Academic Calendar 2011-2012

FALL 2011
General Registration ........................................July 11 – August 19

Regular Session
Classes begin .................................................August 22
Last day to add a class ......................................August 26
Labor Day Holiday (College closed) .................September 5
Last day to drop with refund ...............................September 8
Founder's Day (no classes) .............................October 4
Last day to withdraw without penalty ..............October 31
Thanksgiving Break ........................................November 24 - 27 (College closed)
Classes end ....................................................December 10
Final exams ...................................................December 12 - December 17
Grades due ....................................................December 20

1st 8-Week Session
Classes begin ................................................August 22
Last day to add a class ......................................August 24
Last day to drop with refund ...............................August 30
Labor Day Holiday (College closed) .................September 5
Last day to withdraw without penalty ..............September 26
Founder's Day (no classes) .............................October 4
Classes end ....................................................October 18
Grades due ....................................................December 20

2nd 8-Week Session
Classes begin ................................................October 19
Last day to add a class ......................................October 21
Last day to drop with refund ...............................October 27
Last day to withdraw without penalty ..............November 28
Thanksgiving Break ........................................November 24 - 27 (College closed)
Classes end ....................................................December 17
Grades due ....................................................December 20

SPRING 2012
General Registration .......................................November 7 – January 6
Commencement .............................................May 12

Regular Session
Classes begin ................................................January 9
Last day to add a class ......................................January 13
Martin Luther King Holiday (College closed) ........January 16
Last day to drop with refund ...............................January 26
Spring Break (no classes) ..............................March 12 - March 18
Last day to withdraw without penalty ..............March 21
Assessment Testing (no classes) .......................April 3
Classes end ...................................................May 1
Final exams ...................................................May 2 - May 8
Grades due ....................................................May 11

1st 8-Week Session
Classes begin ................................................January 9
Last day to add a class ......................................January 11
Martin Luther King Holiday (College closed) ........January 16
Last day to drop with refund ...............................January 17
Last day to withdraw without penalty ..............February 13
Classes end ...................................................March 5
Grades due ....................................................May 11

2nd 8-Week Session
Classes begin ................................................March 6
Last day to add a class ......................................March 9
Spring Break (no classes) ..............................March 12-18
Last day to drop with refund .............................March 19
Assessment Testing (no classes) .......................April 3
Last day to withdraw without penalty ..............April 9
Classes end ...................................................May 7
Grades due ....................................................May 11

SUMMER 2012
General Registration ........................................April 9 - May 18

10-Week Session
Classes begin ................................................May 21
Last day to add a class ......................................May 22
Last day to drop with refund ...............................May 25
Last day to withdraw without penalty ..............June 11
Fourth of July Holiday (College closed) ..............July 4
Classes end ...................................................July 16
Grades due ....................................................August 3

6-Week Session
Classes begin ................................................June 4
Last day to add a class ......................................June 5
Last day to drop with refund ...............................June 11
Last day to withdraw without penalty ..............June 29
Fourth of July Holiday (College closed) ..............July 4
Classes end ...................................................July 16
Grades due ....................................................August 3

2nd 5-Week Session
Classes begin ................................................June 26
Last day to add a class ......................................June 27
Last day to drop with refund ...............................July 2
Fourth of July Holiday (College closed) ..............July 4
Last day to withdraw without penalty ..............July 17
Classes end ...................................................July 31
Grades due ....................................................August 3

1st 5-Week Session
Classes begin ................................................May 21
Last day to add a class ......................................May 22
Last day to drop with refund ...............................May 25
Last day to withdraw without penalty ..............June 11
Fourth of July Holiday (College closed) ..............July 4
Classes end ...................................................June 25
Grades due ....................................................August 3
Message
from the President

I am pleased that you have chosen John Tyler Community College as a place to define your future. Our institution has served the communities surrounding it for more than forty years. During that time, thousands of people have benefited from the quality, affordable education offered by our dedicated faculty and staff. The residents of Amelia, Charles City, Chesterfield, Dinwiddie, Prince George, Surry, and Sussex counties, as well as those from the cities of Hopewell, Colonial Heights, and Petersburg, know that John Tyler can be relied upon to provide flexible, innovative, and convenient academic programs for both college transfer and direct preparation for the workplace.

John Tyler Community College offers you countless opportunities to define your future; it is clear your lifetime earnings, success as a citizen, and productivity as a member of our society are predicated on a sound educational foundation. Our task is to enable you to visualize your future and help you reach your goals. We are committed to that task.

I can share with you many success stories from our students – stories that demonstrate perseverance, dedication, and desire for individual improvement and success. None of these stories would be possible unless the individual involved offered dedication to, and concentration on, the task at hand. I challenge you to undertake a similar commitment to your personal education. Should you do so, I know that you will be rewarded with positive changes in your life and in your future.

I offer you best wishes for your academic success here at John Tyler Community College.

Sincerely,

Dr. Marshall W. Smith
President, John Tyler Community College
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The information, procedures, regulations, rules and policies listed in this catalog are subject to change by the College, the College Board, the Virginia Community College System or the State Board for Community Colleges. This catalog is for informational purposes only. It is not intended to establish contractual agreements between students and the College.

Nondiscrimination Policy
John Tyler Community College does not discriminate on the basis of race, color, national origin, gender, sexual orientation or disability in its programs or activities. Inquiries related to the College's nondiscrimination policy should be directed to Dr. Chris Pfautz, dean of student services, who can be reached by mail at 13101 Jefferson Davis Highway, Chester, VA 23831, by e-mail at cpfautz@jtcc.edu or by phone at 804-706-5208/804-594-1566.

Photography and Video
Photographs and videos taken at John Tyler Community College and at College-sponsored events may be used in the College's print, television/video and web-based advertising, promotions and publications.

Doing Our Part: This publication is printed on 30% recycled fiber and with chlorine-free pulp using timber from managed forests. Certified by the Forest Stewardship Council.
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John Tyler Community College is a two-year public institution of higher education established as part of a statewide system of community colleges. John Tyler Community College serves primarily the residents of the cities of Colonial Heights, Hopewell and Petersburg, as well as the counties of Amelia, Charles City, Chesterfield, Dinwiddie, Prince George, Surry and Sussex.

John Tyler Community College operates under policies established by the State Board for Community Colleges and the College Board. It is financed primarily by state funds, supplemented by contributions from the 10 localities in its service region and by student tuition.

HISTORY OF THE COLLEGE
John Tyler Community College opened the doors of its Chester Campus on October 2, 1967, as a result of the 1964 passage of the legislation establishing two-year technical colleges across the Commonwealth of Virginia.

The Appomattox Basin Industrial Development Corporation, providing the regional leadership for the establishment of John Tyler Community College, submitted an application to the State Board of Technical Education on January 27, 1965, requesting assistance in the establishment of a technical college in the region. In the absence of an official name, this new institution was designated the Chesterfield Region Technical College until December 2, 1965, when the board voted unanimously to name it the John Tyler Technical College. An action of the 1966 Virginia General Assembly expanded the curricula to include—in addition to technical education—adult education, as well as freshman and sophomore courses for transfer to four-year colleges and universities. The name of the College officially became John Tyler Community College on June 29, 1966, to correspond with the expanded curricula.

The Chester Campus is currently comprised of six buildings: an administrative building, a student and community center, three academic buildings and a physical plant facility. The library and learning resources center are located in Moyar Hall, the largest of the academic buildings.

To meet the increasing needs of the service area, an outreach center was opened in the Midlothian area of Chesterfield County in 1981. This undertaking was expanded in 1984 when the institution opened a facility known as the Watkins Annex. During the summer of 1989, the College moved its Midlothian operation from the Watkins Annex to the Featherstone Professional Center.

The Midlothian Campus opened in May 2000. This campus currently includes four buildings: an administrative building, two academic buildings and a warehouse/physical plant facility. The library is located in the Science Building.

The Featherstone Professional Center continues to be the site of John Tyler Community College workforce development training. Nursing instruction is housed in the JTCC Nursing Education Center on the Johnston-Willis Campus of CJW Medical Center.

During the 2009–2010 academic year, John Tyler Community College served more than 13,693 credit students in more than 60 programs and specializations.

INSTITUTIONAL PURPOSE
College Mission
John Tyler Community College provides quality educational opportunities that inspire student success and community vitality.

College Vision
A success story for every student.

College Goals
1. To enhance and promote excellence in teaching and learning.
2. To provide access to educational opportunities for persons from all segments of society.
3. To provide a comprehensive program of student development services.
4. To develop and foster mutually beneficial relationships with external constituencies to meet the educational and economic needs of the region.
5. To provide excellent administrative services, fostering accountability and efficiency.
6. To administer integrated and transformative institutional assessment and planning processes.
7. To maximize external funding to support the mission of the College.
8. To strengthen a positive image of the College and effectively promote services and programs to the community.
9. To encourage a positive organization, which attracts and retains a diverse and highly competent workforce.

Code of Ethics
• We are committed to learning environments that foster academic integrity.
• We will be good stewards of our resources and make effective and efficient use of them, thereby ensuring accountability to the Commonwealth of Virginia and to the communities we serve.
• We will maintain the confidentiality and security of information entrusted to us and share information only when authorized or required by law to do so.
• We will not accept any gift, favor, loan, service, business or professional opportunity from anyone knowing (or when it should be known) that it is offered in order to improperly influence the performance of our public duties. We will avoid even the appearance of a conflict of interest.
• We will offer good faith and fair dealings to all those we serve and to each other. Our communications will be civil and professional.
• We will offer employment opportunities in accordance with state, federal and system policies supporting the rights and recognizing the needs of all citizens regardless of gender, race, color, religion, national origin, disability, veteran status, sexual orientation or political affiliation.
• We encourage and expect all members of the community to act in good faith and bring to the attention of the appropriate official any violation or potential violation of these principles.

The Purpose of the Virginia Community College System
The basic purposes of the comprehensive community college, as prescribed by the General Assembly of Virginia in the Community College Act of 1966, are to prepare students for employment, for advanced collegiate education and for
improved citizenship. In accordance with this purpose, the College offers the following:

1. Freshman and sophomore courses for transfer to baccalaureate degree programs—the Associate of Arts and Associate of Science degrees;
2. Occupational and technical programs leading to the Associate of Applied Science and the Associate of Applied Arts degrees;
3. Vocational education leading directly to employment—Certificates and Career Studies Certificates; and
4. Courses in general and continuing education in all fields.

ACCREDITATIONS

John Tyler Community College is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097; 404-679-4500) to award associate degrees, certificates and career studies certificates. The associate degrees also have been approved by the State Council of Higher Education for Virginia. The Commission on Colleges should be contacted for accreditation-related issues only. All other inquiries should be directed to the dean of student services (13101 Jefferson Davis Highway, Chester, VA 23831-5316 or 804-706-5208 or 804-594-1566).

The funeral services program at John Tyler Community College is accredited by the American Board of Funeral Service Education (ABFSE), 3414 Ashland Avenue, Ste. G., St. Joseph, MO, 64506, 816-233-3747, Web: www.abfse.org. It is also approved by the State Board of Funeral Directors and Embalmers.

The nursing program is approved by the Virginia State Board of Nursing and accredited by the National League for Nursing Accrediting Commission (3343 Peachtree Road NE, Suite 500, Atlanta, Georgia 30226; 404-975-5000).

The emergency medical services programs are approved by the Virginia Office of Emergency Medical Services.

The precision machining technology program is accredited by the National Institute for Metalworking Skills (NIMS).

EDUCATIONAL PROGRAMS AND OUTCOMES

Programs That Lead to a Degree or Certificate

Complete descriptions of the associate degrees, certificates and career studies certificates offered by John Tyler Community College are found on pages 29 – 103 of this catalog. The following sections summarize the College’s various programs:

University Parallel/College Transfer Program

The university parallel/college transfer program includes college freshman and sophomore courses in general studies, liberal arts, business administration, engineering and other disciplines, meeting standards acceptable for transfer to baccalaureate degree programs at four-year colleges and universities. Students who complete these programs are awarded the Associate of Arts (A.A.) or the and Associate of Science (A.S.) degree. These degrees include a core of at least fifteen semester hours of general education courses.

Occupational and Technical Programs

The occupational and technical educational programs are designed to meet the increasing demand for technicians, semi-professional workers and skilled workers for employment in industry, business, the professions and government. The curricula are planned primarily to provide workers for the region being served by John Tyler Community College. Some degrees do provide transfer opportunities to selected four-year colleges and universities.

Associate of Applied Arts Degree

The Associate of Applied Arts (A.A.A.) degree is awarded to students majoring in one of the occupational-technical curricula whose primary goal usually is to obtain full-time employment immediately upon graduation from the College, although a substantial number of students in certain A.A.A. degree programs transfer to four-year colleges and universities. All of the A.A.A. degrees include a core of at least 15 semester hours of general education courses.

Associate of Applied Science Degree

The Associate of Applied Science (A.A.S.) degree is awarded to students majoring in one of the occupational-technical curricula whose primary goal usually is to obtain full-time employment immediately upon graduation from the College, although a substantial number of students in certain A.A.S. degree programs transfer to four-year colleges and universities. All of the A.A.S. degrees include a core of at least 15 semester hours of general education courses.

Certificate

The certificate (C) is awarded to students who complete an approved, non-degree curriculum of at least 30 credits but less than 65 credits.

Career Studies Certificate

The career studies certificate (C.S.C.) is awarded to students who complete an approved, non-degree curriculum of at least nine credits but less than 30. Note for C.S.C. programs only: Financial aid is available for C.S.C.s that have at least 16 total credit hours.

General Education Outcomes

John Tyler Community College is committed to providing its students a broad and integrated educational experience that will enable them to acquire the knowledge, skills, attitudes and values associated with a productive and fulfilling life. Graduates of John Tyler Community College’s associate degree programs should have developed capabilities in the following areas:

1. Communication

A competent communicator can interact with others using all forms of communication, resulting in understanding and being understood. Degree graduates will demonstrate the ability to:

• Understand and interpret complex materials
• Assimilate, organize, develop, and present an idea formally and informally
• Use standard English
• Use appropriate verbal and non-verbal responses in interpersonal relations and group discussions
• Use listening skills
• Recognize the role of culture in communication

2. Critical Thinking
A competent critical thinker evaluates evidence carefully and applies reasoning to decide what to believe and how to act. Degree graduates will demonstrate the ability to:
• Discriminate among degrees of credibility, accuracy, and reliability of inferences drawn from given data
• Recognize parallels, assumptions, or presuppositions in any given source of information
• Evaluate the strengths and relevance of arguments on a particular question or issue
• Weigh evidence and decide if generalizations or conclusions based on the given data are warranted
• Determine whether certain conclusions or consequences are supported by the information provided
• Use problem solving skills

3. Cultural and Social Understanding
A culturally and socially competent person possesses an awareness, understanding, and appreciation of the interconnectedness of the social and cultural dimensions within and across local, regional, state, national, and global communities. Degree graduates will demonstrate the ability to:
• Assess the impact that social institutions have on individuals and culture—past, present, and future
• Describe their own as well as others’ personal ethical systems and values within social institutions
• Recognize the impact that arts and humanities have upon individuals and cultures
• Recognize the role of language in social and cultural contexts
• Recognize the interdependence of distinctive world-wide social, economic, geopolitical, and cultural systems

4. Information Literacy
A person who is competent in information literacy recognizes when information is needed and has the ability to locate, evaluate, and use it effectively. (Adapted from the American Library Association definition.) Degree graduates will demonstrate the ability to:
• Determine the nature and extent of the information needed
• Access needed information effectively and efficiently
• Evaluate information and its sources critically and incorporate selected information into his or her knowledge base
• Use information effectively, individually or as a member of a group, to accomplish a specific purpose
• Understand many of the economic, legal, and social issues surrounding the use of information and access and use information ethically and legally

5. Personal Development
An individual engaged in personal development strives for physical well-being and emotional maturity. Degree graduates will demonstrate the ability to:
• Develop and/or refine personal wellness goals
• Develop and/or enhance the knowledge, skills, and understanding to make informed academic, social, personal, career, and interpersonal decisions

6. Quantitative Reasoning
A person who is competent in quantitative reasoning possesses the skills and knowledge necessary to apply the use of logic, numbers, and mathematics to deal effectively with common problems and issues. A person who is quantitatively literate can use numerical, geometric, and measurement data and concepts, mathematical skills, and principles of mathematical reasoning to draw logical conclusions and to make well-reasoned decisions. Degree graduates will demonstrate the ability to:
• Use logical and mathematical reasoning within the context of various disciplines
• Interpret and use mathematical formulas
• Interpret mathematical models such as graphs, tables and schematics and draw inferences from them
• Use graphical, symbolic, and numerical methods to analyze, organize, and interpret data
• Estimate and consider answers to mathematical problems in order to determine reasonableness
• Represent mathematical information numerically, symbolically, and visually, using graphs and charts

7. Scientific Reasoning
A person who is competent in scientific reasoning adheres to a self-correcting system of inquiry (the scientific method) and relies on empirical evidence to describe, understand, predict, and control natural phenomena. Degree graduates will demonstrate the ability to:
• Generate an empirically evidenced and logical argument
• Distinguish a scientific argument from a non-scientific argument
• Reason by deduction, induction and analogy
• Distinguish between causal and correlational relationships
• Recognize methods of inquiry that lead to scientific knowledge

Developmental Education
Developmental courses are offered to prepare individuals for admission to John Tyler Community College curricula. These courses are designed to assist the individual with the development of the basic skills and knowledge necessary to succeed in academic programs.

TRANSFERRING TO OTHER INSTITUTIONS
Coursework in the A.A. and A.S. degree programs at John Tyler Community College will transfer to most four-year colleges and universities. Some four-year schools will accept certain A.A.S. degree programs in transfer, but this policy will vary by institution. Normally, courses in which students have earned grades below a “C” are not accepted at other institutions. The counseling staff is available to help students planning to transfer with gathering information and reviewing alternatives. Each student, however, is responsible for becoming acquainted with the course requirements for an intended major at a transfer institution and for planning a program of study at John Tyler that meets the four-year institution’s transfer requirements.

Guaranteed Articulation Agreements
Guaranteed articulation agreements allow John Tyler students who graduate with an associate degree and who meet specific
INTERNATIONAL EDUCATION PROGRAM
John Tyler Community College is committed to internationalizing its curriculum through a broad range of opportunities for faculty, staff and students in order to develop a community of global learners. Accordingly, the College provides a variety of instruction and substantive learning to prepare students for possible international employment, for international study and for personal enrichment. The associate of arts liberal arts, international studies specialization offers a transfer curriculum designed for students interested in pursuing bachelor’s degrees in international relations, foreign affairs, comparative politics, foreign languages and other majors with global perspectives.

The College has a multifaceted international education program aimed at developing global awareness. The basic approaches include international travel presentations at the College; teacher-exchange programs; college-partnership exchanges, which focus on combined student, faculty and administrator site visits; study-abroad activities; and international-travel groups comprised of all constituents of the College community.

DEPARTMENT OF CAREER PATHWAYS
The Department of Career Pathways provides a variety of career planning services and educational opportunities for students. Career Pathways programs support career exploration, educational preparation, and skill upgrades linked to academic credits and credentials.

Career Pathways programs include:

Career Coaches
Career coaches empower middle and high school students to make informed decisions about their career and educational plans and prepare students for success in postsecondary education and training. Career Coaches help facilitate the development of career plans and portfolios and connect students to early college programs such as Tech Prep and dual enrollment.

Dual Enrollment
Dual enrollment classes are college courses taught at area high schools for eligible students that enable the students to get both high school and college credit at the same time. Classes are offered in traditional academic areas, as well as in career and technical areas.

Great Expectations
Great Expectations is a statewide initiative of The Virginia Foundation for Community College Education and Virginia’s Community Colleges. The program provides transitional support to at-risk foster teens as they finish high school and leave their foster homes. Great Expectations focuses on the value of a college education as the best way to gain employment and achieve independence.

The On-Ramp Program
Targets displaced adult workers who are unemployed or underemployed with the goal to increase the number of adults who obtain a college credential or industry-recognized certification or licensure. Assists students with financial aid, skills assessment, and career planning.

Tech Prep
Tech Prep consists of four- to six-year programs of study that begin in high school and end with a postsecondary credential, such as a certificate, associate degree, or baccalaureate degree. Tech Prep includes academic and CTE courses at the secondary and postsecondary level and is aligned with national career clusters and pathways.

Workforce Services
Provides skills assessment and educational programs that prepare students for high wage, high demand jobs in the greater Richmond region. Contract courses deliver quality, customized instruction at a business site or on campus.

WORKFORCE DEVELOPMENT
John Tyler Community College and the VCCS believe that a competent workforce is the main ingredient in ensuring a competitive economic future for the Commonwealth. A skilled workforce is the competitive edge in the high performance, global economy faced by the state and the nation. Workforce development programs and services provided by the College must be at the heart of Virginia’s job strategy for the 21st century. The College is committed to the development and delivery of programs and services that prepare the emerging workforce and retool the existing workforce.

Workforce development at John Tyler Community College is integral to all programs as its credit and noncredit students learn and demonstrate the skills for the present and future workplace. Business and industry representatives serve on advisory councils to John Tyler Community College in many areas of workforce development and program requirements. The College has implemented and continuously expands the array of business and industry training programs, partnerships and services to be flexible and responsive to industry demands.

These specialized and tailored programs and services are supported through the Community College Workforce Alliance (CCWA) and the Department of Career Pathways. The CCWA offers classes at five convenient locations throughout the region. The Department of Career Pathways has two locations (Chester and Midlothian).

COMMUNITY COLLEGE WORKFORCE ALLIANCE
A comprehensive workforce development entity, the CCWA was created in 2002 as a partnership between John Tyler Community College and J. Sargeant Reynolds Community College. It merged the workforce development operations of both institutions into one unit, providing the Richmond metropolitan, Tri-Cities and Gateway Virginia region with a single point of contact for workforce services. The CCWA optimizes the training programs, consulting services and instructional talents of both institutions, thus providing its clients with the best workforce development in the area.
The CCWA has a combined workforce development service area that includes four cities (Colonial Heights, Hopewell, Petersburg and Richmond) and 12 counties (Amelia, Charles City, Chesterfield, Dinwiddie, Goochland, Hanover, Henrico, Louisa, Powhatan, Prince George, Surry and Sussex). Annually, CCWA serves more than 1,000 employers and provides skills training to more than 15,000 individuals. For more information, please visit the CCWA web site (www.ccwa.vccs.edu).

**ECONOMIC DEVELOPMENT**
The College and the CCWA work closely with state, regional and local economic development organizations to advise and assist new or expanding companies and respond to their start-up and long-term training requirements. The College will provide a Rapid Workforce Response Team to meet the demand and urgency of the region’s industry. Both John Tyler Community College and the CCWA will honor and respect a company’s request for nondisclosure and the safeguarding of proprietary information.

**Ongoing Business and Industry Seminars**
The CCWA schedules open-enrollment seminars for business and industry in many areas such as computer software applications, networking, engineering design software, engineering manufacturing processes, quality improvement, ISO 9000, QS 9000, ISO 14000, finance, communication skills, employee development, management and supervision, and safety and OSHA. The CCWA trains more than 10,000 employees annually in one- or two-day seminars and provides privately tailored training contracts.

**Tailored Training Programs**
The CCWA provides tailored noncredit programs unique to specific industry requirements on campus or at the workplace. Tailored credit programs are available through John Tyler Community College’s Department of Career Pathways. An industry or government agency requesting assistance from the College can select the best combination of programs and services, credit or noncredit, to meet its specific needs.

**Job Fairs**
In cooperation with a given company and/or the Virginia Employment Commission, the CCWA coordinates and conducts job fairs for new or expanding companies.

**WorkKeys®**
Community College Workforce Alliance is a certified WorkKeys® assessment center and can provide WorkKeys® job profiling and basic skill-level assessment in eight areas (applied mathematics, applied technology, observation, listening and/or writing, locating information, reading for information and teamwork). Many companies have added WorkKeys® as a highly effective tool in their hiring and training programs.

**Assessment Testing**
In addition to WorkKeys®, the College will test applicants using standardized tests or specialized tests prescribed by the hiring company.

**Pre-Employment Training**
Working closely with the Virginia Department of Business Assistance, John Tyler Community College develops and conducts pre-employment training programs for new or expanding companies.

**Apprenticeship and Student Apprenticeship Training**
The College and the CCWA offer both adult and student apprenticeship training programs. The College designed and implemented the model student apprenticeship program for the Commonwealth and effectively implemented it on campus and in area secondary school systems. The CCWA works closely with companies and school systems to design full or student apprenticeship programs to meet company and student needs.

**Consulting Support to Industry**
The College and the CCWA work with area industries to understand their ongoing training and consulting requirements. The CCWA uses industry trainers, experienced managers, consultants and technicians to provide up-to-date concepts, assistance and training development support and advice to the region’s industry.

**Customer Service Academy**
The CCWA offers training in customer service skills through a modularized program called the Customer Service Academy. Companies can choose to focus on a single area of concern or schedule employees to participate in the entire curriculum as a way of addressing this most critical workforce skill area. Modules include communications, managing job stress, exceeding customer expectations, and more.

**Information Technology**
The CCWA offers an array of Information Technology (IT) career tracks in areas such as Oracle DBA, Cisco CCNA, A+ and more, as well as the entire array of Microsoft Office programs.

**Tractor Trailer Driving School**
The CCWA, through a partnership with U.S. Truck Driving, offers at the Chester Campus a commercial tractor trailer driving school for full-time and part-time students who want to earn their CDL (Commercial Drivers License).

**ADMISSION INFORMATION**

**Eligibility**
Any person who has a high school diploma or the equivalent certificate (GED), or who is at least 18 years of age and able to benefit from instruction at John Tyler Community College, may be admitted to the College. John Tyler Community College reserves the right to evaluate and document special cases and to refuse admission if the College determines that the applicant is a threat or a potential danger to the College community or if such refusal is considered to be in the best interest of the College. (High school students and home-schooled students interested in admission at the institution should refer to the subsequent sections addressing the enrollment of these populations.)
APPLICATION AND ADMISSION TO THE COLLEGE

New Students
All students planning to take courses at John Tyler Community College must apply for admission. Whenever possible, individuals are encouraged to apply online at www.jtcc.edu. The College does not charge an application fee. Please direct all inquiries concerning applications to the Admissions and Records office at either the Chester Campus or the Midlothian Campus, or e-mail admissionsandrecords@jtcc.edu.

Returning Students
Returning students who have not been enrolled in credit courses at the College during the past three years must reapply by resubmitting an application for admission prior to registration. Please direct all inquiries concerning applications to the Admissions and Records office at either campus. Students who applied but never attended are required to reapply after three semesters.

Curriculum Placement

(Degree and Certificate Students)
General admission to the College does not constitute admission to degree and certificate programs. Curriculum placement is required in order to graduate from John Tyler Community College and to receive financial aid. To be admitted into an academic program, students must:

1. Satisfy placement testing requirements, either by scheduling and taking placement tests at the College or by submitting satisfactory SAT or ACT test scores.
2. Provide the College with official copies of transcripts from high school and all colleges and universities previously attended only if any of the following are applicable:
   a. Student is applying for allied health, funeral services, emergency medical services or nursing;
   b. Student has been suspended or dismissed from another college or university; and/or
   c. Student is requesting a transcript review for transfer credits.
3. Meet with a counselor to be placed in an academic program.

Admission to Individual Courses
(Non-curricular Students)
Students may enroll in courses when the prerequisites (including placement tests for the courses) have been met. Prerequisites are part of the course information in the Schedule of Classes. Not all courses have prerequisites.

Admission Priorities
When enrollment must be limited for any curriculum, first priority must be given to all qualified students who are residents of the political subdivisions supporting John Tyler Community College, provided such students apply for admission to the program in a reasonable length of time prior to registration. The priority list is as follows:

1. Residents of the political subdivisions supporting the College;
2. Other Virginia residents; and

SPECIAL ADMISSION PROCEDURES

Transfer Students
Transfer students should submit an Application for Admission and have transcripts from all previous institutions attended sent to the Admissions and Records office if they plan to request transfer credit or if required by their program of study. Some programs do not require transcript submission. Usually a transfer student who is eligible to re-enroll at the last college of attendance will be eligible for admission to John Tyler Community College. If a transfer student is academically ineligible to return to the previous college, the student must appeal for admission to John Tyler Community College by submitting a letter to the dean of student services at least four weeks prior to the desired semester of admission.

An official evaluation of transfer courses will be completed by the John Tyler Community College registrar/assistant registrar if the student is curriculum placed and completes a Transfer Credit Request Form. Generally, credit will be given for courses in which a grade of “C” or better was received and which are equivalent to courses in the curriculum at the College. Courses in the areas of natural sciences, mathematics, accounting, administrative support technology, advertising and marketing that were completed more than ten years ago are not awarded transfer credit. Courses in the areas of information technology and computer science that were completed more than five years ago are not awarded transfer credit. Division deans who are responsible for students’ curricula may make exceptions to these restrictions. Generally, transfer credits are awarded only if the credits have been earned at an institution which is accredited by one of the six nationally recognized regional accrediting agencies in the United States. John Tyler Community College also normally awards transfer credits for courses completed at accredited foreign institutions. Students transferring from foreign institutions should contact the Admissions and Records office at either the Chester Campus or the Midlothian Campus for additional information.

Dual Enrollment of High School Students
Dual enrollment courses allow a student to be enrolled in, and get credit for, a college course and a high school course simultaneously. The courses are taught at the college level by instructors who meet the academic requirements to teach a college course and are offered at the high school following the high school schedule. The tuition and book costs are generally paid by the school system.

Dual enrollment is restricted to high school juniors and seniors, and all students must meet College admissions criteria. Exceptional cases require the approval of the College president. All individuals admitted as dual enrollment students must demonstrate readiness for college by achieving satisfactory scores on college placement tests or by meeting other entrance standards as set by the College. Satisfactory placement scores meet or exceed the federal Ability-to-Benefit standards.

Dual enrollment courses are offered at many high schools in John Tyler Community College’s service area and provide an excellent opportunity for high school students to get a head start on college. For additional information about dual enrollment, contact the Department of Career Pathways.
Enrollment of Students under the Age of 18 - Concurrent Enrollment

Individuals 18 years of age and younger who have not completed high school may seek to enroll at John Tyler Community College. They must satisfy the admission requirements expected of all students, including the completion of placement tests, as well as provide the institution with letters of permission to enroll from their principals or designees, as well as letters from their parents or guardians. Students under the age of 17 and their parents are required to meet with the dean of student services (or the dean’s designee) prior to submitting applications of admission.

Concurrent enrollment is restricted to high school juniors and seniors. Exceptional cases require the approval of the College president. All students admitted under concurrent enrollment must demonstrate readiness for college by achieving satisfactory scores on college placement tests and address all other College admission criteria. Satisfactory placement scores meet or exceed the federal Ability-to-Benefit standards.

Home-schooled Students

Home-schooled students may seek to enroll at John Tyler Community College. These students must satisfy the admission requirements expected of all students, including the completion of placement tests, as well as provide the institution with documentation indicating authorization from the responsible jurisdiction permitting the student to engage in home schooling. The parents of home-schooled students also must provide the institution with written permission to enroll their children. Home-schooled students and their parents must meet with the dean of student services (or the dean’s designee) prior to submitting applications for admission.

Enrollment is restricted to home school students studying at the high school junior or senior levels. Exceptional cases require the approval of the College president. All students admitted must demonstrate readiness for college by achieving satisfactory scores on college placement tests and address all other College admission criteria. Satisfactory placement scores meet or exceed the federal Ability-to-Benefit standards.

An individual who has completed home schooling and certifies that he or she has the equivalent of a high school diploma may apply and enroll at the institution in the same manner as a high school graduate or recipient of a GED.

International Students

John Tyler Community College does not admit international students possessing F-1 (student) visas. Other visa-holders will be considered for admission in accordance with institutional policies and procedures and the guidelines of the U.S. Citizenship and Immigration Services (USCIS).

All visa-holders seeking admission must present copies of their I-94, applications of admission and other required information to the Admissions and Records office at least 45 days prior to the beginning of the semester in which they wish to enroll. International students whose native language is other than English must submit the results of the Test of English as a Foreign Language (TOEFL) to the College. Minimum scores of 500 on the written form or 178 on the computer form are required for admission.

JTCC reserves the right to accept or reject credit recommendations that are noted on foreign credential evaluations.

Senior Citizens – Citizens 60 Years of Age or Older

Senior citizens are encouraged to take advantage of free tuition provided for by the Senior Citizens Higher Education Act of 1974. Senior citizens, who are Virginia residents and who had a taxable individual income not exceeding $15,000 for Virginia income tax purposes for the year preceding enrollment, may register for credit courses on a tuition-free basis. All senior citizens, regardless of income, may audit credit courses and take some non-credit courses free of charge. Senior citizens waiving tuition will register on the first day the class begins. Additional information about special enrollment opportunities for senior citizens may be obtained from the Admissions and Records office.

Senior citizens who wish to confirm space in any credit or noncredit class can register and pay as regular students; however, no refund will be given. Nonpaying senior citizens can enroll on the first day of their selected class and be admitted at no charge only if there is space available.

Seniors will not be allowed to pay for a course to secure a space with the intention of dropping and re-enrolling under senior waiver.

Admission of Suspended and Dismissed Students

Students who have been academically suspended from John Tyler Community College may re-enroll after serving a one-semester suspension. Students who have been academically suspended from any other institution of higher education may enroll after submitting their college transcripts and copies of their letters of suspension. Students who have been dismissed from any institution, including John Tyler Community College, are normally not admitted to the institution. Dismissed students may petition the Academic Status Committee requesting exceptions to this policy. All petitions must be submitted in writing at least four weeks prior to the first day of classes for the semester in which admission is sought.

Admission of Convicted Sexual Offenders

Section 23-2:2:1 of the Code of Virginia requires the VCCS send enrollment information to the Virginia State Police concerning applicants to institutions of higher education. This information is transmitted electronically and compared against the Virginia Criminal Information Network and National Crime Information Center Convicted Sexual Offender Registry. Language on the web application informs applicants that their information is being transmitted to the State Police.

In the event that the State Police determine an applicant to John Tyler Community College is listed on the Sex Offender Registry, the State Police will notify John Tyler Community College. When the College receives such notification, the applicant will be denied admission to John Tyler in accordance with its admission policy. If the applicant registers for classes and becomes a student before the College receives notification from the State Police, the student will be immediately informed that he/she is being administratively withdrawn from classes and will receive a refund. An applicant may invoke his/her rights
to an appeal process. For additional information on the appeals process, please visit www.jtcc.edu/admissions and click on “admission of convicted sex offenders.”

Placement Testing
Placement tests are required for all entering students seeking admission to degree and certificate programs, as well as some career studies certificate programs (see the program listings in this catalog for specific placement testing requirements). John Tyler Community College administers the ACT COMPASS placement tests in reading, writing, pre-algebra, algebra and college algebra. Students who fail to demonstrate required competencies or specific prerequisite skills on placement tests will be required to take the appropriate developmental classes prior to enrolling in college-level courses. Students should submit applications of admission prior to scheduling placement tests. John Tyler Community College placement tests are administered by Testing Services. E-mail testing@jtcc.edu or call 804-594-1555.

ACADEMIC ADVISING AND CLASS REGISTRATION

Advising
The John Tyler Community College advising system is a collaborative and ongoing developmental process between the student and advising personnel to enhance success in the college experience. Students are (1) assisted in developing educational plans consistent with their life goals and objectives; (2) provided accurate information about institutional policies, procedures, resources, and programs; (3) assisted in considering their life goals by relating their interests, skills, abilities, and values to careers, the world of work, and the nature and purpose of higher education; and (4) assisted in evaluating or re-evaluating their progress toward established goals and educational plans. Students who are admitted to degree and certificate programs are assigned faculty advisors. Advising services also are available in the Student Success Centers. Members of counseling services advise non-curricular students.

Registration
Registration, the last step in the enrollment process, involves reserving a space in the class(es) selected and paying tuition. Information on the dates and location of registration is listed in the schedule of classes and online at www.jtcc.edu. Allowance is made for late registration, but normally a student may not enter a new class after the first week of a semester. Students who have outstanding financial obligations from previous semesters with the John Tyler Community College Business Office, Bookstore or Library or have outstanding financial obligations for parking violations are not permitted to register for classes until their accounts have been paid in full.

CHANGE IN REGISTRATION

Adding or Dropping a Course
Schedule changes may be made during the add/drop period of the semester in session. A student may not enter a new class after the add/drop period without approval from the appropriate academic dean and vice president of academic and student services.

Withdrawing from a Course
Withdrawal from a course without academic penalty may be made within the first 60 percent of the course. The student will receive a grade of “W” for withdrawal. After that time, the student will receive a grade of “F” from the instructor. (In the case of mitigating circumstances documented by the instructor, a grade of “W” may be awarded.) Administrative withdrawals may be initiated by an instructor in the event of excessive absences on the part of the student. In addition, an instructor may recommend withdrawal if it is believed a student is experiencing undue academic difficulty.

Academic Load
The minimum full-time course load is 12 credits per semester; the maximum full-time load is 18 credits and 13 credits in the summer. Students wishing to carry an academic load of more than the maximum load ordinarily must have a minimum grade point average of 3.5 and the approval of the vice president of academic and student services.

Repeating a Course
Normally, a student is limited to two enrollments in the same credit course. Requests to enroll in the same credit course more than twice must be submitted to the vice president of academic and student services or his/her designee. A student, who enrolls more than twice without prior approval by the vice president, will be deleted from the class roll. This policy does not apply to repeat enrollments in seminars and topics courses.

ACADEMIC INFORMATION AND POLICIES

Assessment Activities
John Tyler Community College engages in continuous study of its internal and external environment through a number of assessment activities. Students are required to participate in these activities for the purposes of program evaluation and improvement. All candidates for graduation are required to participate in the institution’s assessment of its academic programs prior to graduation. Failure to complete required assessment activities may result in transcripts and/or diplomas being withheld until this requirement is fulfilled.

Auditing a Course
A student desiring to attend a class without receiving credit for the course may do so by registering to audit that class. A student who is auditing a course is subject to all of the attendance and academic requirements of the class. The instructor of such a course is similarly required to provide a student auditing the course with the same level of instructional services as students who are enrolled for credit. Only by the mutual consent of both the student and the instructor may the attendance and academic requirements of the class be modified for the auditing student. Permission of the appropriate academic dean is required to audit a course. After receiving the dean’s written permission, a student desiring to audit a class must register in person and pay the applicable tuition. Audited courses carry no credit and do not count as part of a student’s course load. A student desiring to change status in a class from audit to credit must do so within the add/drop period for the course. A change from credit to audit
must be made by the last day of the drop/add period. Financial aid students should consult with the Financial Aid office before changing their status from credit to audit.

Students who are auditing a course must appear in person or send an email to the admissionsandrecordsoffice@jtcc.edu e-mail account should they wish to drop or withdraw before the deadlines. Students will receive error messages and cannot drop or withdraw from an audit course via myTyler portal.

**Credits**

Each semester hour of credit given for a course is based on approximately one academic hour (50 minutes) weekly for 16 weeks of formalized, structured instructional time (lectures, out-of-class study, laboratory and shop study, or combinations thereof).

**Alternative Forms of Credit and Advanced Standing**

Students may seek advancement by (1) transferring credits earned at other accredited colleges or universities; (2) receiving credit for courses and training completed in the military, criminal justice academies, technology certification programs and health services certification programs; (3) taking and achieving acceptable scores on standardized tests and examinations, including the ETS Advanced Placement Examinations, CLEP, DANTES and the International Baccalaureate; (4) submitting documentation for life experiences deemed equivalent to college courses; and (5) passing locally designed and administered tests (credit-by-examination). To be eligible to apply for advanced credit, a student must be admitted to the College and officially placed in a curriculum.

Students who wish to request credit for life experiences must register for SDV 198 (Portfolio Development). Only 25% of the credits that are accepted can be used toward any curriculum at JTCC. Students who are interested in credit-by-examination should contact the appropriate academic division dean. The credit-by-examination fee is $25.00 per credit hour.

Students who believe that their previous educational studies, training programs or work experiences may be equivalent to college courses or withdraw from a class and the termination or reduction of veterans' benefits and other programs of financial assistance.

**Attendance**

While individual instructor policies may vary somewhat, punctual and regular attendance is expected. Check your course syllabus for your instructor’s attendance policy. Instructors are required to submit Never Attended Forms on or before the census date of each session if a student has never attended their course. Attendance policy plays no role in submitting a Never Attended Form. When absence from a class becomes necessary, it is the responsibility of the student to inform the instructor prior to the absence whenever possible. The student is responsible for the subsequent completion of all study missed during an absence. Frequent absences may result in administrative withdrawal from a class and the termination or reduction of veterans’ benefits and other programs of financial assistance.

**Waiver of Course Requirements**

Students may petition their academic advisor and division dean for the waiver of required courses in the curriculum. If required courses are waived, other courses must be substituted in the official program to meet the specified credit-hour requirement. No credit is granted for the waived courses. Veterans may be approved to waive the physical education courses upon presentation of the DD214 discharge form.

**Grading System**

The quality of performance in any academic course is reported by a letter grade, the assignment of which is the responsibility of the instructor. The following grade options are applicable only in the case of college credit courses:

- **A** Excellent. 4 quality points per credit.
- **B** Good. 3 quality points per credit.
- **C** Average. 2 quality points per credit.
- **D** Poor. 1 quality point per credit.
- **F** Failure. 0 quality points per credit.
- **I** Incomplete. No credit. An incomplete grade may be given when a student has been unable to complete a course because of an emergency situation. The time and condition of removal of the grade is a matter of contract between the student and the instructor. Generally, a grade of “I” will not be awarded unless a majority of the coursework has been satisfactorily completed and the remainder of the work can be completed within the following semester.

**P** No grade point credit/noncredit courses. This is used in orientation and specialized courses and seminars at the discretion of John Tyler Community College.

**W** Grade assigned when a withdrawal form is received in the Admissions and Records office during the first 60 percent of the course. (After this period of time, a “W” may be assigned by an instructor if there are mitigating circumstances; documentation must be placed in the student’s academic file.)

**X** Audit. No credit.

The following grade options are applicable only in the case of developmental courses:

- **R** Re-enroll. The student made satisfactory progress but did not complete all of the course objectives. The student must re-enroll to meet the course objectives.

- **S** No grade point credit. This is used only for satisfactory computation of the Developmental Studies Courses (numbered 01–09).

- **U** Unsatisfactory. The student did not make satisfactory progress in the course. The grades of “I” and “W,” as described above, also apply.

**Grade Reports**

Reports of final grades are available to students online at the end of each semester. The grade point average (GPA) for the semester is determined by dividing the total number of credits attempted for the semester into the total number of quality points earned for the semester. The cumulative grade point average is determined by dividing the total number of credits attempted at the College into the total number of quality points earned at
John Tyler Community College. Courses for which “R,” “P,” “S” and “U” grades are awarded (courses numbered 01–09) are not totaled as credits attempted and are not computed in the grade point averages. If there is reason to believe that a grade is incorrect, the instructor should be contacted as soon as possible.

**Student Records and Academic Transcripts**

The Admissions and Records office is the repository of all student academic records. Records are retained in accordance with VCCS policy. An academic transcript is the official and permanent record of a student’s academic history. John Tyler Community College permanently retains each student’s academic transcript.

Students may request the forwarding of official copies of their transcripts to other institutions by contacting the Admissions and Records office. Requests for official and unofficial student copies of transcripts will be handled within seven working days of the receipt of the request at a charge of $3.00 per copy to the student. Unofficial transcripts are not available online to students who have not attended John Tyler within the past three years. Students who have outstanding financial obligations from previous semesters with the John Tyler Community College Business office, bookstore or library or have outstanding financial obligations for parking violations are not permitted to register for classes or obtain transcripts until their accounts have been paid in full.

**Credit for Repeated Courses**

In computing GPA, only the most recent grade is used if the course has been repeated. All previous attempts are denoted with the message “Repeated Course” on the student’s transcripts and are removed from the GPA calculation that is reflected in the current cumulative GPA.

**Academic Renewal**

Students returning to John Tyler Community College after an absence of a minimum of five years may wish to take advantage of academic renewal in order to improve their cumulative GPAs. To be eligible, a student must be currently enrolled at the College, have a period of at least five years (60 months) between enrollments, and have earned a minimum GPA of 2.5 in the first 12 credits (or more) after returning to John Tyler. If approved, all grades of “D” or “F” earned prior to returning to the College will not be factored into the cumulative GPA calculation, but course(s) and grades will remain listed on the transcript. For additional information about academic renewal, please contact the Admissions and Records office.

**Correction of Education Records**

Students have the right to have records corrected that they believe are inaccurate, misleading or in violation of their privacy rights. Contact the Admissions and Records office for further information on the procedures for correction of records.

**Directory Information**

All student records are protected under the 1974 Family Educational Rights and Privacy Act (FERPA), as amended. FERPA does allow institutions to release, without prior consent from the student, information which is considered “directory” information. The Virginia Community College System has defined student directory information as a student’s name, electronic mail address, address, telephone numbers, semesters of attendance, full- or part-time status, date of admission, date of expected or actual graduation, major, freshman or sophomore classification, and any degrees, honors, and awards received. It is the student’s responsibility to notify the Admissions and Records office in writing if this information is not to be released. Currently enrolled students will be required to sign a waiver if they plan to participate in College activities. Questions regarding FERPA should be directed to the director/assistant director of Admissions and Records.

**ACADEMIC HONORS**

**Honors List**

A student who has completed 24 credit hours at John Tyler Community College and has achieved a cumulative grade point average of 3.5 will be placed on the honors list.

**Dean’s List**

A full-time student who achieves a semester grade point average of 3.2 or higher will be placed on the dean’s list.

**Graduation Honors**

Students who have earned a minimum of 30 credit hours or 50 percent of the degree/certificate requirement at John Tyler Community College are eligible for graduation honors as follows, given the GPAs provided:

- 3.8 Summa Cum Laude
- 3.5 Magna Cum Laude
- 3.2 Cum Laude

**ACADEMIC STANDING**

**Good Standing**

A student is considered to be “in good standing” if he/she maintains a minimum GPA of 2.0 each semester, is eligible to re-enroll at John Tyler Community College, and is not on academic suspension or dismissal status. A student on academic warning or academic probation, who is eligible to re-enroll, may be considered eligible to receive financial aid assistance or other benefits requiring a “good” academic standing status.

**Academic Warning**

Students who fail to attain a minimum GPA of 2.0 for any semester shall be placed on academic warning. Students on academic warning should be encouraged to consult with their advisor/counselor and take advantage of academic support services provided by the College.

**Academic Probation**

Students who fail to maintain a cumulative GPA of 1.50 shall be on academic probation until such time as their cumulative average is 1.75 or better. The statement “Academic Probation” shall be placed on their permanent records. Students on probation are ineligible for appointive or elective office in student organizations unless special permission is granted by the dean of student services or another appropriate college.
administration. Students may be required to carry less than a normal load the following semester and are required to consult with their advisor/counselor. Students shall be placed on probation only after they have attempted 12 semester credits.

**Academic Suspension**
Students on academic probation who fail to attain a semester GPA of 1.50 or better shall be placed on probation only after they have attempted 24 semester credits. Academic suspension shall be for one semester. The statement “Academic Suspension” shall be placed on students’ permanent records. Students who are placed on academic suspension and wish to appeal should follow the appeal process established by the College. Suspended students may be reinstated at the conclusion of the suspension period by following the process established by the College.

Students who have been reinstated from academic suspension must achieve a 2.0 GPA for the semester of their reinstatement and must earn at least a 1.75 GPA in each subsequent semester of attendance. The statement “Subject to Dismissal” shall be placed on the students’ permanent records. Students who have been reinstated from academic suspension will remain subject to dismissal until their cumulative GPA is raised to a minimum of 1.75. Reinstated students may be required to carry less than a normal course load the following semester and are required to consult with their advisor/counselor. Colleges are encouraged to make additional academic support available to students who have been reinstated following academic suspension.

**Academic Dismissal**
Students who do not attain at least a 2.0 GPA for the semester of reinstatement following academic suspension shall be academically dismissed. Students who achieve at least a 2.0 GPA for the semester of their reinstatement following academic suspension must earn at least a 1.75 GPA in each subsequent semester of enrollment. Failure to attain a 1.75 GPA in each subsequent semester until the cumulative GPA reaches 1.75 shall result in academic dismissal. The statement “Academic Dismissal” shall be placed on students’ permanent records. Academic dismissal is normally permanent. In exceptional circumstances, students may appeal and be reinstated following processes established by the College. Students who have been reinstated after academic dismissal will remain subject to dismissal until their cumulative GPA is raised to a minimum of 1.75. Reinstated students may be required to carry less than a normal course load the following semester and are required to consult with their advisor/counselor. Colleges are encouraged to make additional academic support available to students who have been reinstated following academic dismissal.

**Satisfactory Progress**
Students pursuing any credit programs are cautioned that, although an average between 1.50 and 1.99 may not result in formal academic probation, a minimum of 2.0 in their curriculum is a prerequisite to the receipt of an associate degree, diploma or certificate.

**Tuition and Fees**

**Tuition Rates and Fees**
Tuition rates are established by the State Board for Community Colleges and are subject to change. Current tuition rates can be obtained at www.jtcc.edu/tuition.

The e-Rate is applicable to designated distance-learning courses delivered entirely over the Internet. Tuition rates include a $6.50 per credit hour technology fee. Virginia residents are exempt from the $15.00 per credit hour capital fee. The contract rate is for students who do not qualify for in-state tuition rates and are enrolled in classes provided in a contract between their employers and John Tyler Community College where the employer agrees to pay the students’ tuition directly to the College. In addition to tuition, students or employers must pay a mandatory comprehensive fee of $25.00 per semester. Student fees are approved by the John Tyler Community College Board and are subject to change.

During general registration, all tuition and fees are due by 5:00 p.m. on the Friday of the week in which a student registers. Tuition and fees may be paid by cash, money order, personal check, MasterCard or Visa. If a student’s check is returned to the College for any reason, the student will be charged a $35.00 returned check fee in addition to the amount of the returned check. The student has ten days from the date of notice in which to redeem the check and pay both the amount of the check and the returned check fee. After that, the returned check fee will increase to $50.00 and the student will be withdrawn from his/her classes. This obligation must be paid with cash, cashier’s check, debit card or credit card (MasterCard or Visa). Failure to fulfill this financial obligation within the specified time shall result in the student being withdrawn from John Tyler Community College and being referred to a collection agency and to the Commonwealth of Virginia’s Debt-Setoff Program.

**Eligibility and Application Procedure for In-State Tuition**
Generally, to be eligible for in-state tuition rates, the student must have been legally domiciled in Virginia for a period of at least one full year prior to the planned semester of enrollment. Domicile is a technical legal term that means more than simple “residency” in Virginia. An individual seeking eligibility for in-state tuition must demonstrate the intention of remaining in Virginia indefinitely. Demonstration of intent is usually accomplished through objective evidence such as a driver’s license, automobile registration, voter registration, payment of Virginia income taxes and ownership of real property.

**Residency**
A student under the age of 24 generally assumes the domiciliary status of the parent(s) unless one of the following criteria is met. The student:
- Is age 24 before the first day of classes;
- Is a veteran of the U.S. armed forces;
- Holds a bachelor’s degree or higher;
- Is married;
- Is orphaned;
- Is a ward of the court;
- Has legal dependents other than a spouse; or
• Can present clear and convincing evidence that he or she is self-sufficient.

The Admissions and Records office is responsible for making an initial determination of eligibility for in-state tuition rates based on information provided by the student on the application form. Eligibility is determined by using State Council of Higher Education guidelines pertaining to Section 23.7-4 of the Code of Virginia.

Applicants who are denied in-state tuition have the right of appeal according to the following procedures:

- Intermediate Level Review: Appeals must be submitted in writing to the Office of the Dean of Student Services at least two weeks prior to the date of the requested entitlement (the first day of classes of the semester in question). The dean of student services will review such appeals and issue decisions within five days or prior to the first day of classes. Appeals received less than two weeks prior to the date of requested entitlement will not be considered until after the subsequent add/drop period. Students may elect to register and pay out-of-state tuition charges pending the resolution of their appeals.

- Final Administrative Review: Appeals of the intermediate level review must be submitted in writing to the Office of the President of the College. Such appeals must be submitted no later than five business days after the receipt of intermediate level decisions. The Appeals Committee (president, vice president of finance and administration, and vice president of academic and student services) will review such appeals and forward its decisions to students within ten business days of the receipt in accordance with Part VII, Section 8 VAC 40-120-270, Chapter 120, Guidelines for Determining Domicile and Eligibility for In-State Tuition Rates.

**Changing Tuition Eligibility Status from Out-of-State to In-State**

If a student enters John Tyler Community College as an out-of-state student and believes that he or she has subsequently become eligible for in-state rates, an application for Virginia In-State Tuition Rates in the Admissions and Records office should be completed. If the student is correct, the student will become eligible for in-state tuition rates for the next semester in which he or she enrolls. Documents must be submitted before the start date of the semester.

**Books and Materials**

Students are expected to obtain their own books and supplies.

**Refund Policy**

A full refund of tuition is authorized for credit hours of course(s) dropped during the first 15 percent of the session. (Specific dates are printed in the schedule of classes.) If a student registers for a course that is cancelled by the College and does not elect to enter an alternate course, the student is eligible for a refund. Students can print their receipts online if needed. Students who drop classes after the published date will not receive a refund.

**FINANCIAL ASSISTANCE**

John Tyler Community College attempts to ensure that qualified students are not denied an education because of a lack of money. Any student who would like to apply for financial assistance may do so by submitting the Free Application for Federal Student Aid (FAFSA) online at www.fafsa.ed.gov. Students are urged to submit their financial aid applications well in advance of their anticipated registration dates. The dates for applying for financial aid for the fall semester are May 15 (Priority) and July 8 (Guaranteed). The dates for applying for financial aid for the spring semester are September 15 (Priority) and November 4 (Guaranteed). The priority date for the summer semester is March 15. Students can apply after these dates but must be prepared to pay out-of-pocket for their tuition and fees and be reimbursed if they are eligible for aid approximately a month-and-a-half after the semester has begun.

All financial aid-related notifications will be communicated to you through your John Tyler Community College (JTCC) e-mail. It is important that you monitor your JTCC e-mail and myTyler accounts on a regular basis for the most up-to-date financial aid notifications.

**Eligibility for Financial Aid**

To qualify for financial aid and to maintain their eligibility, students must:

1. Complete the Free Application for Federal Student Aid (FAFSA) by the July 8 or November 4 dates (see the previous paragraph);
2. Be accepted for admission to John Tyler Community College as a degree- or certificate-seeking student;
3. Be enrolled in good standing and maintain satisfactory progress;
4. Be citizens, eligible non-citizens or permanent residents of the United States or its trust territories;
5. Not be in default on a Federal Stafford Loan, PLUS, SLS or a Perkins Loan;
6. Not owe an overpayment on financial aid received at any institution of higher learning; and
7. Have a high school diploma, a GED or the ability to benefit.

Students receiving financial aid are responsible for notifying the Admissions and Records office regarding any change in name, address, telephone number or marital status.

**STUDENT FINANCIAL AID PROGRAMS AVAILABLE**

**Federal Pell Grant**

The Federal Pell Grant is an award for undergraduates only with no prior bachelor’s or professional degree. Eligibility is primarily based on the Expected Family Contribution (EFC), but is also affected by enrollment status. The EFC must be 5273 or less. The maximum award for the 2011-2012 academic year is $5,500, with a minimum of $555. A minimum of 12 credit hours each semester is required to receive full eligibility, with prorated awards going to students with less than 12 hours.
FSEOG (Federal Supplemental Educational Opportunity Grant)
FSEOG is for undergraduate Federal Pell Grant recipients with exceptional financial need (i.e., students with the lowest EFCs). Students may receive up to $2,000 a year depending on eligibility and funding level. Priority is given to out-of-state students whose tuition charges are significantly higher.

On-Ramp Program
The On-Ramp Program, supported by Workforce Investment Act (WIA) Rapid Response Funds, provides financial assistance to students seeking postsecondary education credentials, such as a college degree or an industry-recognized certification, state licensure or other portable workforce credentials. Designed to help those who are unemployed or underemployed improve their chances of job hunting success, this program also requires participants to complete a series of workshops that focus on the various skills needed during the job-search process. Students can learn more about this program and eligibility requirements at the On-Ramp Program website www.jtcc.edu/onramp or by contacting John Tyler Community College’s On-Ramp Program coordinator at onramp@jtcc.edu. The program coordinator will explain the program details, will complete and intake application, and will determine if you are eligible for the program.

FWS (Federal Work-Study)
Federal Work-Study is a program that provides part-time employment opportunities to eligible students to help meet the costs of post-secondary education. Based on the results of the Free Application for Federal Student Aid (FAFSA), eligible students are awarded an allotment which may be earned through part-time employment in FWS-approved positions either on or off campus. The program is designed to provide students with an opportunity for employment arranged around class schedules.

CSAP (College Scholarship Assistance Program)
CSAP is a state-funded grant that provides assistance to undergraduate Virginia residents to a maximum of $1,000 an academic year. A minimum of 6 credit hours is required each semester in order to receive CSAP.

COMA (Commonwealth Grant)
COMA is a state-funded grant that provides assistance to undergraduate Virginia residents to a maximum of tuition and fees per academic year. A minimum of 6 credit hours is required each semester in order to receive COMA.

VGAP (Virginia Guaranteed Assistance Program)
VGAP awards range from $500 up to tuition, fees and books and are available to undergraduate Virginia residents who graduated from high school with at least a 2.5 grade point average. Students must be enrolled full time with at least a 2.0 cumulative grade point average to maintain eligibility for this grant.

PTAP (Part-time Tuition Assistance Program)
PTAP is a state-funded grant that provides assistance to undergraduate Virginia residents to a maximum of tuition and fees per academic year. A minimum of 1 credit hour and a maximum of 6 credit hours are required each semester in order to receive PTAP.

HETAP (Higher Education Teacher Assistance Program)
HETAP is a federally funded grant that provides assistance to undergraduate Virginia residents enrolled full time in an eligible K-12 teacher preparation program to a maximum of $1,000 an academic year.

VCCS (Virginia Community College System) Tuition Grant
VCCS is a state-funded grant that provides assistance to undergraduate Virginia residents who demonstrate financial need. Award amounts vary according to funding levels; however, awards will not exceed charges for tuition, fees and books.

Federal Stafford and PLUS Loan Program
The Federal Stafford and PLUS Loan Program enables students and/or parents to borrow directly from the Federal Department of Education. The loan is guaranteed by the federal government. Students may apply online at www.jtcc.edu/loans.

Virginia War Orphans/Dependents of Firefighters and Police Officers Education Benefits
Sections SB-529 and SB-626 of the Code of Virginia provide for free tuition to attend state-supported institutions of higher education for children of persons killed in the line of duty to the Commonwealth of Virginia or deceased, disabled, imprisoned, or missing in action as a result of any armed conflict after December 6, 1941, involving the U.S. armed forces. Individuals entitled to this benefit may utilize it to pursue any vocational, technical, undergraduate or graduate program of instruction. Generally, programs listed in the academic catalogs of state-supported institutions are acceptable provided they have a clearly defined educational objective. Applications should be submitted at least four months before the expected date of matriculation.

Satisfactory Academic Progress
To receive any federal or state aid, a student must maintain satisfactory academic progress (SAP). The Financial Aid office will evaluate a student’s progress at the time of application and at the end of each semester. Changes of curricula do not necessarily constitute extended time limits for eligibility. Per federal regulation, all enrollments at John Tyler Community College and all applicable transfer credits will be considered, whether or not aid was awarded or received. The Satisfactory Academic Progress Policy is subject to change. For more detailed information about out SAP Policy, please visit the website at www.jtcc.edu/financialaid.

The College’s current criteria for satisfactory academic progress are:
- Students must earn at least 67% of the credit hours they attempt. All courses attempted at John Tyler Community College and accepted transfer credits will be counted.
- Students must meet minimum cumulative grade point average requirements based on a progressive scale. Only non-remedial courses with grades of A, B, C, D and F are included in this calculation. Transfer credits are excluded. In order to graduate, a minimum cumulative grade point average of 2.0 is required.
Have a completed, current Free Application for Federal Student Aid (FAFSA) on file at JTCC on or before the scholarship deadline.

To be awarded an associate degree, certificate or career studies certificate, a student must:

1. Fulfill all course and credit hour requirements specified in the John Tyler Community College Catalog at the time of his or her official placement in the curriculum. Subsequent program changes may necessitate course substitutions, but these can only be made with the recommendation of the student’s academic advisor and the approval of the appropriate division dean.

2. Earn a minimum of 25 percent of the total semester credits required for the degree, certificate, or career studies certificate at John Tyler Community College. Note: Credits earned via experiential learning are not considered residency credits and do not constitute courses earned at John Tyler Community College. In addition, experiential learning credits may be used to satisfy no more than 25 percent of the requirements for a degree, certificate, or career studies certificate.

3. Have a grade point average of at least 2.0 in all courses that are applicable toward graduation in the curriculum.

4. Demonstrate computer literacy either by passing ITE 115, the CLEP test for ITE 115, or a comparable course approved by the student’s faculty advisor. (This requirement does not apply to certificate and career studies certificate candidates.)

5. Resolve any financial obligations to the College, and return all library books and other materials.

6. Participate in the institution’s assessments of its academic programs prior to graduation. Information will be sent to students outlining specific information about the process. Failure to complete required assessment activities may result in transcripts and/or diplomas being withheld until this requirement is fulfilled.

Applying for Graduation

To be considered for graduation, a student must:

1. Obtain an Application for Graduation from the student’s academic advisor, counselor or Student Success Center advisor.

2. Be officially in the curriculum (career plan) for which he or she is seeking graduation. A student may only be in one curriculum (career plan at a time).

3. Request his or her advisor, counselor or Student Success Center advisor to attach an advising transcript to the application for graduation.

4. Complete all designated sections of the application for graduation.

5. Submit the completed application for graduation to

General information

Veteran Affairs and Benefits

The Veteran Affairs office assists eligible veterans and dependents of veterans with their applications and reporting requirements necessary for establishing and maintaining Veterans Administration (VA) educational entitlements.

Most curricula and programs of education offered at John Tyler Community College are approved by the Virginia Department of Education for VA entitlements. Veterans and their dependents are reminded that only those courses that apply to their approved programs of education may be certified for VA educational entitlements. Eligible veteran students are encouraged to consider using the VA Work-Study and the VA Tutorial Assistance programs while attending school as they are valuable resources.

SCHOLARSHIPS

The John Tyler Community College Foundation relies on the generosity of the community to continue its work in securing the future of the College, its students, its faculty and its staff. Since most of the College’s graduates live and work in the area, gifts to the Foundation are an investment in the future of the community. Through donations, grants and endowments, the Foundation is able to provide scholarships for students, to fund academic programs and capital projects, to renovate and modernize classrooms and labs, and to encourage the professional development of John Tyler Community College’s faculty and staff. Contributions ensure the College continues its pledge of providing academic excellence while expanding the services it offers to fulfill escalating workforce requirements.

The Foundation offers scholarships to help students pay for John Tyler Community College tuition, books and fees. To qualify:

• Submit a completed scholarship application package prior to the appropriate deadline.

• Possess a 2.5 minimum cumulative grade point average (GPA).

• Be enrolled or plan to enroll in a certificate and/or degree program at John Tyler.

• Have in-state tuition status.

• Have a completed, current Free Application for Federal Student Aid (FAFSA) on file at JTCC on or before the scholarship deadline.

All scholarship recipients are required to attend the Scholarship Celebration event in August.

A complete scholarship list, application form, and eligibility criteria are available at www.jtcc.edu/scholarships. The application deadline for the John Tyler Community College International Studies Scholarship for summer study abroad is March 15. The application deadline for all other scholarships is May 1.
General information

• All subsequent awards (degrees, certificates, career studies) must differ from prior awards by at least 25 percent.

• Students may only graduate with one specialization within a single degree.

• Current State Council of Higher Education for Virginia (SHEV) procedures limit the number of awards (degrees and certificates) that can be officially reported by VCCS institutions for a student within an academic year (summer, fall, spring) to no more than two.

• Students may only graduate with one specialization within a single degree.

• All subsequent awards (degrees, certificates, career studies certificates) must differ from prior awards by at least 25 percent.

Multiple awards

• To be eligible for academic honors (summa cum laude; magna cum laude; cum laude), students must complete at least 50 percent of the courses used to satisfy the requirements of their degrees and/or certificates at John Tyler Community College.

Diplomas

• The Admissions and Records office will notify graduates when their diplomas are ready for distribution. Candidates should make certain that their mailing addresses are accurate at the institution. Students who require official verification of their graduation should request official transcripts three to four weeks after their graduation date.

• All graduation honors reflect all coursework attempted at John Tyler Community College. This includes courses that may not be used in satisfying specific graduation requirements.

• To be eligible for academic honors (summa cum laude; magna cum laude; cum laude), students must complete at least 50 percent of the courses used to satisfy the requirements of their degrees and/or certificates at John Tyler Community College.

Participating in Commencement

• John Tyler Community College’s annual Commencement Ceremony is held each May. Students who graduate in the preceding summer, fall and spring semesters may participate.

• Students who wish to participate in the annual Commencement Ceremony must indicate on their graduation applications that they intend to participate in the ceremony, and submit a R.S.V.P. via e-mail. There are no exceptions to this requirement.

• Information about the Commencement Ceremony and the purchase of caps, gowns and announcements is mailed to all participants in the spring semester.

Diplomas

• The Admissions and Records office will notify graduates when their diplomas are ready for distribution. Candidates should make certain that their mailing addresses are accurate at the institution. Students who require official verification of their graduation should request official transcripts three to four weeks after their graduation date.

• All graduation honors reflect all coursework attempted at John Tyler Community College. This includes courses that may not be used in satisfying specific graduation requirements.

• To be eligible for academic honors (summa cum laude; magna cum laude; cum laude), students must complete at least 50 percent of the courses used to satisfy the requirements of their degrees and/or certificates at John Tyler Community College.

STUDENT SERVICES

The Division of Student Services is comprised of the departments and offices of Admissions and Records, Veterans Affairs, the Counseling Center, Student Activities, and Student Success Centers. Other services provided by personnel in this division include tutoring, placement testing and career assessment and development. Division personnel are committed to providing students with the academic, administrative and personal support services necessary for the successful pursuit of their educational and career goals. The Office of the Dean of Student Services is located in room M107e in Moyar Hall on the Chester Campus and in room B213 in the Administration Building on the Midlothian Campus. For additional information on the services provided by the division, please refer to the appropriate sections of this catalog and the John Tyler Community College web site, www.jtcc.edu.

Counseling Centers

Professional counselors and student services specialists are available at both campuses to assist students with educational decisions, career planning and other concerns. Counseling personnel offer students assistance with test-taking skills, managing test anxiety, study skills, transferring to senior institutions, and stress management. Interviews with counselors are confidential. If students require assistance beyond the scope of the services of counselors, referrals to other qualified professionals or agencies will be offered. Counseling is committed to help students and prospective students learn how to develop career and life plans and to deal effectively with career and life transitions. Since there is no single correct way for everyone to deal with such decisions, a variety of developmental services and programs are offered, including assistance with personal development, academic development and career development. These programs are designed to help students learn how to make better career and life planning decisions, refine study skills necessary for college success, assist with college transfer, and build leadership skills.

Career Development Services

Students seeking assistance with career development should contact the Counseling Centers at the Chester and Midlothian campuses. With the assistance of counselors, students can take a number of assessment instruments, access career and college search systems, explore current job listings and refine their job-seeking skills. Counseling personnel also present special programs in interviewing and résumé writing.

Student Success Centers

Students can receive free tutoring services in many of the courses offered by the institution in the Student Success Centers located in room M209 on the Chester Campus and room A208 on the Midlothian Campus. General academic advising services also are available for program-placed students. Computer workstations are available where students may use tutorial software or work on writing assignments.
Student Activities
The Student Activities office provides a variety of educational, cultural, and social experiences for students, faculty, staff and members of the community. Student activities and organizations are open to all interested students. Students may seek leadership opportunities through participation in the John Tyler Community College Student Council. The College also has two chapters of Phi Theta Kappa, the international honor society for two-year colleges. The Student Activities office also coordinates student ID cards, voter registration, community service projects, student newsletters, the student emergency fund, clubs and intramural athletics. Students who are interested in participating in any aspect of the student activities program, or who wish additional information on events and organizations, should e-mail studentactivities@jtcc.edu.

Students with Disabilities
John Tyler Community College is committed to the goal of providing each qualified student equal opportunity to pursue a college education. To that end, the Division of Student Services has designated a professional counselor as a disabilities support services specialist at each campus. Timely requests for special services enable the College to better serve students. Students with documented disabilities who require assistance should contact the Counseling Centers at either the Midlothian Campus or the Chester Campus at least 30 days prior to the start of classes. Professional counselors will assist students with their special needs, including accommodations on placement testing, instructional accommodation plans, consultation services with faculty and staff, assistance with registration, personal and career counseling, study skills, note taking, mobility assistance and other services depending on individual needs and the availability of resources.

Student Rights, Responsibilities and Conduct
The submission of an application for admission to John Tyler Community College represents a voluntary decision to participate in the programs and courses offered by the institution according to the policies, rules and regulations of the College and the State Board for Community Colleges. The College’s approval of the application represents the extension of a privilege to join the John Tyler Community College community and to remain a part of it so long as the student meets required academic and behavioral standards. Each student is guaranteed the privilege of exercising his or her rights without fear of prejudice. Conduct by any student that adversely affects John Tyler Community College’s pursuit of its educational objectives or represents a threat to its students, faculty or staff will result in disciplinary action.

Additional information about student rights and responsibilities, as well as the Student Code of Conduct, can be found in the current Student Handbook available online at www.jtcc.edu. The Office of the Dean of Student Services is responsible for the administration of all student disciplinary procedures.

LEARNING RESOURCES
The Department of Learning Resources is composed of the Chester Library, Midlothian Library, Instructional Technology, and Testing Services.

College Libraries
The College Libraries welcome John Tyler students both in person and virtually at http://library.jtcc.edu. Staff are committed to creating an academic, accessible and friendly atmosphere that encourages students to ask questions and seek assistance. Libraries on both campuses are open convenient hours to help students find and use information and to assist with technology needs. The collection of over 50,000 books and media can be searched online, and students may access thousands of periodical articles both on campus and remotely. A 24/7 virtual chat reference service extends access to library information after hours. Through individual assistance and class instruction, the library seeks to promote independent information seeking behavior, to guide students in choosing and evaluating sources, and to help students develop critical thinking skills. All of these are essential qualities students will need as individuals, workers, and citizens in the digital age.

Computing Services
The College Libraries provide a variety of computer services and electronic resources for students and faculty. Computerized tutorials and software packages supporting specific disciplines are offered. Staff can give basic assistance with word processing, spreadsheet, database and presentation software tasks.

Testing Services
The Testing Services office operates the test centers on both the Chester and Midlothian campuses. At the centers, students are able to take various types of tests, including placement, proctored and College Level Examination Program (CLEP) tests. COMPASS Placement Tests are usually taken by students entering the College for the first time and by some high school students wanting to enroll in dual enrollment coursework. A select number of distance education tests are proctored in the College’s test centers for students taking distance education courses at John Tyler, as well as other community colleges in Virginia. John Tyler students are also eligible to schedule CLEP tests with the test centers.

Instructional Technology
The Instructional Technology office collaborates with faculty members in the design, development, utilization, management and evaluation of processes and resources for teaching and learning. The primary responsibilities of the office include:

• Promoting the use of technology and best practices in enhancing teaching and learning.
• Creating opportunities to engage faculty to further their use of technology for teaching and learning.
• Supporting interactive videoconferencing systems, the Blackboard course management systems, and associated software tools.
• Facilitating training opportunities, including hands-on workshops, computer-based training, and special events, to better educate faculty, staff, and students in the use of current and emerging technologies as they relate to teaching and learning.

Blackboard, the most widely used tool, is an online course management system that provides web space for course information such as announcements, syllabi, course documents,
PowerPoint slides, and other electronic materials specifically related to individual courses. All students have access to Blackboard via the MyTyler single sign-on. Instructors have until the first day the class meets to make the course materials available for students in Blackboard. Students can locate tutorials on how to navigate Blackboard on the JTCC web site or by clicking on the Help and Support button in the course menu of every course. Students are able to download free antivirus software and locate student computing discounts in the Blackboard system. Students may receive assistance during business hours with Blackboard or their student e-mail accounts by filling out this help request form: http://www.jtcc.edu/customapps/helpform2/.
Programs of Study
Programs of Study

TRANSFER DEGREES

Associate of Science Degrees
• Business Administration
• Engineering
• General Studies
  Psychology Specialization
  Science Specialization
  Teacher Education Specialization
• Information Systems

Associate of Arts Degree
• Liberal Arts
  Communications Specialization
  International Studies Specialization
  Music Specialization
  Theatre Arts Specialization

ASSOCIATE OF APPLIED ARTS DEGREES
• Visual Arts
  Photography and Film Specialization
  Visual Communications Specialization

ASSOCIATE OF APPLIED SCIENCE DEGREES
• Accounting
• Architectural Engineering Technology
• Business Management
• Early Childhood Development
  Teacher Assistant Specialization
• Funeral Services
• Human Services
  Criminology Track
  Disabilities Track
  Forensics Track
  Gerontology Track
  Social Work Track
• Information Technology
  Cisco Network Track
  Computer Applications Track
  Network Support Track
  Program Development Track
• Mechanical Engineering Technology
  Mechatronics Technician Specialization

• Nursing
  Traditional Track
  Hybrid Distance Education Track
• Police Science
  Homeland Security Specialization
• Technical Studies
  Heating, Ventilation and Air Conditioning Track
  Industrial Electricity Track
  Mechanical Maintenance Track
  Precision Machining Technology Track
  Precision Machining Computer Numerical Control (CNC) Track
  Residential Electricity Track
  Welding Track

CERTIFICATES
• Building Construction
• Child Care
• Fine Arts
• General Education
• Homeland Security
• Precision Machining Technology
• Pre-B.S.N. (beginning Spring 2012)
• Welding

CAREER STUDIES CERTIFICATES
• Accounting
• Administration of Justice
• Adult Home Administration
• Allied Health Preparation, Pre-Funeral Services
• Allied Health Preparation, Pre-Nursing
• Applied Technology
• Athletic Coaching
• Basic Precision Machining Technology
• Bereavement and Grief Counseling
• Business Information Management
• Child Care Management
• Cisco Network
• Civil Engineering Computer-Aided Drafting
• Computer-Aided Drafting
• Computer Applications
• Computer Numerical Control
• Early Childhood
• Electricity
• Emergency Medical Services – Basic
• Emergency Medical Services – Intermediate
• Funeral Home Management
• Geographic Information Systems
• Heating and Air Conditioning
• Human Services Administration and Supervision
• Industrial Electricity
• Mechanical Maintenance
• Network Support
• Paralegal Studies
• Phlebotomy
• Program Development
• Residential Electricity
• Small Business Management
• Substance Abuse Assistant
• Supervision
• Surveying
• Web Design
• Welding
Transfer Degrees

This section provides a listing of John Tyler Community College's transfer degree programs. The College's programs are subject to change. For an updated list, please visit the College's web site at www.jtcc.edu/academics.
# Business Administration

**Associate of Science Degree (A.S.)**

## Purpose
The associate of science curriculum in business administration is designed for students who plan to transfer to four-year colleges or universities and seek bachelor’s degrees in fields such as accounting, business management, international business, economics, marketing, finance or related fields.

## Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

## Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Standard Course Options</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 111</td>
<td>College Composition I</td>
<td>3</td>
</tr>
<tr>
<td>ITE 115</td>
<td>Introduction to Computer Applications and Concepts</td>
<td>3</td>
</tr>
<tr>
<td>MTH 163</td>
<td>Precalculus I</td>
<td>3</td>
</tr>
<tr>
<td>SDV 100</td>
<td>College Success Skills</td>
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<tr>
<td>Laboratory Science Elective</td>
<td>4</td>
<td>See Note 5.</td>
</tr>
<tr>
<td>Psychology or Sociology Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>17</strong></td>
</tr>
</tbody>
</table>

| 2nd        |                         |         |
| ENG 112    | College Composition II  | 3       |
| MTH 270    | Applied Calculus        | 3       |
| History or Political Science Elective | 3 | |
| Laboratory Science Elective | 4 | See Note 5. |
| Physical Education/Health Elective | 1 | |
| **Total Credits** | | **14** |

| 3rd        |                         |         |
| ACC 211    | Principles of Accounting I | 3 | |
| ECO 201    | Principles of Macroeconomics | 3 | |
| Humanities or Fine Arts Elective | 3 | See Note 2. |
| Literature Elective | 3 | See Note 3. |
| Social/Behavioral Science Elective | 3 | See Note 1. |
| **Total Credits** | | **15** |

| 4th        |                         |         |
| ACC 212    | Principles of Accounting II | 3 | |
| BUS 100    | Introduction to Business  | 3       |
| CST 100    | Principles of Public Speaking | 3 | |
| ECO 202    | Principles of Microeconomics | 3 | |
| General Elective | 3 | |
| **Total Credits** | | **15** |

**Total Credits For Program**: **61**

## Notes and Additional Curriculum Options
1. The social/behavioral sciences elective requirement can be satisfied by courses with the following prefixes: ECO, GEO, PLS, HIS, PSY and SOC.
2. The humanities/fine arts elective can be satisfied by completing a literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech courses addressing performing arts or the history of theatre (CST), or religion (REL) course. ENG 112, CST 100, CST 105 and CST 115 may not be used to satisfy humanities elective requirements.
3. The literature requirement can be satisfied by any 200-level English literature course, exclusive of composition and creative writing courses.
4. Students with good computer skills may seek to satisfy this requirement by CLEP.
5. The laboratory science requirement can be satisfied by the following courses: BIO 101, BIO 102, BIO 110, BIO 120, CHM 101, CHM 102, CHM 111, CHM 112, GOL 105, NAS 125, NAS 130, PHY 101, PHY 102, PHY 201, PHY 202, PHY 241, PHY 242.
6. The history/political science elective requirement can be satisfied by the following courses: PLS 135, PLS 211, PLS 212, PLS 241, HIS 101, HIS 102, HIS 111, HIS 112, HIS 121, HIS 122, or any other HIS course approved by the student’s advisor.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Engineering
Associate of Science (A.S.)

Purpose
The associate of science curriculum in engineering is designed for students who plan to transfer to four-year colleges or universities to complete baccalaureate degree programs in engineering.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental and prerequisite courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>CHM 111</td>
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<tr>
<td>EGR 120</td>
<td>2</td>
<td>See Note 1.</td>
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<tr>
<td>ENG 111</td>
<td>3</td>
<td></td>
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<tr>
<td>MTH 173</td>
<td>5</td>
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<tr>
<td>SDV 100</td>
<td>1</td>
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<tr>
<td>Humanities Elective</td>
<td>3</td>
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<table>
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<tbody>
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<td>CHM 112</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EGR 126</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EGR 140</td>
<td>3</td>
<td>See Note 2.</td>
</tr>
<tr>
<td>ENG 112</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MTH 174</td>
<td>5</td>
<td></td>
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<tr>
<td><strong>Total Credits</strong></td>
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<table>
<thead>
<tr>
<th>3rd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>EGR 246</td>
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<td>See Note 3.</td>
</tr>
<tr>
<td>EGR 248</td>
<td>3</td>
<td></td>
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<td>HLT/PED</td>
<td>1</td>
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<tr>
<td>MTH 277</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PHY 241</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
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<td><strong>18</strong></td>
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<table>
<thead>
<tr>
<th>4th Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>EGR 245</td>
<td>3</td>
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<tr>
<td>MTH 279</td>
<td>4</td>
<td></td>
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<tr>
<td>PHY 242</td>
<td>4</td>
<td></td>
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<tr>
<td>Humanities Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>17</strong></td>
<td></td>
</tr>
</tbody>
</table>

| **Total Credits For Program** | **71** |

Notes and Additional Curriculum Options
1. MTH 164 or the equivalent is the prerequisite for EGR 120.
2. MTH 173 is the prerequisite for EGR 140.
3. EGR 140 and MTH 174 are prerequisites for EGR 246.
4. EGR 140, MTH 174, and PHY 241 are prerequisites for EGR 245.
5. The social sciences elective requirement can be satisfied by courses with the following prefixes: ECO, GEO, PLS, HIS, PSY, and SOC.
6. The humanities elective requirement can be satisfied by completing literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech courses addressing performing arts and the history of theatre (CST), or religion (REL) courses. ENG 112, CST 100, CST 105, and CST 115 may not be used to satisfy humanities elective requirements.
7. Students are encouraged to consult their faculty advisors or transfer colleges for advice regarding the selection of electives and other requirements specific to the engineering programs at the institutions where they plan to transfer.
8. Transfer Articulation Agreement with the School of Engineering and Applied Sciences at the University of Virginia. Graduates of this program with 3.5 GPAs will meet the transfer requirements to U.Va. and may pursue their bachelor degrees in engineering by taking on-site and distance education courses from U.Va. offered at John Tyler Community College’s campuses or attending classes in Charlottesville. JTCC graduates with GPAs of less than 3.5 may seek admission to the U.Va. portion of the program in the same manner as all other students wishing to enter U.Va. degree programs.

For additional information on this program, please contact the Division of Engineering, Business and Public Services at 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
General Studies

Associate of Science (A.S.)

Purpose
This program is intended to provide students with a general course of study that parallels the freshman and sophomore years at most colleges and universities. The courses in this program are specifically selected for ease of transfer to most four-year colleges and universities. Following the prescribed coursework in this program will result in graduation with the associate of science degree (A.S.). Students should consult with their advisors to ensure that they select general electives that best prepare them for the specific requirements of their intended transfer college or university programs of study.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

1st Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
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<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
<td>See Note 6.</td>
</tr>
<tr>
<td>MTH 163 Precalculus I</td>
<td>3</td>
<td>MTH 158, MTH 164, MTH 170, MTH 173. See Note 1.</td>
</tr>
<tr>
<td>SDV 100 College Success Skills</td>
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<td>History Elective</td>
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<td>See Note 7.</td>
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2nd Semester

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>ENG 112 College Composition II</td>
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<td>MTH 240 Statistics</td>
<td>3</td>
<td>MTH 158, MTH 164, MTH 170, MTH 173. See Note 1.</td>
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<td>History Elective</td>
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<td>See Note 7.</td>
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<td>Laboratory Science Elective</td>
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<td>Social/Behavioral Science Elective</td>
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3rd Semester

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<tr>
<td>General Elective</td>
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<tr>
<td>General Elective</td>
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<tr>
<td>Humanities Elective</td>
<td>3</td>
<td>See Note 3.</td>
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<tr>
<td>Literature or Mathematics Elective</td>
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<td>See Notes 1 and 4.</td>
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4th Semester

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<tr>
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<tr>
<td>Humanities Elective</td>
<td>3</td>
<td>See Note 3.</td>
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<td>Literature Elective</td>
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<td>See Note 4.</td>
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<td>Physical Education/Health Elective</td>
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**Total Credits For Program** 61

Notes and Additional Curriculum Options
1. Students may elect to take MTH 158 and MTH 240 or MTH 163 and MTH 240 as minimum preparation for transfer. Students in the science, technology, engineering, and mathematics (STEM) track should take MTH 163, MTH 164, and MTH 173 given their transfer plans.
2. The social/behavioral sciences elective requirements can be satisfied by courses with the following prefixes: ECO, GEO, PLS, HIS, PSY and SOC.
3. The humanities elective requirements can be satisfied by completing literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech courses addressing performing arts or the history of theatre (CST), or religion (REL) courses. ENG 112, CST 100, CST 105 and CST 115 may not be used to satisfy humanities electives requirements.
4. The literature requirement can be satisfied by any 200-level English literature course, exclusive of composition and creative writing courses.
5. The laboratory science requirements can be satisfied by the following courses: BIO 101, BIO 102, BIO 110, BIO 120, CHM 101, CHM 102, CHM 111, CHM 112, GOL 105, NAS 125, NAS 130, PHY 101, PHY 102, PHY 201, PHY 202, PHY 241, and PHY 242. STEM track majors should take CHM 111-112 plus PHY 201-202 or (PHY 241-242).
6. Students with good computer skills may seek to satisfy this requirement by CLEP.
7. The history elective requirements can be satisfied by the following courses: HIS 101, HIS 102, HIS 111, HIS 112, HIS 121, HIS 122 or any other HIS course approved by the student’s advisor.

For additional information on this program, please contact the Division of Mathematics, Natural and Behavioral Sciences: 804-706-5084 (Chester) or 804-594-1500 (Midlothian).
**General Studies, Psychology Specialization**

Associate of Science (A.S.)

**Purpose**

This program is intended to provide students with a general course of study that parallels the freshman and sophomore years at most colleges and universities for degrees in psychology and related disciplines. The courses in this program are specifically selected for ease of transfer to most four-year colleges and universities. Students holding the A.S. degree will have junior standing and will be considered to have met all lower-division general education requirements at most four-year colleges and universities.

**Admission Requirements and Special Conditions**

A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

---

**Program Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td><strong>1st Semester</strong></td>
<td></td>
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<tr>
<td>ENG 111 College Composition I</td>
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<tr>
<td>HIS 121 United States History I</td>
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<td>HIS 101, HIS 111</td>
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<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
<td>See Note 4.</td>
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<tr>
<td>MTH 163 Precalculus I</td>
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<td>MTH 158, MTH 170, MTH 173. See Note 1.</td>
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<td>PSY 200/PSY 203 Principles of Psychology and Lab</td>
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<td>SDV 100 College Success Skills</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</table>

| **2nd Semester** | | |
| ENG 112 College Composition II | 3 | |
| HIS 122 United States History II | 3 | HIS 102, HIS 112 |
| MTH 240 Statistics | 3 | MTH 164, MTH 174 |
| SOC 200 Principles of Sociology | 3 | |
| Psychology Elective | 3 | See Note 5. |
| **Total Credits** | | **15** |

| **3rd Semester** | | |
| BIO 101 General Biology I | 4 | BIO 110, CHM 111, PHY 101, PHY 201 |
| PSY 213 Statistics for Behavioral Sciences | 3 | |
| SOC 210 Survey of Physical and Cultural Anthropology | 3 | |
| Social/Behavioral Science Elective | 3 | |
| Humanities Elective | 3 | See Note 2. |
| **Total Credits** | | **16** |

| **4th Semester** | | |
| BIO 102 General Biology II | 4 | BIO 120, CHM 112, PHY 102, PHY 202 |
| Humanities Elective | 3 | See Note 2. |
| Literature Elective | 3 | See Note 3. |
| Physical Education/Health Elective | 1 | |
| Psychology Elective | 3 | See Note 5. |
| **Total Credits** | | **14** |

**Total Credits For Program** | **62** |

**Notes and Additional Curriculum Options**

1. Students may elect to take MTH 158 and MTH 240 or MTH 163 and MTH 240 as minimum preparation for transfer. Students in the science, technology, engineering, and mathematics (STEM) track should take MTH 163, MTH 164, and MTH 173 to transfer.

2. The humanities elective requirements can be satisfied by completing a literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech courses addressing performing arts or the history of theatre (CST), or religion (REL) courses. ENG 112, CST 100, CST 105 and CST 115 may not be used to satisfy humanities electives requirements.

3. The literature requirement can be satisfied by any 200-level English literature course, exclusive of composition and creative writing courses.

4. Students with good computer skills may seek to satisfy this requirement by CLEP.

5. Students should consult with their advisors regarding appropriate psychology (PSY) electives.

For additional information on this program, please contact the Division of Mathematics, Natural and Behavioral Sciences: 804-706-5084 (Chester) or 804-594-1500 (Midlothian).
General Studies, Science Specialization

Associate of Science (A.S.)

**Purpose**
This program is specifically designed for transfer into a science major at most four year colleges. Following the prescribed coursework in this program will result in graduation with the Associate in Science Degree (A.S.) in General Studies with a Specialization in Science. Students should consult with their advisors to ensure that they select courses that best prepare them for the specific requirements of their intended transfer college or university for majors in biology, chemistry or physics.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

**Program Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<td>BIO 101</td>
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<td>MTH 173</td>
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<td>Calculus with Analytical Geometry I</td>
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<td>SDV 100</td>
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<tr>
<td>History Elective</td>
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<td>See Note 2.</td>
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<tr>
<td>Physical Education/Health Elective</td>
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<tr>
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<td>BIO 102</td>
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<td>ENG 112</td>
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<td>College Composition II</td>
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<td>MTH 240</td>
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<td>Statistics</td>
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<td>History Elective</td>
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<td>Social/Behavioral Science Elective</td>
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<td>See Note 4.</td>
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<td><strong>3rd Semester</strong></td>
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<td>CHM 111</td>
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<td><strong>4th Semester</strong></td>
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<td>CHM 112</td>
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<td>General College Physics II</td>
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<td>Humanities Elective</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</table>

**Total Credits For Program** 61

**Notes and Additional Curriculum Options**
1. Biology majors need BIO 110 and BIO 120 instead of BIO 101 and BIO 102.
2. The history elective requirements can be satisfied by the following courses: HIS 101, HIS 102, HIS 111, HIS 112, HIS 121, HIS 122 or any other HIS course approved by the student’s advisor.
3. Students who are required to take MTH 163 and/or MTH 164 as prerequisites for MTH 173 may use these course as general electives. MTH 173 and MTH 240 are recommended for biology majors. MTH 173 and MTH 174 are recommended for chemistry and physics majors.
4. The social/behavioral sciences elective requirements can be satisfied by courses with the following prefixes: PSY, SOC, ECO, GEO, PLS and HIS.
5. The humanities elective requirement can be satisfied by completing a literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech course addressing performing arts or the history of theatre (CST), or religion course (REL). ENG 112, CST 100, CST 105 and CST 115 may not be used to satisfy humanities electives requirements.
6. The literature requirement can be satisfied by any 200-level English literature course, exclusive of composition and creative writing courses.
7. The laboratory science courses not specified for application to the degree, such as BIO 141, BIO 142, GOL 105, NAS 125, NAS 130, may be taken as preparation for future coursework and will count for college credit.

For additional information on this program, please contact the Division of Mathematics, Natural and Behavioral Sciences: 804-706-5084 (Chester) or 804-594-1500 (Midlothian).
General Studies, Teacher Education Specialization

Associate of Science (A.S.)

Purpose
This program is intended to provide the student with a general course of study that parallels the freshman and sophomore years at most colleges and universities and prepares the student for a baccalaureate degree program in K-6. Students who wish to complete this program will be required to pass the PRAXIS I test prior to transferring to the four-year institution. Students holding the A.S. degree will have junior standing and will be considered to have met all lower-division general education requirements at most four-year colleges and universities. Note that special education, physical education, health, art and music education majors must follow a different curriculum as determined by each transfer institution. Specific elementary teacher education requirements vary at senior institutions, however, and students should consult with senior institutions for additional guidance regarding pre-teacher preparation.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum. Students who register in this program need to know which four-year college/university they plan to attend so they can select the most appropriate courses in areas where there are choices.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>ENG 111 College Composition I</td>
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<tr>
<td>HIS 121 United States History I</td>
<td>3</td>
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<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
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<td>MTH 163 Precalculus I</td>
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<td>MTH 158. See Note 1.</td>
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<td>SDV 101 Orientation to Future Teachers</td>
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<td>Health/Physical Education Elective</td>
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<td>ART 101 History and Appreciation of Art</td>
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<td>ART 102, MUS 121, MUS 122</td>
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<td>HIS 122 United States History II</td>
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<td>See Note 3.</td>
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<td>MTH 240 Statistics</td>
<td>3</td>
<td>MTH 164</td>
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<tr>
<td>PLS 135 American National Politics</td>
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<td>CST 100 Introduction to Public Speaking</td>
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<td>ECO 201 Principles of Macroeconomics</td>
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<td>EDU 200 Introduction to Teaching as a Profession</td>
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<td>HIS 112 History of World Civilization II</td>
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<td>PHY 101 Introduction to Physics I</td>
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<td>BIO 101 General Biology I</td>
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<td>ENG 241 Survey of American Literature I</td>
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<td>ENG 242, ENG 243, ENG 244, ENG 251, ENG 252</td>
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<td>GEO 210 People and the Land: Cultural Geography</td>
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**Total Credits For Program** | **62** |

Notes and Additional Curriculum Options
1. Students may elect to take MTH 158 and MTH 240 or MTH 163 and MTH 240 as minimum preparation for transfer. Students in the science, technology, engineering, and mathematics (STEM) track should take MTH 163, MTH 164, and MTH 173 to transfer.
2. The computer literacy requirement also can be satisfied by other information technology courses and CLEP examinations.
3. It is recommended that the HIS requirement include American history and world history.
4. ECO 120 may be used as a standard course option for some colleges and universities. Please consult with your transfer institution.
5. Two different science disciplines are recommended and are even required at some transfer institutions.
6. Some transfer institutions require foreign language, some do not.
7. The humanities elective requirement can be satisfied by completing literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech courses addressing performing arts and the history of theater (CST), or religion (REL). ENG 112, CST 100, CST 105, and CST 115 may not be used to satisfy humanities elective requirements.
8. Part-time students should consult their faculty advisor regarding appropriate course sequences.
9. Students should consult with their faculty advisor or transfer college for advice regarding selection of electives.

For additional information on this program, please contact the Division of Engineering, Business and Public Services at 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Information Systems
Associate of Science (A.S.)

### Purpose
This program is intended to provide the student with a general course of study that parallels the freshman and sophomore years at most colleges and universities and prepares the student for a baccalaureate degree program in information systems, management information systems, information technology, or business.

### Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum. Keyboarding skills are recommended.

### Program Curriculum

<table>
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<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tr>
<td>ACC 211 Principles of Accounting I</td>
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<td>ENG 111 College Composition I</td>
<td>3</td>
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</tr>
<tr>
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<td>MTH 163 Precalculus I</td>
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<td>SDV 100 College Success Skills</td>
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<td>Health/Physical Education Elective</td>
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</thead>
<tbody>
<tr>
<td>ACC 212 Principles of Accounting II</td>
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<td>ENG 112 College Composition II</td>
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<td>ITN 101 Introduction to Network Concepts</td>
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<td>ITP 100 Software Design</td>
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<tr>
<td>BIO 101 General Biology I</td>
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<td>CHM 111, PHY 201</td>
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<td>ITD 130 Database Fundamentals</td>
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<td>ITP 251 Systems Analysis and Design</td>
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<td>PSY 126 Psychology for Business and Industry</td>
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<td>BIO 102 General Biology II</td>
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<td>BUS 100 Introduction to Business</td>
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<td>CST 110 Introduction to Communication</td>
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<td>Humanities/Fine Arts Elective</td>
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</tr>
</tbody>
</table>

**Total Credits For Program** | 61 |

### Notes and Additional Curriculum Options
1. All information technology courses must be completed within five years of a student’s intended graduation date.
2. Students should consult their faculty advisors regarding appropriate course sequences.
3. The social sciences elective requirement can be satisfied by courses with the following prefixes: ECO, GEO, HIS, PLS, PSY, or SOC.
4. The humanities elective requirement can be satisfied by completing a literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech course addressing performing arts and the history of theatre (CST), or religion (REL) courses. ENG 112, CST 100, CST 105, and CST 115 may not be used to satisfy humanities elective requirements.
5. There may be other possible course options in mathematics and natural sciences. Students should consult their faculty advisors.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
**Purpose**
The associate of arts curriculum in liberal arts is designed for students who plan to transfer to four-year colleges or universities and seek bachelor’s degrees in fields such as English, history, philosophy, political science, archaeology, art history, foreign languages, religious studies and other majors that require foreign language as part of their general education requirements.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental and prerequisite courses to prepare students for the curriculum.

**Program Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
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<tr>
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<tr>
<td>ENG 111 College Composition I</td>
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<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
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</tr>
<tr>
<td>MTH 163 Precalculus I</td>
<td>3</td>
<td>MTH 170, MTH 173</td>
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<tr>
<td>SDV 100 College Success Skills</td>
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<td>Foreign Language</td>
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<tr>
<td>ENG 112 College Composition II</td>
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<tr>
<td>MTH 240 Statistics</td>
<td>3</td>
<td>MTH 164, MTH 270, MTH 174</td>
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<td>Foreign Language</td>
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<td>See Note 5.</td>
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<td>General Elective</td>
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<td>Laboratory Science Elective</td>
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<tr>
<td>Philosophy/Religion Elective</td>
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<td>Laboratory Science Elective</td>
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<td>Physical Education/Health Elective</td>
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<tr>
<td>Visual &amp; Performing Art Elective</td>
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<tr>
<td><strong>Total Credits For Program</strong></td>
<td><strong>63</strong></td>
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</tbody>
</table>

**Notes and Additional Curriculum Options**
1. The social/behavioral sciences elective requirements can be satisfied by courses with the following prefixes: ECO, GEO, PLS, HIS, PSY and SOC.
2. The philosophy/religion elective requirement can be satisfied by courses with the following prefixes: PHI and REL.
3. The visual and performing arts elective can be satisfied by any ART or MUS course or any CST acting or theatre course to include CST 130, CST 131, CST 132, CST 136, CST 195, CST 231 and CST 232.
4. The history elective requirements can be satisfied by the following courses: HIS 101, HIS 102, HIS 111, HIS 112, HIS 121, HIS 122 or any other HIS course approved by the student’s advisor.
5. Students must demonstrate competency in a foreign language through the 202 level by completing appropriate courses and/or examinations. Placement in foreign language is by SAT II Subject Test score or departmental recommendation. Students who are not required to take introductory-level courses must substitute other approved general electives.
6. The literature elective requirement can be satisfied by any 200-level English literature course, exclusive of composition and creative writing courses.
7. Students with good computer skills may seek to satisfy this requirement by CLEP.
8. The laboratory science requirement can be satisfied by the following courses: BIO 101, BIO 102, BIO 110, BIO 120, CHM 101, CHM 102, CHM 111, CHM 112, GOL 105, NAS 125, NAS 130, PHY 101, PHY 102, PHY 201, PHY 202, PHY 241, PHY 242.

For additional information on this program, please contact the Division of Arts, Humanities and Social Sciences: 804-706-5086 (Chester) or 804-594-1509 (Midlothian).
Liberal Arts, Communications Specialization
Associate of Arts (A.A.)

Purpose
The associate of arts curriculum in liberal arts with a specialization in communications is designed for students who plan to transfer to four-year colleges or universities and seek bachelor’s degrees in fields such as mass communications, journalism, public relations and other related programs that require foreign language as part of their general education requirements.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

1st Semester
- ENG 111 College Composition I 3
- CST 100 Principles of Public Speaking 3
- MTH 163 Precalculus I 3
- SDV 100 College Success Skills 1
- Foreign Language 4
- History Elective 3
**Total Credits** 17

2nd Semester
- ENG 112 College Composition II 3
- MTH 240 Statistics 3
- Foreign Language 4
- Communications Elective 3
- History Elective 3
**Total Credits** 16

3rd Semester
- ITE 115 Introduction to Computer Applications and Concepts 3
- Foreign Language 3
- Communications Elective 3
- Laboratory Science Elective 4
- Literature Elective 3
**Total Credits** 16

4th Semester
- PHI 220 Ethics 3
- Foreign Language 3
- Laboratory Science Elective 4
- Physical Education/Health Elective 1
- Social/Behavioral Science Elective 3
**Total Credits** 14

**Total Credits For Program** 63

Notes and Additional Curriculum Options
1. The social/behavioral sciences elective requirement can be satisfied by courses with the following prefixes: ECO, GEO, PLS, HIS, PSY and SOC.
2. The communications elective requirements can be satisfied by the following courses: CST 111, CST 115, CST 126, CST 227, CST 229 or any other CST courses approved by the student’s advisor, and ENG 121.
3. The history elective requirements can be satisfied by the following courses: HIS 101, HIS 102, HIS 111, HIS 112, HIS 121, HIS 122 or any other HIS course approved by the student’s advisor.
4. Students must demonstrate competency in a foreign language through the 202 level by completing appropriate courses and/or examinations. Placement in foreign language is by SAT II Subject Test score or departmental recommendation. Students who are not required to take introductory-level courses must substitute other approved general electives.
5. The literature elective requirement can be satisfied by any 200-level English literature course, exclusive of composition and creative writing courses.
6. Students with good computer skills may seek to satisfy this requirement by CLEP.
7. The laboratory science requirement can be satisfied by the following courses: BIO 101, BIO 102, BIO 110, BIO 120, CHM 101, CHM 102, CHM 111, CHM 112, GOL 105, NAS 125, NAS 130, PHY 101, PHY 102, PHY 201, PHY 202, PHY 241, PHY 242.

For additional information on this program, please contact the Division of Arts, Humanities and Social Sciences: 804-706-5086 (Chester) or 804-594-1509 (Midlothian).
## Liberal Arts, International Studies Specialization

### Associate of Arts (A.A.)

#### Purpose
The associate of arts curriculum in liberal arts with a specialization in international studies is designed for students who plan to transfer to four-year colleges or universities and seek bachelor’s degrees in international relations, foreign affairs, comparative politics, foreign languages and other majors with global perspectives.

#### Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental and prerequisite courses to prepare students for the curriculum.

### Program Curriculum

#### 1st Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tr>
<td>ENG 111 College Composition I</td>
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<td>ITE 115 Introduction to Computer</td>
<td>3</td>
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<td>Applications and Concepts</td>
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<td>MTH 163 Precalculus I</td>
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<td>MTH 170, MTH 173</td>
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<td>SDV 100 College Success Skills</td>
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<td>Foreign Language</td>
<td>4</td>
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#### 2nd Semester

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<tr>
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<tr>
<td>ENG 112 College Composition II</td>
<td>3</td>
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<tr>
<td>MTH 240 Statistics</td>
<td>3</td>
<td>MTH 164, MTH 270, MTH 174</td>
</tr>
<tr>
<td>Foreign Language</td>
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<td>See Note 4.</td>
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<tr>
<td>History Elective</td>
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<tr>
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<td>ENG 251 Survey of World Literature I</td>
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#### 4th Semester

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<tr>
<td>PLS 241 International Relations I</td>
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<td>ECO 210, GEO 210, SOC 210</td>
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<td>See Note 2.</td>
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<td>Laboratory Science Elective</td>
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<td>Physical Education/Health Elective</td>
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**Total Credits For Program**  **63**

#### Notes and Additional Curriculum Options
1. The social/behavioral sciences electives requirement can be satisfied by courses with the following prefixes: ECO, GEO, PLS, HIS, PSY, SOC or a social science course offered as part of a study abroad program.
2. The humanities elective requirement can be satisfied by completing literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech courses addressing performing arts or the history of theatre (CST), or religion (REL) courses. ENG 112, CST 100, CST 105 and CST 115 may not be used to satisfy humanities electives requirements. Students must take one of the following: ART 101, ART 102, ART 104, HUM 201, HUM 202, REL 230, REL 233, REL 237 or other humanities course with a global perspective or one offered as part of a study abroad program.
3. Students must take one course from Group A and one course from Group B. Group A: HIS 121, HIS 122, HIS 141, HIS 142, HIS 269, HIS 276, HIS 277. Group B: HIS 101, HIS 102, HIS 111, HIS 112, HIS 211, HIS 203, HIS 225, HIS 226 or other history course with a global perspective or one offered as a part of a study abroad program.
4. Students must demonstrate competency in a foreign language through the 202 level by completing appropriate courses and/or examinations. Placement in foreign language is by SAT II Subject Test score or departmental recommendation. Students who are not required to take introductory-level courses must substitute other approved general electives.
5. Students with good computer skills may seek to satisfy this requirement by CLEP.
6. The laboratory science requirement can be satisfied by the following courses: BIO 101, BIO 102, BIO 110, BIO 120, CHM 101, CHM 102, CHM 111, CHM 112, GOL 105, NAS 125, NAS 130, PHY 101, PHY 102, PHY 201, PHY 202, PHY 241, PHY 242.

For additional information on this program, please contact the Division of Arts, Humanities and Social Sciences: 804-706-5086 (Chester) or 804-594-1509 (Midlothian).
## Purpose
The associate of arts curriculum in liberal arts with a specialization in music is designed for students who plan to transfer to four-year colleges or universities and seek a bachelor’s degree in music or music education, particularly in programs that require foreign language as part of their general education requirements.

## Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

## Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Description</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tr>
<td>1st</td>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td>MTH 158, MTH 170, MTH 173</td>
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<td>MTH 163 Precalculus I</td>
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<td>MUS 111</td>
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<td></td>
<td>MUS 101 Basic Musicianship I</td>
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<td>SDV 100 College Success Skills</td>
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<td>History Elective</td>
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<td>2nd</td>
<td>ENG 112 College Composition II</td>
<td>3</td>
<td>MTH 164, MTH 270, MTH 174</td>
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<td>MTH 240 Statistics</td>
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<td>MUS 112</td>
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<td>MUS 102 Basic Musicianship II</td>
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<tr>
<td>3rd</td>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
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<tr>
<td></td>
<td><strong>Total Credits For Program</strong></td>
<td><strong>63</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Notes and Additional Curriculum Options

1. The history elective requirements can be satisfied by the following courses: HIS 101, HIS 102, HIS 111, HIS 112, HIS 121, HIS 122 or any other HIS course approved by the student’s advisor.

2. The music elective requirements must include 3 credits in music history or appreciation and 2 credits of applied music.

3. Students must demonstrate competency in a foreign language through the 202 level by completing appropriate courses and/or examinations. Placement in foreign language is by SAT II Subject Test score or departmental recommendation. Students who are not required to take introductory level courses must substitute other approved electives.

4. The literature elective requirement can be satisfied by any 200-level English literature course, exclusive of composition and creative writing courses.

5. Students with good computer skills may seek to satisfy this requirement by CLEP.

6. The laboratory science requirement can be satisfied by the following courses: BIO 101, BIO 102, BIO 110, BIO 120, CHM 101, CHM 102, CHM 111, CHM 112, GOL 105, NAS 125, NAS 130, PHY 101, PHY 102, PHY 201, PHY 202, PHY 241, PHY 242.

7. The social/behavioral sciences elective requirement can be satisfied by courses with the following prefixes: ECO, GEO, PLS, HIS, PSY and SOC. Students interested in pursuing a degree in music education should take PSY 230.

For additional information on this program, please contact the Division of Arts, Humanities and Social Sciences: 804-706-5086 (Chester) or 804-594-1509 (Midlothian).
Liberal Arts, Theatre Arts Specialization

Associate of Arts (A.A.)

**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CST 131 Acting I</td>
<td>3</td>
<td></td>
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<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
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<tr>
<td>MTH 163 Precalculus I</td>
<td>3</td>
<td>MTH 170, MTH 173</td>
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<tr>
<td>SDV 100 College Success Skills</td>
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<td>See Note 1.</td>
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<td>Foreign Language</td>
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<tr>
<td>History Elective</td>
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<tr>
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<td>CST 132 Acting II</td>
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<td>ENG 112 College Composition II</td>
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<td>MTH 240 Statistics</td>
<td>3</td>
<td>MTH 164, MTH 270, MTH 174</td>
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<td>Foreign Language</td>
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<td>See Note 3.</td>
</tr>
<tr>
<td>History Elective</td>
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<tr>
<th>3rd Semester</th>
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<tbody>
<tr>
<td>CST 130 Introduction to the Theatre</td>
<td>3</td>
<td>CST 195, CST 231, CST 232</td>
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<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
<td>See Note 5.</td>
</tr>
<tr>
<td>Foreign Language</td>
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<td>See Note 3.</td>
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<td>Laboratory Science Elective</td>
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<tr>
<td>Literature Elective</td>
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<tr>
<td>CST 136 Theatre Workshop</td>
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<td>CST 145, CST 252</td>
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<td>Foreign Language</td>
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<td>Laboratory Science Elective</td>
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<td>See Note 6.</td>
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<td>Physical Education/Health Elective</td>
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</table>

**Total Credits For Program** | **63** |

**Notes and Additional Curriculum Options**

1. Students interested in pursuing a degree in theatre education should take SDV 101—Orientation to Theatre Arts.
2. The history elective requirements can be satisfied by the following courses: HIS 101, HIS 102, HIS 111, HIS 112, HIS 121, HIS 122 or any other HIS course approved by the student’s advisor.
3. Students must demonstrate competency in a foreign language through the 202 level by completing appropriate courses and/or examinations. Placement in foreign language is by SAT II Subject Test score or departmental recommendation. Students who are not required to take introductory level courses must substitute other approved general electives.
4. The literature elective requirement can be satisfied by any 200-level English literature course, exclusive of composition and creative writing courses.
5. Students with good computer skills may seek to satisfy this requirement by CLEP.
6. The laboratory science requirement can be satisfied by the following courses: BIO 101, BIO 102, BIO 110, BIO 120, CHM 101, CHM 102, CHM 111, CHM 112, GOL 105, NAS 125, NAS 130, PHY 101, PHY 102, PHY 201, PHY 202, PHY 241, PHY 242.
7. The social/behavioral sciences elective requirement can be satisfied by courses with the following prefixes: ECO, GEO, PLS, HIS, PSY and SOC. Students interested in pursuing a degree in theatre education should take PSY 230.

For additional information on this program, please contact the Division of Arts, Humanities and Social Sciences: 804-706-5086 (Chester) or 804-594-1509 (Midlothian).
Applied Arts Degrees

This section provides a listing of John Tyler Community College’s applied arts degree programs. The College’s programs are subject to change. For an updated list, please visit the College’s web site at www.jtcc.edu/academics.
Visual Arts
Associate of Applied Arts (A.A.A.)

**Purpose**
In addition to developing their creative abilities, students gain experiences with the tools and processes associated with various visual arts media and learn about the exhibition and marketing of artwork.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

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**Program Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td><strong>1st Semester</strong></td>
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</tr>
<tr>
<td>ART 101 History and Appreciation of Art I</td>
<td>3</td>
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<tr>
<td>ART 111 Introduction to the Arts I</td>
<td>3</td>
<td>ART 112</td>
</tr>
<tr>
<td>ART 121 Drawing I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ART 131 Fundamentals of Design I</td>
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<td></td>
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<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
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<tr>
<td>SDV 100 College Success Skills</td>
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</table>

**Total Credits**
16

| **2nd Semester** | | |
| ART 102 History and Appreciation of Art II | 3 | |
| ART 122 Drawing II | 3 | |
| ART 132 Fundamentals of Design II | 3 | |
| ART 133 Visual Arts Foundation | 4 | |
| General Elective | 3 | |
| Health or Physical Education Elective | 2 | |

**Total Credits**
18

| **3rd Semester** | | |
| ENG 112 College Composition II | 3 | |
| ITE 115 Introduction to Computer Applications and Concepts | 3 | See Note 3. |
| Art Elective | 3 | See Note 4. |
| Art Elective | 3 | See Note 4. |
| Photography Elective | 3 | |

**Total Credits**
15

| **4th Semester** | | |
| CST 100 Introduction to Public Speaking | 3 | |
| Art Elective | 3 | See Note 4. |
| Art Elective | 3 | See Note 4. |
| General Elective | 3 | |
| Mathematics/Science Elective | 3 | See Note 2. |
| Social Science Elective | 3 | See Note 1. |

**Total Credits**
18

**Total Credits For Program**
67

**Notes and Additional Curriculum Options**
1. The social/behavioral sciences elective requirement can be satisfied by courses with the following prefixes: GEO, HIS, PLS, PSY and SOC.
2. The mathematics/science elective requirement can be satisfied by courses with the following prefixes: BIO, CHM, GOL, MTH, NAS and PHY.
3. Students with good computer skills may seek to satisfy this requirement by CLEP.
4. Acceptable art electives include the following: ART 138, ART 153, ART 154, ART 217, ART 218, ART 231, ART 232, ART 241, ART 242, ART 243, ART 244, ART 245, ART 246, ART 248, ART 249, ART 259, ART 287, ART 298. Students should consult with their academic advisor about other options.
5. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Arts, Humanities and Social Sciences: 804-706-5086 (Chester) or 804-594-1509 (Midlothian).
Visual Arts, Photography and Film Specialization

Associate of Applied Arts (A.A.A.)

### Purpose
For students who intend to pursue careers in photography and/or film production. Program coursework provides a foundation for the fine and applied arts and allows students to learn techniques specific to darkroom photography, digital photography and digital filmmaking. Students are required to prepare portfolios of their work.

### Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

### Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td><strong>1st Semester</strong></td>
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<tr>
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<td>ART 111 Introduction to the Arts I</td>
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<tr>
<td>ART 121 Drawing I</td>
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<td>ART 131 Fundamentals of Design I</td>
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<tr>
<td>ENG 111 College Composition I</td>
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<tr>
<td>SDV 100 College Success Skills</td>
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<tr>
<td><strong>2nd Semester</strong></td>
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<td></td>
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<tr>
<td>ART 102 History and Appreciation of Art II</td>
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<tr>
<td>ART 132 Fundamentals of Design II</td>
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<tr>
<td>ART 133 Visual Arts Foundation</td>
<td>4</td>
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<tr>
<td>PHT 105 Basic Photography</td>
<td>3</td>
<td>PHT 101, PHT 130 for film majors</td>
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<td>General Elective</td>
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</tr>
<tr>
<td><strong>3rd Semester</strong></td>
<td></td>
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</tr>
<tr>
<td>CST 100 Introduction to Public Speaking</td>
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<td>See Note 1.</td>
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<tr>
<td>ENG 112 College Composition II</td>
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<tr>
<td>ITE 115 Introduction to Computer</td>
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<td>See Note 4.</td>
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<tr>
<td>Applications and Concepts</td>
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<td>PHT 164 Digital Photography I</td>
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<td>PHT 131 for film majors</td>
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<td>Health or Physical Education Elective</td>
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<td>Photography or Film Elective</td>
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<tr>
<td><strong>4th Semester</strong></td>
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<tr>
<td>ART 287 Portfolio and Resume Preparation</td>
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<td>PHT 110 History of Photography</td>
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<td>ART 150 for film majors</td>
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<td>Mathematics/Science Elective</td>
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<td>PHT 264 Digital Photography II</td>
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<td>PHT 135 or Film Elective</td>
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<td>Photography or Film Elective</td>
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<td><strong>Total Credits</strong></td>
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</table>

**Total Credits For Program**  **65**

### Notes and Additional Curriculum Options
1. Film majors should take CST 131, CST 136, CST 140 or other courses related to performance or production in lieu of CST 100. Students should consult with their faculty advisors.
2. The social/behavioral science elective requirement can be satisfied by courses with the following prefixes: ECO, GEO, HIS, PLS, PSY and SOC.
3. The mathematic/science elective requirement can be satisfied by courses with the following prefixes: BIO, CHM, GOL, MTH, NAS and PHY.
4. Students with good computer skills may seek to satisfy this requirement by CLEP.
5. The photography or film elective requirements can be satisfied with PHT courses and any ART and CST courses related to acting, production, or animation. Students should consult with their faculty advisors.
6. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Arts, Humanities and Social Sciences: 804-706-5086 (Chester) or 804-594-1509 (Midlothian).
### Purpose
For students who intend to pursue careers in graphic design. Program coursework allows students to learn techniques specific to computer-generated design and imagery and explore all stages of publication, from creative inception to pre-press. Students are required to prepare portfolios of their work.

### Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

### Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Options</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>1st Semester</strong></td>
<td>ART 101 History and Appreciation of Art I</td>
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<td>ART 111 Introduction to the Arts I</td>
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<td>ART 121 Drawing I</td>
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<tr>
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<td>ART 102 History and Appreciation of Art II</td>
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<td>ART 122 Drawing II</td>
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<td>ART 132 Fundamentals of Design II</td>
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<td>ART 133 Visual Arts Foundation</td>
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<td></td>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
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<td><strong>3rd Semester</strong></td>
<td>ART 217 Electronic Graphic Design I</td>
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<td>ART 250 History of Design</td>
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<td>ART 291 Computerized Graphic Design I</td>
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<td>ENG 112 College Composition II</td>
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<td>Photography Elective</td>
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<tr>
<td><strong>4th Semester</strong></td>
<td>ART 218 Electronic Graphic Design II</td>
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**Total Credits For Program**: **68**

### Notes and Additional Curriculum Options
1. The social/behavioral sciences elective requirement can be satisfied by courses with the following prefixes: ECO, GEO, HIS, PLS, PSY and SOC.
2. The mathematics/science elective requirement can be satisfied by courses with the following prefixes: BIO, CHM, GOL, MTH, NAS and PHY.
3. Student with good computer skills may seek to satisfy this requirement by CLEP.
4. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Arts, Humanities and Social Sciences: 804-706-5086 (Chester) or 804-594-1509 (Midlothian).
Applied Science Degrees

This section provides a listing of John Tyler Community College’s applied science degree programs. The College’s programs are subject to change. For an updated list, please visit the College’s web site at www.jtcc.edu/academics.
Accounting
Associate of Applied Science (A.A.S.)

Purpose
This program is designed both for students seeking first-time employment in the accounting field and for those already working in accounting, to provide opportunities to develop and improve skills necessary for advancement. Included in the program are activities that enhance analytical, technical, communication, leadership and human-relations skills. Graduates will be able to: (1) use all the steps of the accounting cycle for various business entities, including sole proprietorships, partnerships and corporations; (2) analyze and interpret financial statements; (3) use accounting computer software to maintain accounting records and to prepare financial statements; (4) prepare the Federal Tax Form 1040 and supporting schedules to include Schedule C for sole proprietorships and Schedule SE for self-employment tax and to research basic tax questions; and (5) apply theory in the practice of job-order and standard cost-accounting systems.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

1st Semester

<table>
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<tr>
<th>Course Options</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ACC 211 Principles of Accounting I</td>
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<tr>
<td>BUS 100 Introduction to Business</td>
<td>3</td>
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<tr>
<td>ENG 111 College Composition I</td>
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<tr>
<td>MTH 120 Introduction to Mathematics</td>
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<td>PSY 126 Psychology for Business and Industry</td>
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<td>SDV 100 College Success Skills</td>
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2nd Semester

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<th>Course Options</th>
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<tbody>
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<td>ACC 212 Principles of Accounting II</td>
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<tr>
<td>BUS 125 Applied Business Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>BUS 200 Principles of Management</td>
<td>3</td>
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<td>ECO 120 Survey of Economics</td>
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<td>Health or Physical Education Elective</td>
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<td>Philosophy or Religion Elective</td>
<td>3</td>
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3rd Semester

<table>
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<tbody>
<tr>
<td>ACC 221 Intermediate Accounting I</td>
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<td>ACC 231 Cost Accounting I</td>
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</tr>
<tr>
<td>BUS 220 Introduction to Business Statistics</td>
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</tr>
<tr>
<td>BUS 241 Business Law I</td>
<td>3</td>
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<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
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4th Semester

<table>
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<th>Course Options</th>
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<tr>
<td>ACC 215 Computerized Accounting</td>
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<td>ACC 222 Intermediate Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>ACC 261 Principles of Federal Taxation I</td>
<td>3</td>
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<tr>
<td>AST 205 Business Communications</td>
<td>3</td>
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<td>CST 100 Principles of Public Speaking</td>
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<td><strong>Total Credits</strong></td>
<td><strong>16</strong></td>
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</table>

**Total Credits For Program** 65

Notes and Additional Curriculum Options
1. The philosophy or religion elective requirement can be satisfied by courses with a PHI or REL prefix.
2. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Architectural Engineering Technology
Associate in Applied Science (A.A.S.)

Purpose
Building design and land development require a large number of professionals with a wide range of skills. This program prepares students for many of these careers, including architectural drafter, engineering drafter, computer-aided drafter, civil or surveying drafter, architectural engineering technologist, design assistant, specifications assistant and field inspector / contract administrator. Graduates will be able to: (1) using computer-aide drafting, produce a representative set of accurate working drawings for a house and a small commercial building; (2) apply principles of mechanical and electrical systems to the design of a building; (3) apply principles of mechanics to the design of building elements; (4) perform tests on materials such as concrete, metals and wood; (5) perform basic surveying operations; (6) write technical computer programs; (7) apply principles of sustainable design to buildings; (8) evaluate a building design using building codes and zoning regulations; and (9) use communication skills effectively in the work environment.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on College placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>ARC 121 Architectural Drafting I</td>
<td>3</td>
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<tr>
<td>ARC 221 Architectural CAD Applications Software I</td>
<td>3</td>
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</tr>
<tr>
<td>ARC 258 Building Codes, Contract Documents and Professional Office Practices</td>
<td>3</td>
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<td>ENG 111 College Composition I</td>
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<td>MTH 163 Precalculus I</td>
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<td>MTH 173</td>
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<td>SDV 100 College Success Skills</td>
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<thead>
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<td>ARC 122 Architectural Drafting II</td>
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<td>ARC 243 Environmental Systems</td>
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<td>CST 100 Principles of Public Speaking</td>
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<td>MEC 270 Computations for Engineering Technology</td>
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<td>MTH 164 Precalculus II</td>
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<td>MTH 174</td>
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<th>3rd Semester</th>
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<tbody>
<tr>
<td>ARC 231 Advanced Architectural Drafting I</td>
<td>4</td>
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<td>ARC 246 Materials and Methods of Construction</td>
<td>4</td>
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<tr>
<td>CIV 171 Surveying I</td>
<td>3</td>
<td>GIS 101</td>
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<tr>
<td>MEC 131 Mechanics I – Statics for Engineering Technology</td>
<td>3</td>
<td>EGR 140</td>
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<td>Physical Sciences Elective</td>
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<tr>
<td>ARC 232 Advanced Architectural Drafting II</td>
<td>4</td>
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<tr>
<td>General Elective</td>
<td>3</td>
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<tr>
<td>Health/Physical Education Elective</td>
<td>2</td>
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<tr>
<td>Humanities Elective</td>
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<tr>
<td>Social Science Electives</td>
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</tbody>
</table>

**Total Credits For Program** | 65      |

Notes and Additional Curriculum Options
1. Transfer to Four-Year Colleges and Universities - Students should consult their academic advisors and their intended transfer institutions for specific direction in course selection. Required courses for any major at four-year institutions may vary.
2. The humanities elective requirement can be satisfied by completing literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech courses addressing performing arts and the history of theater (CST), and religion (REL). ENG 112, CST 100, CST 105, and CST 115 may not be used to satisfy the humanities elective requirements.
3. The physical science elective requirement can be satisfied by courses with the following prefixes: CHM and PHY.
4. The social science elective requirement can be satisfied by courses with the following prefixes: ECO, GEO, HIS, PLS, PSY and SOC.
5. The general elective requirement can be satisfied by one of the following courses: ARC 222, MEC 132 or MUS 121.
6. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121(Chester) or 804-594-1480 (Midlothian).
Business Management
Associate of Applied Science (A.A.S.)

Purpose
All organizations require individuals who possess good managerial skills. This program provides students with opportunities to develop and improve skills necessary for success as a supervisor or manager. Included in the program are activities that enhance analytical, technical, communication, leadership and human relations skills. Graduates will be able to: (1) communicate effectively in business environments, using common terminology; (2) analyze and resolve problems common to entry-level business positions; (3) utilize basic management principles in first-line supervisory situations; (4) analyze a managerial situation to determine fact from opinion; (5) analyze a business situation financially, organizationally and behaviorally; (6) utilize good human-relations skills in a managerial role; and (7) apply computer skills to the solution of management-related problems.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

1st Semester
- ACC 211 Principles of Accounting I 3
- BUS 100 Introduction to Business 3
- ENG 111 College Composition I 3
- ITE 115 Introduction to Computer Applications and Concepts 3
- MTH 120 Introduction to Mathematics 3
- Total Credits 16
- SDV 100 College Success Skills 1

2nd Semester
- ACC 212 Principles of Accounting II 3
- BUS 125 Applied Business Mathematics 3
- BUS 200 Principles of Management 3
- ECO 120 Survey of Economics 3
- Health/Physical Education Elective 2
- Philosophy or Religion Elective 3
- Total Credits 17

3rd Semester
- BUS 220 Introduction to Business Statistics 3
- BUS 241 Business Law I 3
- CST 100 Principles of Public Speaking 3
- FIN 215 Financial Management 3
- PSY 126 Psychology for Business and Industry 3
- Business Elective 3
- Total Credits 18

4th Semester
- AST 205 Business Communications 3
- BUS 205 Human Resource Management 3
- BUS 266 Production and Operations Management 3
- BUS 298 Seminar and Project 3
- MKT 100 Principles of Marketing 3
- Information Technology Restricted Elective 3
- Total Credits 18

Total Credits For Program 69

Notes and Additional Curriculum Options
1. The business elective requirement may be satisfied by taking a total of three credits in courses with any of the following prefixes: ACC, AST, BUS, IT, FIN, MKT or REA.
2. The philosophy or religion elective requirement can be satisfied by courses with a PHI or REL prefix.
3. The ITE restricted elective requirement can be satisfied by ITE 130, ITE 140, ITE 150 or ITE 215.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Early Childhood Development
Associate of Applied Science (A.A.S.)

**Purpose**
This program provides students with opportunities to develop and improve skills necessary to work with children from birth to age 12 in a variety of early childhood settings, including public schools, child-care centers, Head Start, home-visitor and preschool programs, and as family childcare providers and nannies. The curriculum has been established to provide competence in areas documented by Virginia’s Competencies for Early Childhood Professionals: health, safety and nutrition, understanding child growth and development, appropriate child observation and assessment, partnering with families and community, learning environment, effective interactions, program management, teacher qualifications and professional development. Graduates will be able to: (1) use professional terminology for effective communication; (2) plan and implement instruction; (3) analyze and resolve problems; (4) use good human relations skills; (5) apply basic child/classroom observation skills; (6) locate, compile and analyze appropriate resources, activities and materials; (7) determine and use appropriate actions according to regulations; and (8) apply appropriate computer skills.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum. Students are expected to demonstrate or acquire basic computer literacy. Students entering the public or private sectors of early childhood may be subject to criminal background and sex offender registry checks and a TB screening as a condition of their placement in a training practicum site. Students will be expected to cover any and all costs incurred for these procedures. This may also be required as a condition of employment.

**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHD 119 Introduction to Reading Methods</td>
<td>3</td>
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<tr>
<td>CHD 120 Introduction to Early Childhood Education</td>
<td>3</td>
<td></td>
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<tr>
<td>CHD 145 Methods and Materials for Teaching Art, Music and Movement to Children</td>
<td>3</td>
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<tr>
<td>ENG 111 College Composition I</td>
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<tr>
<td>HLT 106 First Aid and Safety</td>
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<tr>
<td>SDV 100 College Success Skills</td>
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<th>2nd Semester</th>
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<tr>
<td>CHD 118 Methods and Materials in the Language Arts for Children</td>
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<tr>
<td>CHD 146 Methods and Materials for Teaching Math, Science and Social Studies to Children</td>
<td>3</td>
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<tr>
<td>CHD 205 Guiding the Behavior of Children</td>
<td>3</td>
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<tr>
<td>CHD 215 Models of Early Childhood Education Programs</td>
<td>3</td>
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<td>CHD 216 Early Childhood Programs, School, and Social Change</td>
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<td>ENG 112 College Composition II</td>
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<th>3rd Semester</th>
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<tbody>
<tr>
<td>CHD 165 Observation and Participation in Early Childhood/Primary Settings</td>
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<tr>
<td>CHD 210 Introduction to Exceptional Children</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHD 270 Administration of Childcare Programs</td>
<td>3</td>
<td></td>
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<tr>
<td>EDU 235 Health, Safety, and Nutrition Education</td>
<td>3</td>
<td></td>
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<tr>
<td>MTH 120 Introduction to Mathematics</td>
<td>3</td>
<td></td>
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<tr>
<td>PSY 235 Child Psychology</td>
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<th>4th Semester</th>
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<tr>
<td>CHD 166 Infant and Toddler Programs</td>
<td>3</td>
<td></td>
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<tr>
<td>CHD 190 Coordinated Practice I</td>
<td>3</td>
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<tr>
<td>CHD 265 Advanced Observation and Participation in Early Childhood/Primary Settings</td>
<td>3</td>
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<tr>
<td>CHD 298 Seminar Portfolio Development</td>
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<td>CST 110 Introduction to Communication</td>
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<tr>
<td>SOC 215 Sociology of the Family</td>
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<td><strong>Total Credits</strong></td>
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</table>

| **Total Credits For Program** | **67** |

**Notes and Additional Curriculum Options**
1. CHD 165 and CHD 265 are observation and participation classes that require students to observe children in settings approved by the program head.
2. CHD 165 must be taken before CHD 265 and CHD 298 because materials developed in CHD 165 are used in CHD 265 and CHD 298.
3. CHD 298 must be taken in conjunction with CHD 265.
4. Students who have current certifications in First Aid and Safety and CPR (child or adult) can use these to fulfill the two-credit HLT 106 requirement. The original cards must be presented to the Admissions and Records office. No online First Aid/CPR cards will be accepted for credit at JTCC.

5. Students entering the public or private sectors of early childhood education will be subjected to criminal background and sex offender registry checks, as well as TB screening as a condition of their placement in a training/practicum site. Students will be expected to cover any costs incurred for these procedures. These tests will be required as a condition of employment.

6. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Early Childhood Development, Teacher Assistant Specialization

Associate of Applied Science (A.A.S.)

**Purpose**
Most schools have a variety of teacher assistant positions available. One of the ways to meet the requirements of the No Child Left Behind legislation is for the teacher assistants to have an associate degree, and this specialization will meet that requirement. Graduates will be able to (1) use professional terminology for effective communication; (2) instruct small groups and individual students in a classroom while supervised by a certified teacher; (3) help students with developmental skills in the classroom; (4) implement planned lessons; (5) use good human relations skills; (6) apply appropriate computer skills; (7) analyze and resolve problems; (8) apply basic child/classroom observation skills; and (9) locate, compile and analyze appropriate resources, activities and materials.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

<table>
<thead>
<tr>
<th>Program Curriculum</th>
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</thead>
<tbody>
<tr>
<td><strong>1st Semester</strong></td>
</tr>
<tr>
<td>CHD 120 Introduction to Early Childhood Education</td>
</tr>
<tr>
<td>CHD 145 Methods and Materials for Teaching Art, Music and Movement to Children</td>
</tr>
<tr>
<td>CHD 190 Coordinated Practice I</td>
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<tr>
<td>ENG 111 College Composition I</td>
</tr>
<tr>
<td>HLT 106 First Aid and Safety</td>
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<tr>
<td>SDV 101 Orientation to Education</td>
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<th><strong>2nd Semester</strong></th>
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<tr>
<td>CHD 146 Methods and Materials for Teaching Math, Science and Social Studies</td>
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<td>CHD 205 Guiding the Behavior of Children</td>
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<td>CHD 210 Introduction to Exceptional Children</td>
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<tr>
<td>CHD 216 Early Childhood Programs, School, and Social Change</td>
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<td>ENG 112 College Composition II</td>
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<td>ITE 115</td>
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<td>ITE 295 Computers for Educators</td>
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<tbody>
<tr>
<td>CHD 119 Introduction to Reading Methods</td>
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<td>CHD 165 Observation and Participation in Early Childhood/Primary Settings</td>
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<tr>
<td>EDU 200 Introduction to Teaching as a Profession</td>
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<tr>
<td>MTH 170 Fundamentals Contemporary Math</td>
<td>3</td>
<td>MTH 163</td>
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<tr>
<td>MUS 121 Music Appreciation I</td>
<td>3</td>
<td>ART 101, ART 102, HUM 201, HUM 202, PHI 101, PHI 102, PHI 111, REL 230, REL 231, REL 232, PSY 230</td>
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<td>PSY 235 Child Psychology</td>
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<th><strong>4th Semester</strong></th>
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<tr>
<td>CHD 265 Advanced Observation and Participation In Early Childhood/Primary Settings</td>
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<td>CHD 298 Seminar and Portfolio Development</td>
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<tr>
<td>CST 100 Principles of Public Speaking</td>
<td>3</td>
<td>CST 110</td>
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<tr>
<td>EDU 235 Health, Safety and Nutrition Education</td>
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<td>SOC 215 Sociology of the Family</td>
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<td>PSY 200, SOC 200</td>
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**Total Credits For Program** 66

continued
Notes and Additional Curriculum Options
1. Coordinated Practice I and Introduction to Teaching as a Profession are courses that require placement in approved activities by the program head.
2. Part-time students should consult their faculty advisors regarding appropriate course sequences.
3. CHD 298 must be taken in conjunction with CHD 265.
4. Students who have current certifications in First Aid and Safety and CPR (Child or Adult) can use these to fulfill the two-credit HLT 106 requirement. The original cards must be presented to the Admissions and Records office.
   No online First Aid/CPR cards will be accepted for credit at JTCC.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Program Aims and Objectives

The funeral services program is designed to provide the necessary technical skills, academic background, hands-on experience, and professional attitudes that will help the student become a fully-licensed funeral director and embalmer. The funeral services program aims to help graduates recognize their importance as members of the funeral services profession. Students will recognize their importance and responsibilities as health care professionals and as community members and be compliant with federal, state and local regulations as they pertain to the practice of funeral services. Students also will understand the importance of trust and ethical behavior in their relationships with bereaved families and members of the funeral service profession who they are called upon to serve. A degree from John Tyler Community College fulfills the educational requirements of the Commonwealth of Virginia and most states to receive a funeral service license, funeral director’s license or embalmer’s license.

Graduates of the funeral services program will be able to:
1. Perform technical skills such as embalming with minimum supervision.
2. Implement and direct all aspects of funeral arrangements with minimum supervision.
3. Demonstrate an understanding of how to write a pre-need contract.
4. Set-up and maintain an OSHA approved preparation room.
5. Follow all regulations pertaining to funeral services including Regulations of the Commonwealth of Virginia and the Federal Trade Commission.
6. Understand the impact of modern day funeral service practitioners.
7. Understand all aspects of funeral services including preparation, restorative arts, cremation, at-need arrangements, pre-need arrangements and providing funeral services.
8. Understand the importance of the history of funeral services and the impact on modern society with encouragement to conduct research along with faculty.
9. Understand the high standards of ethical conduct as set forth by the funeral services industry.

Program Curriculum

1st Semester

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>CHM 110 Survey of Chemistry</td>
<td>3</td>
<td>CHM 101, CHM 111</td>
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<tr>
<td>CST 100 Principles of Public Speaking</td>
<td>3</td>
<td>CST 110, 115</td>
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<td>ENG 111 College Composition I</td>
<td>3</td>
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<tr>
<td>FNS 121 Anatomy for Funeral Services I</td>
<td>3</td>
<td>BIO 141, BIO 142, NAS 161, NAS 162</td>
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<tr>
<td>HLT 141 Introduction to Medical Terminology</td>
<td>2</td>
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</tr>
<tr>
<td>PSY 116 Psychology of Death and Dying</td>
<td>3</td>
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<tr>
<td>SDV 100 College Success Skills</td>
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<tr>
<td><strong>Total Credits</strong></td>
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2nd Semester

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ACC 211 Principles of Accounting I</td>
<td>3</td>
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<tr>
<td>BUS 241 Business Law I</td>
<td>3</td>
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<tr>
<td>FNS 110 Introduction to Funeral Service</td>
<td>3</td>
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<tr>
<td>REL 230 Religions of the World</td>
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<td>SOC 200 Principles of Sociology</td>
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<td>Information Systems Technology Elective</td>
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3rd Semester

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>FNS 111 Theory of Embalming I</td>
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<tr>
<td>FNS 113 Theory of Embalming Laboratory I</td>
<td>1</td>
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<tr>
<td>FNS 125 Microbiology for Funeral Service</td>
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<td>BIO 150, BIO 205</td>
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<td>FNS 126 Pathology for Funeral Service</td>
<td>3</td>
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<td>FNS 213 Restorative Art</td>
<td>3</td>
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<td>FNS 231 Principles of Funeral Management I</td>
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4th Semester

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<tr>
<td>FNS 112 Theory of Embalming II</td>
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<td>FNS 114 Theory of Embalming Laboratory II</td>
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<tr>
<td>FNS 214 Restorative Art Technical Applications</td>
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<td>FNS 232 Principles of Funeral Management II</td>
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<td>FNS 236 Funeral Service Law</td>
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<td>FNS 245 Ethics</td>
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<td>FNS 270 Funeral Service Review</td>
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</table>

**Total Credits For Program** 68

NOTES AND ADDITIONAL CURRICULUM OPTIONS

1. The funeral services program at John Tyler Community College is accredited by the American Board of Funeral Service Education (ABFSE), 3414 Ashland Avenue, Suite G, St. Joseph, MO, 64506, 816-233-3747; Web www.abfse.org and is approved by the State Board of Funeral Directors and Embalmers. The program also is a member of the National Association of Colleges of Mortuary Science.
2. In order to receive the Funeral Service license in the Commonwealth of Virginia, an individual must: (1) complete an accredited program of mortuary science or funeral services; (2) pass the National Board Examination for funeral services as administered by the International Conference of Funeral Service Examiners with a minimum score of 75. (Students in the funeral services program at John Tyler Community College are required to take the exam prior to graduation,); (3) complete a 3000-hour resident traineeship with a licensed funeral services provider in the Commonwealth of Virginia as prescribed by the Regulations of the Board of Funeral Directors and
**Admission Requirements and Special Conditions**

1. Be 18 years of age or older.
2. Hold a high school diploma or GED (transcripts must have been received by John Tyler Community College).
3. Complete all developmental English and mathematics courses.
4. Complete the prerequisite courses ACC 211, FNS 121 and CHM 110 with a grade of “C” or better.
5. Complete CST 100, ENG 111, REL 230, SDV 100, BUS 241, SOC 200, ITE elective and HLT 141 unless prior approval is given by funeral services program head.
6. Students must apply separately for admission to the funeral services program. Application deadlines for admission: August 1 for the Fall semester, December 1 for the Spring semester, May 1 for the Summer semester.
7. All applicants must have at least 2.5 cumulative GPA in order to be eligible for admission.
8. All official transcripts from any other colleges attended must be received by the registrar prior to admission.
9. Students must maintain a minimum cumulative grade point average of 2.0 to remain eligible for continued enrollment in the funeral services program.
10. Students who fail to receive a minimum grade of “C” in any 2 FNS prefix classes will automatically be removed from the funeral services program.
11. Students may apply for readmission to the program.
12. All funeral services classes taken previously at John Tyler Community College or any other accredited college of funeral services must have been completed within 5 years of application to the funeral services program.
13. Students must complete the funeral services program within 8 semesters (including summer semesters) of initial admission into the funeral services program.
14. All students must provide documentation of completion of the Hepatitis-B vaccination series (or be in process of completing it) prior to beginning FNS 113, FNS 114 or FNS 214. Students who do not wish to receive the Hepatitis-B vaccination must sign a declination statement.
15. All developmental courses must be completed prior to a student being placed into the funeral services program.

For additional information on this program, you may log on to our web site at www.jtcc.edu/funeralservices or contact Rhonda K. Pleasants, associate professor, at 804-706-5118 or the Division of Health Sciences at 804-768-6611 (Chester).
Purpose
Human Services is a rapidly growing career area with a broad range of applications. Graduates will be able to work in the fields of social services, substance abuse, mental retardation, physical disabilities and gerontology. Students will function effectively in a variety of therapeutic and rehabilitative activities.

Admission Requirements and Special Conditions
A high school diploma or equivalent and satisfactory scores on College placement tests (or equivalent) in English is required. If students have deficiencies in English, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>1st Semester</td>
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<td>ENG 111 College Composition I 3</td>
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<tr>
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<td>HMS 100 Introduction to Human Services 3</td>
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<td>SDV 100 College Success Skills 1</td>
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<td>SOC 200 Principles of Sociology 3</td>
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<td>MEN 101 Mental Health Skill Training I 3 PSY 100, PSY 200/203</td>
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<td>HMS 251 Substance Abuse I 3 HMS 258</td>
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<td></td>
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<td>MEN 102 Mental Health Skill Training II 3 MEN 198</td>
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<td>MEN 190 Coordinated Practice 3 MEN 290</td>
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<td>MEN 196 On-Site Training 3 MEN 296</td>
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SUGGESTED COURSES FOR FIELDS OF INTEREST (TRACK)

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<thead>
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<td>3 HMS 258</td>
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<td>MEN 121</td>
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</table>
1. Students must obtain a grade of “C” or better in the human services sequence courses (HMS 100, MEN 101, and MEN 102) in order to remain in the program.
2. Students must complete all developmental coursework before enrolling in HMS 100.
3. Students must complete HMS 100 prior to enrolling in MEN 101.
4. Students must complete MEN 101 prior to enrolling in MEN 102.
5. MEN 102 must be taken prior to enrolling in MEN 290 and 296. MEN 290 and 296 are corequisites and must be taken in the same semester. In these courses, students will complete 100 hours of practical hands-on training. All coordinated-practice placements must be pre-approved by the program head.
6. Students should consult with their academic advisor for appropriate mathematics, psychology and general elective courses.
7. The humanities elective requirement can be satisfied by completing literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech courses addressing performing arts and the history of theatre (CST), or religion (REL) courses. ENG 112, CST 100, CST 105, and CST 115 may not be used to satisfy humanities elective requirements.
8. Students who have current certifications in First Aid and Safety and CPR (Child or Adult) can use these to fulfill the two credit HLT/PE elective requirement. The original cards must be presented to the faculty advisor.
9. Students planning to transfer to four-year programs should choose options and substitutions with the assistance of the program head.
10. Part-time students should consult their faculty advisors regarding appropriate course sequences.
11. Students entering the public or private sectors of Human Services may be subjected to criminal background and sex offender registry checks and a TB screening as a condition of their placement in a training/practicum site. Students will be expected to cover any costs incurred for these procedures. This may also be required as a condition of employment.

For additional information on this program, please contact the Division of Health Sciences: 804-768-6611 (Chester).
Information Technology
Associate of Applied Science (A.A.S.)

Purpose
The information technology (IT) degree is designed to meet the rapidly changing workforce needs of business and industry. The curriculum has been designed to prepare students for employment in the business information and computer technology fields. The curriculum allows students to gain an overall understanding of the IT field in addition to pursuing a particular track, which represents an area of interest or specialization. The four tracks are: Cisco network, computer applications, network support and program development.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum. Keyboarding skills are recommended.

Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Options</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>1st Semester</td>
<td>CST 110 Introduction to Communication</td>
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<tr>
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<td>ENG 115 Technical Writing</td>
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</tr>
<tr>
<td></td>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
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</tr>
<tr>
<td></td>
<td>ITE 130 Introduction to Internet Services</td>
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<tr>
<td></td>
<td>MTH 170 Foundations of Contemporary Mathematics I</td>
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<td>SDV 100 College Success Skills</td>
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<td></td>
<td>Health/Physical Education Elective</td>
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2nd Semester

<table>
<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BUS 100 Introduction to Business</td>
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</tr>
<tr>
<td>ITE 215 Advanced Computer Applications &amp; Integration</td>
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</tr>
<tr>
<td>ITN 101 Introduction to Network Concepts</td>
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</tr>
<tr>
<td>ITP 100 Software Design</td>
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<tr>
<td>IT Track Courses</td>
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<td>Total Credits</td>
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3rd Semester

<table>
<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ACC 211 Principles of Accounting I</td>
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</tr>
<tr>
<td>ECO 120 Survey of Economics</td>
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</tr>
<tr>
<td>ITP 251 Systems Analysis and Design</td>
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</tr>
<tr>
<td>PSY 126 Psychology for Business and Industry</td>
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<tr>
<td>IT Track Courses</td>
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4th Semester

<table>
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<tbody>
<tr>
<td>ACC 212 Principles of Accounting II</td>
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<tr>
<td>BUS 220 Introduction to Business Statistics</td>
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</tr>
<tr>
<td>ITE 221 PC Hardware and OS Architecture</td>
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<tr>
<td>ITE 290 Coordinated Internship</td>
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<td>IT Track Courses</td>
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<tr>
<td>Total Credits</td>
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</tbody>
</table>

Total Credits For Program | **67**

Notes and Additional Curriculum Options
1. ITE 290 represents a one-credit internship that will focus on student’s particular track.
2. All information technology courses must be completed within five years of student’s intended graduation date.
3. Students should consult their faculty advisors regarding appropriate course sequences.
4. Prerequisite requirement(s) must be met for all classes.
5. IT required track courses:

- Cisco Network
  - ITN 154 Networking Fundamentals - Cisco 4
  - ITN 155 Introductory Routing - Cisco 3
  - ITN 156 Basic Switching and Routing - Cisco 3
  - ITN 157 WAN Technologies - Cisco 3
  - ITP Elective Track Course (ITP 110, ITP 120, OR ITP 160)3
  - Total 16

continued
### Computer Applications
- ITD 110 Web Page Design I 3
- ITD 130 Database Fundamentals 3
- ITD 132 Structured Query Language 3
- ITD 210 Web Page Design II 3
- ITE Elective Track Course (ITE 140 OR ITE 150) 3
**Total** 15

### Network Support
- ITN 171 Unix I 3
- ITN 111 Server Administration Windows 2008 3
- ITN 245 Network Troubleshooting 3
- ITN 260 Network Security Basics 3
- ITP Elective Track Course (ITP 110, ITP 120, OR ITP 160) 3
**Total** 15

### Program Development
- ITP 110 Visual Basic Programming I 3
- ITP 120 Java Programming I 3
- ITP 210 Visual Basic Programming II OR 3
- ITP 220 Java Programming II 3
- ITP 160 Introduction to Game Design and Development 3
- ITN Elective Track Course (ITN 171, ITN 111, OR ITN 154) 4
**Total** 16

For additional information on this program, please contact the Division of Engineering, Business and Public Service: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
# Mechanical Engineering Technology

## Associate of Applied Science (A.A.S.)

### Purpose

This program prepares students to work as technicians in the field of mechanical-electrical manufacturing. Graduates will be able to specify maintenance processes, solve problems in fabrication, and troubleshoot mechanical processes.

### Admission Requirements and Special Conditions

A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

### Program Curriculum

#### 1st Semester

<table>
<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CAD 151 Engineering Drawing Fundamentals I</td>
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</tr>
<tr>
<td>ELE 150 A.C. and D.C. Circuit Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
</tr>
<tr>
<td>MEC 113 Materials and Processes of Industry</td>
<td>3</td>
</tr>
<tr>
<td>MTH 103 Applied Technical Mathematics I</td>
<td>3</td>
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<tr>
<td>SDV 100 College Success Skills</td>
<td>1</td>
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<td><strong>Total Credits</strong></td>
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#### 2nd Semester

<table>
<thead>
<tr>
<th>Course Options</th>
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<td>ELE 159 Electrical Motors</td>
<td>3</td>
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<tr>
<td>MEC 101 Introduction to Engineering Technology I</td>
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<tr>
<td>MEC 102 Introduction to Engineering Technology II</td>
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<tr>
<td>MTH 104 Applied Technical Mathematics II</td>
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#### 3rd Semester

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<td>ENG 111 College Composition I</td>
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<td>MEC 131 Mechanics I – Statics for Engineering Technology</td>
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#### 4th Semester

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<td>MEC 132 Mechanics II – Strength of Materials for Engineering Technology</td>
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<td>MEC 212 Machine Design II</td>
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<td>MEC 266 Applications of Fluid Mechanics</td>
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<tr>
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**Total Credits For Program** 67

### Notes and Additional Curriculum Options

1. The social science elective requirement can be satisfied by courses with the following prefixes: ECO, GEO, HIS, PLS, PSY and SOC.
2. The humanities elective requirement can be satisfied by completing a literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech course addressing performing arts and the history of theatre (CST), or religion (REL) course. ENG 112, CST 100, CST 105 and CST 115 may not be used to satisfy humanities elective requirements.

For additional information on specific program objectives, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Mechanical Engineering Technology, Mechatronics Technician Specialization

Associate of Applied Science (A.A.S.)

Purpose
This program prepares students to work as technicians in the field of mechanical-electrical manufacturing. Graduates will be able to specify maintenance processes, solve problems in fabrication, and troubleshoot mechanical processes.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

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<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>CAD 151 Engineering Drawing Fundamentals I</td>
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<td>CAD 201</td>
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<td>ELE 150 A.C. and D.C. Circuit Fundamentals</td>
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<td>MEC 113 Materials and Processes of Industry</td>
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<tr>
<td>MTH 103 Applied Technical Mathematics I</td>
<td>3</td>
<td>MTH 163</td>
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<td>ITE 115 Introduction to Computer Applications and Concepts</td>
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<tr>
<td>MEC 101 Introduction to Engineering Technology I</td>
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<tr>
<td>MEC 102 Introduction to Engineering Technology II</td>
<td>2</td>
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<tr>
<td>MTH 104 Applied Technical Mathematics II</td>
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<td>MTH 164</td>
</tr>
<tr>
<td>Health/Physical Education Elective</td>
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<table>
<thead>
<tr>
<th>3rd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>CAD 241 Parametric Solid Modeling I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ELE 239 Programmable Controllers</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MEC 140 Introduction to Mechatronics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MEC 211 Machine Design I</td>
<td>4</td>
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<tbody>
<tr>
<td>ELE 240 Advanced Programmable Logic Controllers</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MEC 212 Machine Design II</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MEC 266 Applications of Fluid Mechanics</td>
<td>3</td>
<td></td>
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<tr>
<td>MEC 270 Computations for Engineering Technology</td>
<td>3</td>
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<td>Humanities Elective</td>
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<td><strong>Total Credits</strong></td>
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</tr>
</tbody>
</table>

| **Total Credits For Program** | **67** |

Notes and Additional Curriculum Options
1. The social science elective requirement can be satisfied by courses with the following prefixes: ECO, GEO, HIS, PLS, PSY and SOC.
2. The humanities elective requirement can be satisfied by completing a literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech course addressing performing arts and the history of theatre (CST), or religion (REL) course. ENG 112, CST 100, CST 105 and CST 115 may not be used to satisfy humanities elective requirements.

For additional information on specific program objectives, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Nursing

Associate of Applied Science (A.A.S.)

Purpose
The JTCC nursing program prepares individuals to enter the registered nursing profession and teaches students to deliver quality patient care. At the conclusion of the program, the student will:
1. Demonstrate the use of nursing process.
2. Apply nursing skills to patients’ needs.
3. Communicate therapeutically.
4. Synthesize and communicate relevant data.
5. Integrate teaching in the care of patients regardless of setting.
6. Apply ethical values and legal practices in nursing.
7. Utilize management skills to coordinate cost-effective care.
8. Assume the role of associate degree nurse at an entry level in the profession.
9. Assume accountability and responsibility for own actions as a contributing member of the healthcare team.

Admission Requirements and Special Conditions
1. High school diploma or equivalent must be documented.
2. Satisfactory scores on college placement tests in English and mathematics.

TRACKS AVAILABLE
Traditional Track: Typical classroom sessions are Monday through Friday during the day. Clinicals may be days, evenings and/or weekends.

Hybrid Distance Education Track (HDEP): Theory is delivered in a virtual format. Wimba Classroom is used for course meetings and office hours. Faculty may require mandatory on-campus activities and/or mandatory Wimba Classroom participation. Clinicals may be days, evenings, and/or weekends.

General Requirements
1. Detailed current information for interested applicants is located at www.jtcc.edu/nursing.
2. Students must be able to fulfill all essential functions as outlined in the program materials located on the web site.
3. All applicants must take a nursing entrance test and pass the test at the required percentile for that test. Specific details regarding acceptable entrance tests are located on the program web site at www.jtcc.edu/nursing. Please note, however, the tests are not interchangeable. Each test has a specific score that is acceptable to the program and associated details with which the applicant must comply in order for the admission application to be deemed acceptable. Test results must be no older than 3 years at the time of application.
4. Math, science and ITE courses have specific time constraints.
5. All accepted students must have current CPR certification through the American Heart Association: BLS Healthcare Provider. Internet courses are not acceptable unless there is a supervised demonstration component.
6. All accepted students must submit to a criminal background check, drug screening, physical examination and dental examination. Evidence of hepatitis-B vaccination or statement that the student declines the vaccination must be provided.
7. Applicants must have a curricular GPA of at least 2.5 to be considered for admission. However, this is a competitive admissions process.
8. All transcripts must be on file in the Admissions and Records office in order for a student to be considered for admission.
9. Students must earn a minimum of a 2.0 GPA to be eligible to continue in the nursing program and may not have more than two attempts at any course. See the student handbook located at www.jtcc.edu/nursing for all program policies and procedures.
10. Students are responsible for additional expenses mandated by the program and these include, but are not limited to: course materials, uniforms, lab kits, nursing equipment, current computer, hardware, software and internet. Expenses associated with the acceptance process are the burden of the student including, but not limited to: the criminal background check, drug screening, physical examination, etc.
11. Students may wish to consider the purchase of accident insurance and personal health insurance due to the inherent risk of exposure to disease. John Tyler Community College does not assume responsibility for accidents/incidents which occur in the clinical setting nor does it provide any student health services. The student assumes financial responsibility for accidents/incidents requiring medical attention.
12. It is the student’s responsibility to review all program materials, including the nursing program web site at www.jtcc.edu/nursing, and to stay current with the program requirements, policies and procedures.
13. Students have nursing program advisors assigned after they have been curriculum placed by the counseling office.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 231 Human Anatomy &amp; Physiology I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MTH 158 College Algebra</td>
<td>3</td>
<td></td>
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<tr>
<td>PSY 230 Developmental Psychology</td>
<td>3</td>
<td></td>
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<td>SDV 100 College Success Skills</td>
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</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td></td>
</tr>
</tbody>
</table>

continued
### SPECIAL ACCREDITATION STATUS
The nursing program is approved by the Virginia State Board of Nursing and is accredited by the National League for Nursing Accreditation Commission.

### Calculation of Credit Hours
The nursing program follows VCCS and JTCC guidelines for calculating credit hours. Lecture: one clock hour equals one credit hour. Clinical laboratory: three clock hours equal one credit hour. Lecture and laboratory hours assigned to them are shown with course descriptions.

### 2nd Semester
<table>
<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 232 Human Anatomy &amp; Physiology II</td>
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<tr>
<td>NUR 111 Nursing I</td>
<td>8</td>
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<tr>
<td>NUR 135 Drug Dosage Calculations</td>
<td>1</td>
</tr>
<tr>
<td>NUR 226 Health Assessment</td>
<td>3</td>
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<tr>
<td><strong>Total Credits</strong></td>
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### 3rd Semester
<table>
<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 109 Nursing Principles and Concepts II</td>
<td>6</td>
</tr>
<tr>
<td>NUR 245 Maternal/Child Nursing</td>
<td>3</td>
</tr>
<tr>
<td>SOC 200 Principles of Sociology</td>
<td>3</td>
</tr>
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<td><strong>Total Credits</strong></td>
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### 4th Semester
<table>
<thead>
<tr>
<th>Course Options</th>
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</thead>
<tbody>
<tr>
<td>NUR 205 Introduction to Second Level Nursing</td>
<td>6</td>
</tr>
<tr>
<td>NUR 247 Psychiatric Mental Health Nursing</td>
<td>3</td>
</tr>
<tr>
<td>HLT 143 Medical Terminology I OR</td>
<td></td>
</tr>
<tr>
<td>HLT 230 Principles of Nutrition and Human Development</td>
<td>3</td>
</tr>
<tr>
<td>Humanities Elective</td>
<td>3</td>
</tr>
<tr>
<td>Information Technology Elective</td>
<td>1</td>
</tr>
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<td><strong>Total Credits</strong></td>
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### 5th Semester
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<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 208 Acute Medical-Surgical Nursing</td>
<td>6</td>
</tr>
<tr>
<td>NUR 246 Parent/Child Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NUR 254 Dimensions of Professional Nursing</td>
<td>2</td>
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<tr>
<td><strong>Total Credits</strong></td>
<td><strong>11</strong></td>
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</tbody>
</table>

### Total Credits For Program
- **69**

### NOTES AND ADDITIONAL CURRICULUM OPTIONS
1. The humanities elective requirement can be satisfied by completing a literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech course addressing performing arts and the history of theatre (CST), or religion (REL) course. ENG 112, CST 100, CST 105 and CST 115 may not be used to satisfy humanities elective requirements.
2. To satisfy the information technology elective requirement, students should plan to take one credit in an ITE computer course offered at the College. (ITE credits cannot be more than five years old.)
3. A student must have completed BIO 231 and BIO 232 within 10 years prior to acceptance to the nursing program. BIO 231 and BIO 232 require one full year of college Biology and one full year of college chemistry or division approval as prerequisites.
4. Part-time students should consult their faculty advisors regarding appropriate course sequences.
5. Students who enrolled in the pre-nursing C.S.C. at JTCC prior to Summer 2011 should consult with their nursing faculty advisors about possible program substitutions for anatomy and physiology and mathematics.

For additional information, contact the Division of Health Sciences: 804-622-8700 (Nursing Education Center).
Police Science
Associate of Applied Science (A.A.S.)

**Purpose**
This program provides students with opportunities to develop and improve skills necessary for success as local, state or federal law enforcement officers; commercial and industrial security officers; police officers; and private or government investigators.

**ADMISSION REQUIREMENTS AND SPECIAL CONDITIONS**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum. An interview with the program head is required. Persons entering the public or private sectors of criminal justice employment will be subjected to intensive physical agility tests, background investigations, psychological testing, personal interviews, physical examinations and polygraph examinations.

**Program Curriculum**

**1st Semester**

<table>
<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ADJ 100 Survey of Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
</tr>
<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
</tr>
<tr>
<td>MTH 120 Introduction to Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MTH 163, MTH 170</td>
<td></td>
</tr>
<tr>
<td>SOC 200 Principles of Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SDV 100 College Success Skills</td>
<td>1</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</table>

**2nd Semester**

<table>
<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ADJ 105 The Juvenile Justice System</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 107 Survey of Criminology</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 229 Law Enforcement and the Community</td>
<td>3</td>
</tr>
<tr>
<td>PSY 100 Principles of Applied Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 200/PSY 203</td>
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<tr>
<td>Philosophy or Religion Elective</td>
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**3rd Semester**

<table>
<thead>
<tr>
<th>Course Options</th>
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<tbody>
<tr>
<td>ADJ 111 Law Enforcement Organization and Administration I</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 117 Police Communications and Records</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 211 Criminal Law, Evidence and Procedures I</td>
<td>3</td>
</tr>
<tr>
<td>ADJ 228 Narcotics and Dangerous Drugs</td>
<td>3</td>
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<tr>
<td>ADJ 236 Principles of Criminal Investigation</td>
<td>3</td>
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<tr>
<td>ADJ 247 Criminal Behavior</td>
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**4th Semester**

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<thead>
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<tbody>
<tr>
<td>ADJ 112 Law Enforcement Organization and Administration II</td>
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<tr>
<td>ADJ 212 Criminal Law, Evidence and Procedures II</td>
<td>3</td>
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<tr>
<td>ADJ 227 Constitutional Law for Justice Personnel</td>
<td>3</td>
</tr>
<tr>
<td>CST 100 Principles of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>Administration of Justice Elective</td>
<td>3</td>
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<tr>
<td>Health/Physical Education Elective</td>
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<tr>
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</tbody>
</table>

**Total Credits For Program** 66

**NOTES AND ADDITIONAL CURRICULUM OPTIONS**
1. The philosophy or religion elective requirement can be satisfied by courses with a PHI or REL prefix.
2. Students planning to transfer to a four-year program should choose options and substitutions with the assistance of the program head.
3. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Police Science, Homeland Security Specialization
Associate of Applied Science (A.A.S.)

**Purpose**
This program provides students with opportunities to develop and improve skills necessary for success as a local, state or federal law enforcement officer; commercial and industrial security officer; police officer; private or government investigator.

**ADMISSION REQUIREMENTS AND SPECIAL CONDITIONS**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum. An interview with the program head is required. Persons entering the public or private sectors of criminal justice employment will be subjected to intensive physical agility tests, background investigations, psychological testing, personal interviews, physical examinations and polygraph examinations.

**Program Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td><strong>1st Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADJ 100 Survey of Criminal Justice</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MTH 120 Introduction to Mathematics</td>
<td>3</td>
<td>MTH 158, MTH 163, MTH 170</td>
</tr>
<tr>
<td>SOC 200 Principles of Sociology</td>
<td>3</td>
<td>SOC 201, SOC 202</td>
</tr>
<tr>
<td>SDV 100 College Success Skills</td>
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<td><strong>Total Credits</strong></td>
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<tr>
<td><strong>2nd Semester</strong></td>
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<tr>
<td>ADJ 160 Police Response to Critical Incidents</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADJ 107 Survey of Criminology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADJ 229 Law Enforcement and the Community</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSY 100 Principles of Applied Psychology</td>
<td>3</td>
<td>PSY 200, PSY 203, PSY 201, PSY 202</td>
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<tr>
<td>Philosophy or Religion Elective</td>
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<td>Recommended: REL 230</td>
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<tr>
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<tr>
<td><strong>3rd Semester</strong></td>
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<tr>
<td>ADJ 163 Crime Analysis and Intelligence</td>
<td>3</td>
<td></td>
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<tr>
<td>ADJ 170 Street Gangs and Law Enforcement</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADJ 211 Criminal Law, Evidence and Procedures I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADJ 228 Narcotics and Dangerous Drugs</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADJ 236 Principles of Criminal Investigation</td>
<td>3</td>
<td></td>
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<tr>
<td>ADJ 247 Criminal Behavior</td>
<td>3</td>
<td></td>
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<td><strong>Total Credits</strong></td>
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<tr>
<td><strong>4th Semester</strong></td>
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<tr>
<td>ADJ 234 Terrorism and Counter-Terrorism</td>
<td>3</td>
<td></td>
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<tr>
<td>ADJ 212 Criminal Law, Evidence and Procedures II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADJ 227 Constitutional Law for Justice Personnel</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADJ 244 Terrorism Response Planning</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CST 100 Principles of Public Speaking</td>
<td>3</td>
<td></td>
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<tr>
<td>Health/Physical Education Elective</td>
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<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tr>
<tr>
<td><strong>Total Credits For Program</strong></td>
<td><strong>66</strong></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES AND ADDITIONAL CURRICULUM OPTIONS**
1. Students planning to transfer to a four-year program should choose options and substitutions with the assistance of the program head.
2. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Technical Studies
Associate of Applied Science (A.A.S.)

Purpose
The technical studies degree is designed to meet the rapidly changing workforce needs of business and industry. Focused on meeting short-term educational needs, the degree can be used as a general or individualized studies degree to enhance the education and training of current employees or to ensure basic technical and general work-based skills for new employees. The curriculum allows employers and employees to develop specific plans of study negotiated with, and approved by, appropriate college faculty and administrators.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum. Work-based learning is a required component of the program. Students without current or recent related work experience are responsible for securing their own internships, assisted by JTCC faculty. Students with current or recent work experience are responsible for working with the faculty advisor to secure appropriate documentation.

Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IND 116 Applied Technology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MTH 103 Applied Technical Mathematics I</td>
<td>3</td>
<td>MTH 115, MTH 163, MTH 273</td>
</tr>
<tr>
<td>SDV 100 College Success Skills</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Technical Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<table>
<thead>
<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 115 Technical Writing</td>
<td>3</td>
<td>ENG 112</td>
</tr>
<tr>
<td>PSY 126 Psychology for Business and Industry</td>
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<tr>
<td>Health or Physical Education Elective</td>
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<tr>
<td>Microcomputer/Programming/Software Elective</td>
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<td>See note 1.</td>
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<tr>
<td>Technical Elective</td>
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<tr>
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<table>
<thead>
<tr>
<th>3rd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>IND 101 Quality Assurance Technology I</td>
<td>3</td>
<td></td>
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<tr>
<td>IND 197 Cooperative Education</td>
<td>3</td>
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<tr>
<td>Humanities Elective</td>
<td>3</td>
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</tr>
<tr>
<td>Technical Elective</td>
<td>7</td>
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<tr>
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<table>
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<tr>
<th>4th Semester</th>
<th>Credits</th>
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<tbody>
<tr>
<td>IND 137 Team Concepts and Problem Solving</td>
<td>3</td>
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<tr>
<td>IND 297 Cooperative Education</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>3</td>
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<tr>
<td>Technical Electives</td>
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<td><strong>Total Credits</strong></td>
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</tbody>
</table>

**Total Credits For Program: 65**

**SUGGESTED TECHNICAL COURSES FOR FIELDS OF INTEREST:**

**Heating, Ventilation and Air Conditioning**
AIR 121 Air Conditioning and Refrigeration I 3
AIR 122 Air Conditioning and Refrigeration II 3
AIR 134 Circuits and Controls I 3
AIR 154 Heating Systems I 3
ELE 131 National Electrical Code I 3
ELE 150 A.C. and D.C. Circuit Fundamentals 4
Technical Elective 4
**Total 23**
### Industrial Electricity
- DRF 160 Machine Blueprint Reading: 3
- ELE 137 National Electric Code – Industrial: 3
- ELE 150 A.C. and D.C. Circuit Fundamentals: 4
- ELE 156 Electrical Control Systems: 3
- ELE 159 Electrical Motors: 3
- ELE 239 Programmable Logic Controllers: 3
- ELE 240 Advanced Programmable Controllers: 3
- Technical Elective: 1
- **Total**: 23

### Mechanical Maintenance
- DRF 160 Machine Blueprint Reading: 3
- ELE 150 A.C. and D.C. Circuit Fundamentals: 4
- ELE 159 Electrical Motors: 3
- IND 116 Applied Technology: 3
- MAC 131 Machine Lab I: 2
- MEC 154 Mechanical Maintenance I: 3
- MEC 254 Mechanical Maintenance II: 3
- Welding Technology Elective: 2
- **Total**: 23

### Precision Machining Technology
- DRF 160 Machine Blueprint Reading: 3
- MAC 121 Computer Numerical Control 1: 3
- MAC 150 Introduction to Computer-Aided Manufacturing: 3
- MAC 161 Machine Shop Practices I: 3
- MAC 162 Machine Shop Practices II: 3
- MAC 163 Machine Shop Practices III: 3
- MAC 164 Machine Shop Practices IV: 3
- MAC 209 Standards, Measurements and Calculations: 3
- **Total**: 24

### Precision Machining Computer Numerical Control (CNC)
- MAC 121 Computer Numerical Control 1: 3
- MAC 122 Computer Numerical Control II: 3
- MAC 123 Computer Numerical Control III: 3
- MAC 150 Introduction to Computer-Aided Manufacturing: 3
- MAC 161 Machine Shop Practices I: 3
- MAC 162 Machine Shop Practices II: 3
- MAC 195 Introduction to Coordinate Measuring Machines: 3
- MAC 209 Standards, Measurements and Calculations: 3
- **Total**: 24

### Residential Electricity
- ELE 118 Practical Electricity: 2
- ELE 127 Residential Wiring Methods: 3
- ELE 131 National Electrical Code I: 3
- ELE 150 A.C. and D.C. Circuit Fundamentals: 4
- ELE 151 Electrical Troubleshooting: 3
- Technical Electives: 8
- **Total**: 23

### Welding
DRF 160 Machine Blueprint Reading  
MAC 131 Machine Lab I  
WEL 117 Oxyfuel Welding and Cutting  
WEL 123 Shielded Metal Arc Welding (Basic) or  
WEL 124 Shielded Metal Arc Welding (Advanced) or  
WEL 126 Pipe Welding I  
WEL 130 Inert Gas Welding  
WEL 160 Gas Metal Arc Welding  
Technical Electives  
Total  

23

NOTES AND ADDITIONAL CURRICULUM OPTIONS
1. The information systems technology elective requirement can be satisfied by appropriate computer-related courses with the following prefixes: ARC, DRF, EGR, ITD, ITE, ITN, ITP or MAC. Selection must be approved in advance by the advisor.
2. The humanities elective requirement can be satisfied by completing literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech courses addressing performing arts and the history of theater (CST), or religion (REL). ENG 112, CST 100, CST 105, and CST 115 may not be used to satisfy humanities elective requirements.
3. The technical elective requirement can be satisfied by courses with the following prefixes: AIR, ARC, DRF, EGR, ELE, ETR, IND, INS, MAC, MEC, SAF or WEL. Selection must be approved in advance by the faculty advisor.
4. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Certificates

This section provides a listing of John Tyler Community College’s certificate programs. The College’s programs are subject to change. For an updated list, please visit the College’s web site at www.jtcc.edu/academics.
Building Construction

Certificate (C)

**Purpose**
Graduates with certificates in building construction will be able to: (1) evaluate a building design using building codes and zoning regulations; (2) perform basic surveying operations; (3) perform tests on materials such as concrete, metals and wood; and (4) produce a representative set of working drawings for a small building using computer-aided drafting software.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC 121 Architectural Drafting I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ARC 221 Architectural CAD Applications Software I</td>
<td>3</td>
<td>GIS 101</td>
</tr>
<tr>
<td>CIV 171 Surveying I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MTH 103 Applied Technical Mathematics I</td>
<td>3</td>
<td>MTH 115, MTH 163, MTH 273</td>
</tr>
<tr>
<td>SDV 100 College Success Skills</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Technical Elective</td>
<td>3</td>
<td></td>
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<tr>
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<table>
<thead>
<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC 122 Architectural Drafting II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ARC 246 Materials and Methods of Construction</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ARC 258 Building Codes, Contract Documents and Professional Office Practices</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
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<tr>
<td>Health/Physical Education Elective</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</tr>
</tbody>
</table>

**Total Credits For Program**

**31**

**Notes and Additional Curriculum Options**
1. The technical elective requirement can be satisfied by courses with the following prefixes: AIR, ARC, CAD, ELE, EGR, ETR, IND, MAC, MEC or WEL.
2. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Child Care
Certificate (C)

**Purpose**
This program provides students with opportunities to develop and improve skills necessary to work with children from birth to age 12 in a variety of child-care settings. Graduates with certificates in child care will be able to: (1) use professional terminology for effective communication; (2) implement instruction for children; (3) analyze and resolve problems; (4) use good human relations skills; (5) analyze specific early childhood scenarios, and plan specific action; (6) apply appropriate computer skills; (7) apply appropriate basic child/classroom observational skills; and (8) locate, compile and analyze appropriate resources, activities and materials.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHD 120 Introduction to Early Childhood Education</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHD 145 Methods and Materials for Teaching Art, Music and Movement to Children</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHD 190 Coordinated Practice I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HLT 106 First Aid and Safety</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>ITE 295 Computers for Educators</td>
<td>3</td>
<td>ITE 115</td>
</tr>
<tr>
<td>SDV 100 College Success Skills</td>
<td>1</td>
<td></td>
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<tr>
<td><strong>Total Credits</strong></td>
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<thead>
<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>CHD 118 Methods and Materials in the Language Arts for Children</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHD 146 Methods and Materials for Teaching Math, Science and Social Studies to Children</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHD 205 Guiding the Behavior of Children</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHD 216 Early Childhood Programs, School, and Social Change</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHD 270 Administration of Early Childhood Programs</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHD 290 Coordinated Practice II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>18</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits For Program** | **36** |

**Notes and Additional Curriculum Options**

1. Coordinated Practice I and II are practicum courses and require placement in approved activities by the program head.
2. Part-time students should consult their faculty advisors regarding appropriate course sequences.
3. Students who have current certifications in First Aid and Safety and CPR (Child or Adult) can use these to fulfill the two credit HLT 106 requirement. The original cards must be presented to the Admissions and Records office.

No online First Aid/CPR cards will be accepted for credit at JTCC.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Fine Arts
Certificate (C)

Purpose
This program provides a coherent set of university parallel courses corresponding to the first year of art foundation study. It is intended for students who plan to transfer into a baccalaureate degree program in the visual arts. The program may be applied toward majors in art education, art history, crafts, fashion design, filmmaking, graphic design, illustration, interior design, museum studies, painting, photography, printmaking, sculpture and other art-related fields. It also helps students develop the fundamental knowledge and skills necessary for careers in art and design.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>ART 101 History and Appreciation of Art I</td>
<td>3</td>
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</tr>
<tr>
<td>ART 111 Introduction to the Arts I</td>
<td>3</td>
<td>ART 112</td>
</tr>
<tr>
<td>ART 121 Drawing I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ART 131 Fundamentals of Design I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 111 College Composition</td>
<td>3</td>
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<tbody>
<tr>
<td>ART 102 History and Appreciation of Art II</td>
<td>3</td>
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<tr>
<td>ART 122 Drawing II</td>
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<td></td>
</tr>
<tr>
<td>ART 132 Fundamentals of Design II</td>
<td>3</td>
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<tr>
<td>ART 133 Visual Arts Foundation</td>
<td>4</td>
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<td>ENG 112 College Composition II</td>
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<td><strong>Total Credits</strong></td>
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</table>

**Total Credits For Program**: **31**

Notes and Additional Curriculum Options
1. Part-time students should consult their faculty advisors regarding appropriate course sequences.
2. Students who plan to transfer into a Bachelor’s of Fine Arts (B.F.A.) program may need to develop a transfer portfolio during their last semester of study.

For additional information on this program, please contact the Division of Arts, Humanities and Social Sciences: 804-706-5086 (Chester Campus) or 804-594-1509 (Midlothian Campus).
General Education

Certificate (C)

Purpose
This program provides students with a coherent set of university parallel courses corresponding to the first year of study at a four-year college or university. It is intended for students who plan to transfer into a baccalaureate program after completing the equivalent of one year of full-time study at the community college. The program addresses many of the general education requirements at senior institutions and is most appropriate for individuals who anticipate majoring in fields in the humanities, sciences, and mathematics.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalents) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>ENG 111  College Composition I</td>
<td>3</td>
<td>HIS 101, HIS 111</td>
</tr>
<tr>
<td>HIS 121  United States History I</td>
<td>3</td>
<td>MTH 170, MTH 173</td>
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<tr>
<td>MTH 163  Precalculus I</td>
<td>4</td>
<td>See Note 3.</td>
</tr>
<tr>
<td>Laboratory Science Elective</td>
<td>3</td>
<td>See Note 1.</td>
</tr>
<tr>
<td>Social/Behavioral Science Elective</td>
<td>3</td>
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<th>2nd Semester</th>
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<th>Standard Course Options</th>
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<tr>
<td>ENG 112  College Composition II</td>
<td>3</td>
<td>HIS 102, HIS 112</td>
</tr>
<tr>
<td>HIS 122  United States History II</td>
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<td>See Note 2.</td>
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<tr>
<td>Humanities Elective</td>
<td>3</td>
<td>See Note 3.</td>
</tr>
<tr>
<td>Laboratory Science Elective</td>
<td>4</td>
<td>See Note 3.</td>
</tr>
<tr>
<td>Social/Behavioral Science or Humanities Elective</td>
<td>3</td>
<td>See Notes 1 and 2.</td>
</tr>
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<td><strong>Total Credits</strong></td>
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</table>

Total Credits For Program 32

Notes and Additional Curriculum Options
1. The social/behavioral sciences elective requirements can be satisfied by courses with the following prefixes: ECO, GEO, PLS, HIS, PSY and SOC.
2. The humanities/fine arts elective requirement can be satisfied by completing a literature (ENG), foreign language, humanities (HUM), philosophy (PHI), art (ART), music (MUS), speech course addressing performing arts or the history of theatre (CST), or religion (REL) course. ENG 112, CST 100, CST 105, and CST 115 may not be used to satisfy humanities elective requirements.
3. The laboratory science requirement can be satisfied by the following courses: BIO 101, BIO 102, BIO 110, BIO 120, CHM 101, CHM 102, CHM 111, CHM 112, GOL 105, NAS 125, NAS 130, PHY 101, PHY 102, PHY 201, PHY 202, PHY 241, PHY 242.
4. Students should consult their faculty advisors or transfer college for advice regarding the selection of the most appropriate electives.

For additional information on this program, please contact the Division of Arts, Humanities and Social Sciences: 804-706-5086 (Chester) or 804-594-1509 (Midlothian).
Homeland Security

Certificate (C)

Purpose
The certificate in homeland security is designed to provide students with the knowledge and skills needed to conduct a homeland security evaluation and to assess, investigate and respond to terrorism incidents. It also provides criminal justice practitioners with an opportunity for academic growth and the development of specialized skills in homeland security.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
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<tbody>
<tr>
<td>ADJ 160 Police Response to Critical Incidents</td>
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<td></td>
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<tr>
<td>ADJ 163 Crime Analysis and Intelligence</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADJ 227 Constitutional Law for Justice Personnel</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HLT 106 First Aid and Safety</td>
<td>2</td>
<td></td>
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<tr>
<td>SDV 100 College Success Skills</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<th>Standard Course Options</th>
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<tbody>
<tr>
<td>ADJ 234 Terrorism and Counter Terrorism</td>
<td>3</td>
<td></td>
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<tr>
<td>ADJ 236 Principles of Criminal Investigation</td>
<td>3</td>
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<td>ADJ 244 Terrorism Response Planning</td>
<td>3</td>
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<td>ADJ 247 Criminal Behavior</td>
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<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</tbody>
</table>

**Total Credits For Program** 30

Notes and Additional Curriculum Options
For additional information on specific program objectives, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Pre-B.S.N.
Certificate (C)

Purpose
To prepare associate degree Registered Nurses to enter B.S.N. bridge programs.

ADMISSION REQUIREMENTS AND SPECIAL CONDITIONS
Associate degree in nursing. A detailed transcript review is required to individualize the program plan. Admission to John Tyler Community College. Prerequisite courses must be from an accredited college or university with achieved grades of “C” or better.

Program Curriculum

1st Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 English Composition II</td>
<td>3</td>
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<tr>
<td>ENG 241 American Literature</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHI 101 Introduction to Philosophy I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PHI 220 Ethics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSY 200 Principles of Psychology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSY 203 Principles of Psychology Lab</td>
<td>1</td>
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</tr>
<tr>
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2nd Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>BIO 205 Microbiology</td>
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<td></td>
</tr>
<tr>
<td>MTH 240 Statistics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ART 101 History and Appreciation of Art</td>
<td>3</td>
<td>ART 102, ART 111</td>
</tr>
<tr>
<td>HIS 101 History of Western Civilization</td>
<td>3</td>
<td>HIS 102, HIS 111, HIS 112, HIS 121</td>
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<tr>
<td>HLT 230 Principles of Nutrition &amp; Human Development</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>16</strong></td>
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</tr>
</tbody>
</table>

**Total Credits For Program**

**32**

Notes and Additional Curriculum Options
1. Each B.S.N. program has specific requirements that may differ.
2. Students desiring to enter a B.S.N. bridge program should contact their nursing advisor at 622-8715 to schedule an appointment for transcript analysis. NOTE: Advising for this program is conducted through the Department of Nursing not the John Tyler Community College Counseling Office.
3. Students without BIO 231 and BIO 232 will be required to complete these courses as BIO 141 and BIO 142 are not accepted for transfer.
4. BIO 231 and BIO 232 have prerequisites of one full year of college chemistry and college biology or division approval.
5. Some B.S.N. bridge programs have a foreign language requirement to satisfy.
6. All prerequisite courses for the pre-B.S.N. must be taken from an accredited university or college, achieving a “C” or better.

For additional information, contact the Division of Health Sciences: 804-622-8700 (Nursing Education Center).
Precision Machining Technology
Certificate (C)

Purpose
This program provides skills for entry-level work in production or maintenance machining. It is the recommended curriculum for machinist apprentices. The curriculum is based on the standards of the National Institute for Metalworking Skills, Inc. (NIMS).

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>1st Semester</td>
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<td></td>
</tr>
<tr>
<td>DRF 160 Machine Blueprint Reading</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MAC 161 Machine Shop Practices I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MTH 103 Applied Technical Mathematics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SDV 100 College Success Skills</td>
<td>1</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<table>
<thead>
<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>MAC 121 Computer Numerical Control I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MAC 150 Introduction to Computer-Aided Manufacturing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MAC 162 Machine Shop Practices II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Precision Machining Technology Elective</td>
<td>3</td>
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<thead>
<tr>
<th>3rd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 115 Technical Writing</td>
<td>3</td>
<td>ENG 111</td>
</tr>
<tr>
<td>MAC 122 Computer Numerical Control II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MAC 163 Machine Shop Practices III</td>
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<th>4th Semester</th>
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<tbody>
<tr>
<td>MAC 164 Machine Shop Practices IV</td>
<td>3</td>
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<tr>
<td>MAC 209 Standards, Measurements &amp; Calculations</td>
<td>3</td>
<td>PSY 100, PSY 200, PSY 203</td>
</tr>
<tr>
<td>PSY 126 Psychology for Business and Industry</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</table>

**Total Credits For Program**: 40

Notes and Additional Curriculum Options
1. Part-time students should consult their faculty advisors regarding course sequences.
2. Students should consult their faculty advisors regarding appropriate precision machining technology electives.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Welding
Certificate (C)

Purpose
The certificate in welding prepares students for work as an apprentice welder.

Admission Requirements and Special Conditions
This program has a limited enrollment. Students must provide their own personal protection safety equipment. A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRF 160 Machine Blueprint Reading</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MTH 103 Applied Technical Mathematics I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SDV 100 College Success Skills</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>WEL 117 Oxyfuel Welding and Cutting</td>
<td>4</td>
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<tbody>
<tr>
<td>MAC 131 Machine Lab I</td>
<td>2</td>
<td>MAC 171</td>
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<tr>
<td>WEL 123 Shielded Metal Arc Welding (Basic)</td>
<td>4</td>
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<tr>
<td>WEL 160 Gas Metal Arc Welding</td>
<td>4</td>
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<table>
<thead>
<tr>
<th>3rd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>ENG 115 Technical Writing</td>
<td>3</td>
<td>ENG 111</td>
</tr>
<tr>
<td>WEL 130 Inert Gas Welding</td>
<td>4</td>
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<tr>
<td>Social Science Elective</td>
<td>3</td>
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<thead>
<tr>
<th>4th Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEL 124 Shielded Metal Arc Welding (Advanced)</td>
<td>4</td>
<td></td>
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<tr>
<td>WEL 126 Pipe Welding I</td>
<td>4</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</table>

**Total Credits For Program**  **39**

Notes and Additional Curriculum Options
1. The social science elective requirement can be satisfied by courses with the following prefixes: ECO, HIS, PLS, PSY and SOC.
2. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Career Study Certificates

This section provides a listing of John Tyler Community College's career studies certificate programs. The College’s programs are subject to change. For an updated list, please visit the College’s web site at www.jtcc.edu/academics.
Accounting

Career Studies Certificate (C.S.C.)

**Purpose**
Provides skills for entry-level work and advancement with accounting departments.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in mathematics are required. If students have deficiencies in mathematics, JTCC offers developmental courses to prepare students for the curriculum.

**Program Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Semester</td>
<td></td>
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</tr>
<tr>
<td>ACC 211 Principles of Accounting I</td>
<td>3</td>
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<tr>
<td>ACC 261 Principles of Federal Taxation I</td>
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<tr>
<td>2nd Semester</td>
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<tr>
<td>ACC 212 Principles of Accounting II</td>
<td>3</td>
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<tr>
<td>Accounting Elective</td>
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<td>BUS 241</td>
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<tr>
<td>ACC 221 Intermediate Accounting I</td>
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<tr>
<td>ACC 231 Cost Accounting I</td>
<td>3</td>
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<td>4th Semester</td>
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<tr>
<td>ACC 215 Computerized Accounting</td>
<td>3</td>
<td></td>
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<tr>
<td>ACC 222 Intermediate Accounting II</td>
<td>4</td>
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<tr>
<td><strong>Total Credits For Program</strong></td>
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</tr>
</tbody>
</table>

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).

Administration of Justice

Career Studies Certificate (C.S.C.)

**Purpose**
Upgrade skills for work and advancement within the administration of justice field.

**Admission Requirements and Special Conditions**
Students should meet with the program head prior to beginning the certificate. A high school diploma (or equivalent) and satisfactory scores on the college placement test (or equivalent) in reading are required. If students have deficiencies in reading, JTCC offers developmental courses to prepare students for the curriculum.

**Program Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADJ 100 Survey of Criminal Justice</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADJ 105 The Juvenile Justice System</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADJ 111 Law Enforcement Organization and Administration I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ADJ 211 Criminal Law, Evidence and Procedures I</td>
<td>3</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<tr>
<td>2nd Semester</td>
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<tr>
<td>ADJ 227 Constitutional Law for Justice Personnel</td>
<td>3</td>
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<tr>
<td>ADJ 228 Narcotics and Dangerous Drugs</td>
<td>3</td>
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<tr>
<td>ADJ 229 Law Enforcement and the Community</td>
<td>3</td>
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<tr>
<td>ADJ 236 Principles of Criminal Investigation</td>
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<td><strong>Total Credits For Program</strong></td>
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</table>

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Adult Home Administration

Career Studies Certificate (C.S.C.)

**Purpose**
For students who are currently working in or wish to pursue employment in adult home facilities. This program fulfills some of Virginia’s requirements for certification in Adult Home Administration.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English are required. If students have deficiencies in English, JTCC offers developmental courses to prepare students for the curriculum.

Persons entering the public or private sectors of human services will be subjected to criminal background and sex offender registry checks, as well as a TB screening as a condition of their placement in a training/practicum site. Students will be expected to cover any costs incurred for these procedures. These tests will be required as a condition of employment.

**Program Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HMS 100 Introduction to Human Services</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HMS 106 Working with Death and Dying</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HMS 236 Gerontology</td>
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<tr>
<td><strong>2nd Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HMS 225 Functional Family Intervention</td>
<td>3</td>
<td>HMS 250, SOC 215, SOC 268</td>
</tr>
<tr>
<td>MEN 101 Mental Health Skill Training I</td>
<td>3</td>
<td>H E M 121, MEN 198</td>
</tr>
<tr>
<td>MKT 100 Principles of Marketing</td>
<td>3</td>
<td>BUS 111, BUS 165, BUS 200</td>
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<tr>
<td><strong>3rd Semester</strong></td>
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<tr>
<td>MEN 102 Mental Health Skill Training II</td>
<td>3</td>
<td>H EM 227, MEN 198</td>
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<tr>
<td>MEN 190 Coordinated Practice</td>
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<td>MEN 290</td>
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<td>MEN 196 On-Site Training</td>
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<td>MEN 296</td>
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<tr>
<td><strong>Total Credits For Program</strong></td>
<td>27</td>
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</tbody>
</table>

**Notes and Additional Curriculum Options**
1. Students must obtain a grade of “C” or better in the human services sequence courses (HMS 100, MEN 101 and MEN 102) in order to remain in the program.
2. This program is in compliance with State of Virginia requirements for certification in Adult Home Administration.
3. MEN 190 and MEN 196 are corequisites and must be taken in the same semester.

For additional information on this program, please contact the Division of Health Sciences: 804-768-6611 (Chester).
Allied Health Preparation, Pre-Funeral Services

Career Studies Certificate (C.S.C.)

**Purpose**
Provides basic general education and prerequisite courses for students seeking to enroll in the A.A.S. degree program in funeral services. Completion of the career studies certificate does not guarantee admission into the JTCC funeral services program. Students should refer to the admission requirements for the A.A.S. degree in funeral services listed in the programs of study section.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

**Program Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>1st Semester</td>
<td>3</td>
<td>CHM 101, CHM 111</td>
</tr>
<tr>
<td>CHM 110 Survey of Chemistry</td>
<td>3</td>
<td>CST 115, CST 110</td>
</tr>
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<td>CST 100 Principles of Public Speaking</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
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<tr>
<td>SDV 100 College Success Skills</td>
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<td>ITE Elective</td>
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</tr>
<tr>
<td>2nd Semester</td>
<td>3</td>
<td>BIO 141, BIO 142, NAS 161, NAS 162</td>
</tr>
<tr>
<td>ACC 211 Principles of Accounting</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FNS 121 Anatomy for Funeral Service I</td>
<td>3</td>
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</tr>
<tr>
<td>HLT 141 Introduction to Medical Terminology</td>
<td>2</td>
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<tr>
<td>PSY 116 Psychology of Death and Dying</td>
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<tr>
<td>3rd Semester</td>
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<tr>
<td>REL 230 Religions of the World</td>
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<tr>
<td>SOC 200 Principles of Sociology</td>
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<tr>
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</tbody>
</table>

**Total Credits for Program** 28

**Notes and Additional Curriculum Options**
Students may seek admission to the funeral services A.A.S. degree program when they have successfully completed all required developmental courses and ACC 211, CHM 110, FNS 121 and SDV 100 with grades of “C” or better.

For additional information on this program, please contact the Division of Health Sciences: 804-768-6611 (Chester).
Allied Health Preparation, Pre-Nursing

Career Studies Certificate (C.S.C.)

**Purpose**
Provides the basic general education and prerequisite courses for students seeking to apply to nursing programs at most institutions. Completion of the career studies certificate does not guarantee admission into the JTCC nursing program. Students should refer to the nursing program admission requirements found at www.jtcc.edu/nursing.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 231 Human Anatomy and Physiology I</td>
<td>4</td>
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<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MTH 158 College Algebra</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSY 230 Developmental Psychology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SDV 100 College Success Skills</td>
<td>1</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<thead>
<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 232 Human Anatomy and Physiology II</td>
<td>4</td>
<td>NAS 162</td>
</tr>
<tr>
<td>SOC 200 Principles of Sociology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HLT 143 Medical Terminology I OR HLT 230 Principles of Nutrition and Human Development</td>
<td>3</td>
<td></td>
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<tr>
<td>Humanities Elective</td>
<td>3</td>
<td></td>
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<tr>
<td>Information Technology Elective</td>
<td>1</td>
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<tr>
<td><strong>Total Credits</strong></td>
<td><strong>14</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits For Program** 28

**Notes and Additional Curriculum Options**
1. Students must complete BIO 231 prior to taking BIO 232. BIO 231 and BIO 232 require one full year of college biology and one full year of college chemistry or divisional approval as prerequisites.
2. The humanities elective requirement can be satisfied by completing a literature (ENG), foreign language, humanities (HUM) philosophy (PHI), art (ART), music (MUS), speech course addressing performing arts and the history of theatre (CST), or religion course (REL). ENG 112, CST 100, CST 105 and CST 115 may not be used to satisfy humanities elective requirements.
3. Students planning to apply for admission to the JTCC nursing program must complete BIO 231, ENG 111, PSY 230, MTH 158 and SDV 100 with a minimum grade of “C” in each course.

For additional information on this program, please contact the Division of Health Sciences: 804-622-8700 (Nursing Education Center).
Applied Technology

Career Studies Certificate (C.S.C.)

Purpose
The applied technology career studies certificate program is designed to meet the rapidly changing workforce needs of the manufacturing industry by providing the basic general and technical education needed for new employees who wish to prepare for employment in the skilled trades or for current employees who wish to enhance their education and training.

The program also provides the opportunity for individuals to acquire the skills needed to earn Virginia’s Gold Level Career Readiness Certification. It is the ideal next step for students who have earned Virginia’s Silver Level Career Readiness Certification through the JTCC’s Quick Connect program and wish to further develop their skills and advance to the next level.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and/or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 115 Technical Writing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IND 116 Applied Technology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MTH 103 Applied Technical Mathematics I</td>
<td>3</td>
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<tr>
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<table>
<thead>
<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRF 160 Machine Blueprint Reading</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>IND 137 Team Concepts &amp; Problem Solving</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MEC 113 Materials and Processes of Industry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SAF 126 Principles of Industrial Safety</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>12</strong></td>
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</tr>
</tbody>
</table>

**Total Credits For Program** **21**

Notes and Additional Curriculum Options
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Athletic Coaching
Career Studies Certificate (C.S.C.)

Purpose
The program is designed to provide students with the knowledge and skills to coach and assist athletes in a variety of settings and levels of competition, both in scholastic and community settings.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English or mathematics, JTCC offers developmental courses to prepare students for the curriculum. Prior to the clinical portion of the program, students must provide criminal background checks, drug test screenings, and records of physical health from a physician.

Program Curriculum

1st Semester
- ENG 111 College Composition 3
- HLT 106 First Aid and CPR 2
- HLT 120 Foundations and Principles of Sports Coaching 3
- RPK 180 Youth Sports Administration 3
- SDV 100 Student Success Skills 1

Total Credits 12

2nd Semester
- HLT 206 Exercise Science 3
- PSY 230 Developmental Psychology 3
- HLT 156 Health Care for Athletic Injuries 3
- RPK 210 Principles and Psychology of Coaching 3

Total Credits 12

3rd Semester
- HLT 230 Principles of Nutrition and Human Development 3
- RPK 296 On-Site Training 1

Total Credits 4

Total Credits For Program 28

Notes and Additional Curriculum Options
1. Satisfactory completion of HLT 106 is a Virginia Coaching Certification requirement.
2. Students will complete five hours per week of on-site training at selected athletic coaching sites approved by JTCC.

For additional information on the program, please contact the Division of Health Sciences: 804-768-6611 (Chester).

Basic Precision Machining Technology
Career Studies Certificate (C.S.C.)

Purpose
To prepare students for basic precision machining positions.

Admission Requirements and Special Conditions
A high school diploma (or equivalent).

Program Curriculum

1st Semester
- MAC 161 Machine Shop Practices I 3

Total Credits 3

2nd Semester
- MAC 162 Machine Shop Practices II 3

Total Credits 3

3rd Semester
- MAC 163 Machine Shop Practices III 3

Total Credits 3

4th Semester
- MAC 164 Machine Shop Practices IV 3

Total Credits 3

Total Credits For Program 12

Notes and Additional Curriculum Options
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 840-594-1480 (Midlothian).
Bereavement and Grief Counseling

Career Studies Certificate (C.S.C.)

Purpose
Bereavement and grief counseling is one of the fastest growing areas in the human services field. This career studies certificate provides advanced training to those currently working in the human services field and to students who are interested in working in hospice care, AIDS treatment, terminal illness, funeral services, hospitals and long-term care facilities. Students earning a certificate in bereavement and grief counseling will be able to employ the professional techniques of bereavement counseling and grief work, as well as develop an understanding of the emotional, psychological, physical and social aspects of death, dying, loss and grief.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in reading are required. If students have deficiencies in reading, JTCC offers developmental courses to prepare students for the curriculum.

Persons entering the public or private sectors of human services will be subjected to criminal background and sex offender registry checks, as well as a TB screening as a condition of their placement in a training/practicum site. Students will be expected to cover any costs incurred for these procedures. These tests will be required as a condition of employment.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMS 100 Introduction to Human Services</td>
<td>3</td>
<td></td>
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<tr>
<td>HMS 106 Working with Death and Dying</td>
<td>3</td>
<td></td>
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<tr>
<td>MEN 101 Mental Health Skill Training I</td>
<td>3</td>
<td>HMS 121, MEN 198</td>
</tr>
<tr>
<td>SOC 246 Sociology of Death and Dying</td>
<td>3</td>
<td>PSY 116</td>
</tr>
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<tr>
<th>2nd Semester</th>
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</thead>
<tbody>
<tr>
<td>MEN 102 Mental Health Skill Training II</td>
<td>3</td>
<td>HMS 227, MEN 198</td>
</tr>
<tr>
<td>MEN 190 Coordinated Practice</td>
<td>3</td>
<td>MEN 290</td>
</tr>
<tr>
<td>MEN 196 On-Site Training</td>
<td>3</td>
<td>MEN 296</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tr>
</tbody>
</table>

**Total Credits For Program** 21

Notes and Additional Curriculum Options
1. Students must obtain a grade of “C” or better in the human services sequence courses (HMS 100, MEN 101 and MEN 102) in order to remain in the program.
2. Students must take HMS 100, HMS 106 and MEN 101 prior to enrolling in the coordinated practice courses MEN 190 and MEN 196.
3. MEN 190 and MEN 196 are corequisites and must be taken in the same semester.
4. Part-time students should consult their faculty advisors regarding appropriate course sequences.

For additional information on this program, please contact the Division of Health Sciences: 804-768-6611 (Chester).
Business Information Management

Career Studies Certificate (C.S.C.)

Purpose
A cross-discipline curriculum designed to provide a foundation in business management and information technology. This career studies certificate program recognizes the blend between information technology skills and business management knowledge and practice. Most managers find technology an integral part of their work, while IT professionals find that information technology specialists require an understanding of the management of both data and people. This is a first-level program for a person who intends to pursue a certificate and/or associate degree in either business or information technology.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory score on college placement tests (or equivalent) in English are required. If students have deficiencies in English, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>BUS 100 Introduction to Business</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
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<thead>
<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>Business Elective</td>
<td>3</td>
<td>AST 205, BUS 200, BUS 205</td>
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<tr>
<td>Information Technology Elective</td>
<td>3</td>
<td>ITE 140, ITE 150, ITE 215</td>
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<td>Business/Information Technology Elective</td>
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</table>

**Total Credits For Program**: 18

Notes and Additional Curriculum Options
1. The business/information technology elective requirement can be satisfied by courses with the following prefixes: BUS, ITD, ITE, ITN or ITP. Selection must be approved by the faculty advisor. When selecting electives, the student must consider the prerequisite courses that apply to some BUS and IT courses.
2. The courses in this career studies certificate program provide foundations in basic business practices and information technology that can be applied to other certificate and degree programs.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Child Care Management

Career Studies Certificate (C.S.C.)

**Purpose**
To prepare experienced child-care providers for positions in child-care management.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and mathematics, JTCC offers developmental courses to prepare students for the curriculum.

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**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>ACC 211 Principles of Accounting I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHD 215 Models of Early Childhood Education Programs</td>
<td>3</td>
<td></td>
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<tr>
<td>EDU 235 Health, Safety and Nutrition Education</td>
<td>3</td>
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<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 200 Principles of Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHD 270 Administration of Early Childhood Programs</td>
<td>3</td>
<td></td>
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<tr>
<td>CHD 290 Coordinator Practice III</td>
<td>3</td>
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</table>

**Total Credits For Program** 18

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).

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Cisco Network

Career Studies Certificate (C.S.C.)

**Purpose**
This program is designed to prepare individuals for employment in the computer networking field.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory score on college placement tests (or equivalent) in English are required. If students have deficiencies in English, JTCC offers developmental courses to prepare students for the curriculum.

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**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>ITN 101 Introduction to Network Concepts</td>
<td>3</td>
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<tr>
<td>ITN 154 Networking Fundamentals-Cisco</td>
<td>4</td>
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<th>2nd Semester</th>
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<tr>
<td>ITN 155 Introductory Routing-Cisco</td>
<td>3</td>
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<tr>
<td>ITN 156 Basic Switching and Routing-Cisco</td>
<td>3</td>
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<th>4th Semester</th>
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<tr>
<td>ITN 157 WAN Technologies-Cisco</td>
<td>3</td>
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<tr>
<td>ITE 290 Coordinator Internship</td>
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**Total Credits For Program** 17

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Civil Engineering Computer-Aided Drafting

Career Studies Certificate (C.S.C.)

**Program Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tr>
<td><strong>1st Semester</strong></td>
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<tr>
<td>CAD 260</td>
<td>3</td>
<td>Computer Applications for Surveyors and Technicians</td>
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<tr>
<td><strong>2nd Semester</strong></td>
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<td></td>
</tr>
<tr>
<td>CAD 262</td>
<td>3</td>
<td>Computer-Aided Civil Design and Hydrology</td>
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<tr>
<td>CAD Elective</td>
<td>3</td>
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**Total Credits For Program** 9

**Notes and Additional Curriculum Options**

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).

Computer-Aided Drafting

Career Studies Certificate (C.S.C.)

**Program Curriculum**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td><strong>1st Semester</strong></td>
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<tr>
<td>CAD 201</td>
<td>3</td>
<td>Computer-Aided Drafting and Design I</td>
</tr>
<tr>
<td>CAD 231</td>
<td>3</td>
<td>Computer-Aided Drafting I</td>
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<tr>
<td><strong>2nd Semester</strong></td>
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<td></td>
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<tr>
<td>CAD 202</td>
<td>3</td>
<td>Computer-Aided Drafting and Design II</td>
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<tr>
<td>Drafting Elective</td>
<td>3</td>
<td>ARC 221, GIS 101, CAD 241, CAD 260</td>
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</table>

**Total Credits For Program** 12

**Notes and Additional Curriculum Options**

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Computer Applications

Career Studies Certificate (C.S.C.)

Purpose
Prepares students for entry-level positions in Web and database microcomputer applications.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests in mathematics (or equivalent) are required. If students have deficiencies in mathematics, JTCC offers developmental courses to prepare student for the curriculum.

Program Curriculum

1st Semester
- ITD 110 Web Page Design I 3
- ITE 130 Introduction to Internet Services 3
- ITE 140 Spreadsheet Software I OR ITE 150 Desktop Database Software 3
- ITE 215 Advanced Computer Applications and Integration 3

Total Credits 12

2nd Semester
- ITD 130 Database Fundamentals 3
- ITD 132 Structured Query Design 3
- ITD 210 Web Page Design II 3
- ITD 290 Coordinated Internship 1

Total Credits 10

Total Credits For Program 22

Notes and Additional Curriculum Options
For additional information on this program, please contact the Division of Engineering, Business and Public Service: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).

Computer Numerical Control

Career Studies Certificate (C.S.C.)

Purpose
To provide students with numerical control techniques in metal forming and machine processes.

Admission Requirements and Special Conditions
A high school diploma (or equivalent).

Program Curriculum

1st Semester
- MAC 121 Computer Numerical Control I 3
- MAC 209 Standards, Measurements and Calculations 3

Total Credits 6

2nd Semester
- MAC 122 Computer Numerical Control II 3
- MAC 150 Introduction to Computer-Aided Manufacturing 3

Total Credits 6

3rd Semester
- MAC 123 Computer Numerical Control III 3
- MAC 195 Introduction to Coordinate Measuring Machines 2

Total Credits 5

Total Credits For Program 17

Notes and Additional Curriculum Options
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Early Childhood

Career Studies Certificate (C.S.C.)

**Purpose**
Prepares students for entry-level positions in early childhood development.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHD 120 Introduction to Early Childhood Education</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHD 145 Methods and Materials for Teaching Art, Music and Movement to Children</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDU 235 Health, Safety and Nutrition Education</td>
<td>3</td>
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<tr>
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<tr>
<th>2nd Semester</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHD 205 Guiding the Behavior of Children</td>
<td>3</td>
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<tr>
<td>CHD 216 Early Childhood Programs, School, and Social Change</td>
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</table>

**Total Credits For Program** | **15** |

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).

Electricity

Career Studies Certificate (C.S.C.)

**Purpose**
Introduction to the fundamentals of electrical wiring. Provides the classroom training required by the state to sit for the electrician licensing exam. Provides review of the National Electrical Code.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in mathematics are required. If students have deficiencies in mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>ELE 131 National Electrical Code 1</td>
<td>3</td>
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<tr>
<td>ELE 150 A.C. and D.C. Circuit Fundamentals</td>
<td>4</td>
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<th>2nd Semester</th>
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<th>Standard Course Options</th>
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<tbody>
<tr>
<td>ELE 138 National Electrical Code Review</td>
<td>3</td>
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<tr>
<td>ELE 151 Electrical Troubleshooting</td>
<td>3</td>
<td>ELE 156</td>
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**Total Credits For Program** | **13** |

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Emergency Medical Services - Basic

Career Studies Certificate (C.S.C.)

**Purpose**
The purpose of this curriculum is to produce competent entry-level Emergency Medical Technician-Basics (EMT-B) who can service the community with basic life support care via the Emergency Medical Services (EMS) infrastructure. Upon completion of the program, students will be eligible for National Registry testing and certification in the Commonwealth of Virginia. Employment opportunities for EMT-Basics are available with ambulance, fire and rescue services; hospitals; local, state and federal government agencies; and humanitarian relief organizations.

**Admission Requirements and Special Conditions**
To be eligible for placement in the program students are required to:
1. Submit a college admission application.
2. Take the COMPASS or ASSET placement test (or submit SAT or ACT scores).*
3. Have transcripts of previous high school and college courses sent to John Tyler Community College.
4. Submit required health certificate.
5. Have current CPR certification at the Health Care Provider level.

* A reading score of 81 on the COMPASS or comparable score on the ASSET, SAT, or ACT is required.

**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>EMS 110 Emergency Vehicle Operators (EVOC)</td>
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<tr>
<td>EMS 111 Emergency Medical Technician - Basic</td>
<td>7</td>
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<tr>
<td>EMS 120 Emergency Medical Technician - Basic Clinical</td>
<td>1</td>
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</tr>
<tr>
<td>EMS 132 Vehicle Rescue</td>
<td>1</td>
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<tr>
<td>EMS 145 EMS Responses to Specialized Incidents</td>
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<td></td>
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</table>

**Total Credits**
13

**Total Credits For Program**
13

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Health Sciences: 804-768-6611 (Chester).
Emergency Medical Services - Intermediate

Career Studies Certificate (C.S.C.)

Purpose
The purpose of this curriculum is to produce competent entry-level Emergency Medical Technician-Intermediates (EMT-I/99) who can service the community with advanced life support care via the Emergency Medical Services (EMS) infrastructure. Upon completion of the program, students will be eligible for National Registry testing and certification in the Commonwealth of Virginia. Employment opportunities for EMT-Intermediates are available with ambulance, fire and rescue services; hospitals; local, state and federal government agencies; and humanitarian relief organizations.

Admission Requirements and Special Conditions
To be eligible for placement in the program students are required to:
1. Submit a college admission application.
2. Take the COMPASS or ASSET placement test (or submit SAT or ACT scores).*
3. Have transcripts of previous high school and college courses sent to John Tyler Community College.
4. Submit required health certificate.
5. Have current CPR certification at the Health Care Provider level.

* A reading score of 81 on the COMPASS or comparable score on the ASSET, SAT, or ACT is required.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>EMS 111 Emergency Medical Technician - Basic</td>
<td>7</td>
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</tr>
<tr>
<td>EMS 120 Emergency Medical Technician - Basic Clinical</td>
<td>1</td>
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<tr>
<td>EMS 151 Introduction to Advanced Life Support</td>
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<td>EMS 153 Basic ECG Recognition</td>
<td>2</td>
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<tr>
<td>EMS 157 ALS Trauma Care</td>
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<td>EMS 170 ALS Internship I</td>
<td>2</td>
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<tr>
<td>EMS 155 ALS Medical Care</td>
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<tr>
<td>EMS 159 ALS Special Populations</td>
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<tr>
<td>EMS 172 ALS Clinical Internship II</td>
<td>1</td>
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<tr>
<td>EMS 173 ALS Field Internship II</td>
<td>1</td>
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</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>8</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits For Program** | **27** |

Notes and Additional Curriculum Options
For additional information on this program, please contact the Division of Health Sciences: 804-768-6611 (Chester).
Funeral Home Management
Career Studies Certificate (C.S.C.) Pre-Funeral Home Management B. A. – Funeral Services

**Purpose**
This program is intended for students with A.A.S. degrees in Funeral Services who wish to enter the bachelor’s degree program in Funeral Service Management at Mt. Ida College in Newton, Massachusetts.

**Admission Requirements and Special Conditions**
A.A.S. degree in Funeral Service or a two-year equivalent approved by the department chair, including a grade of “C” or better in ENG 111 or the equivalent, is required for admission to the program.

**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 112 College Composition II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MTH 163 Precalculus</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSY 200 Principles of Psychology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSY 203 Principles of Psychology Lab</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>History Elective</td>
<td>3</td>
<td>Any 200 level HIS course</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tr>
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<table>
<thead>
<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO 202 Principles of Microeconomics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSY 230 Developmental Psychology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>General Elective</td>
<td>3</td>
<td>Any 200 level course</td>
</tr>
<tr>
<td>General Elective</td>
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<td>Any 200 level course</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>12</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits For Program**

| 25 |

**NOTES AND ADDITIONAL CURRICULUM OPTIONS**
1. Students must have completed ENG 111 with a “C” or better.
2. PSY 203 is a mandatory co-requisite to PSY 200.
3. Students who have completed the A.A.S. degree in Funeral Services at John Tyler Community College and are accepted in the bachelor’s degree program at Mt. Ida College will be awarded 63 credits toward the 122 credits required for the bachelor’s degree.

For additional information on this program, please contact the Division of Health Sciences: 804-768-6611 (Chester)

Geographic Information Systems
Career Studies Certificate (C.S.C.)

**Purpose**
To provide an introduction to the concepts of Geographic Information Systems (GIS), Global Positioning Systems (GPS) and remote sensing components of Geospatial Technology. The curriculum provides applications of the technology to site development, business and security.

**Admission Requirements and Special Conditions**
A high school diploma or equivalent.

**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIV 171 Surveying I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CAD 201 Computer Aided Drafting and Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
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<table>
<thead>
<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS 101 Introduction to Geospatial Technology I</td>
<td>3</td>
<td>CAD 202, ARC 221, GIS 102</td>
</tr>
<tr>
<td>Technical Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
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</tr>
</tbody>
</table>

**Total Credits For Program**

| 12 |

**NOTES AND ADDITIONAL CURRICULUM OPTIONS**
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Heating and Air Conditioning

Career Studies Certificate (C.S.C.)

Purpose
To prepare students for entry-level positions in heating, air conditioning and refrigeration repair and servicing.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests in mathematics (or equivalent) are required. If students have deficiencies in mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Options</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Semester</td>
<td>AIR 121 Air Conditioning and Refrigeration I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ELE 150 A.C. and D.C. Circuit Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>MTH 103 Applied Technical Mathematics I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>10</strong></td>
</tr>
<tr>
<td>2nd Semester</td>
<td>AIR 122 Air Conditioning and Refrigeration II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>AIR 134 Circuits and Controls I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ELE 131 National Electrical Code I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>9</strong></td>
</tr>
<tr>
<td>3rd Semester</td>
<td>AIR 154 Heating Systems I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
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</table>

**Total Credits For Program** 22

Notes and Additional Curriculum Options
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Human Services Administration and Supervision

Career Studies Certificate (C.S.C.)

Purpose
This certificate provides students with the fundamentals necessary to make a successful transition from human services professions into a management- and/or supervisory-level position in the human services field.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English and mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Options</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Semester</td>
<td>BUS 111 Principles of Supervision I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MEN 102 Mental Health Skill Training II</td>
<td>3</td>
<td>HMS 227, MEN 198</td>
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<tr>
<td></td>
<td>PSY 126 Psychology for Business and Industry</td>
<td>3</td>
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<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>9</strong></td>
<td></td>
</tr>
<tr>
<td>2nd Semester</td>
<td>BUS 200 Principles of Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MEN 190 Coordinated Practice</td>
<td>3</td>
<td>See Note 1. MEN 290</td>
</tr>
<tr>
<td></td>
<td>MEN 196 On-Site Training</td>
<td>3</td>
<td>See Note 1. MEN 296</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>9</strong></td>
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</tr>
<tr>
<td><strong>Total Credits For Program</strong></td>
<td></td>
<td><strong>18</strong></td>
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</tbody>
</table>

Notes and Additional Curriculum Options
1. MEN 120 must be successfully completed before enrolling in MEN 190 and MEN 196.

For additional information on this program, please contact the Division of Health Sciences: 804-768-6611.
Industrial Electricity

Career Studies Certificate (C.S.C.)

**Purpose**
Provides electrical maintenance basics.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in mathematics are required. If students have deficiencies in mathematics, JTCC offers developmental courses to prepare students for the curriculum.

**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELE 150 A.C. and D.C. Circuit Fundamentals</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>MTH 103 Applied Technical Mathematics I</td>
<td>3</td>
<td>MTH 104</td>
</tr>
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<td><strong>Total Credits</strong></td>
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<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELE 118 Practical Electricity</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>ELE 159 Electrical Motors</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>5</strong></td>
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<table>
<thead>
<tr>
<th>3rd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELE 156 Electrical Control Systems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ELE 239 Programmable Controllers</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
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<table>
<thead>
<tr>
<th>4th Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>ELE 137 National Electric Code -- Industrial</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ELE 240 Advanced Programmable Logic Controllers</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tbody>
</table>

**Total Credits For Program** 24

**Notes and Additional Curriculum Options**
1. Before taking ELE 239, the student must complete ELE 150 or equivalent or have the instructor’s permission.
2. Before taking ELE 240, the student must complete ELE 239 or have the instructor’s permission.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).

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Mechanical Maintenance

Career Studies Certificate (C.S.C.)

**Purpose**
Provides mechanical maintenance basics, and prepares students for company-specific training.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in mathematics are required. If students have deficiencies in mathematics, JTCC offers developmental courses to prepare students for the curriculum.

**Program Curriculum**

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELE 150 A.C. and D.C. Circuit Fundamentals</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>IND 116 Applied Technology</td>
<td>3</td>
<td>MEC 113</td>
</tr>
<tr>
<td>MAC 131 Machine Lab I</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MEC 154 Mechanical Maintenance I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MTH 103 Applied Technical Mathematics I</td>
<td>3</td>
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<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>DRF 160 Machine Blueprint Reading</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ELE 159 Electrical Motors</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MEC 254 Mechanical Maintenance II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>WEL 123 Shielded Metal Arc Welding (Basic)</td>
<td>4</td>
<td>WEL 130</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tbody>
</table>

**Total Credits For Program** 28

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Network Support
Career Studies Certificate (C.S.C.)

Purpose
Prepare students for entry-level positions in computer networking.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests in mathematics (or equivalent) are required. If students have deficiencies in mathematics, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITE 215 Advanced Computer Applications and Integration</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITN 101 Introduction to Network Concepts</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITN 111 Server Administration Windows 2008</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITN 171 UNIX I</td>
<td>3</td>
<td></td>
</tr>
<tr>
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<thead>
<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITE 221 PC Hardware and OS Architecture</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITE 290 Coordinated Internship</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ITN 260 Network Security Basics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITN 245 Network Troubleshooting</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tr>
</tbody>
</table>

**Total Credits For Program** 22

Notes and Additional Curriculum Options
For additional information on this program, please contact the Division of Engineering, Business and Public Service: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).

Paralegal Studies
Career Studies Certificate (C.S.C.)

Purpose
This program is designed to prepare individuals for employment in the legal field as a paralegal or legal assistant. This is a first-level program for a person who intends to pursue a certificate and/or associate degree in paralegal studies or legal assisting.

Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory score on college placement tests (or equivalent) in English are required. If students have deficiencies in English, JTCC offers developmental courses to prepare students for the curriculum.

Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LGL 110 Introduction to Law and the Legal Assistant</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
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</table>

<table>
<thead>
<tr>
<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LGL 125 Legal Research</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tr>
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<table>
<thead>
<tr>
<th>3rd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGL 126 Legal Writing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elective (any LGL course)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tr>
</tbody>
</table>

**Total Credits For Program** 18

Notes and Additional Curriculum Options
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Phlebotomy

Career Studies Certificate (C.S.C.)

**Purpose**
The program prepares students for positions as phlebotomists in hospitals, physician offices and commercial laboratories where blood and other laboratory specimens are collected from patients for analysis. The curriculum includes classroom lecture, laboratory practice and clinical practice.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English and mathematics are required. If students have deficiencies in English or mathematics, JTCC offers developmental courses to prepare students for the curriculum.

---

Program Development

Career Studies Certificate (C.S.C.)

**Purpose**
Prepares students for entry-level positions in computer programming.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests in mathematics (or equivalent) are required. If students have deficiencies in mathematics, JTCC offers developmental courses to prepare student for the curriculum.

---

**Program Curriculum**

### 1st Semester

<table>
<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 111 College Composition</td>
<td>3</td>
</tr>
<tr>
<td>HLT 100 First Aid/CPR (American Heart Assoc. Standards)</td>
<td>2</td>
</tr>
<tr>
<td>MDL105 Phlebotomy</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tr>
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### 2nd Semester

<table>
<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDL 130 Basic Clinical Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>HLT 141 Introduction to Medical Terminology</td>
<td>2</td>
</tr>
<tr>
<td>MDL 196 On-site Training in Phlebotomy</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>

**Total Credits For Program**

**16**

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Health Sciences: 804-768-6611 (Chester).

---

**Program Curriculum**

### 1st Semester

<table>
<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITE 215 Advanced Computer Applications and Integration</td>
<td>3</td>
</tr>
<tr>
<td>ITP 100 Software Design</td>
<td>3</td>
</tr>
<tr>
<td>ITP 110 Visual Basic Programming I</td>
<td>3</td>
</tr>
<tr>
<td>ITP 120 Java Programming I</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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### 2nd Semester

<table>
<thead>
<tr>
<th>Course Options</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITE 290 Coordinated Internship</td>
<td>1</td>
</tr>
<tr>
<td>ITP 160 Introduction to Game Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>ITP 210 Visual Basic Programming II OR ITP 220 Java Programming II</td>
<td>3</td>
</tr>
<tr>
<td>ITP 251 Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>10</strong></td>
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</tbody>
</table>

**Total Credits For Program**

**22**

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Engineering, Business and Public Service: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
## Residential Electricity

### Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELE 110 Home Electric Power</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ELE 118 Practical Electricity</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MTH 103 Applied Technical Mathematics I</td>
<td>3</td>
<td>MTH 104</td>
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<tr>
<td><strong>Total Credits</strong></td>
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</tr>
<tr>
<td><strong>2nd Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELE 127 Residential Wiring Methods</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ELE 151 Electrical Troubleshooting</td>
<td>3</td>
<td></td>
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<tr>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
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</tr>
<tr>
<td><strong>3rd Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELE 131 National Electrical Code I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ELE 150 A.C. and D.C. Circuit Fundamentals</td>
<td>4</td>
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<tr>
<td><strong>Total Credits For Program</strong></td>
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</tbody>
</table>

### Notes and Additional Curriculum Options

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).

## Small Business Management

### Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACC 211 Principles of Accounting I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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</tr>
<tr>
<td><strong>2nd Semester</strong></td>
<td></td>
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</tr>
<tr>
<td>ACC 261 Principles of Federal Taxation I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>AST 205 Business Communications</td>
<td>3</td>
<td></td>
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<tr>
<td><strong>Total Credits</strong></td>
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<tr>
<td><strong>3rd Semester</strong></td>
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<td></td>
</tr>
<tr>
<td>BUS 165 Small Business Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MKT 100 Principles of Marketing</td>
<td>3</td>
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<tr>
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</tbody>
</table>

### Notes and Additional Curriculum Options

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
# Substance Abuse Assistant

Career Studies Certificate (C.S.C.)

## Purpose
Provides a strong educational component and hands-on training to students who are interested in working in substance abuse. It fulfills some of the requirements needed for certification in Virginia as a substance abuse assistant.

## Admission Requirements and Special Conditions
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English is required. If students have deficiencies in English, JTCC offers developmental courses to prepare students for the curriculum.

## Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Options</th>
<th>Credits</th>
<th>Standard Course Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Semester</strong></td>
<td>HMS 100 Introduction to Human Services</td>
<td>3</td>
<td>ADJ 228</td>
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<tr>
<td></td>
<td>HMS 251 Substance Abuse I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MEN 101 Mental Health Skill Training I</td>
<td>3</td>
<td>HMS 121, MEN 198</td>
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</tr>
<tr>
<td><strong>2nd Semester</strong></td>
<td>HMS 252 Substance Abuse II</td>
<td>3</td>
<td>ADJ 228</td>
</tr>
<tr>
<td></td>
<td>HMS 258 Case Management and Substance Abuse</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MEN 102 Mental Health Skill Training II</td>
<td>3</td>
<td>HMS 227, MEN 198</td>
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<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>9</strong></td>
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</tr>
<tr>
<td><strong>3rd Semester</strong></td>
<td>MEN 190 Coordinated Practice</td>
<td>3</td>
<td>MEN 290</td>
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<tr>
<td></td>
<td>MEN 196 On-Site Training</td>
<td>3</td>
<td>MEN 296</td>
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<td><strong>Total Credits</strong></td>
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</tr>
</tbody>
</table>

**Total Credits For Program**: 24

## Notes and Additional Curriculum Options
1. Students must obtain a grade of “C” or better in the human services sequence courses (HMS 100, MEN 101 and MEN 102) in order to remain in the program.
2. Students must complete HMS 100 and MEN 101 prior to enrolling in MEN 102.
3. MEN 101 and HMS 251 must be completed prior to enrolling in MEN 190 and MEN 196. Students must meet with their advisor prior to enrolling in MEN 190 and MEN 196.
4. MEN 190 and MEN 196 are corequisites and must be taken in the same semester.
5. This program is in compliance with Commonwealth of Virginia requirements for certification as a substance abuse assistant.
6. Students entering the public or private sectors of human services may be subjected to criminal background and sex offender registry checks and a TB screening as a condition of their placement in a training/practicum site. Students will be expected to cover any costs incurred for these procedures. This may also be required as a condition of employment.

For additional information on this program, please contact the Division of Health Sciences: 804-768-6611 (Chester).
### Supervision

**Career Studies Certificate (C.S.C.)**

**Purpose**
Upgrade skills needed for supervisory positions within business.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in English are required. If students have deficiencies in English, JTCC offers developmental courses to prepare students for the curriculum.

#### Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td><strong>1st Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BUS 111 Principles of Supervision</td>
<td>3</td>
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<tr>
<td>ENG 111 College Composition I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ITE 115 Introduction to Computer Applications and Concepts</td>
<td>3</td>
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<td><strong>Total Credits</strong></td>
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<tr>
<td><strong>2nd Semester</strong></td>
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<td></td>
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<tr>
<td>AST 205 Business Communications</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BUS 200 Principles of Management</td>
<td>3</td>
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<tr>
<td>Business Elective</td>
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<tr>
<td><strong>3rd Semester</strong></td>
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<tr>
<td>BUS 201 Organizational Behavior</td>
<td>3</td>
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<td>Business Elective</td>
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<tr>
<td><strong>Total Credits For Program</strong></td>
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</table>

**Notes and Additional Curriculum Options**
The business elective requirement can be satisfied by any 100- or 200-level course in the following areas: ACC, AST, BUS, ITE, MKT or REA.

For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).

### Surveying

**Career Studies Certificate (C.S.C.)**

**Purpose**
Provides skills for employment and advancement in surveying.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent).

#### Program Curriculum

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td><strong>1st Semester</strong></td>
<td></td>
<td></td>
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<tr>
<td>CIV 171 Surveying I</td>
<td>3</td>
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</tr>
<tr>
<td>CAD 201 Computer-Aided Drafting and Design I</td>
<td>3</td>
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<tr>
<td><strong>2nd Semester</strong></td>
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<tr>
<td>CIV 172 Surveying II</td>
<td>3</td>
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<tr>
<td>CAD 260 Computer Applications for Surveyors and Technicians</td>
<td>3</td>
<td>GIS 101</td>
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</table>

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
## Web Design

Career Studies Certificate (C.S.C.)

**Purpose**
Provides students with integrated skills in the areas of design and programming required for a career in web design.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent) and satisfactory scores on college placement tests (or equivalent) in mathematics are required. If students have deficiencies in mathematics, JTCC offers developmental courses to prepare students for the curriculum.

### Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>ART 131 Fundamentals of Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ART 217 Electronic Graphic Design I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ART 263 Interactive Design</td>
<td>3</td>
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<tr>
<td>ITE 130 Introduction to Internet Services</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>2nd Semester</th>
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<tbody>
<tr>
<td>ART 218 Electronic Graphic Design II</td>
<td>4</td>
<td></td>
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<tr>
<td>ART 250 History of Design</td>
<td>3</td>
<td></td>
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<tr>
<td>ART 264 Interactive Design II</td>
<td>3</td>
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<tr>
<td>ITD 110 Web Page Design</td>
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**Total Credits For Program** 26

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Arts, Humanities and Social Sciences: 804-706-5086 (Chester) or 804-1509 (Midlothian).

## Welding

Career Studies Certificate (C.S.C.)

**Purpose**
Provide skills for employment and advancement in welding.

**Admission Requirements and Special Conditions**
A high school diploma (or equivalent).

### Program Curriculum

<table>
<thead>
<tr>
<th>1st Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tbody>
<tr>
<td>WEL 117 Oxyfuel Welding and Cutting</td>
<td>4</td>
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<tr>
<td>WEL 123 Shielded Metal Arc Welding (Basic)</td>
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<th>2nd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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<tr>
<td>WEL 130 Inert Gas Welding</td>
<td>4</td>
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<tr>
<td>WEL 160 Gas Metal Arc Welding</td>
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<table>
<thead>
<tr>
<th>3rd Semester</th>
<th>Credits</th>
<th>Standard Course Options</th>
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</thead>
<tbody>
<tr>
<td>WEL 124 Shielded Metal Arc Welding (Advanced)</td>
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<tr>
<td>WEL 126 Pipe Welding I</td>
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<td><strong>Total Credits</strong></td>
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**Total Credits For Program** 24

**Notes and Additional Curriculum Options**
For additional information on this program, please contact the Division of Engineering, Business and Public Services: 804-706-5121 (Chester) or 804-594-1480 (Midlothian).
Course Descriptions
COURSE NUMBERS
Course numbers appear before the course titles. Courses numbered 01 – 09 are developmental courses. The credits earned in these courses cannot be applied toward a degree, certificate or diploma. Courses numbered 10 – 99 are first level courses for certificate programs. The credits earned cannot be applied toward an associate degree program. Courses numbered 100 – 299 can be applied to an appropriate associate degree program, and they may also be used in certificate programs.

COURSE CREDITS
Course credits are provided after the course titles. One credit is equivalent to one collegiate semester hour credit.

COURSE HOURS
The number of lecture and laboratory hours is shown at the end of each course description. The total number of lecture and laboratory hours is referred to as “contact” hours since it reflects the time spent each week under the supervision of a faculty member.

PREREQUISITES
Prerequisites are identified in the course description and must normally be met prior to enrollment. If a corequisite is identified, it means the two courses should be taken at the same time.

GENERAL USAGE COURSES
The General Usage Courses apply to multiple programs of study and all course prefixes.
General Usage Courses

90 – 190 – 290
Coordinated Practice
(1 – 5 credits)
Includes supervised practice in selected health agencies and supervised on-the-job training coordinated by the College in selected business, industrial or service firms. Credit/practice ratio maximum 1:5 hours. May be repeated for credit. Variable hours.

95 – 195 – 295
Topics
(1 – 5 credits)
Provides an opportunity to explore topical areas of interest to or needed by students. May be used also for special honors courses. May be repeated for credit. Variable hours.

96 – 196 – 296
On-site Training
(1 – 5 credits)
Specializes in career orientation and training program (without pay) supervised and coordinated by the College in selected local businesses and industries. Credit/work ratio not to exceed 1:5 hours. May be repeated for credit. Variable hours.

97 – 197 – 297
Cooperative Education
(1 – 5 credits)
Supervised on-the-job training for pay coordinated by the Cooperative Education Office in approved business, industrial and service firms. Credit/work ratio not to exceed 1:5 hours. May be repeated for credit. Variable hours.

98 – 198 – 298
Seminar and Project
(1 – 5 credits)
Requires completion of a project or research report related to the student’s occupational objective and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours.

99 – 199 – 299
Supervised Study
(1 – 5 credits)
Assigns problems for independent study incorporating previous instruction and supervised by the instructor. May be repeated for credit. Variable hours.

Accounting

ACC 211
Principles of Accounting I
(3 credits)
 Presents accounting principles/application to various businesses. Covers the accounting cycle, income determination and financial reporting. Lecture: 3 hours per week.

ACC 212
Principles of Accounting II
(3 credits)
Emphasizes partnerships, corporations and the study of financial analysis. Includes and introduces cost/managerial accounting concepts. Prerequisite: ACC 211. Lecture: 3 hours per week.

ACC 215
Computerized Accounting
(3 credits)
Introduces the computer in solving accounting problems. Focuses on operation of computers. Presents the accounting cycle and financial statement preparation in a computerized system and other applications for financial and managerial accounting. Prerequisite: ACC 212 or equivalent. Lecture: 3 hours per week.

ACC 221
Intermediate Accounting I
(4 credits)
Covers accounting principles and theory, including a review of the accounting cycle and accounting for current assets, current liabilities and investments. Introduces various accounting approaches and demonstrates the effect of these approaches on the financial statement users. Prerequisite: ACC 212 or equivalent. Lecture: 4 hours per week.

ACC 222
Intermediate Accounting II
(4 credits)
Continues accounting principles and theory with emphasis on accounting for fixed assets, intangibles, corporate capital structure, long-term liabilities and investments. Prerequisite: ACC 221 or equivalent. Lecture: 4 hours per week.

ACC 231
Cost Accounting I
(3 credits)
Studies cost accounting methods and reporting as applied to job order, process and standard cost accounting systems. Includes cost control and other topics. Prerequisite: ACC 212 or equivalent. Lecture: 3 hours per week.
ACC 261  
Principles of Federal Taxation I  
(3 credits)  
Presents the study of federal taxation as it relates to individuals and related entities. Includes tax planning, compliance and reporting. Lecture: 3 hours per week.

Administration of Justice

ADJ 100  
Survey of Criminal Justice  
(3 credits)  
Presents an overview of the United States criminal justice system; introduces the major system components—law enforcement, judiciary and corrections. Lecture: 3 hours per week.

ADJ 105  
The Juvenile Justice System  
(3 credits)  
Presents the evolution, philosophy, structures and processes of the American juvenile delinquency system; surveys the rights of juveniles, dispositional alternatives, rehabilitation methods and current trends. Lecture: 3 hours per week.

ADJ 107  
Survey of Criminology  
(3 credits)  
Surveys the volume and scope of crime; considers a variety of theories developed to explain the causation of crime and criminality. Lecture: 3 hours per week.

ADJ 110 – 112  
Law Enforcement Organization and Administration I – II  
(3 credits each)  
Teaches the principles of organization and administration of law enforcement agencies. Studies the management of line operations, staff and auxiliary services, investigative and juvenile units. Introduces the concept of data processing; examines policies, procedures, rules and regulations pertaining to crime prevention. Surveys concepts of protection of life and property, detection of offenses and apprehension of offenders. ADJ 111 is a prerequisite for ADJ 112. Lecture: 3 hours per week.

ADJ 117  
Police Communications and Records  
(3 credits)  
Introduces the principles for the organization and administration of law enforcement communications and records. Examines relationships of custody, central services and agency logistics to the communications and records operation. Lecture: 3 hours per week.

ADJ 160  
Police Response to Critical Incidents  
(3 credits)  
Provides a basic introduction to incident command and emerging trends. Addresses bomb threats; hostage/barricade situations; attacks on institutions such as schools and hospitals; criminal hazmat; terrorist, militia/paramilitary, and extended crime scene evidence collection scenarios; and other long term or large scale events. Lecture: 3 hours per week.

ADJ 163  
Crime Analysis and Intelligence  
(3 credits)  
Provides a basic introduction to crime analysis and criminal intelligence. Covers the need, structure and function within the law enforcement agency, relevant law, and future trends. Lecture: 3 hours per week.

ADJ 211 – 212  
Criminal Law, Evidence and Procedures I – II  
(3 credits each)  
Teaches the elements of proof for major and common crimes and the legal classification of offenses. Studies the kinds, degrees and admissibility of evidence and its presentation in criminal proceedings with emphasis on legal guidelines for methods and techniques of evidence acquisition. Surveys the procedural requirements from arrest to final disposition in the various American court systems with focus on the Virginia jurisdiction. Lecture: 3 hours per week.

ADJ 227  
Constitutional Law for Justice Personnel  
(3 credits)  
Surveys the basic guarantees of liberty described in the U.S. Constitution and the historical development of these restrictions on government power, primarily through U.S. Supreme Court decisions. Reviews rights of free speech, press, assembly, as well as criminal procedure guarantees (to counsel, jury trial, habeas corpus, etc.) as they apply to the activities of those in the criminal justice system. Lecture: 3 hours per week.

ADJ 228  
Narcotics and Dangerous Drugs  
(3 credits)  
Surveys the historical and current usage of narcotics and dangerous drugs. Teaches the identification and classification of such drugs and emphasizes the symptoms and effects on their users. Examines investigative methods and procedures utilized in law enforcement efforts against illicit drug usage. Lecture: 3 hours per week.

ADJ 229  
Law Enforcement and the Community  
(3 credits)  
Considers current efforts by law enforcement personnel to achieve an effective working relationship with the community. Surveys and analyzes various interactive approaches of law enforcement agencies and the citizenry they serve. Lecture: 3 hours per week.
ADJ 234
Terrorism and Counter Terrorism
(3 credits)
Surveys the historical and current practices of terrorism that are national, transnational, or domestic in origin. Includes biological, chemical, nuclear, and cyber-terrorism. Teaches the identification and classification of terrorist organizations, violent political groups and issue-oriented militant movements. Examines investigative methods and procedures utilized in counter terrorist efforts domestically and internationally. Lecture: 3 hours per week.

ADJ 236
Principles of Criminal Investigation
(3 credits)
Surveys the fundamentals of criminal investigation procedures and techniques. Examines crime scene search, collecting, handling and preserving of evidence. Lecture: 3 hours per week.

ADJ 244
Terrorism Response Planning
(3 credits)
Builds an understanding of terrorism, and the past, present, and future national and international responses to terrorism and the defense against it. Teaches the knowledge and skills necessary to assist State and local emergency managers in planning for and managing a response to a terrorist incident. Lecture: 3 hours per week.

ADJ 247
Criminal Behavior
(3 credits)
Introduces and evaluates the concepts of normal and abnormal behavior. Focuses on the psychological and sociological aspects of criminal and other deviant behavior patterns. Lecture: 3 hours per week.

Administrative Support Technology

AST 117
Keyboarding for Computer Usage
(1 credit)
Teaches the alphabetic keyboard and 10-key pad. Develops correct keying techniques. Lecture: 1 hour per week.

AST 130
Office Procedures
(3 credits)
Introduces general functions and duties performed in the office. Prerequisite: AST 101. Lecture: 3 hours per week.

AST 205
Business Communications
(3 credits)
Teaches techniques of oral and written communications. Emphasizes writing and presenting business-related materials. Prerequisite: ENG 111. Lecture: 3 hours per week.

Air Conditioning

AIR 121 – 122
Air Conditioning and Refrigeration I – II
(3 credits each)
Studies refrigeration theory; characteristics of refrigerants, temperature and pressure; tools and equipment; soldering; brazing; refrigeration systems; system components; compressors; evaporators; and metering devices. Presents charging and evaluation of systems and leak detection. Explores servicing the basic system. Explains use and care of oils and additives and troubleshooting of small commercial systems. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week. AIR 122 prerequisite: AIR 121 or by permission of the instructor.

AIR 134
Circuits and Controls I
(3-4 credits)
Presents circuit diagrams for air conditioning units, reading and drawing of circuit diagrams, types of electrical controls. Includes analysis of air conditioning circuits, components, analysis and characteristics of circuits and controls, testing and servicing. Introduces electricity for air conditioning which includes circuit elements, direct current circuits and motors, single and three-phase circuits and motors, power distribution systems, and protective devices. Studies the electron and its behavior in passive and active circuits and components. Demonstrates electronic components and circuits as applied to air conditioning system. Part I of II. Lecture: 2-3 hours. Laboratory: 2-6 hours. Total: 4-9 hours per week.

Arabic

ARA 101 – 102
Beginning Arabic I – II
(4 – 5 credits each)
Introduces understanding, speaking, reading, and writing skills and emphasizes basic Arabic sentence structure. Discusses the diversity of cultures in the Arab world. Lecture: 4 – 5 hours per week.
Architectural Drafting I – II
(3 credits each)
Introduces techniques of architectural drafting, including lettering, dimensioning and symbols. Requires production of plans, sections and elevations of a simple building. Studies use of common reference material and the organization of architectural working drawings. Requires development of a limited set of working drawings, including a site plan, related details and pictorial drawings. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week. ARC 121 corequisite: ARC 221 or the equivalent. ARC 122 prerequisite: ARC 121 or by permission of the instructor.

Computer Aided Drafting Applications
(2 – 3 credits)
Utilizes computer’s hardware and software to create orthographic and pictorial drawings. Requires creation of working drawings by adding the necessary sections, dimensions, and notes to the computer generated views. Prerequisite ARC 210, ARC 121, CAD 210 or equivalent. Lecture: 1-2 hours. Laboratory: 2-3 hours. Total: 3-5 hours per week.

Architectural CAD Applications Software I
(3 credits)
Teaches the principles and techniques of architectural drawing practices through the use of architecture specific CAD software. Utilizes the commands and features of the software to generate drawings that emphasize architectural design and structural systems. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

Advanced Architectural Drafting I
(4 credits)
Provides fundamental knowledge of the principles and techniques of architectural drawing procedures. Familiarizes student with design process. Provides a better understanding of the relation between architectural design and structural systems. Prerequisite: ARC 122 or approval of the instructor. Lecture: 2 hours. Laboratory: 6 hours. Total: 8 hours per week.

Advanced Architectural Drafting II
(4 credits)
Requires development of complete set of working drawings and details according to principles and techniques of architectural drawings and procedures used in professional firms. Prerequisite: ARC 231 or approval of the instructor. Lecture: 2 hours. Laboratory: 6 hours. Total: 8 hours per week.

Environmental Systems
(4 credits)
Studies energy sources and strategies for use in buildings; heat loss and heat gain; heating and cooling equipment and system; water supply, distribution and waste systems and equipment; principles of electricity, electrical systems and equipment. Lecture: 4 hours per week.

Materials and Methods of Construction
(4 credits)
Introduces the characteristics of building materials and the methods of construction in which these materials are used in the erection of structures. Introduces the physical properties of steel, concrete, timber, glass and related materials as well as methods used in testing materials. All sixteen CSI divisions are discussed. Lecture: 3 hours. Laboratory: 3 hours. Total: 6 hours per week.

Building Codes, Contract Documents and Professional Office Practices
(3 credits)
Covers professional role of the architectural technician with regard to the construction industry. Includes building codes and their effect on specifications and drawings. Teaches purpose and writing of specifications with their legal and practical applications to working drawings. Analyzes contract documents for client-architect-contractor responsibilities and duties. Lecture: 3 hours per week.

History and Appreciation of Art I – II
(3 credits each)
Presents the history and interpretation of architecture, sculpture and painting. Begins with prehistoric art and follows the development of western civilization to the present. Lecture: 3 hours per week.

History of Far Eastern Art I
(3 credits)
Surveys the history of Far Eastern art from the prehistoric period to the present. Part I focuses on the art of India and Southeast Asia. Part II focuses on the art of China, Japan, and Korea. Emphasizes architecture, painting and sculpture with some instruction in printmaking and decorative arts. Part I of II. Lecture: 3 hours per week.
ART 104  
**History of Far Eastern Art II**  
(3 credits)  
Surveys the history of Far Eastern art from the prehistoric period to the present. Part I focuses on the art of India and Southeast Asia. Part II focuses on the art of China, Japan, and Korea. Emphasizes architecture, painting and sculpture with some instruction in printmaking and decorative arts. Part II of II. Lecture: 3 hours per week.

ART 111 – 112  
**Introduction to the Arts I – II**  
(3 credits each)  
Parallels studio classes and provides a general survey of the arts. Emphasizes perception, using major monuments of painting, sculpture and architecture as examples. Lecture: 3 hours per week.

ART 121 – 122  
**Drawing I – II**  
(3 – 4 credits each)  
Develops basic drawing skills and understanding of visual language through studio instruction / lecture. Introduces concepts such as proportion, space, perspective, tone and composition as applied to still life, landscape and the figure. Uses drawing media such as pencil, charcoal, ink wash and color media. Includes field trips and gallery assignments as appropriate. Lecture: 1 – 2 hours. Studio instruction: 4 hours. Total: 5 – 6 hours per week.

ART 125  
**Introduction to Painting**  
(3 credits)  
Introduces study of color, composition and painting techniques. Places emphasis on experimentation and enjoyment of oil and/or acrylic paints and the fundamentals of tools and materials. Lecture: 2 hours. Studio instruction: 3 hours. Total: 5 hours per week.

ART 131 – 132  
**Fundamentals of Design I – II**  
(3 – 4 credits each)  
Explores the concepts of two- and three-dimensional design and color. May include field trips as required. Lecture: 1 – 2 hours. Studio instruction: 4 hours. Total: 5 – 6 hours per week.

ART 133  
**Visual Arts Foundation**  
(4 credits)  
Covers tools and techniques, design concepts and principles, color theory and an introduction to the computer for graphic use. Applies to all fields of Visual Art. Lecture: 2 hours. Laboratory: 4 hours. Total: 6 hours per week.

ART 138  
**Figure Drawing**  
(3 – 4 credits)  
Develops drawing skills for the beginning and experienced students. Explores a broad range of drawing problems dealing with the human figure in costume using various media and techniques. Prerequisite: ART 120 or divisional approval. Lecture: 2 hours. Studio instruction: 2 – 4 hours. Total: 4 – 6 hours per week.

ART 150  
**History of Film and Animation**  
(3 credits)  
Exposes the student to the rich history of temporal imagery from the invention of the zootrope and kinetoscope through the rise of the moving picture industry and the development of the first animated films to present day television. Chronicles the impact of the moving image in the 20th century. Discusses the design and concept of influential works as well as the relationship between these earlier forms of moving graphics and today’s innovative video technology. Lecture: 3 hours per week.

ART 153 – 154  
**Ceramics I – II**  
(3 – 4 credits each)  
Presents problems in the design and production of functional and non-functional ceramic works. Includes hand-building the potter’s wheel and clays and glazes. Lecture: 0 – 2 hours. Studio instruction: 4 – 6 hours. Total: 5 – 8 hours per week.

ART 203  
**Animation I**  
(4 credits)  
Introduces the student to the basic techniques of animation, both traditional and computer generated. Teaches theoretical elements of the aesthetics of sequential imagery. Provides practical experience in animation. Exposes students to a variety of animation techniques through lectures, presentations, classroom work, and outside assignments. Prerequisite: ART 122. Lecture: 2 hours. Laboratory: 4 hours. Total: 6 hours per week.

ART 204  
**Animation II**  
(4 credits)  
Continues to develop the student’s skills in the techniques of animation. Emphasizes the electronic means of transforming both two-and-three dimensional designs into complete, high quality animations and transferring them to videotape. Teaches the advanced techniques of three-dimensional computer animation. Prerequisite: ART 203. Lecture: 2 hours. Laboratory: 4 hours. Total: 6 hours per week.
ART 217 – 218  
**Electronic Graphic Design I – II**  
(4 credits each)  
Focuses on creative concepts of graphic design problem solving using electronic technology; includes techniques specific to computer-generated publication design and imagery. Electronic Graphic Design II includes use of electronic color models and principles of prepress production. Required for students pursuing careers in graphic design with emphasis on use of the computer. Lecture: 2 hours. Studio instruction: 4 hours. Total: 6 hours per week.

ART 231 – 232  
**Sculpture I – II**  
(3 credits each)  
Introduces sculptural concepts and methods of production in traditional and contemporary media. Includes clay, plaster, wood, stone, metal, plastics and terra cotta. May include field trips. Prerequisite: ART 131. Lecture: 3 hours. Studio: 2 hours. Total: 5 hours per week.

ART 241 – 242  
**Painting I – II**  
(3 credits each)  
Introduces abstract and representational painting in acrylic and/or oil with emphasis on color composition and value. Prerequisites ART 122 or divisional approval. Lecture: 3 hours. Studio: 2 hours. Total: 5 hours per week.

ART 243 – 244  
**Watercolor I – II**  
(3 – 4 credits each)  
Presents abstract and representational painting in watercolor with emphasis on design, color, composition, technique and value. Prerequisite: ART 131 or divisional approval. Lecture: 1 – 2 hours. Studio instruction: 2 – 4 hours. Total: 4 – 6 hours per week.

ART 245  
**Portrait Painting**  
(3 credits)  
Explores portrait painting as representational and abstract art. Emphasizes analytical study of the head using a variety of mediums. Prerequisites: ART 141 and ART 121. Lecture: 2 hours. Studio instruction: 3 hours. Total: 5 hours per week.

ART 246  
**Figure Painting**  
(3 credits)  
Concentrates on the human figure as subject matter for painting. Emphasizes composition as it relates to figure study. Explores formal and informal approaches to include representation and abstraction using various painting media. Prerequisites: ART 141 and ART 121. Lecture: 2 hours. Studio instruction: 3 hours. Total: 5 hours per week.

ART 248 – 249  
**Painting III – IV**  
(3 – 4 credits each)  
Introduces advanced concepts and techniques of representational and abstract painting as applied to the head/figure, still-life, landscape and other subject matter including non-objective painting. Gives additional instruction in color, composition, modeling, space and perspective. Encourages individual approaches to painting. Prerequisite: ART 242 to ART 248. Lecture: 2 – 3 hours. Laboratory: 2 – 3 hours. Total: 4 – 6 hours per week.

ART 250  
**History of Design**  
(3 credits)  
Surveys the development of graphic design and illustration with emphasis on the 19th and 20th centuries. Analyzes the work of outstanding designers and illustrators. Lecture: 3 hours per week.

ART 259  
**Landscape Painting**  
(3 credits)  
Provides a comprehensive study of the techniques and approaches to the subject of landscape painting from the historic and current prospective. Prerequisite: ART 122. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.

ART 263  
**Interactive Design I**  
(3-4 credits)  
Focuses on creative concepts of design problem solving for interactive design: techniques specific to web, multimedia for the web, and other interactive design products. Advanced interactive design functions such as animation, rollovers, and audio are covered in ART 264. Part I of II. Lecture: 2 hours. Laboratory: 2-4 hours. Total: 4-6 hours per week.

ART 264  
**Interactive Design II**  
(3-4 credits)  
Focuses on creative concepts of design problem solving for interactive design: techniques specific to web, multimedia for the web, and other interactive design products. Advanced interactive design functions such as animation, rollovers, and audio are covered in ART 264. Part II of II. Lecture: 2 hours. Laboratory: 2-4 hours. Total: 4-6 hours per week.

ART 271  
**Printmaking I**  
(3 – 4 credits)  
Introduces the student to the full range of printmaking techniques. Includes woodcut, silkscreen, etching, and lithography. Provides historical perspective on printmaking. Part I of II. Lecture: 2 hours. Studio instruction: 3 – 4 hours. Total: 5 – 6 hours per week.
ART 287
Portfolio and Resume Preparation
(1 – 4 credits)
Focuses on portfolio preparation, resume writing and job interviewing for students. Recommended for final semester program students. Requires instructor’s approval. Lecture: 1 – 2 hours. Studio instruction: 0 – 4 hours. Total: 1 – 6 hours per week.

ART 291 – 292
Computerized Graphic Design I – II
(4 credits each)
Introduces students to using the computer as a publishing system. Examines stages of a publication from typesetting, laying out, creating and digitizing of illustrations and photographs, to the final printing. Requires students to write, design, illustrate and print pamphlets on the computer, including one full-color publication. Lecture: 2 hours. Studio instruction: 4 hours. Total: 6 hours per week.

ART 298
Seminar and Project
(1 – 5 credits)
Requires completion of a project or research report related to the student’s occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours.

BIO 101 – 102
General Biology I – II
(4 credits each)
Explores fundamental characteristics of living matter from the molecular level to the ecological community with emphasis on general biological principles. Introduces the diversity of living organisms, their structure, function and evolution. Lecture: 3 hours. Recitation and laboratory: 3 hours. Total: 6 hours per week.

BIO 110
General Botany
(4 credits)
Emphasizes plant life cycles, anatomy, morphology, taxonomy and evolution. Considers the principles of genetics, ecology and physiology. Lecture: 3 hours. Recitation and laboratory: 3 hours. Total: 6 hours per week.

BIO 120
General Zoology
(4 credits)
Presents basic biological principles and emphasizes structure, physiology and evolutionary relationships of invertebrates and vertebrates. Lecture: 3 hours. Recitation and laboratory: 3 hours. Total: 6 hours per week.

BIO 141 – 142
Human Anatomy and Physiology I – II
(4 credits each)
Integrates anatomy and physiology of cells, tissues, organs and systems of the human body. Integrates concepts of chemistry, physics and pathology. Lecture: 3 hours. Laboratory: 2 – 3 hours. Total: 5 – 6 hours per week.

BIO 205
General Microbiology
(4 credits)
Examines morphology, genetics, physiology, ecology, and control of microorganisms. Emphasizes application of microbiological techniques to selected fields. Prerequisites: one year of college biology and one year of college chemistry or divisional approval. Lecture: 3 hours. Recitation and laboratory: 3 hours. Total: 6 hours per week.

BIO 231
Human Anatomy and Physiology I
(4 credits)
Integrates the study of gross and microscopic anatomy with physiology, emphasizing the analysis and interpretation of physiological data. Prerequisites one year of college biology and one year of college chemistry or divisional approval. Part I of II. Lecture: 3 hours. Recitation and laboratory: 3 hours. Total: 6 hours per week.

BIO 232
Human Anatomy and Physiology II
(4 credits)
Integrates the study of gross and microscopic anatomy with physiology, emphasizing the analysis and interpretation of physiological data. Prerequisites one year of college biology and one year of college chemistry or divisional approval. Part II of II. Lecture: 3 hours. Recitation and laboratory: 3 hours. Total: 6 hours per week.

BIO 256
General Genetics
(4 credits)
Explores the principles of genetics ranging from classical Mendelian inheritance to the most recent advances in the biochemical nature and function of the gene. Includes experimental design and statistical analysis. Prerequisite: BIO 101-102 or equivalent. Lecture: 3 hours. Recitation and Laboratory: 3 hours. Total: 6 hours per week.

BIO 270
General Ecology
(3 – 4 credits)
Studies interrelationships between organisms and their natural and cultural environments with emphasis on populations, communities, and ecosystems. Prerequisite BIO 101-102 or divisional approval. Lecture: 2-3 hours. Recitation and laboratory: 3-6 hours. Total: 5-9 hours per week.
Business Management and Administration

BUS 100
Introduction to Business
(3 credits)
Introduces students to the functioning of businesses within the U.S. economic framework. Introduces economic systems, essential elements of business organization, production, human resource management, marketing, finance and risk management. Develops business vocabulary. Lecture: 3 hours per week.

BUS 111
Principles of Supervision I
(3 credits)
Teaches the fundamentals of supervision, including the primary responsibilities of the supervisor. Introduces factors relating to the work of supervisor and subordinates. Covers aspects of leadership, job management, work improvement, training and orientation, performance evaluation and effective employee/supervisor relationships. Lecture: 3 hours per week.

BUS 116
Entrepreneurship
(3 credits)
Introduces students to the different steps considered necessary when going into business. Includes areas such as product-service analysis, market research evaluation, setting up books, ways to finance startup, operations of the business, development of business plans, buyouts versus starting from scratch and franchising. Uses problems and cases to demonstrate implementation of these techniques. Lecture: 3 hours per week.

BUS 125
Applied Business Mathematics
(3 credits)
Applies mathematical operations to business process and problems such as wages and payroll, sales and property taxes, checkbook records and bank reconciliation, depreciation, overhead, distribution of profit and loss in partnerships, distribution of corporate dividends, commercial discounts, markup, markdown, simple interest, present values, bank discount notes, multiple payment plans, compound interest annuities, sinking funds and amortization. Lecture: 3 hours per week.

BUS 165
Small Business Management
(3 credits)
Introduces students to the unique concerns of small businesses. Introduces the requirements necessary to initiate a small business and identifies the elements comprising a business plan. Presents information establishing financial and administrative controls, developing a marketing strategy, managing business operations and the legal and government relationships specific to small businesses. Lecture: 3 hours per week.

BUS 200
Principles of Management
(3 credits)
Introduces students to the management functions of planning, organizing, leading and controlling. Focuses on application of management principles to realistic situations managers encounter as they attempt to achieve organizational objectives. Lecture: 3 hours per week.

BUS 201
Organizational Behavior
(3 credits)
Introduces students to the behaviorally oriented course combining the functions of management with the psychology of leading and managing people. Focuses on the effective use of human resources through understanding human motivation and behavior patterns, conflict management and resolution, group functioning and process, the psychology of decision-making and the importance of recognizing and managing change. Lecture: 3 hours per week.

BUS 205
Human Resource Management
(3 credits)
Introduces students to the employment, selection and placement of personnel, forecasting, job analysis, job descriptions, training methods and programs, employee evaluation systems, compensation, benefits and labor relations. Lecture: 3 hours per week.

BUS 209
Continuous Quality Improvement
(3 credits)
Introduces students to the different philosophies in quality control. Introduces students to process improvement, team development, consensus building, and problem-solving strategies. Identifies methods for process improvement in manufacturing and service organizations, which includes statistical process control when used in the quality control function of business and industry. Lecture: 3 hours per week.

BUS 220
Introduction to Business Statistics
(3 credits)
Introduces students to statistics as a tool in decision making. Emphasizes ability to collect, present and analyze data. Employs measures of central tendency and dispersion, statistical inference, index number and time series analysis. Prerequisite: MTH 120. Lecture: 3 hours per week.

BUS 241
Business Law I
(3 credits)
Introduces students to the legal environment. Introduces property and contract law, agency and partnership liability and government regulatory law. Students will be able to apply these legal principles to landlord/tenant disputes, consumer rights issues, employment relationships and other business transactions. Lecture: 3 hours per week.
BUS 242
*Business Law II*  
(3 credits)  
Focuses on business organization and dissolution, bankruptcy and Uniform Commercial Code. Introduces international law and the emerging fields of E-Commerce and Internet Law. Lecture: 3 hours per week.

BUS 266
*Production and Operations Management*  
(3 credits)  
Examines the process by which both goods and services-producing businesses, many not-for-profit institutions and governmental agencies transform resources into an end product to meet the demands of customers or clients. Includes a survey of some of the quantitative methods involved in the process. Prerequisite: MTH 120. Lecture: 3 hours per week.

BUS 280
*Introduction to International Business*  
(3 credits)  
Studies the problems, challenges, and opportunities which arise when business operations or organizations transcend national boundaries. Examines the functions of international business in the economy, international and transnational marketing, production, and financial operations. Lecture: 3 hours per week.

Chemistry

CHM 101 – 102
*General Chemistry I – II*  
(4 credits each)  
Emphasizes experimental and theoretical aspects of inorganic, organic and biological chemistry. Discusses general chemistry concepts as they apply to issues within society and the environment. Designed for the non-science major. Lecture: 3 hours. Laboratory: 3 hours. Total: 6 hours per week.

CHM 110
*Survey of Chemistry*  
(3 credits each)  
Introduces the basic concepts of general, organic and biochemistry with emphasis on their applications to other disciplines. No previous chemistry background required. Lecture: 3 hours per week.

CHM 111 – 112
*College Chemistry I – II*  
(4 credits each)  
Explores the fundamental laws, theories and mathematical concepts of chemistry. Designed primarily for science and engineering majors. Requires a strong background in mathematics. Lecture: 3 hours. Laboratory: 3 hours. Total: 6 hours per week.

Childhood Development

CHD 118
*Methods and Materials in the Language Arts for Children*  
(3 credits)  
Presents techniques and methods for encouraging the development of language and perceptual skills in young children. Stresses improvement of vocabulary, speech and methods to stimulate discussion. Surveys children’s literature, examines elements of quality story telling and story reading and stresses the use of audiovisual materials. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

CHD 119
*Introduction to Reading Methods*  
(3 credits)  
Focuses on promoting language and literacy skills as the foundation for emergent reading. Emphasizes phonetic awareness and alphabetic principles, print awareness and concepts, comprehension and early reading and writing. Addresses strategies for intervention and support for exceptional children and English Language Learners. NOTE: This course replaces CHD 117. Prerequisite: ENG 111. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

CHD 120
*Introduction to Early Childhood Education*  
(3 credits)  
Introduces early childhood development through activities and experiences in nursery, pre-kindergarten, kindergarten and primary programs. Investigates classroom organization and procedures and use of classroom time and materials, approaches to education for young children, professionalism and curricular procedures. Lecture: 3 hours per week.

CHD 145
*Methods and Materials for Teaching Art, Music and Movement to Children*  
(3 credits)  
Provides experiences in developing the content, methods and materials for directing children in art, music and movement activities. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

CHD 146
*Methods and Materials for Teaching Math, Science and Social Studies to Children*  
(3 credits)  
Provides experiences in developing the content, methods and materials for directing children in math, science and social studies activities. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.
CHD 165  
Observation and Participation in Early Childhood/Primary Settings  
(3 credits)  
Observes and participates in early childhood settings such as child care centers, preschools, Montessori schools or public school settings (Kindergarten through third grade). Students spend one hour each week in seminar session in addition to 60 clock hours in the field. May be taken again for credit. Lecture: 1 hour. Laboratory: 6 hours. Total: 7 hours per week.

CHD 166  
Infant and Toddler Programs  
(3 credits)  
Examines the fundamentals of infant and toddler development, including planning and implementing programs in group care. Emphasizes meeting physical, social, emotional and cognitive needs: scheduling, preparing age-appropriate activities, health and safety policies, record keeping and reporting to parents. Lecture: 3 hours per week.

CHD 190  
Coordinated Practice  
(3 credits)  
Supervises on-the-job training in selected business, industrial or service firms coordinated by the college. Credit/practice ratio not to exceed 1:5 hours. May be repeated for credit. Variable hours.

CHD 205  
Guiding the Behavior of Children  
(3 credits)  
Explores positive ways to build self-esteem in children and help them develop self-control. Presents practical ideas for encouraging pro-social behavior in children and emphasizes basic skills and techniques in classroom management. Lecture: 3 hours per week.

CHD 210  
Introduction to Exceptional Children  
(3 credits)  
Reviews the history of education for exceptional children. Studies the characteristics associated with exceptional children. Explores positive techniques for managing behavior and adapting materials for classroom use. Lecture: 3 hours per week.

CHD 215  
Models of Early Childhood Education Programs  
(3 credits)  
Studies and discusses the various models and theories of early childhood education programs including current trends and issues. Presents state licensing and staff requirements. Lecture: 3 hours per week.

CHD 216  
Early Childhood Programs, School, and Social Change  
(3 credits)  
Explores methods of developing positive, effective relations between staff and parents to enhance the developmental goals of home and school. Reviews current trends and issues in education, describes symptoms of homes in need of support, investigates non-traditional family and cultural patterns, and lists community resources. Lecture: 3 hours per week.

CHD 218  
Models of Early Childhood Education Programs  
(3 credits)  
Studies and discusses the various models and theories of early childhood education programs including current trends and issues. Presents state licensing and staff requirements. Lecture: 3 hours per week.

CHD 265  
Advanced Observation and Participation in Early Childhood/Primary Settings  
(3 credits)  
Observes and participates in early childhood settings such as child care centers, preschool, Montessori schools or public school settings (Kindergarten through third grade). Emphasizes planning and implementation of appropriate activities and materials for children. Students will spend one hour each week in a seminar session in addition to 60 clock hours in the field. May be taken again for credit. Prerequisite: CHD 165. Lecture: 1 hour per week. Laboratory: 6 hours. Total: 7 hours per week.

CHD 270  
Administration of Early Childhood Programs  
(3 credits)  
Examines the skills needed for establishing and managing early childhood programs. Emphasizes professionalism and interpersonal skills, program planning, staff selection and development, creating policies, budgeting and developing forms for recordkeeping. Lecture: 3 hours per week.

CHD 290  
Coordinated Practice  
(3 credits)  
Supervises on-the-job training in selected business, industrial or service firms coordinated by the college. Credit/practice ratio not to exceed 1:5 hours. May be repeated for credit. Variable hours.

CHD 298  
Seminar Portfolio Development  
(1 credit)  
Requires completion of a project or research report related to the student’s occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field.
Civil Engineering

CIV 171
Surveying I
(3 credits)
Introduces surveying equipment, procedures and computations including adjustment of instruments, distance measurement, leveling, angle measurement, traversing, traverse adjustments, area computations and introduction to topography. Prerequisite: Engineering Technical Mathematics or divisional approval. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.

CIV 172
Surveying II
(3 credits)
Introduces surveys for transportation systems including the preparation and analysis of topographic maps, horizontal and vertical curves, earthwork and other topics related to transportation construction. Prerequisite: CIV 171 or by permission of instructor. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.

Communication Studies and Theatre

CST 100
Principles of Public Speaking
(3 credits)
Applies theory and principles of public address with emphasis on preparation and delivery. Lecture: 3 hours per week.

CST 110
Introduction to Communication
(2 – 3 credits)
Examines the elements affecting speech communication at the individual, small group, and public communication levels with emphasis on practice of communication at each level. Lecture: 2 – 3 hours per week.

CST 111
Voice and Diction I
(3 credits)
Enables students to improve pronunciation, articulation, and voice quality. Includes applied phonetics. Lecture: 3 hours per week.

CST 115
Small Group Communication
(3 credits)
Emphasizes the development of presentational ability in a group, decision-making, group maintenance, and leadership and participant skills. Incorporates a preliminary study of group dynamics. Lecture: 3 hours per week.

CST 130
Introduction to the Theatre
(3 credits)
Surveys the principles of drama, the development of theatre production and selected plays to acquaint the student with various types of theatrical presentations. Lecture: 3 hours per week.

CST 131 – 132
Acting I – II
(3 credits each)
Develops personal resources and explores performance skills through such activities as theatre games, role playing, improvisation, work on basic script units and performance of scenes. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.

CST 136
Theatre Workshop
(1 – 6 credits)
Enables students to work in various activities of play production. The student participates in performance, set design, stage carpentry, sound, costuming, lighting, stage managing, props, promotion or stage crew. May be repeated for credit. Variable hours per week.

CST 137
Oral Interpretation
(3 credits)
Studies the theory and practice of performing various types of literature: prose, poetry, and drama. Emphasizes the relationship among the oral interpreter, the literary work, and the audience. Lecture: 3 hours per week.

CST 140
Acting for the Camera
(3 credits)
Explores the practical and artistic elements involved in acting for the camera through such activities as: performance of commercial, film and television scripts, developing knowledge of the technical side of camera work and the study of the business of acting. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

CST 151
Film Appreciation I
(3 credits)
Provides students with a critical understanding of film through the discussion and viewing of motion pictures with emphasis upon the study of film history and the forms and functions of film. Students will develop skills to analyze the shared social, cultural and historical influences of films and their contexts. Part I of II. Lecture: 3 hours per week.
CST 160  
**Improvisation I**  
(3 credits)  
Explores the basic techniques of improvisation through short and long form exercises and the study of the history of improvisation and improvisation theory and practices. Lecture: 3 hours per week.

CST 161  
**Improvisation II**  
(3 credits)  
Explores the basic techniques of improvisation through short and long form exercises and the study of the history of improvisation and improvisation theory and practices. Includes more extensive study of long form and in-depth character development. Lecture: 3 hours per week.

CST 210  
**Theatre Aesthetics**  
(3 credits)  
Introduces the study of theatre aesthetics through exploration into the theatrical theories, styles, dramaturgical structures, and types of dramatic literature, which have influenced playwriting and theatrical practice from the ancient Greek to Modern periods. Lecture: 3 hours per week.

CST 227  
**Business and Professional Communication**  
(3 credits)  
Emphasizes principles and practical application to effective professional oral communication behaviors to include speaking, listening, and relating, and rhetorical sensitivity within professional, business, and organizational contexts. Lecture: 3 hours per week.

CST 231 – 232  
**History of Theatre I – II**  
(3 credits each)  
Analyzes and studies theatre history to include architecture, performers and performance, playwrights, stage, production methods and audience from the Greeks through modern drama. Lecture: 3 hours per week.

CST 252  
**Costume and Make-up for the Theatre**  
(3 credits)  
Provides students with a basic understanding of the principle of costuming and make-up for the theatre. Instructs in the fundamentals of costumes such as: function, research techniques, design, materials and construction. Instructs in the fundamentals of make-up such as: basic make-up techniques, supplies, and the design of straight, character, and special effect applications. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

CST 267  
**Creative Drama**  
(3 credits)  
Explores uses of drama through story dramatization, role-playing, and sensory exercises. Lecture: 3 hours per week.

**COMPUTER-AIDED DRAFTING AND DESIGN**

CAD 151  
**Engineering Drawing Fundamentals I**  
(3 credits)  
Introduces technical drafting from the fundamentals through advanced drafting practices. Includes lettering, geometric construction, technical sketching, orthographic projection, sections, intersections, development, fasteners. Teaches theory and application of dimensioning and tolerances, pictorial drawing, and preparation of drawings. Part I of II. (Credit will not be awarded for both CAD 151 and DRF 151.) Lecture: 1 hour. Laboratory: 4-6 hours. Total: 5-7 hours per week.

CAD 152  
**Engineering Drawing Fundamentals II**  
(3 credits)  
Introduces technical drafting from the fundamentals through advanced drafting practices. Includes lettering, geometric construction, technical sketching, orthographic projection, sections, intersections, development, fasteners. Teaches theory and application of dimensioning and tolerances, pictorial drawing, and preparation of drawings. Part II of II. (Credit will not be awarded for both CAD 152 and DRF 152.) Lecture: 1 hour. Laboratory: 4-6 hours. Total: 5-7 hours per week.

CAD 201  
**Computer Aided Drafting and Design I**  
(3 – 4 credits)  
Teaches computer-aided drafting concepts and equipment designed to develop a general understanding of components of a typical CAD system and its operation. (Credit will not be awarded for both CAD 201 and DRF 201.) Lecture: 2-3 hours. Laboratory: 2-3 hours. Total: 4-6 hours per week.

CAD 202  
**Computer Aided Drafting and Design II**  
(3 – 4 credits)  
Teaches production drawings and advanced operations in computer aided drafting. (Credit will not be awarded for both CAD 202 and DRF 202.) Lecture: 2-3 hours. Laboratory: 2-3 hours. Total: 4-6 hours per week.
CAD 231  
**Computer Aided Drafting I**  
(2 – 3 credits)  
Teaches computer aided drafting concepts and equipment designed to develop a general understanding of components and operate a typical CAD system. (Credit will not be awarded for both CAD 231 and DRF 231.) Lecture: 1-2 hours. Laboratory: 2-3 hours. Total: 3-5 hours per week.

CAD 241  
**Parametric Solid Modeling I**  
(3 – 4 credits)  
Focuses on teaching students the design of parts by parametric solid modeling. Topics covered will include, but not limited to, sketch profiles; geometric and dimensional constraints; 3-D features; model generation by extrusion, revolution and sweep; and the creation of 2-D drawing views that include sections, details and auxiliary. Part I of II. (Credit will not be awarded for both CAD 241 and DRF 241.) Lecture: 2-3 hours. Laboratory: 2-3 hours. Total: 4-6 hours per week.

CAD 260  
**Computer Applications for Surveyors and Technicians**  
(3 credits)  
Studies and evaluates numerous COGO software and associated drafting packages. Includes calculations and drafting of traverse adjustment, subdivision, and curves. (Credit will not be awarded for both CAD 260 and DRF 260.) Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

CAD 262  
**Computer-Aided Civil Design and Hydrology**  
(3 credits)  
Introduces computer-aided-design for civil/surveying as applied to highway design, site layout, advanced, highway design, hydrology tools, watershed analysis, and pipe sizing. (Credit will not be awarded for both CAD 262 and DRF 262.) Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

Drafting

DRF 160  
**Machine Blueprint Reading**  
(3 credits)  
Introduces interpreting of various blueprints and working drawings. Applies basic principles and techniques such as visualization of an object, orthogonal projection, technical sketching and drafting terminology. Requires outside preparation. Lecture: 3 hours per week.

Economics

ECO 120  
**Survey of Economics**  
(3 credits)  
Presents a broad overview of economic theory, history, development and application. Introduces terms, definitions, policies and philosophies of market economies. Provides some comparison with other economic systems. Includes some degree of exposure to microeconomic and macroeconomic concepts. Lecture: 3 hours per week.

ECO 201  
**Principles of Macroeconomics**  
(3 credits)  
Introduces macroeconomics, including the Keynesian, classical, monetarist principles and theories, the study of national economic growth, inflation, recession, unemployment, financial markets, money and banking and the role of government spending and taxation, along with international trade and investments. Lecture: 3 hours per week.

ECO 202  
**Principles of Microeconomics**  
(3 credits)  
Introduces the basic concepts of microeconomics. Explores the free market concepts with coverage of economic models and graphs, scarcity and choices, supply and demand, elasticities, marginal benefits and costs, profits and production and distribution. Lecture: 3 hours per week.

Education

EDU 114  
**Driver Task Analysis**  
(3 credits)  
Introduces the “driver task” as related to the highway transportation system and factors that influence performance ability. Prepares students so they may be eligible to take certification exams for driving school instructors in both public and private schools. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

EDU 200  
**Introduction to Teaching as a Profession**  
(3 credits)  
Provides an orientation to the teaching profession in Virginia, including historical perspectives, current issues, and future trends in education on the national and state levels. Emphasizes information about teacher licensure examinations, steps to certification, teacher preparation and induction programs, and attention to critical shortage areas in Virginia. Includes supervised field placement (recommended: 40 clock hours) in a K – 12 school. Prerequisite: Successful completion of 24 credits of transfer courses. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.
EDU 214  
**Instructional Principles of Driver Education**  
(3 credits)  
Analyzes rules and regulations that govern the conduct of Driver Education programs with special emphasis on organization and administration. Includes uses in the classroom, driving range and on the street. Prepares students so they may be eligible to take the state certification exam in driver education. Prerequisite: EDU 114. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

EDU 235  
**Health, Safety and Nutrition Education**  
(3 credits)  
Focuses on the physical needs of children and explores strategies to meet these needs. Emphasizes positive health routines, hygiene, nutrition, feeding and clothing habits, childhood diseases and safety. Places emphasis on the development of food habits and concerns in food and nutrition. Describes symptoms and reporting procedures for child abuse. Lecture: 3 hours per week.

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### Electrical Technology

**ELE 110**  
**Home Electric Power**  
(3 credits)  
Covers the fundamentals of residential power distribution, circuits, panels, fuse boxes, breakers, transformers. Includes study of the national electrical code, purpose and interpretation. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

**ELE 118**  
**Practical Electricity**  
(2 credits)  
Teaches fundamentals of electricity, terminology and symbols, diagrams, the principles essential to the understanding of general practices, safety and the practical aspects of residential and non-residential wiring, electrical installation. Lecture: 1 hour. Laboratory: 2 hours. Total: 3 hours per week.

**ELE 127**  
**Residential Wiring Methods**  
(2 – 3 credits)  
Studies wiring methods and standards used for residential dwellings. Provides practical experience in design, layout, construction, and testing of residential wiring systems by use of scaled mock-ups. Lecture: 1 – 2 hours. Laboratory: 2 – 3 hours. Total: 4 – 5 hours per week.

**ELE 131**  
**National Electrical Code I**  
(3 credits)  
Provides comprehensive study of the purpose and interpretations of the National Electric Code as well as familiarization and implementation of various charts, code rulings and wiring methods including state and local regulations. Lecture: 3 hours per week.

**ELE 135**  
**National Electrical Code - Residential**  
(3 – 4 credits)  
Studies purposes and interpretations of the national electrical code that deals with single and multi-family dwellings, including state and local regulations. Lecture: 2 – 3 hours. Laboratory: 2 – 4 hours. Total: 4 – 5 hours per week.

**ELE 137**  
**National Electrical Code – Industrial**  
(3 credits)  
Provides comprehensive study of the purposes and interpretations of the National Electrical Code that deal primarily with industrial wiring methods, including state and local regulations. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

**ELE 138**  
**National Electrical Code Review I**  
(3 credits)  
Covers purpose and interpretation of the National Electrical Code as well as various charts, code rulings and wiring methods. Prepares the student to take the journeyman-level exam. Lecture: 3 hours per week.

**ELE 150**  
**A.C. and D.C. Circuit Fundamentals**  
(3 – 4 credits)  
Provides an intensive study of the fundamentals of direct and alternating current, resistance, magnetism, inductance and capacitance, with emphasis on practical applications. Focuses on electrical/machines applications. Lecture: 2 – 3 hours. Laboratory: 2 hours. Total: 4 – 5 hours per week.

**ELE 151**  
**Electrical Troubleshooting**  
(3 credits)  
Teaches troubleshooting as applied to residential wiring and/or electrical appliances. Lecture: 2 hours. Laboratory: 3 hours. Total 5: hours per week.

**ELE 156**  
**Electrical Control Systems**  
(3 credits)  
Includes troubleshooting and servicing electrical controls, electric motors, motor controls, motor starters, relays, overloads, instruments and control circuits. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

**ELE 159**  
**Electrical Motors**  
(3 credits)  
Teaches practical applications and fundamentals of A.C. and D.C. machines. Includes the concepts of magnetism and generators used in electrical motor applications. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.
ELE 239
Programmable Controllers
(3 credits)
Deals with installation, programming, interfacing and concepts of troubleshooting programmable controllers. Prerequisite: ELE 122 or by permission of instructor. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.

ELE 240
Advanced Programmable Logic Controllers
(3 – 4 credits)
Advances further study of Programmable Logic Controllers that was initiated in ELE 239. Students will learn to use more advanced program instructions, including data manipulation, sequences and program control, and advanced PLC features, including timers, counters. Covers connectivity and use of a variety of real world I/O devices. Prerequisite: ELE 239. Lecture: 2 – 3 hours. Laboratory: 0 – 3 hours. Total: 3 – 6 hours per week.

Emergency Medical Services

EMS 100
CPR for Healthcare Providers
(1 credit)
Provides instruction in Cardiopulmonary Resuscitation that meets current Emergency Cardiac Care (ECC) guidelines for Cardiopulmonary Resuscitation education for Healthcare Providers. Equivalent to HLT 105. Lecture: 1 hour per week.

EMS 110
Emergency Vehicle Operator’s Course (EVOC)
(1 credit)
Prepares the student for certification in the operation of various emergency vehicles. Teaches proper operating procedures in both emergency and non-emergency situations. Lecture: 1 hour per week.

EMS 111
Emergency Medical Technician – Basic
(6-7 credits)
Prepares student for certification as a Virginia and National Registry EMT-Basic. Focuses on all aspects of pre-hospital basic life support as defined by the Virginia Office of Emergency Medical Services curriculum for Emergency Medicine Technician Basic. Prerequisite: EMS 100/ equivalent Corequisite: EMS 120. Lecture: 4-5 hours. Laboratory: 4 hours. Total: 8-9 hours per week.

EMS 120
Emergency Medical Technician - Basic Clinical
(1 credit)
Observes in a program approved clinical/field setting. Includes topics for both EMS 111 and EMS 113, dependent upon the program in which the student is participating and is a corequisite to both EMS 111 and EMS 113. Lecture: 1 hour per week.

EMS 132
Vehicle Rescue
(1 – 2 credits)
Educates Fire and EMS personnel in basic vehicle rescue. Teaches safe and proficient techniques for using air, manual and hydraulic tools. Lecture: 1 – 2 hours per week.

EMS 145
EMS Responses to Specialized Incidents
(3 credits)
Presents the EMS response and mitigation of specialized incidents such as hazardous materials, Weapons of Mass Destruction, natural disasters, and other specialized multi-casualty incidents. Lecture: 3 hours per week.

EMS 151
Introduction to Advanced Life Support
(4 credits)
Prepares the student for Virginia Enhanced certification eligibility and begins the sequence for National Registry Intermediate and/or Paramedic certification. Includes the theory and application of the following: foundations, human systems, pharmacology, overview of shock, venous access, airway management, patient assessment, respiratory emergencies, allergic reaction, and assessment based management. Conforms to a minimum to the Virginia Office of Emergency Medical Services curriculum. Corequisite: EMS 170. Lecture: 3 hours. Laboratory: 2 hours. Total: 5 hours per week.

EMS 153
Basic ECG Recognition
(2 credits)
Focuses on the interpretation of basic electrocardiograms (ECG) and their significance. Includes an overview of anatomy and physiology of the cardiovascular system including structure, function and electrical conduction in the heart. Covers advanced concepts that build on the knowledge and skills of basic dysrhythmia determination and introduction to 12 lead ECG. Lecture: 2 hours per week.

EMS 155
ALS – Medical Care
(4 credits)
Continues the Virginia Office of Emergency Medical Services Intermediate and/or Paramedic curriculum. Includes ALS pharmacology, drug and fluid administration with emphasis on patient assessment, differential diagnosis and management of multiple medical complaints. Includes, but are not limited to conditions relating to cardiac, diabetic, neurological, non-traumatic abdominal pain, environmental, behavioral, gynecology, and toxicological disease conditions. Prerequisites: Current EMT-B certification, EMS 151 and EMS 153. Lecture: 3 hours. Laboratory: 2 hours. Total: 5 hours per week.
EMS 157  
ALS – Trauma Care  
(3 credits)  
Continues the Virginia Office of Emergency Medical Services Intermediate and/or Paramedic curricula. Utilizes techniques which will allow the student to utilize the assessment findings to formulate a field impression and implement the treatment plan for the trauma patient. Prerequisites: Current EMT-B certification and EMS 151. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

EMS 159  
ALS – Special Populations  
(2 credits)  
Continues the Virginia office of Emergency Medical Services Intermediate and/or Paramedic curricula. Focuses on the assessment and management of specialty patients including obstetrical, neonates, pediatric, and geriatrics. Prerequisites: EMS 151 and EMS 153. Prerequisite or corequisite: EMS 155. Lecture: 1 hour. Laboratory: 2 hours. Total: 3 hours per week.

EMS 170  
ALS Internship I  
(1 credit)  
Begins the first in a series of clinical experiences providing supervised direct patient contact in appropriate patient care facilities in and out of hospitals. Includes but not limited to patient care units such as the emergency department, critical care units, pediatric, labor and delivery, operating room, trauma centers and various advanced life support units. Laboratory: 3 – 6 hours per week.

EMS 172  
ALS Clinical Internship II  
(1 credit)  
Continues with the second in a series of clinical experiences providing supervised direct patient contact in appropriate patient care facilities in and out of hospitals. Includes but not limited to patient care units such as the emergency department, critical care units, pediatric, labor and delivery, operating room and trauma centers. Corequisite: EMS 151. Laboratory: 3 – 6 hours per week.

EMS 173  
ALS Field Internship II  
(1 credit)  
Continues with the second in a series of field experiences providing supervised direct patient care in out-of-hospital advanced life support units. Laboratory: 3 hours per week.

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Engineering

EGR 120  
Introduction to Engineering  
(1 credit)  
Introduces the engineering profession, professional concepts, ethics, and responsibility. Reviews hand calculators, number systems, and unit conversions. Introduces the personal computer and operating systems. Includes engineering problem-solving techniques using computer software. Lecture: 1 hour.

EGR 126  
Computer Programming for Engineers  
(3 credits)  
Introduces computers, their architecture and software. Teaches program development using flowcharts. Solves engineering problems involving programming in languages such as FORTRAN, PASCAL, or C++. Lecture: 3 hours.

EGR 140  
Engineering Mechanics: Statics  
(3 credits)  
Introduces mechanics of vector forces and space, scalar mass and time, including S.I. and U.S. customary units. Teaches equilibrium, free-body diagrams, moments, couples, distributed forces, centroids, moments of inertia analysis of two-force and multi-force members. Prerequisite: MTH 116 or MTH 164 or by permission of the instructor. Lecture: 3 hours per week.

EGR 216  
Computer Methods in Engineering and Technology  
(3 credits)  
Provides advanced level experience in using a computer as a tool for solving technical problems and performing office functions. Includes computer hardware and operating system usage, structured programming in a selected high level language, use of word processing software, computer graphics and spreadsheets. Focuses on the analysis and solution of problems in engineering and technology. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

EGR 245  
Engineering Mechanics – Dynamics  
(3 credits)  
Presents approach to kinematics of particles in linear and curvilinear motion. Includes kinematics of rigid bodies in plane motion. Teaches Newton’s second law, work-energy and power, impulse and momentum, and problem solving using computers. Lecture: 3 hours per week.
EGR 246
Mechanics of Materials
(3 credits)
Teaches concepts of stress, strain, deformation, internal equilibrium, and basic properties of engineering materials. Analyzes axial loads, torsion, bending, shear and combined loading. Studies stress transformation and principle stresses, column analysis and energy principles. Lecture: 3 hours per week.

EGR 248
Thermodynamics for Engineering
(3 credits)
Studies formulation of the first and second law of thermodynamics. Presents energy conversion, concepts of energy, temperature, entropy, and enthalpy, equations of state of fluids. Covers reversibility and irreversibility in processes, closed and open systems, cyclical processes and problem solving using computers. Lecture: 3 hours per week.

English

ENG 1
Preparing for College Writing I
(1 – 6 credits)
Helps students discover and develop writing processes needed to bring their proficiency to the level necessary for entrance into their respective curricula. Guides students through the process of starting, composing, revising and editing. Variable hours per week.

ENG 3
Preparing for College Writing II
(1 – 6 credits)
Emphasizes strategies within the writing process to help students with specific writing situations. Develops techniques to improve clarity of writing and raise proficiency to the level necessary for entrance into particular curricula. Variable hours per week.

ENG 5
Preparing for College Reading II
(1 – 6 credits)
Prepares students to be successful in college-level reading assignments. Emphasizes strategies within the reading process to help students read critically and increase appreciation of reading. Guides the student in making inferences, drawing conclusions, detecting relationships between generalizations and supporting details. Includes interpreting graphic aids and library skills. Lecture: 1 – 6 hours per week.

ENG 6
Reading in the Content Areas
(1 – 6 credits)
Presents reading methods and study skills appropriate for specific courses to increase students’ reading and studying efficiency. Must be taken with a content area course. Course content may be planned jointly by faculty in English and related discipline. Variable hours per week.

ENG 111
College Composition I
(3 credits)
Introduces students to critical thinking and the fundamentals of academic writing. Through the writing process, students refine topics; develop and support ideas; investigate, evaluate, and incorporate appropriate resources; edit for effective style and usage; and determine appropriate approaches for a variety of contexts, audiences, and purposes. Writing activities will include exposition and argumentation with at least one researched essay.

ENG 112
College Composition II
(3 credits)
Continues to develop college writing with increased emphasis on critical essays, argumentation, and research, developing these competencies through the examination of a range of texts about the human experience. Requires students to locate, evaluate, integrate, and document sources and effectively edit for style and usage.

ENG 115
Technical Writing
(3 credits)
Develops ability in technical writing through extensive practice in composing technical reports and other documents. Guides students in achieving voice, tone, style and content in formatting, editing and graphics. Introduces students to technical discourse through selected reading. Lecture: 3 hours per week.

ENG 121
Introduction to Journalism I
(3 credits)
Introduces students to all news media, especially news gathering and preparation for print. Prerequisite: ENG 111 or 112 or divisional approval. Part I of II. Lecture: 3 hours per week.

ENG 211 – 212
Creative Writing I – II
(3 credits each)
Introduces the student to the fundamentals of writing imaginatively. Students write in forms to be selected from poetry, fiction, drama and essays. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 217
Creative Writing - Poetry I
(3 credits)
Introduces the fundamentals and techniques of writing poetry. Part I of II. Lecture: 3 hours per week.

ENG 241 – 242
Survey of American Literature I – II
(3 credits each)
Examines American literary works from Colonial times to the present, emphasizing the ideas and characteristics of our national literature. Involves critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.
ENG 243 – 244
Survey of English Literature I – II
(3 credits each)
Studies major English works from the Anglo-Saxon period to the present, emphasizing ideas and characteristics of the British literary tradition. Involves critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 246
Major American Writers
(3 credits)
Examines major writers of American literary history. Involves critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 247
Survey of Popular Culture
(3 credits)
Analyzes familiar aspects of American culture, as seen through popular literature, with additional emphasis on television, film and popular art. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 251 – 252
Survey of World Literature I – II
(3 credits each)
Examines major works of world literature. Involves critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 253 – 254
Survey of African – American Literature I – II
(3 credits each)
Examines selected works by Black American writers from the colonial period to the present. Involves critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 256
Literature of Science Fiction
(3 credits)
Examines the literary and social aspects of science fiction, emphasizing development of ideas and techniques through the history of the genre. Involves critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 257
Mythology
(3 credits)
Studies selected mythologies of the world, emphasizing their common origins and subsequent influence on human thought and expression. Involves critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 268
The Modern Drama
(3 credits)
Studies the modern drama. Emphasizes the understanding and enjoyment of dramatic literature. Requires critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 271 – 272
The Works of Shakespeare I – II
(3 credits each)
Examines selected works of Shakespeare. Involves critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 273 – 274
Women in Literature I – II
(3 credits each)
Examines literature by and about women. Involves critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 276
Southern Literature
(3 credits)
Examines the themes and techniques of selected writers dealing with the American South as a distinctive cultural entity. Involves critical reading and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

ENG 279
Film and Literature
(3 credits)
Examines the translation of literature into film viewing and writing. Prerequisite: ENG 112 or divisional approval. Lecture: 3 hours per week.

Environmental Science

ENV 40
Basic Certification Preparation: Wastewater
(1 credit)
Reviews materials which normally are associated with the wastewater treatment plant operator’s Class IV or Class III level certification examinations. Utilizes lecture, audiovisual and workshop sessions to review required materials and to prepare the trainee to complete the wastewater operator examinations. Prerequisite: divisional approval. Laboratory: 2 hours per week.

ENV 136
Survey of Environmental Concerns
(3 credits)
Studies the relationship of man to his physical environment, ecological principles and public health. Topics of current importance include air pollution, potable water, waste disposal, communicable disease, poisoning and toxicity and radiation with particular emphasis on community action programs.
ENV 146
Advanced Certification Preparation: Wastewater
(1 credit)
Reviews the materials associated with the wastewater
treatment plant operator’s Class II or Class I level certification
examinations. Consists of lecture, audiovisual and workshop
sessions to review the required material and to prepare the
trainee to complete the wastewater operator’s examination.
Prerequisite: divisional approval. Laboratory: 2 hours per week.

ENV 220
Environmental Problems
(3 credits)
Studies the relationship of man to his environment; ecological
principles, population dynamics, topics of current importance
including air, water and noise pollution; poisoning and toxicity,
radiation, conservation and management of natural resources.
Lecture: 3 hours per week.

Financial Services

FIN 107
Personal Finance
(3 credits)
Presents a framework of personal money management concepts,
including establishing values and goals, determining sources
of income, managing income, preparing a budget, developing
consumer buying ability, using credit, understanding savings
and insurance, providing for adequate retirement, and estate
planning. Lecture: 3 hours per week.

FIN 215
Financial Management
(3 credits)
Introduces basic financial management topics including
statement analysis, working capital, capital budgeting, and long-
term financing. Focuses on Net Present Value and Internal Rate
of Return techniques, lease vs. buy analysis, and Cost of Capital
computations. Uses problems and cases to enhance skills in
financial planning and decision making. Prerequisite: ACC 211.
Lecture: 3 hours per week.

French

FRE 101 – 102
Beginning French I – II
(4 credits)
Introduces understanding, speaking, reading and writing skills
and emphasizes basic French sentence structure. Lecture: 4 – 5
hours per week. May include one additional hour of oral practice
per week.

FRE 201 – 202
Intermediate French I – II
(3 – 4 credits each)
Continues to develop understanding, speaking, reading and
writing skills. French is used in the classroom. Prerequisite: FRE
102 or equivalent. Lecture: 3 – 4 hours per week. May include
one additional hour of oral practice per week.

Funeral Services

FNS 110
Introduction to Funeral Service
(3 credits)
Presents a comprehensive study of the history of funeral
service, commencing with the practices of the Egyptians, early
Christians, Romans, and Hebrews. Traces funeral practice from
its early pagan origins to the modern practices of today. May
include the study of the sociology of funeral service. Lecture: 3
hours per week.

FNS 111
Theory of Embalming I
(3 credits)
Introduces the purpose and historical background of embalming.
Teaches the ethics and sanitary consideration in the handling
of human remains, signs and tests of deaths, and postmortem
changes in the body. Corequisite: FNS 113. Lecture: 3 hours per
week.

FNS 112
Theory of Embalming II
(3 credits)
Presents pre-embalming diagnosis, positioning the body and
posing the features, linear and anatomical guides for selected
blood vessels, and factors that influence fluid distribution and
blood drainage. Prerequisites: FNS 111, FNS 113. Corequisite:
FNS 114. Lecture: 3 hours per week.

FNS 113
Theory of Embalming Laboratory I
(1 credit)
Teaches the basic procedures of embalming. Presents
instruments, equipment, and the types of preservatives and
disinfectant chemicals used in embalming. Corequisite: FNS
111. Laboratory: 3 hours per week.

FNS 114
Theory of Embalming Laboratory II
(1 credit)
Teaches through practice and demonstration of various
embalming techniques. May include clinical experiences in area
funeral homes. Prerequisites: FNS 111, FNS 113. Corequisite:
FNS 112. Laboratory: 3 hours per week.
**FNS 121**
*Anatomy for Funeral Service I*
(3 credits)
Introduces anatomy and physiology and basic terminology. Presents information about cells, tissues and organs systems. Discusses all systems with emphasis placed on muscular, skeletal and circulatory. Lecture: 3 hours per week.

**FNS 123**
*Anatomical Dissection*
(1 credit)
Examines the human body and related systems utilizing structured anatomical dissection of cadavers. Provides hands-on experiences for students to supplement material presented in anatomical related lecture courses. Laboratory: 2 hours per week. Prerequisites: FNS 121, BIO 141, BIO 142.

**FNS 125**
*Microbiology for Funeral Service*
(3 credits)
Focuses on microscopic forms of life from a morphological, cultural and staining viewpoint. Studies in detail causative agents of disease and their importance to a scientific approach to sanitation. Stresses the need for scientific knowledge concerning disease and its cause. Lecture: 3 hours per week.

**FNS 126**
*Pathology for Funeral Service*
(3 credits)
Introduces the general processes of disease, stressing their importance to the scientific embalmer and funeral director as health guardians. Studies diseases of specific organs and organ systems with emphasis on the significant structural changes involved and the embalming problems they present. Lecture: 3 hours per week.

**FNS 211**
*Restorative Art I*
(3 credits)
Presents surface contour; the influence of the bone structure on facial form; and the effect of the facial muscles on wrinkles, grooves, and folds of the face. Teaches the treatments and techniques for restorations. Introduces wax and non-wax treatments such as swellings, feature corrections, and hair restoration. Studies lip-waxing techniques and the modeling of various forms of the mouth and eyes. Teaches the rudiments of cosmetic knowledge and techniques through lectures, demonstrations, and student participation. Prerequisite: Sophomore standing. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

**FNS 213**
*Restorative Art*
(3 credits)
Presents surface contour, the influence of the bone structure on facial form and the effect of facial muscles on the wrinkles, grooves and folds of the face. Studies color principles and their applications. Teaches wax and nonwax treatments for restorations. Studies lip-waxing techniques and the modeling of various forms of the mouth and eyes. Focuses on problem cases which require illusory corrections, matching wax color to skin and masking of discolorations. Lecture: 3 hours per week.

**FNS 214**
*Restorative Art Techniques and Lab*
(1 credit)
The technical application of restorative art theory with special attention to minor and major restorative techniques, wax treatments, cosmetic applications, and the presentation of remains. Laboratory: 3 hours per week.

**FNS 231**
*Principles of Funeral Management I*
(4 credits)
Introduces the basic social, religious, ethical and psychological factors that influence funeral service. Teaches telephone techniques and etiquette and acceptable funeral terminology. Studies the various types of religious, fraternal and military funeral services. Prerequisite: Sophomore standing. Lecture: 4 hours per week.

**FNS 232**
*Principles of Funeral Management II*
(4 credits)
Teaches merchandising, the principles of buying and selling and the techniques of making funeral arrangements. Studies the construction and proper selection of casket, room arrangement and social security and veterans’ benefits. Focuses on modern funeral establishment management techniques and procedures. Prerequisite: FNS 231. Lecture: 4 hours per week.

**FNS 236**
*Funeral Service Law*
(2-3 credits)
Focuses on the duties, rights, responsibilities, and liabilities of the funeral director and embalmer. Teaches building and zoning ordinances relating to the funeral establishment, tort liability, cemetery law, wills, and the administration of estates. May include the study of state laws as they pertain to funeral services. Lecture: 2-3 hours per week.
FNS 245  
Ethics  
(3 credits)  
Provides a review of the Funeral Service curriculum by administering a series of exams on required content that the student must successfully pass. Allows students to choose and develop an expanded outline of one specific topic in Funeral Services which will be included in the final grade. Includes a required section on ethics in the field of Funeral Services and prepares the student to sit for the national and state licensing examinations. Lecture: 3 hours per week.

FNS 270  
Funeral Service Review  
(3 credits)  
Prepares the student for national and state licensing examination in funeral service. Reviews all materials that will be covered by funeral service licensing examinations. Teaches modern test-taking techniques. Requires the writing of a detailed outline of one funeral service subject which determines the final grade. Prerequisite sophomore standing. Lecture: 3 hours per week.

Geography

GEO 200  
Introduction to Physical Geography  
(3 credits)  
Studies major elements of the natural environment including earth sun relationship, land forms, weather and climate, natural vegetation and soils. Introduces the student to types and uses of maps. Lecture: 3 hours per week.

GEO 210  
People and the Land: An Introduction to Cultural Geography  
(3 credits)  
Focuses on the relationship between culture and geography. Presents a survey of modern demographics, landscape modification, material and non material culture, language, race and ethnicity, religion, politics and economic activities. Introduces the student to types and uses of maps. Lecture: 3 hours per week.

GEO 221 – 222  
Regions of the World  
(3 credits each)  
Presents an overview of the physical and cultural characteristics of selected geographical regions of the world. Focuses upon significant problems within each of the regions. Studies the European cultural sphere including Europe, Soviet Union, the Americas, Australia and the emerging nations in Africa, Southwest Asia and the Orient. Introduces the student to types and uses of maps. Lecture: 3 hours per week.

GEOGRAPH INFO SYSTEMS

GIS 101  
Introduction to Geospatial Technology I  
(3 credits)  
Provides an introduction to the concepts of Geographic Information Systems (GIS), Global Positioning Systems, (GPS) and remote sensing components of Geospatial Technology. Teaches the introductory concepts of geographic location and problem solving by using GIS and GPS units in demonstrating solutions to cross-curricular applications of the technology. Part I of II. Prerequisite: Basic Computer Literacy. Lecture: 3 hours per week.

Geology

GOL 105  
Physical Geology  
(4 credits)  
Introduces the composition and structure of the earth and modifying agents and processes. Investigates the formation of minerals and rocks, weathering, erosion, earthquakes and crustal deformation. Lecture: 3 hours. Laboratory: 3 hours. Total: 6 hours per week.

Health

HLT 100  
First Aid and Cardiopulmonary Resuscitation  
(2 credits)  
Focuses on the principles and techniques of safety, first aid and cardiopulmonary resuscitation. Lecture: 2 – 3 hours per week.

HLT 106  
First Aid and Safety  
(2 credits)  
Focuses on the principles and techniques of safety and first aid. Lecture: 2 hours per week.

HLT 110  
Concepts of Personal and Community Health  
(2 credits)  
Studies the concepts related to the maintenance of health, safety, and the prevention of illness at the personal and community level. Lecture: 2 hours per week.

HLT 116  
Personal Wellness  
(2 credits)  
Familiarizes students with the components of wellness, including nutrition, weight control, stress management and physical conditioning. Includes a personal wellness plan. Lecture: 3 hours per week.
**HLT 120**  
**Foundations and Principles of Sport Coaching**  
(3 credits)  
Explores the foundational knowledge applicable to sports coaching. Presents an overview based on current sport science. Covers the coaching areas of philosophy, pedagogy, physical training, behavioral analysis, and risk management. Includes principles and techniques of coaching. Covers a review of local athletic policies, procedures, regulations, and rules. Fulfills the VHSL Component and the coaching Principles Component required by the state of Virginia for coaching. Lecture: 3 hours per week.

**HLT 135**  
**Child Health and Nutrition**  
(3 credits)  
Focuses on the physical needs of the preschool child and the methods by which these are met. Emphasizes health routines, hygiene, nutrition, feeding and clothing habits, childhood diseases, and safety as related to health growth and development. Lecture: 3 hours per week.

**HLT 138**  
**Principles of Nutrition**  
(2 credits)  
Studies nutrient components of food, including carbohydrates, fats, proteins, vitamins, minerals and water. Provides a behavioral approach to nutrient guidelines for the development and maintenance of optimum wellness. Lecture: 2 hours per week.

**HLT 141**  
**Introduction to Medical Terminology**  
(2 credits)  
Focuses on medical terminology for students preparing for careers in the health professions. Virtual course for surgical technology students. Lecture: 2 hours per week.

**HLT 143**  
**Medical Terminology I**  
(3 credits)  
Provides an understanding of medical abbreviations and terms. Includes the study of prefixes, suffixes, word stems and technical terms with emphasis on proper spelling, pronunciation and usage. Emphasizes more complex skills and techniques in understanding medical terminology. Lecture: 3 hours per week.

**HLT 156**  
**Health Care for Athletic Injuries**  
(2 – 3 credits)  
Teaches prevention and care of athletic injuries, recognition and management of head and spinal injuries, fractures, strains, sprains, as well as cardiac emergencies. Discusses taping, protective equipment, and medical referral. Lecture: 2 – 3 hours per week.

**HLT 160**  
**Personal Health and Fitness**  
(3 credits)  
Studies the relationships between health and fitness. Topics include nutrition, disease prevention, weight control, smoking and health, medical care, aerobic and anaerobic conditioning, and the relationship between physical and mental health. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

**HLT 200**  
**Human Sexuality**  
(3 credits)  
Provides a basic understanding of human sexuality. Includes anatomy, physiology, pregnancy, family planning, venereal diseases, and sexual variations. Lecture: 3 hours per week.

**HLT 204**  
**Women’s Health**  
(3 credits)  
Explores current issues related to women’s health and wellness with an emphasis upon prevention of disease and optimum well being. Takes a multi-ethnic approach to exploring the most up-to-date findings, diagnostic tools and treatments for breast cancer, reproductive tract illness, heart and other common diseases faced by women from puberty through menopause. Lecture: 3 hours per week.

**HLT 205**  
**Sex Roles in Contemporary America**  
(3 credits)  
Explores the changing roles of the sexes that have occurred from 1900 to the present. Includes sexual and social mores, inhibitions towards sexuality, and the influence of society and religion. Discusses psychological and emotional implications regarding sexuality for males and females and how to deal with them. Lecture: 3 hours per week.

**HLT 206**  
**Exercise Science**  
(3 credits)  
Surveys scientific principles, methodologies, and research as applied to exercise and physical fitness. Emphasizes physiological responses and adaptations to exercise. Addresses basic elements of kinesiology, biomechanics, and motor learning. Presents an introduction to the physical fitness industry. Lecture: 3 hours per week.

**HLT 215**  
**Personal Stress and Stress Management**  
(2 – 3 credits)  
Provides a basic understanding of stress and its physical, psychological, and social effects. Includes the relationships between stress and change, self-evaluation, sources of stress, and current coping skills for handling stress. Lecture: 2 – 3 hours per week.
HLT 226
AIDS Awareness
(2 credits)
Provides basic understanding of Acquired Immune Deficiency Syndrome (AIDS), AIDS-Related Complex (ARC) and Human Immunodeficiency Virus (HIV) Infection. Includes information on the etiology of AIDS, historical perspectives, signs and symptoms, HIV antibody testing, safer sex guidelines, AIDS in the workplace (including health care settings), psychosocial issues, death and dying issues, homophobia and HIV transmission and prevention. Lecture: 2 hours per week.

HLT 230
Principles of Nutrition and Human Development
(3 credits)
Teaches the relationship between nutrition and human development. Emphasizes nutrients, balanced diet, weight control and the nutritional needs of an individual. Lecture: 3 hours per week.

HLT 240
Consumer Health Education
(3 credits)
Focuses on health fads, myths, misunderstandings, quackeries, deceptions, and fraudulent health practices. Includes selecting and purchasing health products, services, consumer protections, and in the planning and financing of medical care. Lecture: 3 hours per week.

HLT 250
General Pharmacology
(2 – 3 credits)
Emphasizes general pharmacology for the health related professions covering general principles of drug actions/reactions, major drug classes, specific agent within each class, and routine mathematical calculations needed to determine desired dosages. Lecture: 2 – 3 hours per week.

HIS 121 – 122
United States History I – II
(3 credits each)
Surveys United States history from its beginning to the present. Lecture: 3 hours per week.

HIS 141 – 142
African-American History I – II
(3 credits each)
Surveys the history of black Americans from their African origins to the present. Lecture: 3 hours per week.

HIS 203
History of African Civilization
(3 credits)
Examines major social, economic, political and religious developments from earliest times to the present. Lecture: 3 hours per week.

HIS 211
History of England
(3 credits)
Surveys the history of the British Isles from pre-Celtic times to the present. Lecture: 3 hours per week.

HIS 225 – 226
Topics in European History I – II
(3 credits each)
Examines selected topics in the history of Europe from ancient times to the present. Lecture: 3 hours per week.

HIS 243 – 244
History of the Ancient World I – II
(3 credits each)
Studies the history of the ancient world from the dawn of civilization in the Near East to the fall of Rome. Lecture: 3 hours per week.

HIS 269
Civil War and Reconstruction
(3 credits)
Studies factors that led to the division between the states. Examines the war, the home fronts and the era of Reconstruction. Lecture: 3 hours per week.

HIS 276
United States History since World War II
(3 credits)
Investigates United States history from 1945 to the present, studying both domestic developments and American involvement in international affairs. Lecture: 3 hours per week.
HIS 277
The American Experience in Vietnam
(3 credits)
Analyzes American involvement in Vietnam from World War II with emphasis on the presidencies of Johnson, Nixon and Ford. Lecture: 3 hours per week.

HIS 281 – 282
History of Virginia I – II
(3 credits each)
Examines the cultural, political, and economic history of the Commonwealth from its beginning to the present. Lecture: 3 hours per week.

**Human Services**

HMS 100
Introduction to Human Services
(3 credits)
Introduces human service agencies, roles and careers. Presents a historical perspective of the field as it relates to human services today. Additional topics include values clarification and needs of target populations. Lecture: 3 hours per week.

HMS 106
Working with Death and Dying
(3 credits)
Studies the hospice concept emphasizing the management of providing services associated with terminal illness, while providing human services for the family as well as the patient. Explores the unique role of each member of the hospice care team as to how each assists the patient and family in coping with the effects of the illness. Emphasizes understanding grief and loss. Focuses on the dying person and emphasizes the social and moral aspects of death and dying. Lecture: 3 hours per week.

HMS 121
Basic Counseling Skills I
(3 credits)
Develops skills needed to function in a helping relationship. Emphasizes skills in attending, listening and responding. Clarifies personal skill strengths, deficits and goals for skill improvement. Prerequisite: HMS 100. Lecture: 3 hours per week.

HMS 225
Functional Family Intervention
(3 credits)
Provides an understanding of functions and dysfunctions within the family. Emphasizes the development of effective skills through an interpersonal/interactional approach to family intervention. Lecture: 3 hours per week.

HMS 226
Helping Across Cultures
(3 credits)
Provides an historical overview of selected cultural and racial groups. Promotes understanding of group differences and the impact on counseling services. Lecture: 3 hours per week.

HMS 227
The Helper as a Change Agent
(3 credits)
Teaches the following skills for implementing alternative models of change and influence: action research, problem-solving, consultation, workshop development and outreach and advocacy for diverse client populations. Prerequisite: HMS 100. Lecture: 3 hours per week.

HMS 228
Gerontology
(3 credits)
Examines the process of aging; its implications in relation to health, recreation, education, transportation, meaningful work or activity and to community resources. Emphasizes experiencing the aging process, facilitating retirement and application of the helping relationship to work with older adults. Prerequisite: HMS 100. Lecture: 3 hours per week.

HMS 251
Substance Abuse I
(3 credits)
Provides knowledge, skills and insight for working in drug and alcohol abuse programs. Emphasizes personal growth and client growth measures in helping relationships. Stresses various methods of individual and group techniques for helping the substance abuser. Lecture: 3 hours per week.

HMS 252
Substance Abuse II
(3 credits)
Expands knowledge and skill in working with the substance abuser. Focuses on assisting substance abusers in individual and group settings and explores client treatment modalities. May provide opportunities for field experience in treatment centers. Prerequisite: HMS 251. Lecture: 3 hours per week.

HMS 258
Case Management and Substance Abuse
(3 credits)
Focuses on the process for interviewing substance abuse clients. Includes intake, assessment, handling denial and ending the interview. Teaches skills for writing short-term goals and treatment plans with emphasis on accountability. Examines various reporting devices. Lecture: 3 hours per week.
Humanities

HUM 201
Survey of Western Culture I
(3 credits)
Studies thought, values and arts of Western culture, integrating major developments in art, architecture, literature, music and philosophy. Covers the following periods: ancient and classical, early Christian and Byzantine, medieval and early renaissance. Lecture: 3 hours per week.

HUM 202
Survey of Western Culture II
(3 credits)
Studies thought, values and arts of Western culture, integrating major developments in art, architecture, literature, music and philosophy. Covers the following periods: Renaissance, Baroque, enlightenment, romantic and modern. Lecture: 3 hours per week.

HUM 210
Introduction to Women’s Studies
(3 credits)
Introduces interdisciplinary and cross-cultural theories that explore gender, race, and class issues relating to women’s lives, past and present. Prerequisite: ENG 112. Lecture: 3 hours per week.

HUM 231 – 232
Survey of Asian Culture I – II
(3 credits each)
Studies thought, values and arts of Asian culture, integrating art, architecture, literature, music and philosophy of various cultures, including two or more of the following: India, China, Japan and Southeast Asia. Lecture: 3 hours per week.

HUM 241 – 242
Interdisciplinary Principles of the Humanities I – II
(3 credits each)
Integrates unifying principles of the humanities and related fields of study. Emphasizes the expansion of student’s intellectual perspective and development of concepts enabling the integration of knowledge from diverse fields into a unified whole. Lecture: 3 hours per week.

Industrial Engineering Technology

IND 101
Quality Assurance Technology I
(3 credits)
Studies principles and techniques of quality engineering for the management, design engineering economics, production and assurance of quality. Emphasizes fundamentals of total quality assurance for product and process control. May include design review, fundamentals of statistics procurement control, sampling and control chart systems, quality reporting, process capability analysis, tool and gauge control, document control or troubleshooting quality control. Prerequisite: MTH 103 or equivalent. Lecture: 3 hours per week.

IND 116
Applied Technology
(3 credits)
Introduces basic information and problem-solving techniques in liquids, gases, solids, metrics, mechanics, forces, simple machines, heat, light, sound and nuclear energy as applied in industrial engineering technologies. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

IND 125
Installation and Preventive Maintenance
(3 credits)
Studies practices in the installation of machinery, including mounting, grouting, leveling, and alignment. Examines methods of preventive maintenance including inspection, scheduled maintenance, controls, record keeping, repair parts stocking, and safety considerations. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

IND 137
Team Concepts and Problem Solving
(3 credits)
Studies team concepts and problem-solving techniques to assist project teams in improving quality and productivity. Provides knowledge of how to work as a team, plan and conduct good meetings, manage logistics and details, gather useful data, communicate the results and implement changes. Lecture: 3 hours per week.

IND 197
Cooperative Education
(1-5 credits)
Supervises in on-the-job training for pay in approved business, industrial and service firms, coordinated by the college’s cooperative education office. Is applicable to all occupational-technical curricula at the discretion of the college. Credit/work ratio not to exceed 1:5 hours. May be repeated for credit. Variable hours.
IND 297
Cooperative Education
(1-5 credits)
Supervises in on-the-job training for pay in approved business, industrial and service firms, coordinated by the college’s cooperative education office. Is applicable to all occupational-technical curricula at the discretion of the college. Credit/work ratio not to exceed 1:5 hours. May be repeated for credit. Variable hours.

Information Technology Database Processing

ITD 110
Web Page Design I
(3 credits)
Stresses a working knowledge of web site designs, construction, and management using HTML or XHTML. Includes headings, lists, links, images, image maps, tables, forms, and frames. Prerequisite: ITE 130. Lecture: 3 hours per week.

ITD 130
Database Fundamentals
(3 credits)
Introduces the student to relational database and relational database theory. Includes planning, defining and using a database; table design, linking, and normalization; types of databases, database description and definition. Prerequisite: ITE 215. Lecture: 3 hours per week.

ITD 132
Structured Query Language
(3 credits)
Incorporates a working introduction to commands, functions and operators used in SQL for extracting data from standard databases. Prerequisite: ITE 215. Lecture: 3 hours per week.

ITD 210
Web Page Design II
(3 credits)
Incorporates advanced techniques in web site planning, design, usability, accessibility, advanced site management, and maintenance utilizing web editor software(s). Prerequisite: ITD 110. Lecture: 3 hours per week.

ITE 115
Introduction to Computer Applications and Concepts
(3 credits)
Covers computer concepts and internet skills and use a software suite which includes word processing, spreadsheet, database, and presentation software to demonstrate skills required for computer literacy. Recommended prerequisite keyboarding skills. Lecture: 3 hours per week.

ITE 127
Microcomputer Software: Beginning Windows
(1 credit)
Imparts first-time users with sufficient information to make practical use of the Windows software package. Presents the basics of the features and applications included in the Windows operating system package. Lecture: 1 hour per week.

ITE 130
Introduction to Internet Services
(3 credits)
Provides students with a working knowledge of Internet terminology and services including e-mail, WWW browsing, search engines, ftp, file compression, and other services using a variety of software packages. Provides instruction for basic web page construction. Prerequisite: ITE 115. Lecture: 3 hours per week.

ITE 131
Survey of Internet Services
(1 credit)
Introduces students to basic internet terminology and services including e-mail, WWW browsing, search engines, ftp telnet, and other services. Lecture: 1 hour per week.

ITE 140
Spreadsheet Software
(3 credits)
Covers the use of spreadsheet software to create spreadsheets with formatted cells and cell ranges, control pages, multiple sheets, charts, and macros. Topics include type and edit text in a cell, enter data on multiple worksheets, work with formulas and functions, create charts, pivot tables, and styles, insert headers and footers, and filter data. Prerequisite: ITE 115. Lecture: 3 hours per week.

ITE 141
Microcomputer Software: Spreadsheets
(1 credit)
Provides first-time users with sufficient information to make practical use of spreadsheet software using the basic of building spreadsheets. Lecture: 1 hour per week.
ITE 150
Desktop Database Software
(3 credits)
Incorporates instruction in planning, defining, and using a database; performing queries; producing reports; working with multiple files; and concepts of database programming. Includes database concepts, principles of table design and table relationships, entering data, creating and using forms, using data from different sources, filtering, creating mailing labels. Prerequisite: ITE 115. Lecture: 3 hours per week.

ITE 151
Microcomputer Software: Database Management
(1 credit)
Presents first-time users with sufficient information to make practical use of database management software using the basics of building databases. Covers specific business applications. Lecture: 1 hour per week.

ITE 200
Technology for Teachers (TSIP)
(3 credits)
Provides K – 12 classroom teachers with the knowledge and skills needed to fulfill the Commonwealth of Virginia’s Technology Standards for Instructional Personnel. Students will finish the course with a solid understanding of educational technology, including how to use computers, how to access information on the World Wide Web, and how to integrate computers and educational technology into classroom curriculum. Students will learn how to base technology integration decisions on contemporary learning theories. Lecture: 3 hours per week.

ITE 215
Advanced Computer Applications and Integration
(3 credits)
Incorporates advanced computer concepts including the integration of a software suite. Prerequisite: ITE 115. Lecture: 3 hours per week.

ITE 221
PC Hardware and OS Architecture
(3 credits)
Covers instruction about processors, internal functions, peripheral devices, computer organization, memory management, architecture, instruction format, and basic OS architecture. Prerequisite: ITE 115. Lecture: 3 hours per week.

Information Technology Networking

ITN 101
Introduction to Network Concepts
(3 credits)
Provides instruction in networking media, physical and logical topologies, common networking standards and popular networking protocols. Emphasizes the TCP/IP suite and related IP addressing schemes, including CIDR. Includes selected topics in network implementation, support and LAN/WAN connectivity. Prerequisite: ITE 115. Lecture: 3 hours per week.

ITN 111
Server Administration
(3-4 credits)
Covers basic instruction in various network protocols, name resolution services, remote access, security, and print installation, configuration, administration, monitoring, and troubleshooting of Server Administration software (Specify Version) in an Active Directory domain environment. Lecture: 3-4 hours per week.

ITN 154
Networking Fundamentals – Cisco
(3 - 4 credits)
Provides introduction to networking using the OSI reference model. Includes data encapsulation, TCP/IP suite, routing, IP addressing, and structured cabling design and implementation. Prerequisite: ITE 115. Lecture: 3 - 4 hours per week.

ITN 154L
Networking Fundamentals - Cisco Laboratory
(1 credit)
Provides problem solving experience to supplement instruction in Networking Fundamentals - Cisco. Corequisite: ITN 154. Laboratory: 2 hours per week.

ITN 155
Switching, Wireless, and WAN Technologies (ICND2) - Cisco
(3-4 credits)
Provides the skills and knowledge to install, operate, and troubleshoot a small-to-medium sized branch office enterprise network, including configuring several switches and routers, configuring wireless devices, configuring VLANS, connecting to a WAN, and implementing network security. Lecture: 2-3 hours. Laboratory: 2 hours. Total: 4-5 hours per week.
ITN 156
Basic Switching and Routing – Cisco
(3 credits)
Centers instruction in LAN segmentation using bridges, routers, and switches. Includes fast Ethernet, access lists, routing protocols, spanning tree protocol, virtual LANS and network management. Lecture: 3 hours per week.

ITN 157
WAN Technologies – Cisco
(3 credits)
Concentrates on an introduction to Wide Area Networking (WANs). Includes WAN design, LAPB, Frame Relay, ISDN, HDLC, and PPP. Lecture: 3 hours per week.

ITN 171
Unix 1
(3 credits)
Provides an introduction to UNIX operating systems. Teaches login procedures, file creation, UNIX file structure, input/output control, and the UNIX shell. Prerequisite: ITN 101. Lecture: 3 hours per week.

ITN 245
Network Troubleshooting
(3-4 credits)
Focuses on servicing and maintaining local area networks (LANs). Teaches network installation, network troubleshooting, installation of file servers and workstations, configuring of network boards and cables, and diagnosing common network problems. Lecture: 3-4 hours per week.

ITN 260
Network Security Basics
(3 credits)
Provides instruction in the basics of network security in depth. Includes security objectives, security architecture, security models and security layers; risk management, network security policy, and security training. Includes the give security keys, confidentiality integrity, availability, accountability and auditability. Prerequisite: ITN 101. Lecture: 3 hours per week.

Information Technology Programming

ITP 100
Software Design
(3 credits)
Introduces principles and practices of software development. Includes instruction in critical thinking, problem-solving skills, and essential programming logic in structured and object-oriented design using contemporary tools. Prerequisite: ITE 115. Lecture: 3 hours per week.

ITP 110
Visual Basic Programming I
(3 credits)
Involves instruction in fundamentals of event-driven programming using Visual Basic. Emphasizes program construction, algorithm development, coding, debugging, and documentation of graphical user interface applications. Prerequisite: ITP 100. Lecture: 3 hours per week.

ITP 120
Java Programming I
(3 credits)
Entails instruction in fundamentals of object-oriented programming using Java. Emphasizes program construction, algorithm development, coding, debugging, and documentation of console and graphical user interface applications. Prerequisite: ITP 100. Lecture: 3 hours per week.

ITP 160
Introduction to Game Design & Development
(3 credits)
Introduces object-oriented game design and development. Provides overview of the electronic game design and development process and underlines the historical context, content creation strategies, game careers, and future trends in the industry. Utilizes a game language environment to introduce game design, object-oriented paradigms, software design, software development and product testing. Teaches skills of writing a game design document and creating a game with several levels and objects. Integrate 2D animations, 3D models, sound effects, and background music as well as graphic backgrounds. Prerequisite: ITE115. Lecture: 3 hours per week.

ITP 210
Visual Basic Programming II
(3 credits)
Encompasses instruction in the application of advanced event-driven techniques to application development. Emphasizes database connectivity and advanced controls using Visual Basic. Prerequisite: ITP 110. Lecture: 3 hours per week.

ITP 220
Java Programming II
(3 credits)
Imparts instruction in application of advanced object-oriented techniques to application development using Java. Emphasizes database connectivity, inner classes, collection classes, networking, and threads. Prerequisite: ITP 120. Lecture: 3 hours per week.
ITP 251  
**Systems Analysis and Design**  
(3 credits)  
Focuses on application of information technologies (IT) to system life cycle methodology, systems analysis, systems design, and system implementation practices. Covers methodologies related to identification of information requirements, feasibility in the areas of economic, technical and social requirements, and related issues are included in course content. Software applications may be used to enhance student skills.  
Prerequisites: ITP 100. Lecture: 3 hours per week.

**Instrumentation**

INS 210  
**Principles of Instrumentation**  
(4 credits)  
Introduces the basic concepts and terminology of process control systems. Presents types of control systems, applicable component elements, basic control analysis and documentation requirements for measuring instruments and signal conditioning.  
Prerequisite: ETR 203. Lecture: 3 hours. Laboratory: 3 hours. Total: 6 hours per week.

**Legal Administration**

LGL 110  
**Introduction to Law and the Legal Assistant**  
(3 credits)  
Introduces various areas of law in which a legal assistant may be employed. Includes study of the court system (Virginia and federal) as well as a brief overview of criminal law, torts, domestic relations, evidence, ethics, the role of the legal assistant, and other areas of interest. Lecture: 3 hours per week.

LGL 115  
**Real Estate Law for Legal Assistants**  
(3 credits)  
Studies law of real property and gives in-depth survey of the more common types of real estate transactions and conveyances such as deeds, contracts, leases, and deeds of trust. Focuses on drafting these various instruments and studies the system of recording and search of public documents. Prerequisite: LGL 110. Lecture: 3 hours per week.

LGL 117  
**Family Law**  
(3 credits)  
Studies elements of a valid marriage, grounds for divorce and annulment, separation, defenses, custody, support, adoptions, and applicable tax consequences. Includes property settlement, pre- and ante-nuptial agreements, pleadings, and rules of procedure. May include specific federal and Virginia consumer laws. Prerequisite: LGL 110. Lecture: 3 hours per week.

LGL 125  
**Legal Research**  
(3 credits)  
Provides an understanding of various components of a law library, and emphasizes research skills through the use of digests, encyclopedias, reporter systems, codes, Shepards’ Citations, ALR, and other research tools. May include overview of computer applications and writing projects. Prerequisite: LGL 110. Lecture: 3 hours per week.

LGL 126  
**Legal Writing**  
(3 credits)  
Studies proper preparation of various legal documents, including legal memoranda, letters, and pleadings. Involves practical applications. May include case and appellate briefs. Prerequisite: ENG 111 or permission of instructor. Prerequisite: LGL 110. Lecture: 3 hours per week.

LGL 130  
**Law Office Administration and Management**  
(3 credits)  
Introduces management principles and systems applicable to law firms, including record keeping, disbursements, escrow accounts, billing, and purchasing. May include accounting methods and software packages applicable to law firms. Prerequisite: LGL 110. Lecture: 3 hours per week.

LGL 215  
**Torts**  
(3 credits)  
Studies fundamental principles of the law of torts. May include preparation and use of pleadings and other documents involved in the trial of a civil action. Emphasizes personal injury, products liability, and malpractice cases. Prerequisite: LGL 110. Lecture: 3 hours per week.

LGL 238  
**Bankruptcy**  
(3 credits)  
Provides a practical understanding of non-bankruptcy alternatives and the laws of bankruptcy including Chapters 7, 11, 12 and 13 of the Bankruptcy Code. Emphasis will be placed on preparing petitions, schedules, statements, and other forms. Prerequisite: LGL 110. Lecture: 3 hours per week.

**Machine Technology**

MAC 121 – 122  
**Computer Numerical Control I – II**  
(2 - 3 credits each)  
Focuses on numerical control techniques in metal forming and machine processes. Includes theory and practice in lathe and milling machine computer numerical control program writing, setup and operation. Lecture: 1 hour. Laboratory: 2 hours. Total: 3 hours per week.
MAC 123  
**Computer Numerical Control III**  
(2-3 credits)  
Focuses on numerical control techniques in metal forming and machine processes. Includes theory and practice in lathe and milling machine computer numerical control program writing, setup and operation. Lecture: 1-2 hours. Laboratory: 2-3 hours. Total: 3-5 hours per week.

MAC 131  
**Machine Lab I**  
(2 credits)  
Teaches fundamental machine shop operations, bench work, layout, measuring tools, and safety. Lecture: 1 hour. Laboratory: 3 hours. Total: 4 hours per week.

MAC 150  
**Introduction to Computer-Aided Manufacturing**  
(2 – 3 credits)  
Introduces computer-aided manufacturing (CAM) with emphasis on programming of numerical control machinery. Teaches program writing procedures using proper language and logic and a CAM programming system to produce numerical control code for machines. Teaches basic computer usage, 2 1/2D and 3D CAD-CAM integration and code-to-machine transfer. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

MAC 161 – 162  
**Machine Shop Practices I – II**  
(3 credits each)  
Introduces safety procedures, bench work, hand tools, precision measuring instruments, drill presses, cut-off saws, engine lathes, manual surface grinders and milling machines. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.

MAC 163 – 164  
**Machine Shop Practices III – IV**  
(3 credits each)  
Offers practice in the operation of the drill press, engine lathe, vertical milling machine, horizontal milling machine and the surface grinder. Introduces practical heat treatment of directly hardenable steels commonly used in machine shops. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.

MAC 171 – 172  
**Machine Tool Operations I – II**  
(3 credits each)  
Uses basic fractional and decimal measuring tools and hand tools. Covers linear, angular and radial layout and precision measuring. Includes setup and operations of hand saws, drill presses, the engine lathe and the vertical and horizontal milling machines. Requires solutions of related problems and preparation of weekly laboratory reports. Laboratory: 6 hours per week.

MAC 209  
**Standards, Measurements and Calculations**  
(3 credits)  
Presents typical mathematical and mechanical problems requiring the use of reference standards such as the Machinery’s Handbook for solution. Presents use of the Coordinate Measuring Machine for solution. Lecture: 2 – 3 hours per week.

**Marketing**

MKT 100  
**Principles of Marketing**  
(3 credits)  
Presents principles, methods and problems involved in marketing to consumers and organizational buyers. Discusses problems and policies connected with distribution and sale of products, pricing, promotion and buyer motivation. Examines variations of marketing research, legal, social, ethical, e-commerce and international considerations in marketing. Lecture: 3 hours per week.

MKT 220  
**Principles of Advertising**  
(3 credits)  
Emphasizes the role of advertising in the marketing of goods, services, and ideas. Discusses the different uses of advertising; types of media; how advertising is created; agency functions; and legal, social, and economic aspects of the industry. Introduces advertising display, copy and art work preparation, printing and selection of media. Lecture: 3 hours per week.

**Mathematics**

MTH 2  
**Arithmetic**  
(1 – 5 credits)  
Covers arithmetical principles and computations, including whole numbers, fractions, decimals, percents, measurement, graph interpretation, geometric forms and applications. Develops the mathematical proficiency necessary for selected curriculum entrance. Credits earned are not applicable toward graduation. Variable hours per week.

MTH 3  
**Algebra I**  
(1 – 5 credits)  
Covers the topics of Algebra I, including real numbers, equations and inequalities, exponents, polynomials, Cartesian coordinate system, rational expressions and applications. Develops the mathematical proficiency necessary for selected curriculum entrance. Credits earned are not applicable toward graduation. Prerequisites: a placement recommendation for MTH 03 and Arithmetic or equivalent. Variable hours per week.
MTH 4
Algebra II
(1 – 5 credits)
Expands upon topics of Algebra I, including rational expressions, radicals and exponents, quadratic equations, systems of equations and applications. Develops the mathematical proficiency necessary for selected curriculum entrance. Credits earned are not applicable toward graduation. Prerequisites: a placement recommendation for MTH 04 and Algebra I or equivalent. Variable hours per week.

MTH 5
Algebra Revisited
(1 – 5 credits)
Reviews topics in Algebra II necessary for entry into occupational/technical or transfer mathematics courses. Credits not applicable toward graduation. Prerequisites: a placement recommendation for MTH 05 and Algebra I and Algebra II or equivalent. Variable hours per week.

MTH 103 – 104
Applied Technical Mathematics I – II
(3 credits each)
Presents a review of arithmetical elements of algebra, geometry and trigonometry. Directs applications to specialized areas. Prerequisites: a placement recommendation for MTH 103 and one unit of high school mathematics or equivalent. Lecture: 3 hours per week.

MTH 120
Introduction to Mathematics
(3 credits)
Introduces number systems, logic, basic algebra and descriptive statistics (intended for occupational/technical programs). Prerequisites: a placement recommendation for MTH 120 and one unit of high school mathematics or equivalent. Lecture: 3 hours per week.

MTH 158
College Algebra
(3 credits)
Covers the structure of complex number systems, polynomials, rational expressions, graphing, systems of equations and inequalities and functions, quadratic and rational equations and inequalities. Lecture: 3 hours per week.

MTH 163
Precalculus I
(3 credits)
Presents college algebra; matrices; and algebraic, exponential and logarithmic functions. Prerequisites: a placement recommendation for MTH 163 and Algebra I, Algebra II and Geometry, or equivalent. (Credit will not be awarded for both MTH 163 and MTH 166.) Lecture: 3 hours per week.

MTH 164
Precalculus II
(3 credits)
Presents trigonometry, analytic geometry and sequences in series. Prerequisite: MTH 163 or equivalent. (Credit will not be awarded for both MTH 164 and MTH 168.) Lecture: 3 hours per week.

MTH 166
Precalculus with Trigonometry
(4 – 5 credits)
Presents college algebra, analytic geometry, trigonometry, and algebraic exponential, and logarithmic functions. Prerequisite: a placement recommendation for MTH 166 and Algebra I, Algebra II, and Geometry or equivalent. (Credit will not be awarded for both MTH 163 and MTH 166.) Lecture: 4 – 5 hours per week.

MTH 170
Foundations in Contemporary Mathematics
(3 credits)
Covers topics in the mathematics of social choice, management sciences, statistics and growth. Uses physical demonstrations and modeling techniques to teach the power and utility of mathematics. Algebra I – II and Geometry or equivalent. Lecture: 3 hours per week.

MTH 173
Calculus with Analytic Geometry I
(4 – 5 credits)
Presents analytic geometry and the calculus of algebraic and transcendental functions including the study of limits, derivatives, differentials, and introduction to integration along with their applications. Designed for mathematical, physical and engineering science programs. Prerequisites: a placement recommendation for MTH 173 and four units of high school mathematics including Algebra I, Algebra II, Geometry and Trigonometry or equivalent. (Credit will not be awarded for more than one of MTH 173, MTH 175, or MTH 273.) Lecture: 4 – 5 hours per week.

MTH 174
Calculus with Analytic Geometry II
(4 – 5 credits)
Continues the study of analytic geometry and the calculus of algebraic and transcendental functions including rectangular, polar, and parametric graphing, indefinite and definite integrals, methods of integration, and power series along with applications. Designed for mathematical, physical, and engineering science programs. Prerequisite: MTH 173 or equivalent. (Credit will not be awarded for more than one of MTH 174, MTH 176 or MTH 274.) Lecture: 4 – 5 hours per week.
MTH 177
Introduction Linear Algebra
(2 credits)
Covers matrices, vector spaces, determinants, solutions of systems of linear equations, and eigen values. Designed for mathematical, physical, and engineering science programs. Corequisite: MTH 175. Lecture: 2 hours per week.

MTH 240
Statistics
(3 credits)
Presents an overview of statistics, including descriptive statistics, elementary probability, probability distributions, estimation, hypothesis testing, and correlation and regression. Prerequisites: a placement recommendation for MTH 240 and MTH 163 or MTH 166 or equivalent. (Credit will not be awarded for both MTH 240 and MTH 241.) Lecture: 3 hours per week.

MTH 270
Applied Calculus
(3 credits)
Introduces limits, continuity, differentiation and integration of algebraic and transcendental functions, techniques of integration, and partial differentiation. Prerequisite: MTH 163 or MTH 166 or equivalent. (Credit will not be awarded for both MTH 240 and MTH 241.) Lecture: 3 hours per week.

MTH 273
Calculus I
(4 credits)
Presents topics in differential calculus of one variable, including the theory of limits, derivatives, differentials, definite and indefinite integrals and applications to algebraic and transcendental functions. Designed for mathematical, physical and engineering science programs. Prerequisites: a placement recommendation for MTH 273 and four units of high school mathematics, including Algebra I, Algebra II, Geometry and Trigonometry, or equivalent. (Credit will not be awarded for more than one of the following courses: MTH 173, MTH 175 or MTH 273.) Lecture: 4 hours per week.

MTH 274
Calculus II
(4 credits)
Covers vectors in three dimensions, definite integrals, methods of integration, indeterminate forms, partial differentiation, and multiple integrals. Designed for mathematical, physical, and engineering science programs. Prerequisite: MTH 273 or equivalent. (Credit will not be awarded for more than one of MTH 174, MTH 176 or MTH 274.) Lecture: 4 hours per week.

MTH 277
Vector Calculus
(4 credits)
Presents vector valued functions, partial derivatives, multiple integrals, and topics from the calculus vectors. Designed for mathematical, physical, and engineering science programs. Prerequisite: MTH 174 or equivalent. Lecture: 4 hours per week.

MTH 279
Ordinary Differential Equations
(4 credits)
Introduces ordinary differential equations. Includes first order differential equations, second and higher order ordinary differential equations with application. Designed for mathematical, physical, and engineering science programs. Prerequisite: MTH 174 or equivalent. Lecture: 4 hours per week.

MTH 285
Linear Algebra
(3 credits)
Covers matrices, vector spaces, determinants, solutions of systems of linear equations, basis and dimension, eigen values, and eigen vectors. Designed for mathematical, physical and engineering science programs. Prerequisite: MTH 174 or equivalent. Lecture: 3 hours per week.

MATH ESSENTIALS

MTE 1
Operations with Positive Fractions
(1 credit)
Includes operations and problem solving with proper fractions, improper fractions, and mixed numbers without the use of a calculator. Emphasizes applications and includes U. S. customary units of measure. Credit is not applicable toward graduation. Prerequisite: Qualifying placement score. Lecture: 1 hour per week.

MTE 2
Operations with Positive Decimals and Percents
(1 credit)
Includes operations and problem solving with positive decimals and percents. Emphasizes applications and includes U.S. customary and metric units of measure. Credit is not applicable toward graduation. Prerequisite: MTE 1 or qualifying placement score. Lecture: 1 hour per week.

MTE 3
Algebra Basics
(1 credit)
Includes basic operations with algebraic expressions and solving simple algebraic equations using signed numbers with emphasis on applications. Credit is not applicable toward graduation. Prerequisite: MTE 2 or qualifying placement score. Lecture: 1 hour per week.
MTE 4
First Degree Equations and Inequalities in One Variable
(1 credit)
Includes solving first degree equations and inequalities containing one variable, and using them to solve application problems. Emphasizes applications and problem solving. Credit is not applicable toward graduation. Prerequisite: MTE 3 or qualifying placement score. Lecture: 1 hour per week.

MTE 5
Linear Equations, Inequalities and Systems of Linear Equations in Two Variables
(1 credit)
Includes finding the equation of a line, graphing linear equations and inequalities in two variables and solving systems of two linear equations. Emphasizes writing and graphing equations using the slope of the line and points on the line, and applications. Credit is not applicable toward graduation. Prerequisite: MTE 4 or qualifying placement score. Lecture: 1 hour per week.

MTE 6
Exponents, Factoring and Polynomial Equations
(1 credit)
Includes techniques of factoring polynomials and using these techniques to solve polynomial equations. Emphasizes applications using polynomial equations solved by factoring. Credit is not applicable toward graduation. Prerequisite: MTE 5 or qualifying placement score. Lecture: 1 hour per week.

MTE 7
Rational Expressions and Equations
(1 credit)
Includes simplifying rational algebraic expressions, solving rational algebraic equations and solving applications that use rational algebraic equations. Credit is not applicable toward graduation. Prerequisite: MTE 6 or qualifying placement score. Lecture: 1 hour per week.

MTE 8
Rational Exponents and Radicals
(1 credit)
Includes simplifying radical expressions, using rational exponents, solving radical equations and solving applications using radical equations. Credit is not applicable toward graduation. Prerequisite: MTE 7 or qualifying placement score. Lecture: 1 hour per week.

MTE 9
Functions, Quadratic Equations and Parabolas
(1 credit)
Description: Includes an introduction to functions in ordered pair, graph, and equation form. Also introduces quadratic functions, their properties and their graphs. Credit is not applicable toward graduation. Prerequisite: MTE 8 or qualifying placement score. Lecture: 1 hour per week.

Mechanical Engineering Technology

MEC 101 – 102
Introduction to Engineering Technology I – II
(2 credits each)
Introduces engineering technology. Provides historical background. Covers such topics as professional ethics; problem-solving techniques involving forces, structures, materials, fluids, energy, and electricity and U.S. Customary and S.I. units, and unit conversions. Lecture: 2 hours per week.

MEC 113
Materials and Processes of Industry
(3 credits)
Studies engineering materials and accompanying industrial manufacturing processes. Investigates nature of materials structure and properties from a design standpoint. Analyzes both the effects of various processes on materials and the processes themselves. Includes machining, casting, forming, molding, hot/cold working, machining and welding. Addresses quality assurance and inspection procedures. Lecture: 3 hours per week.

MEC 131
Mechanics I – Statics for Engineering Technology
(3 credits)
Teaches Newton’s laws, resultants and equilibrium of force systems, trusses and frames, determination of centroids, and distributed loads and moments of inertia. Introduces dry friction and force systems in space. Lecture: 3 hours per week.

MEC 132
Mechanics II – Strength of Mat. for Eng. Tech
(3 credits)
Teaches the concepts of stress and strain. Provides an analysis of stresses and deformations in loaded members, connectors, shafts, beams, columns, and combined stress. Lecture: 3 hours per week.

MEC 140
Introduction to Mechatronics
(3 credits)
Presents foundational concepts in mechatronics including analog and digital electronics, sensors, actuators, microprocessors, and microprocessor interfacing to electromechanical systems. Surveys components and measurement equipment used in the design, installation, and repair of mechatronic equipment and circuits. Prerequisite: divisional approval. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.
**MEC 154**  
**Mechanical Maintenance I**  
(3 credits)  
Provides an overview of basic maintenance techniques and processes for industrial mechanics and technicians who are installing and maintaining industrial mechanical and power transmission components. Lecture: 2 – 3 hours. Laboratory: 0 – 2 hours. Total: 3 – 4 hours per week.

**MEC 211 – 212**  
**Machine Design I – II**  
(4 credits each)  
Introduces analytical design of bearings, clutches, coupling, brakes, springs, gearing systems and power shafting. Emphasizes methods of construction, machine parts and specifications of materials, and manufacturing processes. MEC 212 prerequisite: MEC 211. Lecture: 3 hours. Laboratory: 2 hours. Total: 5 hours per week.

**MEC 226**  
**Practical Metallurgy**  
(3 credits)  
Studies metals and their structure. Focuses on effects of hardening, tempering, and annealing upon the structure and physical properties of ferrous and non-ferrous metals. Covers the equipment and processes in heat treating. Lecture: 3 hours. Total: 3 hours per week.

**MEC 254**  
**Mechanical Maintenance II**  
(3 credits)  
Covers advanced maintenance techniques and processes for industrial mechanics and technicians who are installing and maintaining industrial mechanical and power transmission components. Lecture: 2 – 3 hours. Laboratory: 0 – 2 hours. Total 3 – 4 hours per week.

**MEC 266**  
**Applications of Fluid Mechanics**  
(3 credits)  
Teaches theory of hydraulic and pneumatic circuits including motors, controls, actuators, valves, plumbing, accumulators, reservoirs, pumps, compressors, and filters. Lecture: 3 hours per week.

**MEC 270**  
**Computations for Engineering Technology**  
(3 credits)  
Presents the use of spreadsheets and Matlab or equivalent to solve a variety of problems in introductory engineering analysis, such as graphing data, unit conversions, simple statistical analysis, sorting, searching and analyzing data, curve fitting, interpolation, solving algebraic equations, logical decisions, evaluating integrals, comparing economic alternatives, and finding optimum solutions. The acquisition and processing of data as well as macro programming in Basic are also covered. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

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**Medical Laboratory**

**MDL 105**  
**Phlebotomy**  
(3 credits)  
Introduces basic medical terminology, anatomy, physiology, components of health care delivery and clinical laboratory structure. Teaches techniques of specimen collection, specimen handling, and patient interactions. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.

**MDL 130**  
**Basic Clinical Microbiology**  
(3 credits)  
Studies classification, theories, techniques, and methods used in basic bacteriology, parasitology, and mycology. Emphasizes routine identification. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.

**MDL 196**  
**On-Site Training**  
(3 credits)  
Specializes in career orientation and training program without pay in selected businesses and industry, supervised and coordinated by the college. Laboratory: 9 hours per week.

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**Mental Health**

**MEN 101**  
**Mental Health Skill Training I**  
(3 credits)  
Develops skills necessary to function as a mental health worker, with emphasis on guided practice in counseling skills as well as improved self-awareness. Includes training in problem-solving, goal-setting, and implementation of appropriate strategies and evaluation techniques relating to interaction involving a variety of client needs. Lecture: 3 hours per week.

**MEN 102**  
**Mental Health Skill Training II**  
(3 credits)  
Develops skills necessary to function as a mental health worker, with emphasis on guided practice in counseling skills as well as improved self-awareness. Includes training in problem-solving, goal-setting, and implementation of appropriate strategies and evaluation techniques relating to interaction involving a variety of client needs. Lecture: 3 hours per week.

**MEN 110**  
**Introduction to Abnormal Psychology**  
(3 credits)  
Studies symptoms, causes and treatment of mental deficiency, neurosis, psychosis and character disorders, with specific relationship to work of the mental health technologists. Lecture: 3 hours per week.
MEN 121 – 122  
**Mental Retardation I – II**
(3 credits each)
Explores current problems and social, cultural and legal issues involved in therapeutic interventions for understanding and programs relating to the mentally retarded. Prerequisite: HMS 100. Lecture: 3 hours per week.

MEN 190  
**Coordinated Practice**
(3 credits)
Supervises on-the-job training in selected business, industrial or service firms coordinated by the college.

MEN 196  
**On-Site Training**
(3 credits)
Specializes in career orientation and training program without pay in selected businesses and industry, supervised and coordinated by the college.

MEN 198  
**Seminar and Project**
(1 – 5 credits)
Requires completion of a project or research report related to the student’s occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field. May be repeated for credit. Variable hours.

MEN 290  
**Coordinated Practice**
(3 credits)
Supervises on-the-job training in selected business, industrial or service firms coordinated by the college.

MEN 296  
**On-Site Training**
(3 credits)
Specializes in career orientation and training program without pay in selected businesses and industry, supervised and coordinated by the college.

### Music

**MUS 101 – 102**  
**Basic Musicianship I – II**
(3 credits)
Provides exercises leading to knowledge and skill in the rudiments of music. Includes rhythmic notation as well as scales, keys, and intervals along with exercises in sight reading and ear training. Lecture: 3 hours per week.

**MUS 111 – 112**  
**Music Theory I – II**
(4 credits each)
Discusses elements of musical construction of scales, intervals, triads and chord progressions. Develops ability to sing at sight and write from dictation. Introduces the analysis of the Bach chorale style. Expands facility with harmonic dictation and enables the student to use these techniques at the keyboard. Lecture: 3 hours. Laboratory: 2 hours. Total: 5 hours per week.

**MUS 121 – 122**  
**Music Appreciation I – II**
(3 credits each)
Increases the variety and depth of the student’s interest, knowledge and involvement, in music and related cultural activities. Acquaints the student with traditional and twentieth-century music literature, emphasizing the relationship music has as an art form with man and society. Increases the student’s awareness of the composers and performers of all eras through listening and concert experiences. Lecture: 3 hours per week.

**MUS 125**  
**American Music**
(3 credits)
Presents the development of music in America from early colonists to the present, in light of philosophical, political, geographical and sociological developments. Lecture: 3 hours per week.

**MUS 131 – 132**  
**Class Voice I – II**
(2 credits each)
Introduces the many aspects of singing from the physical act through the aesthetic experience. The course is designed for the beginning singer who desires vocal improvement, and for the voice major as an addition to and extension of skills and knowledge necessary for artistic development. Introduces appropriate repertoire. Lecture: 1 hour. Laboratory: 2 hours. Total: 3 hours per week.

**MUS 221**  
**History of Music I**
(3 credits)
Presents the chronology of musical styles from antiquity to the present time. Relates the historical development of music to parallel movements in art, drama, and literature. Develops techniques for listening analytically and critically to music. Part I of II. Lecture: 3 hours per week.

**MUS 222**  
**History of Music II**
(3 credits)
Presents the chronology of musical styles from antiquity to the present time. Relates the historical development of music to parallel movements in art, drama, and literature. Develops techniques for listening analytically and critically to music. Part II of II. Lecture: 3 hours per week.

**MUS 225**  
**The History of Jazz**
(3 credits)
Studies the underlying elements of jazz, concentrating on its cultural and historical development from earliest stages to the present. No previous knowledge of music is required. Lecture: 3 hours per week.
Natural Science

NAS 125
Meteorology
(4 credits)
Presents a non-technical survey of fundamental meteorology. Focuses on the effects of weather and climate on humans and their activities. Serves for endorsement or recertification of earth science teachers. Lecture: 3 hours per week. Recitation and laboratory: 2 hours per week. Total: 5 hours per week.

NAS 130
Elements of Astronomy
(4 credits)
Covers history of astronomy and its recent developments. Stresses the use of astronomical instruments and measuring techniques and includes the study and observation of the solar system, stars and galaxies. Lecture: 3 hours per week. Recitation and laboratory 3 hours. Total: 6 hours per week.

Nursing

NUR 109
Nursing Principles and Concepts II
(5-6 credits)
Focuses on nursing care of individuals and/or families experiencing alterations in health. Includes math computational skills, basic computer instruction related to the delivery of nursing care; immunological, gastrointestinal, musculoskeletal, oncological and diabetic disorders and pre/post operative care in adult and pediatric clients. Provides supervised learning experiences in college nursing laboratories and/or cooperating agencies. Lecture: 1-5 hours. Laboratory: 2-15 hours. Total: 7-16 hours per week.

NUR 111
Nursing I
(7 – 8 credits)
Introduces nursing principles including concepts of health and wellness and the nursing process. Develops nursing skills to meet the biopsychosocial needs of individuals across the lifespan. Includes math computational skills, basic computer instruction related to the delivery of nursing care, communication skills, introduction to nursing, health, the health care system, legal aspects of nursing care, diagnostic testing, assessment, teaching and learning, asepsis, body mechanics and safety, personal care, activity/rest, wound care, nutrition, elimination, oxygenation, fluid and electrolytes, pain control, medication administration, aging populations and pre/post operative care. Provides supervised learning experiences. Lecture: 1 – 7 hours. Laboratory: 2 – 21 hours. Total: 9 – 22 hours per week.

NUR 135
Drug Dosage Calculations
(1 – 2 credits)
Focuses on apothecary, metric, household conversion in medication dosage calculation for adult and pediatric clients. Provides a practical approach to learning to calculate and prepare medications and solutions. Includes calculating intravenous flow rates. Lecture: 1 – 2 hours per week.

NUR 205
Introduction to Second Level Nursing
(5-6 credits)
Focuses on principles and concepts of nursing care for individuals, families, and/or groups in the community and hospital setting. Focuses on health team membership and various nursing care delivery systems. Includes math computational skills, basic computer instruction related to the delivery of nursing care; endocrine, renal, cardiovascular and immunological disorders in school and home health settings. Provides supervised learning experiences in cooperating agencies. Lecture: 1-5 hours. Laboratory: 2-15 hours. Total: 7-16 hours per week.

NUR 208
Acute Medical-Surgical Nursing
(5 – 6 credits)
Focuses on the use of nursing process to provide care to individuals/families with acute medical or surgical problems or to prevent such problems. Includes math computational skills and basic computer instruction related to the delivery of nursing care. Provides supervised learning experiences in cooperating agencies. Lecture: 1 – 5 hours. Laboratory: 2 – 15 hours. Total: 7 – 16 hours per week.

NUR 221
Second Level Nursing Principles and Concepts
(9 – 10 credits)
Focuses on nursing care of individuals, families, and/or groups with multidimensional needs in a variety of settings. Uses all components of the nursing process with increasing degrees of skill. Includes math computational skills, basic computer instruction related to the delivery of nursing care and nursing care related to infectious, immunological, oncological, hematological, gastrointestinal, vascular, sensory, genitourinary musculoskeletal, regulatory, endocrine, and women’s health disorders and pre/intra/post operative care. Provides supervised learning experiences in college nursing laboratories and/or cooperating agencies. Lecture: 1 – 9 hours. Laboratory: 2 – 27 hours. Total: 11 – 28 hours per week.
NUR 223
Second Level Nursing Principles and Concepts III
(9 – 10 credits)
Focuses on nursing care of individuals, families, and/or groups with multidimensional needs related to medical/surgical disorders in a variety of settings. Uses all components of the nursing process with increasing degrees of skill. Includes math computational skills, basic computer instruction related to the delivery of nursing care; nursing care related to organ procurement; emergency care; and, cardiac, respiratory, endocrine vascular, burn, immunological, neurological, hematological disorders. Provides supervised learning experiences in college nursing laboratories and/or cooperating agencies. Lecture: 1 – 9 hours. Laboratory: 3 – 27 hours. Total: 11 – 28 hours per week.

NUR 226
Health Assessment
(2 – 3 credits)
Introduces the systematic approach to obtaining a health history and performing a physical assessment. Lecture: 0 – 2 hours. Laboratory: 2 – 9 hours. Total: 3 – 9 hours per week.

NUR 245
Maternal/Newborn Nursing
(3 – 4 credits)
Develops nursing skills in caring for families in the antepartum-, intrapartum-, and post-partum periods. Lecture: 1 – 3 hours. Laboratory: 0 – 9 hours. Total: 3 – 9 hours per week.

NUR 246
Parent/Child Nursing
(3 – 4 credits)
Develops nursing skills in caring for both well and ill children in a variety of settings. Emphasizes theories of growth and development and the family as a unit. Lecture: 1 – 3 hours. Laboratory: 0 – 9 hours. Total: 3 – 9 hours per week.

NUR 247
Psychiatric/Mental Health Nursing
(3 – 4 credits)
Develops nursing skills in caring for individuals, families, and/or groups with mental health needs. Explores various treatment models, diagnostic categories, and rehabilitative measures. Lecture: 1 – 3 hours. Laboratory: 0 – 9 hours. Total: 3 – 9 hours per week.

NUR 254
Dimensions of Professional Nursing
(1 – 2 credits)
Explores the role of the professional nurse. Emphasizes nursing organizations, legal and ethical implications, and addresses trends in management and organizational skills. Explores group dynamics, relationships, conflicts, and leadership styles. Lecture: 1 – 2 hours per week.

NUR 255
Nursing Organization and Management
(3 credits)
Addresses management and organizational skills as they relate to nursing. Emphasizes group dynamics, resolution of conflicts, and leadership styles. Lecture: 2 – 3 hours per week.

Philosophy

PHI 101 – 102
Introduction to Philosophy I – II
(3 credits each)
Introduces a broad spectrum of philosophical problems and perspectives with an emphasis on the systematic questioning of basic assumptions about meaning, knowledge, reality and values. Lecture: 3 hours per week.

PHI 111
Logic I
(3 credits)
Introduces inductive and deductive reasoning with an emphasis on common errors and fallacies. Lecture: 3 hours per week.

PHI 115
Practical Reasoning
(3 credits)
Studies informal logic and language techniques as they relate to reasoning and argument. Provides practice in analyzing arguments and constructing sound arguments. Lecture: 3 hours per week.

PHI 211
The History of Western Philosophy I
(3 credits)
Provides historical survey of representative philosophers from the pre-Socrates to the present. Introduces the student to development of philosophical thought through selected readings of original works and appropriate critical materials. Part I of II. Lecture: 3 hours per week.

PHI 212
The History of Western Philosophy II
(3 credits)
Provides historical survey of representative philosophers from the pre-Socrates to the present. Introduces the student to development of philosophical thought through selected readings of original works and appropriate critical materials. Part II of II. Lecture: 3 hours per week.
PHI 220
Ethics
(3 credits)
Provides a systematic study of representative ethical systems. Lecture: 3 hours per week.

PHI 225
Selected Problems in Applied Ethics
(3 credits)
Analyzes and discusses significant contemporary ethical issues and problems existing throughout the various professions such as business, medicine, law, education, journalism, and public affairs. May be repeated for credit. Lecture: 3 hours per week.

PHI 226
Social Ethics
(3 credits)
Provides a critical examination of moral problems and studies the application of ethical concepts and principles to decision making. Topics may include abortion, capital punishment, euthanasia, man and the state, sexuality, war and peace, and selected issues of personal concern. Lecture: 3 hours per week.

PHI 227
Bio-Medical Ethics
(3 credits)
Examines the ethical implications of specific biomedical issues in the context of major ethical systems. Lecture: 3 hours per week.

PHI 265
Philosophy of Religion
(3 credits)
Examines problems raised by arguments for and against the existence of God and discusses such topics as the nature of God, the nature of religious experience, the problem of evil, religious truth and language, immortality, miracles, spirituality, and the relation between philosophy and theology. Lecture: 3 hours per week.

PHI 276
Women and Western Philosophy
(3 credits)
Studies the concept, role and clue of women in the canon of Western Philosophy from Plato to contemporary philosophy. Discusses controversies in feminist social ethics, including marketing feminism, pornography, censorship, women in the work force and women's fertility. Lecture: 3 hours per week.

PHI 105
Basic Photography
(3 – 4 credits)
Studies fundamental techniques of the camera and its expressive possibilities. Lecture: 2 – 4 hours. Laboratory: 0 – 3 hours. Total: 3 – 7 hours per week.

PHI 107
Nature Photography
(3 credits)
Teaches fundamentals of 35mm color slide photography of natural objects. Emphasizes selection of equipment and film, compositional theory, and the flash photography formula. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

PHI 110
History of Photography
(3 credits)
Surveys important photographers, processes, and historical influences of the 19th and 20th centuries. Lecture: 3 hours per week.

PHI 130 – 131
Video I – II
(3 credits)
Introduces the basics of recording and editing video and sound for a variety of intents. Explores time-based media as an art form and means of communication. Lecture: 2 hours. Laboratory: 2 hours. Total 4: hours per week.

PHI 135
Electronic Darkroom
(3 credits)
Teaches students to create and manipulate digital photographs. Covers masking, color corrections, and merging of illustrations with photographs. Examines the ethical and property-rights issues that are raised in the manipulation of images. Lecture: 1 hour. Laboratory: 4 hours. Total: 5 hours per week.

PHI 164
Introduction to Digital Photography
(3 credits)
Teaches the fundamentals of photography including camera function, composition, and image production as they apply to digital imagery. Lecture: 1 hour. Laboratory: 4 hours. Total: 5 hours per week.

PHI 221 – 222
Studio Lighting I – II
(3 credits each)
Examines advanced lighting and camera techniques under controlled studio conditions. Includes view camera use, electronic flash, advanced lighting techniques, color temperature and filtration, and lighting ratios. Requires outside shooting. Prerequisite: PHT 102 or equivalent. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.
PHT 231  
Photojournalism I  
(3 credits)  
Introduces equipment, techniques, skills, and concepts of photojournalism. Teaches photography for features, spot news, and photo essays. Emphasizes editing, captioning, and layout. May require individual projects. Prerequisite PHT 102 or equivalent. Part I of II. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.

PHT 264  
Digital Photography  
(3 credits)  
Teaches theory and practice of digital photography. Emphasizes use of digital cameras in studio and on location. Teaches advanced techniques of image editing. Provides training in digital image transmission from remote locations. Prerequisites: PHT 101 and ART 283 or PHT 135. Lecture: 2 hours. Laboratory: 3 hours. Total: 5 hours per week.

Physical Education and Recreation

PED 101 – 102  
Fundamentals of Physical Activity I – II  
(1 – 2 credits each)  
Presents principles underlying the components of physical fitness. Utilizes conditioning activities involving cardiovascular strength and endurance, respiratory efficiency, muscular strength and flexibility. May include fitness assessment, nutrition and weight control information and concepts of wellness. Lecture: 1 – 2 hours. Laboratory: 0 – 2 hours. Total: 1 – 3 hours per week.

PED 111 – 112  
Weight Training I – II  
(1 – 2 credits each)  
Focuses on muscular strength and endurance training through individualized workout programs. Teaches appropriate use of weight equipment. Lecture: 1 – 2 hours. Laboratory: 0 – 2 hours. Total: 1 – 3 hours per week.

PED 116  
Lifetime Fitness and Wellness  
(1 – 2 credits)  
Provides a study of fitness and wellness and their relationship to a healthy lifestyle. Defines fitness and wellness, evaluates the student’s level of fitness and wellness, and motivates the student to incorporate physical fitness and wellness into daily living. A personal fitness/wellness plan is required for the 2 – credit course. Lecture: 1 – 2 hours. Laboratory: 0 – 2 hours. Total 1 – 4 hours per week.

PED 123 – 124  
Tennis I – II  
(1 – 2 credits each)  
Teaches tennis skills with emphasis on stroke development and strategies for individual and team play. Includes rules, scoring, terminology and etiquette. Lecture: 1 – 2 hours. Laboratory: 0 – 2 hours. Total: 1 – 3 hours per week.

PED 129  
Self Defense  
(1 credit)  
Examines history, techniques and movements associated with self-defense. Introduces the skills and methods of self-defense emphasizing mental and physical discipline. Laboratory: 2 hours per week.

PED 133 – 134  
Golf I – II  
(1 – 2 credits each)  
Teaches basic skills of golf, rules, etiquette, scoring, terminology, equipment selection and use and strategy. Lecture: 1 – 2 hours. Laboratory: 0 – 2 hours. Total: 1 – 3 hours per week.

PED 139  
Ice Skating  
(2 credits)  
Introduces the skills of figure skating with emphasis on form. Includes equipment selection and safety. Lecture: 1 hour. Laboratory: 1 hour. Total: 2 hours per week.

PED 149  
Cardio Sculpt I  
(1 credit)  
Combines strength training and cardiovascular workouts that strengthen the major muscle groups as well as developing endurance. Utilizes the use of weights, balls and bands, fitness equipment or a combination thereof that promote cardiovascular endurance and develops muscle strength. Benefits all levels of participation. Laboratory: 2 hours per week.

PED 150  
Soccer  
(1 – 2 credits)  
Emphasizes soccer skills and techniques, strategies, rules, equipment, and physical conditioning. Lecture: 0 – 1 hour. Laboratory: 2 – 4 hours. Total: 2 – 4 hours per week.

PED 154  
Volleyball  
(1 – 2 credits)  
Introduces skills, techniques, strategies, rules, and scoring. Lecture: 1 – 2 hours. Laboratory: 0 – 2 hours. Total: 1 – 3 hours per week.
**COURSE DESCRIPTIONS**

**PED 158**  
**Ice Hockey I**  
(1 – 2 credits)  
Develops basic skills and techniques of the game of ice hockey, emphasizing basic skating, stick-handling, and shooting skills. Examines rules, terminology, equipment selection, use, and strategy. Part I of II. Lecture: 0 – 1 hour. Laboratory 1 – 2 hours. Total: 2 – 3 hours per week.

**PED 171 – 172**  
**Ballroom Dance I – II**  
(1 credit each)  
Presents the basic step patterns, rhythmic patterns, and positions in ballroom dance. Includes techniques based upon traditional steps with basic choreographic patterns. Laboratory: 2 hours.

**PED 188**  
**Freshwater Fishing**  
(1 credit)  
Teaches freshwater fishing techniques including spinning, bait casting and fly casting. Presents selection and care of equipment, fish habits, conservation, and safety. Laboratory: 2 hours.

**PED 206**  
**Sports Appreciation**  
(2 credits)  
Focuses on the history, trends, rules, methods, strategy, and terminology of selected sports activities. Provides student awareness as a spectator and/or participant. Lecture: 2 hours per week.

**Physics**

**PHY 101 – 102**  
**Introduction to Physics I – II**  
(4 credits)  
Surveys general principles of physics. Includes topics such as force and motion, energy, heat, sound, light, electricity and magnetism, and modern physics. Lecture: 3 hours. Laboratory: 3 hours. Total: 6 hours per week.

**PHY 201 – 202**  
**General College Physics I – II**  
(4 credits each)  
Teaches fundamental principles of physics. Covers mechanics, thermodynamics, wave phenomena, electricity and magnetism and selected topics in modern physics. Prerequisite: MTH 165 or equivalent. Lecture: 3 hours. Laboratory: 3 hours. Total: 6 hours per week.

**PHY 241**  
**University Physics I**  
(4 credits)  
Teaches principles of classical and modern physics. Includes mechanics, wave phenomena, heat, electricity, magnetism, relativity, and nuclear physics. Prerequisite: MTH 173, MTH 273 or divisional approval. Lecture: 3 hours. Laboratory: 3 hours. Total: 6 hours per week.

**PHY 242**  
**University Physics II**  
(4 credits)  
Teaches principles of classical and modern physics. Includes mechanics, wave phenomena, heat, electricity, magnetism, relativity, and nuclear physics. Prerequisite: MTH 174, MTH 274 or divisional approval. Lecture: 3 hours. Laboratory: 3 hours. Total: 6 hours per week.

**Political Science**

**PLS 135**  
**American National Politics**  
(3 credits)  
Teaches political institutions and processes of the national government of the United States, focuses on the U.S. Congress, presidency and the courts and on their interrelationships. Gives attention to public opinion, suffrage, elections, political parties, interest groups, civil rights, domestic policy and foreign relations. Lecture: 3 hours per week.

**PLS 211 – 212**  
**U.S. Government I – II**  
(3 credits each)  
Teaches structure, operation, and process of national, state, and local governments. Includes in-depth study of the three branches of the government and of public policy. Lecture: 3 hours per week.

**PLS 241**  
**International Relations I**  
(3 credits)  
Teaches geographic, demographic, economic, ideological and other factors conditioning the policies of countries and discusses conflicts and their adjustment. Lecture: 3 hours per week.

**Psychology**

**PSY 100**  
**Principles of Applied Psychology**  
(3 credits)  
Introduces the general principles of psychology as they are applied to work, relationships, and growth. Includes perception, learning, development, motivation, emotion, therapy, communication, attitudes. Lecture: 3 hours per week.

**PSY 105**  
**Psychology of Personal Adjustment**  
(3 credits)  
Introduces psychological principles that contribute to well-adjusted personality. Considers the effects of stress and coping with the problems of everyday life. Lecture: 3 hours per week.
PSY 116
Psychology of Death and Dying
(3 credits)
Focuses on psychological aspects of death and dying. Teaches the meaning of death and ways of handling its personal and social implications. Includes psychological, sociological, cultural, and religious views of death. Lecture: 3 hours per week.

PSY 126
Psychology for Business and Industry
(3 credits)
Focuses on the application of psychology to interpersonal relations and the working environment. Includes topics such as group dynamics, motivation, employee-employer relationship and interpersonal communications. May include techniques for selection and supervision of personnel. Lecture: 3 hours per week.

PSY 165
Psychology of Human Sexuality
(3 credits)
Focuses on scientific investigation of human sexuality and psychological and social implications of such research. Considers socio-cultural influences, the physiology and psychology of sexual response patterns, sexual dysfunctions, and development of relationships. Lecture 3 hours per week.

PSY 200
Principles of Psychology
(3 credits)
Surveys the basic concepts of psychology. Covers the scientific study of behavior, behavioral research methods and analysis, and theoretical interpretations. Includes topics that cover physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology. Corequisite: PSY 203. Lecture: 3 hours per week.

PSY 203
Principles of Psychology Laboratory
(1 credit)
Teaches the basic principles of behavioral research methods and analysis. Presents instruments, equipment, and research techniques used in psychological experimentation and evaluation. Corequisite: PSY 200. Laboratory: 2 – 3 hours per week.

PSY 211
Research Methodology for Behavioral Sciences
(3 credits)
Introduces the principles and processes of various research procedures for applying the scientific method to understanding behavior. Includes preparation for conducting, understanding and interpreting laboratory and field studies; documenting principles through research; and applying critical assessment to generic research. Lecture: 3 hours per week.

PSY 213
Statistics for Behavioral Sciences
(3 credits)
Introduces the principles and processes of statistics within behavioral research. Emphasizes understanding and applying statistical tests to behavioral data, stresses recognition and use of process, based upon knowledge and understanding over mathematical derivation. Focuses on selection of appropriate statistics, their application, and correct decisions of interpretation within a behavioral research experience. Lecture: 3 hours per week.

PSY 215
Abnormal Psychology
(3 credits)
Explores historical views and current perspectives of abnormal behavior. Emphasizes major diagnostic categories and criteria, individual and social factors of maladaptive behavior and types of therapy. Includes methods of clinical assessment and research strategies. Prerequisite: PSY 200, PSY 201 or PSY 202. Lecture: 3 hours per week.

PSY 225
Theories of Personality
(3 credits)
Studies the major personality theories and their applications. Includes psychodynamic, behavioral, cognitive and humanistic perspectives. Prerequisite: PSY 200. Lecture: 3 hours per week.

PSY 230
Developmental Psychology
(3 credits)
Studies the development of the individual from conception to death. Follows a life-span perspective on the developmental tasks of the person’s physical, cognitive and psychosocial growth. Lecture: 3 hours per week.

PSY 235
Child Psychology
(3 credits)
Studies development of the child from conception to adolescence. Investigates physical, intellectual, social and emotional factors involved in the child’s growth. Lecture: 3 hours per week.

PSY 265
Psychology of Men and Women
(3 credits)
Examines the major determinants of sex differences. Emphasizes psychosexual differentiation and gender identity from theoretical, biological, interpersonal, and sociocultural perspectives. Includes topics such as sex roles, socialization, rape, abuse, and androgyny. Prerequisite: PSY 125 or PSY 200. Lecture: 3 hours per week.
Recreation and Parks

RPK 180
Youth Sports Administration
(3 credits)
Prepares coaching professionals to develop and implement emotionally and physically healthful youth sports programs. Includes an analysis of the youth sports program planning process including: philosophy development, learning styles and outcomes, managing parents and players, skills development, risk management, financial planning and strategic partnerships and sports event management. Lecture: 3 hours per week.

RPK 210
Principles and Psychology of Coaching
(3 credits)
Provides an analysis of volunteer coaching and the coaching profession planning process including: philosophy development, learning styles and outcomes, managing parents and players, skills development, risk management, financial planning, drugs and eating disorders in sport and physical training. Lecture: 2 hours. Laboratory: 2 hours. Total: 4 hours per week.

RPK 296
On Site Training
(1 credit)
Specializes in career orientation and training program without pay in selected businesses and industry, supervised and coordinated by the college. Variable hours.

Religion

REL 100
Introduction to the Study of Religion
(3 Credits)
Explores various religious perspectives and ways of thinking about religious themes and religious experience. Lecture: 3 hours per week.

REL 200
Survey of the Old Testament
(3 credits)
Surveys books of the Old Testament, with emphasis on prophetic historical books. Examines the historical and geographical setting and place of the Israelites in the ancient Middle East as background to the writings. Lecture: 3 hours per week.

REL 210
Survey of the New Testament
(3 credits)
Surveys books of the New Testament, with special attention upon placing the writings within their historical and geographical setting. Lecture: 3 hours per week.

REL 230
Religions of the World
(3 credits)
Introduces religions of the world with attention to origin, history and doctrine. Lecture: 3 hours per week.

REL 233
Introduction to Islam
(3 credits)
Studies Islam in its historical, religious, and political dimensions and assists in the understanding of its contemporary vitality and attraction as a faith, a culture and a way of life. Lecture: 3 hours per week.

REL 237
Eastern Religions
(3 credits)
Studies major religious traditions of the East, including Hinduism, Buddhism, Confucianism, Taoism and Zen Buddhism. Includes an analysis of Eastern philosophy and approach to life. Lecture: 3 hours per week.

REL 238
Western Religions
(3 credits)
Studies major traditions of the West that may include, but are not limited to, Judaism, Zoroastrianism, Christianity, Near East, Greek and Roman, African, Native American, European Pagan and New Age spirituality. Lecture: 3 hours per week.

REL 240
Religions in America
(3 credits)
Surveys various manifestations of religion in the American experience. Emphasizes concepts, problems and issues of religious pluralism and character of American religious life. Lecture: 3 hours per week.

REL 247
History of Christianity
(3 credits)
Surveys the development of Christianity from its origins to the present. Lecture: 3 hours per week.

Sociology

SOC 200
Principles to Sociology
(3 credits)
Introduces fundamentals of social life. Presents significant research and theory in areas such as culture, social structure, socialization, deviance, social stratification, and social institutions. Lecture: 3 hours per week.
SOC 210
Survey of Physical and Cultural Anthropology
(3 credits)
Examines physical characteristics and lifestyles of human ancestors and present populations. Explores cultures from around the world to study diverse adaptations made by humans. Lecture: 3 hours per week.

SOC 215
Sociology of the Family
(3 credits)
Studies topics such as marriage and family in social and cultural context. Addresses the single scene, dating and marriage styles, child-rearing, husband and wife interaction, single parent families and alternative lifestyles. Lecture: 3 hours per week.

SOC 225
Gender and Sex Roles
(3 credits)
Analyzes influence of major social institutions and socialization in shaping and changing sex roles in contemporary society. Examines differential access to positions of public power and authority for men and women. Lecture: 3 hours per week.

SOC 226
Human Sexuality
(3 credits)
Studies sociological research and theory on sexuality. Includes anatomy and physiology, birth control, sexually transmitted diseases and sexual behavior. Lecture: 3 hours per week.

SOC 236
Criminology
(3 credits)
Studies research and causal theories of criminal behavior. Examines crime statistics, crime victims, and types of criminal offenses. Introduces role of police, judicial and correctional system in treatment and punishment of offenders. Lecture: 3 hours per week.

SOC 246
Death and Society
(3 credits)
Analyzes death and its relationship to social behavior and societal institutions. Focuses attention on types of death, bereavement, funerals, estate planning/inheritance and the student’s own responses to these issues. Lecture: 3 hours per week.

SOC 268
Social Problems
(3 credits)
Applies sociological concepts and methods to analysis of current social problems. Includes delinquency and crime, mental illness, drug addition, alcoholism, sexual behavior, population crisis, race relations, family and community disorganization, poverty, automation, wars, and disarmament. Lecture: 3 hours per week.

Spanish

SPA 101 – 102
Beginning Spanish I – II
(4 – 5 credits each)
Introduces understanding, speaking, reading and writing skills and emphasizes basic Spanish sentence structure. May include one additional hour of oral drill and practice per week. Lecture: 4 – 5 hours per week.

SPA 103 – 104
Basic Spoken Spanish I – II
(3 credits each)
Teaches oral communication and introduces cultural mores and customs to students with no prior instruction in the language. Lecture: 3 hours per week.

SPA 150
Spanish for Law Enforcement
(3 credits)
Introduces Spanish to those in the criminal justice field. Emphasizes oral communication and practical first-hand police and justice vocabulary. May include oral drill and practice. Lecture: 3 hours per week.

SPA 163 – 164
Spanish for Health Professionals I – II
(3 credits each)
Introduces Spanish to those in the health sciences. Emphasizes oral communication and practical medical vocabulary. May include oral drill and practice. Lecture: 3 hours per week.

SPA 201 – 202
Intermediate Spanish I – II
(3 – 4 credits each)
Continues to develop understanding, speaking, reading, and writing skills. Prerequisite: SPA 102 or equivalent. May include oral drill and practice. Lecture: 3 – 4 hours per week. May include one additional hour of oral practice per week.

SPA 211 – 212
Intermediate Spanish Conversation I – II
Continues to develop fluency through emphasis on idioms and other complex sentence structures. Prerequisite: SPA 202 or equivalent. Lecture: 3 – 4 hours per week.
Student Development

SDV 100
College Success Skills
(1 – 3 credits)
Assists students in transition to colleges. Provides overviews of college policies, procedures, curricular offerings. Encourages contact with other students and staff. Assists students toward college success through information regarding effective study habits, career and academic planning, and other college resources available to students. May include English and math placement testing. Strongly recommended for beginning students. Required for graduation. Lecture: 1-3 hours per week.

SDV 101
Orientation to [Discipline]
(1 credit)
Introduces students to the skills which are necessary to achieve their academic goals, to services offered at the college and to the discipline in which they are enrolled. Covers topics such as services at the college including the learning resources center; counseling and advising; listening, test taking, and study skills; and topical areas which are applicable to their particular discipline. Lecture: 1 hour per week.

SDV 108
College Survival Skills
(1 – 3 credits)
Provides an orientation to the college. Introduces study skills, career and life planning. Offers an opportunity to engage in activities aimed at self-discovery. Emphasizes development of “coping skills” such as listening, interpersonal relations, competence, and improved self-concept. Recommended for students enrolled in developmental courses. Lecture: 1 – 3 hours per week.

Welding

WEL 117
Oxyfuel Welding and Cutting
(4 credits)
Introduces history of oxyacetylene welding, principles of welding and cutting, nomenclature of the equipment, development of the puddle, running flat beads and butt welding in different positions. Explains silver brazing, silver and soft soldering, and safety procedures in the use of tools and equipment. Lecture: 2 hours. Laboratory: 6 hours. Total: 8 hours per week.

WEL 123
Shielded Metal Arc Welding (Basic)
(4 credits)
Continues instruction on operation of AC and DC power sources, welding polarities, heats and electrodes for use in joining various metal alloys by the arc welding process. Deals with running beads, butt and fillet welds in all positions. Emphasizes safety procedures. Lecture: 2 hours. Laboratory: 6 hours. Total: 8 hours per week.

WEL 124
Shielded Metal Arc Welding (Advanced)
(4 credits)
Continues instruction on operation of AC and DC power sources, welding polarities, heats and electrodes for use in joining various metal alloys by the arc welding process. Deals with running beads, butt and fillet welds in all positions. Emphasizes safety procedures. Lecture: 2 hours. Laboratory: 6 hours. Total: 8 hours per week.

Telecommunications Management

TEL 150
Internetworking I
(3 – 4 credits)
Introduces the functions of each layer of the ISO/OSI reference model, data link and network addresses, data encapsulation, different classes of IP addresses and subnetting and the functions of the TCP/IP network-layer protocols. Lecture: 2 – 3 hours. Laboratory: 2 – 3 hours. Total: 4 – 6 hours per week.

TEL 151
Internetworking II
(3 – 4 credits)
Teaches features of the Cisco IOS software, including log in, context-sensitive help, command history and editing, loading software, configuring and verifying IP addresses, preparing the initial configuration of a router, and adding routing protocols to the router configuration. Prerequisite: TEL 150. Lecture: 2 – 3 hours. Laboratory: 2 – 3 hours. Total: 4 – 6 hours per week.

TEL 250
Internetworking III
(3 – 4 credits)
Studies the advantages of LAN segmentation using bridges, routers, and switches, Fast Ethernet configuring access lists. Covers Spanning Tree Protocol and Virtual LANs. Prerequisite: TEL 151. Lecture: 2 – 3 hours. Laboratory: 2 – 3 hours. Total: 4 – 6 hours per week.

TEL 251
Internetworking IV
(3 – 4 credits)
Focuses on the differences between the following WAN services: LAPB, Frame Relay, ISDN/LAP HDLC, PPP, and DDR. Prerequisite: TEL 250. Lecture: 2 – 3 hours. Laboratory: 2 – 3 hours. Total: 4 – 6 hours per week.
**WEL 126**  
**Pipe Welding I**  
(4 credits)  
Teaches arc welding processes including the welding of pressure piping in the horizontal, vertical and horizontal-fixed positions in accordance with codes and standards. Lecture: 2 hours. Laboratory: 6 hours. Total: 8 hours per week.

**WEL 130**  
**Inert Gas Welding**  
(4 credits)  
Introduces practical operations in the uses of inert-gas-shield arc welding. Discusses equipment, safety operations, welding practice in the various positions, process applications and manual and semi-automatic welding. Lecture: 2 hours. Laboratory: 6 hours. Total: 8 hours per week.

**WEL 160**  
**Gas Metal Arc Welding**  
(4 credits)  
Introduces semi-automatic welding processes with emphasis on practical application. Includes the study of filler wires, fluxes and gases. Lecture: 2 hours. Laboratory: 6 hours. Total: 8 hours per week.
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John Tyler Community College
Marshall W. Smith, President
For a continually updated list of John Tyler Community College faculty and staff, please visit the College web site at www.jtcc.edu.
Administration

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Administrative Assistant

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B.A., University of Virginia

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B.S., United States Naval Academy; M.S., United States Naval Postgraduate School

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Tripp, Vittoria L.
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B.S., University of Central Florida

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M.A., University of Richmond

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- **Dr. Joey Wallace**  
  Rehabilitation Services

- **Ms. Pat Williams**  
  Powhatan Meals on Wheels

- **Ms. Teresa Wulf-Heller**  
  Board Mental Health Services

**Emergency Medical Services**

- **Mr. Andy Aigner**  
  Prince George Fire and EMS

- **Mr. Eric Albert**  
  Colonial Fire and EMS

- **Ms. Lisa Atkins**  
  New Kent Fire and Rescue

- **Mr. Steve Bhatt**  
  Old Dominion EMS Alliance

- **Mr. Jerry Perkinson**  
  Dinwiddie County Inspections

- **Mr. David K. Siewert**  
  Virginia’s Community Colleges

- **Mr. Philip Moore**  
  John Tyler Community College

- **Dr. Deborah Ulmer**  
  John Tyler Community College

- **Mr. Monty Dixon**  
  Henrico County Fire Division

- **Mr. Brian Harness**  
  Ft. Lee Fire and Emergency Services

**Funeral Services**

- **Mr. Richard Brockwell**

- **Ms. Caren Brown**  
  Brown’s Funeral Home

- **Mr. William Burrell**  
  Chiles Funeral Home

- **Mr. Floyd E. Dabney**  
  F. E. Dabney Funeral Home

- **Mr. D. D. Watson**  
  Thomasson Watson Funeral Service

- **Dr. Deborah Ulmer**  
  John Tyler Community College

- **Mr. Michael Williams**  
  Bliley Funeral Home

- **Ms. Teresa Wulf-Heller**  
  Board Mental Health Services
Information Technology

Mr. Tom Bandy
BandyWorks, LLC

Dr. Mark Cohen
John Tyler Community College

Mr. Kenneth Davis
Retired, Reynolds Metals Company

Ms. Sylvia Edmonds
Virginia Housing Development Authority

Mr. Jeff Elliott
John Tyler Community College

Mr. Tommy Gorman
ProActive Information Management

Ms. Debbie Hood
John Tyler Community College

Mr. Keith Messer
Virginia Cardiovascular Specialists

Ms. Brenda Miller
John Tyler Community College

Ms. Patti Nunnally
John Tyler Community College

Ms. Patricia Silva-Santisteban
John Tyler Community College

Mr. R. Scott Steinruck
Chesterfield Technical Center

Mr. Randy Carraway
Smurfit-Stone

Mr. John Careatti
John Tyler Community College

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Philip Morris USA

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Amsted Rail Brenco Inc.

Mr. Brian Dail
Rolls-Royce

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Dupont Teijin Films

Mr. Mike Duesberry
Honeywell

Mr. Bryon Frye
Gerdau Ameristeel

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Church & Dwight Co., Inc.

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Chesterfield County

Mr. Stan Sebastian
Boehringer Ingelheim Chemicals, Inc.

Mr. James Stewart
Filtrona Fibertec

Mr. Dean Swofford
Hill-Phoenix

Mr. Bill Turner
Smurfit-Stone Container Corp.

Mr. Dave Van Aken
Dupont Teijin Films

Nursing

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Chesterfield Technical Center

Ms. Terri Clinger
John Tyler Community College

Dr. L. Raymond Drinkwater
John Tyler Community College

Ms. Linda Freeman
John Tyler Community College

Ms. Barbara Hornsby
John Tyler Community College

Ms. Nancy Leahy
John Tyler Community College

Ms. Susan Lipp
Virginia Commonwealth University

Ms. Linda Mueller
John Tyler Community College

Ms. Frankye Myers
John Randolph Medical Center

Ms. Kay Palmer
Old Dominion University

Ms. Marlene Pratt
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Ms. Tracey Proffitt
John Tyler Community College

Ms. Suzanne Robinson
CJW Medical Center

Mr. Charles Smith
John Tyler Community College

Dr. Deborah L. Ulmer
John Tyler Community College

Ms. Yauna Williams
John Tyler Community College

Mechanical Engineering Technology

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Amsted Rail Brenco Inc.

Mr. Mike Annehchini
Hill-Phoenix

Mr. Michael Barkle
Honeywell

Mr. William Campbell
Bear Island Paper

Mr. Davis Mick
Reynolds Can Machinery

Mr. Matt Radcliff
Alstom Power, Inc.

Mr. Antwone Ross
Chesterfield County

Mr. Stan Sebastian
Boehringer Ingelheim Chemicals, Inc.

Mr. James Stewart
Filtrona Fibertec

Mr. Dean Swofford
Hill-Phoenix
Police Science

Major Mason Chalkley
Retired, Chesterfield County Police Department

Ms. Lynda Cooksey
Richmond Police Department

Colonel Theirry Dupuis
Chesterfield County Police Department

Colonel Jeff Faries
Colonial Heights Police Department

Mr. Eddie Frankenstien
Prince George County Police Department

Detective Joseph Fultz
Richmond Police Department

Mr. Terry Patterson
Chesterfield County Police Department

Mr. Shawn Rivard
Virginia State Police Department

Mr. Huey Singleton
John Tyler Community College

Mr. Richard Turnbull
Federal Reserve Bank Police Department

Visual Arts

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B&B Printing

Dr. Mikell Brown
John Tyler Community College

Mr. Colin Ferguson
John Tyler Community College

Ms. Lin Ferrell
Chesterfield County Public Schools

Ms. Karen Gammon
Independent Artist

Ms. Mary Holland
Virginia Museum of Fine Arts

Ms. Christopher Silvent
John Tyler Community College

Ms. Pamela Turner
Virginia Commonwealth University

Ms. Maruta Winebrenner
Main Art Supply & Framing

Precision Machining Technology

Mr. Melvin Belcher
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Mr. Lester Bell
John Tyler Community College

Mr. Brian Dail
Rolls-Royce

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Jewett Machine Manufacturing Company and Jewett Automation

Mr. Roger McGinnis
Richmond Tooling, Inc.

Ms. Melinda Miller
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Alstom Power, Inc.

Mr. Robert McRoberts
John Tyler Community College

Mr. Ted Smook
Kosmo Machine

Ms. Sandra Wallace
460 Machine Company

Mr. Steven Westerman
460 Machine Company

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Mr. John Woodrum
Roberts Oxygen Co., Inc.

Welding

Mr. Darrell Coleman
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Arcet Equipment

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Mr. David Kain
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For more information about John Tyler Community College, including how to apply, go online to www.jtcc.edu, or call 804-796-4000.

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