, English language arts, and mathematics are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Project Management III

Course Number: 8513
Recommended Maximum Enrollment: 30
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 8511 Project Management II – Global
OR
8512 Project Management II – Technology

This project-based, culminating course covers the management of a complete project in an authentic environment. Students will be responsible for planning, monitoring, controlling, and completing a series of smaller projects as well as a capstone project. English language arts and mathematics are reinforced. Work-based learning strategies appropriate for this course include cooperative education, entrepreneurship, internship, mentorship, school-based enterprise, service learning, and job shadowing. Apprenticeship is not available for this course. DECA (an association for Marketing Education students), Future Business Leaders of America (FBLA), FFA, Family, Career and Community Leaders of America (FCCLA), SkillsUSA, and Technology Student Association (TSA) competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences.

Welding Technology I

Course Number: 7661
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: None

This course covers basic industrial and construction welding practices, occupation characteristics, and employment opportunities. Topics include safety, tools, print reading, measurement, thermal cutting processes, basemetal preparation and shielded metal arc welding (SMAW). Arts, English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Welding Technology II

Course Number: 7662
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7661 Welding Technology I

This course introduces advanced welding and cutting practices used in industry and construction and emphasizes hands-on experience. Topics include weld fit-up and testing, metal properties, gas metal (GMAW), flux cored (FCAW), and shielded metal (SMAW) arc welding. Arts, English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

Welding Technology III

Course Number: 7663
Recommended Maximum Enrollment: 20*
Hours of Instruction: 135 (block) 150 (regular)
Prerequisite: 7662 Welding Technology II

This course is designed to continue the development of advanced welding and cutting practices used in industry and construction and emphasizes hands-on experience. Further emphasis is placed on topics covered in Welding Technology II such as weld fit-up and testing, metal properties, gas metal (GMAW), flux cored (FCAW), and shielded metal (SMAW) arc welding. Arts, English language arts, mathematics, and science are reinforced. Work-based learning strategies appropriate for this course include apprenticeship, cooperative education, entrepreneurship, internship, and job shadowing. SkillsUSA competitive events, community service, and leadership activities provide the opportunity to apply essential standards and workplace readiness skills through authentic experiences. Geometry is recommended as preparation for this course.

*Due to potentially hazardous processes and equipment a maximum enrollment of 20 is recommended.

APPENDIX A. LOCAL COURSE OPTIONS

If a local education agency recognizes needs that are not addressed by courses in the Essential Standards document, that local education agency can request authorization to offer a Local Course Option. A Local Course Option requires considerable advance planning and preparation. Each local course must be approved before it is advertised and offered to students.

A Local Course Option should be used to:

- Provide for innovation, but not duplication of courses in the Essential Standards.
- Meet unique local needs.
- Work in partnership with local stakeholders.
- Offer career potential that is permanent and not transitory or temporary in nature.
- Assure employment opportunities for local students.
- Support the purposes of CTE.
- Promote high-skill, high-wage, high-demand, and emerging occupations.

The request must be made and approved before the Local Course Option can be advertised and offered. Timelines, forms, and processes can be found in the Local Course Application folder on the secure CTE FTP site and on the Local Planning System.

APPENDIX B. DEFINITIONS USED IN THIS DOCUMENT

Career Clusters™ are groupings of occupations used as an organizing tool for curriculum design and instruction. The Career Cluster approach makes it easier for students to understand the relevance of their required courses and helps them select their elective courses more wisely.

Career pathways are sub-groupings of occupations within a Career Cluster used as an organizing tool for curriculum design and instruction. Occupations are grouped into pathways based on the set of common knowledge and skills required for career success.

A foundation course provides fundamental knowledge and skills needed for student success in secondary and postsecondary education and careers in the Career Cluster.

An enhancement course augments related knowledge and skills developed in foundation courses and provides for success in postsecondary education and careers in the Career Cluster.

A completer course is the second or third course in a series that builds upon skills acquired in the previous course(s). A completer course has a prerequisite. Completer courses are identified by an asterisk (*).

A concentrator is a student who has earned four or more technical credits in a Career Cluster, at least one of which is a completer course. The student may earn all four credits from foundation courses or three from foundation and one from enhancement courses for the Career Cluster.

Curriculum partnering opportunities are developed by national organizations, foundations, consortia, industry, and other curriculum providers. Partnering opportunities are approved by the Division of Career and Technical Education. To be approvable, curriculum partnering opportunities must include a valid and reliable measure of technical attainment that meets the state timeline for federal reporting.

Recommended maximum enrollment indicates the recommended maximum number of students who should be enrolled in a course based on best educational practice.

Maximum enrollment indicates the maximum number of students who can be enrolled in a course based on legal and safety requirements.

Work-based learning experiences connect school-based learning with the workplace to integrate core and technical instruction. ***Service learning*** is a work-based learning strategy that combines community service with career and academic learning goals.

Cooperative education provides on-the-job training for students through a cooperative agreement among the school, the employer, the parents/guardian, and the student.

A pilot course is used to test and evaluate student interest and feasibility of a new course before full-scale development and implementation of all course components. During the pilot course year, adjustments will be made to improve or enhance course materials. At some designated point, a decision will be made whether or not to continue or terminate the development of the course.

A field test course is complete with all components. The primary intent of the field test year is to collect reliability data on all assessment items before the items are divided into the classroom and secure assessment banks. A secondary intent of the field test year is to collect feedback from teachers about the blueprint weighting, unpacked content, and instructional activities and resources used in the course.

A credential provides evidence of authority, status, rights, and entitlement to privileges. Typically, a credential is a paper document.

Certification is industry recognition or confirmation of subject knowledge or the ability to perform specific tasks. The focus is on assessing the attainment of current experience, knowledge, and skill base.

A ***license*** is permission from a government authority to perform certain tasks.