2018 – 2019 Catalog

ACCREDITATIONS

Middle States Commission on Higher Education (MSCHE)
3624 Market Street, Philadelphia, PA 19104
Phone: (267) 284-5000
Email: info@msche.org Spanish: espanolinfo@msche.org
Website: https://www.msche.org/
Candidacy Status

American Veterinary Medical Association (AVMA),
Veterinary Technology Program

Commission on Accreditation in Physical Therapy Education (CAPTE)
Physical Therapist Assistant Program

Joint Review Committee on Education in Radiologic Technology (JRCERT),
20 North Wacker Drive, Suite 2850 Chicago, IL 60606-3182
(312) 704-5300 e-mail: mail@jrcert.org
Radiologic Technology Program

National Automotive Technicians Education Foundation, Inc. (NATEF),
Automotive Technology Program

APPROVALS

Pennsylvania Department of Education, State Board of Education
United States Department of Education, Title IV Assistance
Pennsylvania Higher Education Assistance Agency (PHEAA)
Office of Vocational Rehabilitation
Veterans Training

American Design Drafting Association (ADDA) International
Curriculum Certification, Drafter Level,
Architectural Drafting & Design Technology Program

REGISTRATIONS

United States Department of Agriculture

www.johnson.edu
3427 NORTH MAIN AVENUE • SCRANTON • PENNSYLVANIA 18508-1495
(570) 342-6404 (800) 293-9675

About This Catalog

This catalog is a primary reference source for students, faculty, staff, and the community and will answer many, if not all, questions regarding Johnson College.

Johnson College reserves the right, in its sole judgment, to make changes of any nature in its programs, calendar, or academic schedule whenever it is deemed necessary or desirable. Changes may include course content, scheduling of classes, and canceling of classes and other academic activities. The College will make every effort to provide students with timely notification of such changes.

This catalog does not establish a contractual relationship but summarizes current information regarding the calendar, admissions, degree requirements, fees, regulations, and course offerings. The information contained in this catalog is correct at the time of printing. Changes in policy, requirements, and regulations may occur during the year.

Student Responsibilities

Johnson College students are responsible for reading and abiding by all rules and policies described in this Catalog, individual program area handbooks, and the Student Handbook which includes the Community Code of Ethics. Students are personally responsible for following policies and procedures as they affect their academic progress, financial obligations, and relationships with College authorities, and eligibility for graduation.

Accreditation

Johnson College is accredited by the Accrediting Commission of Career Schools and Colleges (ACCSC.) The Pennsylvania Department of Education, State Board of Education, has approved Johnson College as a two-year college.

Candidate for Accreditation by the Middle States Commission on Higher Education (MSCHE), 3624 Market Street, Philadelphia, PA 19104.
Phone: (267) 284-5000
Email: info@msche.org Spanish: espanolinfo@msche.org
Website: www.msche.org

Candidate for Accreditation is a status of affiliation with a regional accrediting commission which indicates that an institution has achieved initial recognition and is progressing toward, but is not assured of, accreditation. It has provided evidence of sound planning, appears to have the resources to implement the plans, and appears to have the potential for reaching its goals within a reasonable time.

The Automotive Technology Program is accredited by the
National Automotive Technicians Education Foundation, Inc. (NATEF)
101 Blue Seal Drive, S.E. Suite 101, Leesburg, VA 20175
Phone: 1-703-669-6650
Email: webmaster@natef.org
Website: www.natef.org

The Physical Therapist Assistant Program at Johnson College is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE)
1111 North Fairfax Street, Alexandria, Virginia 22314;
Phone: 703-706-3245;
Email: accreditation@apta.org
Website: www.capteonline.org

The Radiologic Technology Program is accredited by the
Joint Review Committee on Education in Radiologic Technology (JRCERT)
20 North Wacker Drive, Suite 2850, Chicago, IL 60606-3182
Phone: (312)704-5300
E-mail: mail@jrcert.org
Website: www.jrcert.org

The Veterinary Technology Program is accredited by the
American Veterinary Medical Association (AVMA)
1931 North Meacham Road, Suite 100, Schaumburg, IL 60173-4360
Phone: 800.248.2862
Fax: 847.925.1329
Website: www.avma.org

Curriculum Approval

The Architectural Drafting & Design Technology program has curriculum approval at the Drafter level by the American Design Drafting Association International (ADDA).
105 East Main Street, Newbern, Tennessee 38059
Telephone: 731.627.0802
Fax: 731.627.9321
Website: www.adda.org

General College Policies

Non-Discrimination Policy

Johnson College does not discriminate with regard to race, color, creed, age, national or ethnic origin, religion, disability, sex, sexual orientation, gender, gender identity and expression, including a transgender identity, genetics, veteran status, or ancestry in the administration of its educational and admission policies, scholarship, loan, athletic and other school administered programs, or employment practices in accordance with Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Sections 503 and 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975, the Americans with Disabilities Act of 1990, or any other legally protected category. For information regarding civil rights and grievance procedures, contact the Title IX Coordinator of Johnson College, 3427 North Main Avenue, Scranton, PA 18508; (570) 702-8944.

Pregnancy Policy

It is the student's choice whether or not to inform the Department Chairperson of a pregnancy. If a student chooses not to do so, no accommodations can be made regarding the student's internship assignment or program of study. Students who choose to disclose their pregnancy should contact the Department Chair.

Date of Publication July 2018
Updated online Dec. 2018
O. S. Johnson Technical Institute t/a Johnson College

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2018-2019 ACADEMIC CALENDAR

Fall Semester 2018

Aug. 27	Semester Begins	Monday
Sept. 3	Labor Day, College Closed	Monday
Oct. 8	Fall Break (no classes)	Monday
Oct. 26	Course Drop Date	Friday
Nov. 12	Veterans Day (observed), College Closed	Monday
Nov. 22-26	Thanksgiving Break, College Closed	Thurs. thru Mon.
Dec. 7	Semester Ends	Friday

Intersession Semester 2018-2019

Dec. 9	Semester Begins	Sunday
Jan. 20	Semester Ends	Sunday

Spring Semester 2019

Jan. 22	Semester Begins	Tuesday
Feb. 18	Presidents Day, College Closed	Monday
March 11-17	Spring Break, No Classes	Mon. thru Sun.
April 4	Course Drop Date	Friday
April 19-22	Break - College Closed	Fri. thru Mon.
May 10	Semester Ends	Friday
May 17	Commencement Rehearsal	Friday
May 18	Commencement	Saturday

Summer Semester 2019

June 24	Semester Begins	Monday
Aug. 9	Semester Ends	Friday

History of Johnson College

Johnson College, a two-year technical college, was founded by Orlando S. Johnson, a wealthy coal baron in the Scranton area who died in 1912. Mr. Johnson left the bulk of his estate to establish and maintain a trade school and his purpose became the mission of the College as an institution "*where young men and women can be taught useful arts and trades that may enable them to make an honorable living and become contributing members of society*."

A board of directors was created and a 41-acre tract in Scranton known as the William H. Richmond estate was selected as the site for the new enterprise. Opening in 1918, the school admitted young men and women who had completed a minimum of eight years of school and were 14 years old.

In 1964, the school became a post-secondary institution requiring applicants to be high school graduates or to have equivalency certificates. The name of the institution was changed from the Johnson Trade School to the Johnson School of Technology in 1966. The school was incorporated as a non-profit corporation in 1967, and in 1968 it was licensed by the Commonwealth of Pennsylvania Bureau of Private Trade Schools. Approval to award a degree of Associate in Specialized Technology came in 1974, with accreditation by the National Association of Trade and Technical Schools (NATTS) following in 1979.

In 1985, the name of the school was changed to Johnson Technical Institute; the three-year Associate in Specialized Technology degree programs were changed to two-year programs in 1987.

Responding to the continuing technological changes in society, the board, administration, faculty, staff and students conducted an intense two-year self-study, beginning in 1994, to assess the institution's strengths and weaknesses. The study led to a formal application to the Commission on Higher Education for status as a two-year college. The Pennsylvania Department of Education approved the application of Johnson Technical Institute as a two-year college in 1997; the change of name to Johnson College was instituted in 2001.

The graduating class of 1998 was the first class to receive either an Associate in Applied Science (A.A.S.) degree or an Associate in Science (A.S.) degree.

Continuing with the expansion of technology programs, a Veterinary Technology program was introduced in 1994. Clinical classes were held off-campus until the erection of a 6,500 square foot Science Center on campus was completed. The program received full accreditation from the American Veterinary Medical Association (AVMA) for the fall semester of 2000. In January, 2004 the College opened the Animal Care Center as a teaching facility to enhance the Veterinary Technology educational experience. In 1995, Electrical Construction & Maintenance Technology was added to the curriculum, and the Bureau of Private Licensed Schools approved the Diesel Truck Technology program in November of 1996.

A Computer Information Technology program that specializes in enterprise computer networking was approved by the Commission on Higher Education in 2000, and a curriculum in Radiologic Technology received the Commission's approval for the fall, 2002 semester. Logistics & Supply Chain Management Technology program was approved as a program offering for the fall, 2006 semester and the Heating, Ventilation & Air Conditioning Technology program was approved for the fall, 2009 semester. A Welding Certificate program was approved in the spring of 2012 with major courses taught at a satellite location. A Health Science Technology Center was built to accommodate future allied health programs. After construction, the Physical Therapist Assistant Program was approved for the fall of 2013. A Business Management Associate in Applied Science degree – Project Management track was approved in the summer of 2014 which corresponded to a name change of the Logistics & Supply Chain Management Program to Business Management – Logistics & Supply Chain Management track which occurred during the same timeframe. In the fall of 2015, the Advanced Manufacturing Engineering Technology Program introduced. This new program provided an opportunity to remodel a large segment of Woolworth Hall where the program is based.

Approximately 400 students pursue degrees and certificates in 17 different trade, technical, or clinical programs. The College's twelve buildings include a library, gymnasium, physical fitness center, classrooms, shops, laboratories and administrative offices.

Over the years, Johnson College has served the region by providing programs of technical education and continually evaluates its programs to meet the technology needs of society. This evaluation process is assisted by the Program Advisory Committees of each program area, consisting of regional business and community leaders who meet several times during the year to advise the College on curriculum content, length of programs, and current materials and equipment. They also review placement and retention statistics. The College has maintained the initial intent of Mr. Johnson with a professional and dedicated staff to ensure up-to-date training that prepares graduates to readily step into entry-level positions in business and industry.

The current student body is comprised of approximately 70% males and 30% females. The students spend 66% of their time in technology courses and the remainder in general education classes. The College has an extensive program of internships and practicums with a variety of businesses and professional organizations. One of the important success factors of Johnson College is a consistently high employment rate of students within a short time after graduation.

Johnson College is a valuable resource for the changing technological needs of our region.

Mission Statement

Johnson College provides real-world hands-on learning in a caring environment and prepares graduates to enter into and advance in their career.

Vision Statement

Innovating. Partnering. Advancing.

Institutional Goals

Foster Academic Innovation & Excellence
Enhance Student Success
Promote Equity & Inclusion
Ensure Stewardship & Growth of Resources

Shared Values

INITIATE: Have the GUTS to take risks, the GRIT to demonstrate your passion and feel the GLORY of your achievement.

PARTICIPATE: Have the GUTS to speak up, the GRIT to get involved and feel the GLORY of what we can do together.

ENDURE: Have the GUTS to overcome challenges, the GRIT to go the distance and feel the GLORY of our resilience.

The institutional goals and shared values of our organization are those on which we build the foundation, perform work, and conduct ourselves.

Plan of Education

Students come to Johnson College to prepare themselves as entry-level technicians in the industry and professional community.

To accomplish this primary objective, students pursue 40+ credits of technology classes, and 20+ credits are general education courses, preparing them to advance in their careers. The average class size is approximately 17 students, while lab sections average 12 students.

Faculty members bring to each program a combination of professional education and sound, practical experience. The faculty exhibits a personal interest in the progress of all students, encouraging and assisting them to achieve the maximum benefit from their programs of study.

The physical facilities consist of modern classrooms, trade areas, and laboratories that are furnished with tools, machines, equipment and materials that are required to provide a thorough program of education. Equipment used for training in each program of education is representative of that found in industry and is selected to provide the student with the broadest educational experience possible. Examples of this equipment consist of hand and power tools, specialized testing and repairing apparatus, industrial units and clinical devices. Some departments provide an extension of this exposure by requiring students to participate in a practicum/internship experience.

Learning opportunities are enhanced through the use of the College library which is kept current with books, periodicals, and brochures and provides students with Internet capability. The Library Resource Center provides for the gathering of information from a variety of outside services and is a member of the Northeast Pennsylvania Library Consortium. In addition, close contact is maintained with institutional and industrial libraries in the area which provide additional sources of reference information. Further learning comes from the use of educational videos, field trips and presentations by business and industrial consultants.

Careers in technology are constantly changing as a result of new products and developments in materials, tools, machinery, equipment, methods and techniques. Program Advisory Committees, comprised of representatives from business and industry, meet regularly with the faculty and administration to make suggestions on course content so that College programs are kept current**.**

Degrees Awarded

Johnson College is approved by the Pennsylvania Department of Education and the State Board of Education to award two degrees, the Associate in Science (A.S.) degree and the Associate in Applied Science (A.A.S.) degree. All the programs of study prepare graduates for entry-level positions in their field of study.

The Associate in Science (A.S.) degree is awarded to students who graduate from the following programs:

Computer Information Technology
Physical Therapist Assistant
Radiologic Technology
Veterinary Technology

The Associate in Applied Science (A.A.S.) degree is awarded to students who graduate from the following programs:

Advanced Manufacturing Engineering Technology
Architectural Drafting & Design Technology
Automotive Technology
Biomedical Equipment Technology
Business Management – Logistics & Supply Chain Management Track
Business Management – Project Management Track
Carpentry & Cabinetmaking Technology
Diesel Truck Technology
Electrical Construction & Maintenance Technology
Electronic Engineering Technology
Heating, Ventilation & Air Conditioning Technology

Certificates Awarded

The Certificate is awarded to students who graduate from the following programs:

Diesel Preventative Maintenance Technology
Welding Technology

https://www.johnson.edu/continuing-education

ENROLLMENT INFORMATION

Johnson College accepts qualified students regardless of race, religion, disability or national origin. Admission to Johnson College is based on an evaluation of the applicant's desire, ability, and potential for success. Applicants will be judged not only on their scholastic achievement and abilities, but also on their intellectual, physical, emotional and behavioral capacities to meet the essential requirements of the school's curriculum. The College reserves the right to deny admission or re-admission to any student if, in the opinion of the College authorities, his/her admission is not in the best interest of the student or the College. At a minimum, applicants must have a high school diploma, or its equivalent.

Applicants are encouraged to arrange for a campus visit and a personal information session with a Recruitment Advisor. Appointments may also be made to meet with appropriate faculty and current students.

Admission Process

1. Complete the application. Students can apply online at www.johnson.edu. There is an application fee. Students may also contact the Enrollment Office at:

   Johnson College
   3427 North Main Ave.
   Scranton, PA 18508
   admit@johnson.edu
   570-702-8856

2. The applicant must have the following items sent to the Enrollment Office:
   - Official High School Transcripts from every high school attended or General Equivalency Diploma (GED) (GED policy below)
   - If applicable, an official copy of Scholastic Aptitude Test (SAT) **or** American College Test (ACT) Scores
   - If applicable, an official transcript from each post-secondary institution attended
   - It is strongly recommended that all applicants provide their Recruitment Advisor with any items they believe will provide them with the best opportunity for acceptance (resume, letters of recommendation, certifications, etc .)
   - Based on information provided will determine if a placement test is needed

   Note: Admission Requirements for each program area are found on the Enrollment webpage. Health Science Programs may require additional documentation.

3. The applicant is encourage to schedule a campus visit, shadow day, or attend an open house event.

GED Admission Policy

Applicants are considered GED students if they have passed the State Department of Education GED exam in lieu of high school graduation. GED applicants are required to submit admission documents and/or information to the Enrollment Office before a final admission decision can be made. (see page 14)

Home-Schooled Admission Policy

Johnson College welcomes applications from home-schooled students. Applicants are considered Home-Schooled students if they have graduated from a State Department of Education curriculum and/or if the high school class are approved through Department of Education.

Johnson College asks that home-schooled students submit extra documentation following their applications:

- If you are under the umbrella of a diploma-granting organization, you will need to submit evidence of the coursework completed and Department of Education approval.
- Letter of Completion from the primary teacher or program administrator certifying completion of high school and date of high school graduation

Veterans

Johnson College welcomes veterans and assists them in carrying out their responsibilities with the US Department of Veterans Affairs. Johnson College and the Financial Aid administrators are certified officials for VA military benefits.

College Placement Exam

Applicant might need to take a placement exam to determine their college-readiness. The two-part exam tests students in three areas: Elementary Algebra, Reading Comprehension, and Sentence Skills. Based on the test results, students may be required to take developmental courses. A photo ID is required to sit for the exam.
More information can be found at: https://accuplacer.collegeboard.org/student/practice

Campus Visit

Applicants are encouraged to visit the College, tour the facilities, meet with students, and discuss career goals with the Enrollment staff. The college hosts Fall/Spring/Summer Open House Events, Shadow Days, and program interviews.

SOAR (Students Occupationally and Academically Ready)

In order for SOAR credits to be evaluated by the Office of the Registrar, the SOAR Documentation Checklist should be fully completed and sent from the Enrollment Depart to the Office of the Registrar. The documents needed to complete the Checklist are below

1. High School transcript with GPA of 2.5
2. Enrolled in Johnson within 3 years
3. POS Perkins Articulation Agreement Coversheet
4. Task list Coversheet with the signature of a Secondary School Technical Instructor
5. Pennsylvania Certificate of Competency or a Pennsylvania Skills Certificate in a technical program area

SOAR credits being evaluated will be awarded after completing the industry certificate. If SOAR credits are awarded they will be placed on the student transcript with a letter grade of "T".

More information can be found at: https://www.pacollegetransfer.com/PASOAR/tabid/4498/Default.aspx

Transcript Evaluation Procedure

Students looking to obtain transfer credit must submit an official copy of their college transcripts to the Enrollment Office. Coursework previously completed at another regionally accredited institution or through the Prior Learning Assessment process will be evaluated relative to its equivalency to Johnson College courses and to the specific major. The Office of Academics and the Registrar will make final decisions on acceptance of such coursework. Students who wish to transfer courses must follow the procedures below:

- Complete the steps listed under Application Requirements
- Have official transcripts from all previous coursework sent directly to the Enrollment Office. Course descriptions, course syllabus or a catalog may be required.

A copy of the evaluation will be provided to the student by mail within 10 business days. The College accepts a maximum of 30 credits from another accredited institution to qualify for an Associate's degree and a maximum of 15 credits to qualify for a Certificate. Only courses completed with a grade of "C" or higher will be considered for transfer credit. (Physical Therapist Assistant and Radiologic Technology courses will be evaluated on a case-by-case basis and will require a grade of "C+" or higher.) Credit requested under PLA format may require an equivalent grade of "B" or higher.

Transfer credit will appear on the student's transcript but only credits from Johnson College will be used in computing the student's Grade Point Average (GPA) and eligibility for academic honors. **It is the responsibility of the student to ensure that all courses have been evaluated prior to registration to avoid duplication of courses.**

Coursework completed within the past five years will be evaluated according to current standards. Coursework completed more than five years ago will be evaluated on a course by course basis. **Incoming students only have ONE (1) semester to have transcripts reviewed. After their first semester, transcripts will not be accepted for review.**

Acceptance

Admission decisions include an evaluation of the applicant's desire, ability, and potential for success. Interviews may be required. All application materials will be reviewed and evaluated by the Enrollment Office for final decision. Students will be notified of a decision as applications are processed. A tuition deposit is required from accepted students.

BURSAR OFFFICE - TUITION, FEES, EXPENSES

The following tuition and fees are for the 2018 - 2019 academic year. The College reviews tuition and fees annually and reserves the right to adjust fees when necessary.

Application Fee

A fee is required for every online application. This fee is refundable only if a student cancels the application within three days of payment.

Tuition Deposit

Accepted students must submit a deposit within 30 days of receipt of an acceptance letter. This deposit is required prior to registration and is credited to the student's tuition account.

Tuition

Tuition for full-time attendance (12 to 20) credits per semester, 24 to 40 credits per academic year) for the 2018-2019 academic year is $17,366. The per credit tuition rate of $540 will be assessed for each approved credits over 20 per semester.

Tuition for part-time attendance (fewer than 12 credits per semester) is based on the number of credits for which a student registers. The per credit tuition rate is $540. Fees for part-time students (fewer than 12 credits per semester) are prorated based on the number of credits per semester for which a student registers.

Campus Housing
The Microtel campus living option cost is $7,080 per student per year. A one-time security deposit of $175 is required. Students who would like to have telephone services are responsible for those expenses. Housing registration forms may be obtained from the Student Engagement Office.

Dining and Meal Plans
Johnson College offers ala carte dining and several meal plan options. Semester meal plan options are below:

PLAN	MEALS / SEMESTER	FLEX MONEY	COST
Bronze	75	$25	$390
Silver	150	$50	$780
Gold	225	$75	$1,170
Flex	0	$55	$50

Books & Supplies
Books and supplies will cost approximately $1,500 - $2,000 per school year; this amount may vary substantially depending on the program in which a student is enrolled.

Annual Student Fees

Administrative Fees

Re-admission	**$50**
Returned Check	**$30**
Official Transcript	**$10**
Unofficial Transcript	**$5**
Late Registration	**$50**
Challenge Exam	**$100**

General Fee	**$300**
Program Fee-Business, Drafting, Auto. & Diesel	**$550**
Program Fee-PTA, RAD & VET	**$1,400**
Program Fee-Welding	**$1,200**
Program Fee-All other programs	**$800**
Technology Fee	**$425**
Orientation Fee*	**$150 (Freshmen Only)**
Graduation Fee*	**$200 (Sophomore Only)**

*Regardless of number of credits registered, students will be billed 100% for orientation and graduation fees.

Medical Inoculations
Information on medical inoculations for Biomedical Equipment Technology, Physical Therapist Assistant, Radiologic Technology, and Veterinary Technology is found in the respective program area. These costs vary for each program based on the type and fee for each clinic. Campus housing residents are required to obtain medical inoculations.

Senior Testing Fees
Seniors in their last semester of education in Automotive, Diesel and HVAC programs will be charged a testing fee that is required for industry certification. Fee costs will be reflected on the most current Enrollment Agreement for that academic year.

Biomedical Technology Summer Internship Fee
In addition to tuition and fees, Biomedical Technology students will have a summer internship fee of $1,000. Students are responsible for the costs of required health exams and immunizations.

Radiologic Technology Summer Clinical Fee
In addition to tuition and fees, Radiologic Technology students will have a summer practicum fee of $1,200. Students are responsible for the costs of required health exams and immunizations.

Veterinary Technology Summer Internship Fee
In addition to tuition and fees, Veterinary Technology students will have a summer internship fee of $1,000. Students are responsible for the costs of required health exams and immunizations.

REFUND AND ADJUSTMENT OF CHARGES

Students who officially withdraw from their programs of study at Johnson College may be eligible for an adjustment of tuition charges and fees. Adjustments are based on the official date of withdrawal or the last day of documented class attendance, as determined by the Office of the Registrar.

Tuition Adjustment

Students who withdraw or are terminated from Johnson College during the semester will be entitled to an adjustment of tuition and fees according to the following schedule:

Withdrawal:	**Adjustment:**
First week	**100%***
Second week	**50%**
Third week	**25%**
After third week	**0%**

*See Application of Policy (1).

Johnson College institutional grants, PHEAA grants, and scholarship funds awarded to students who withdraw or are terminated may be adjusted according to the same schedule.

Federal aid and/or state grant assistance (such as PHEAA) and/or institutional assistance from Johnson College may not cover all unpaid institutional charges due the College upon the student's withdrawal. In such cases, students will be billed for remaining balances.

State Guidelines

Pennsylvania and other state's grants will be adjusted in accordance with the agency's stated guidelines. PHEAA Grant funds may be reduced by the same percentage as the tuition reduction received by students who withdraw from their programs of study. However, it should be noted that PHEAA reserves the right to make the final decision on the percentage of the reduction.

FINANCIAL AID OFFICE

Financial aid helps meet college costs, both educational (tuition and fees,) and living (food, housing, and transportation) for those who qualify. Through various programs offered by state and federal governments, as well as private lenders, financial aid helps the cost of education become affordable.

Several forms of financial assistance are available to students who qualify. Participation in programs funded by state and federal agencies requires the Financial Aid Office to comply with the regulations set forth by each agency concerning student eligibility and academic progress standards. This will generally require the completion of the Free Application for Federal Student Aid (FAFSA). https://fafsa.ed.gov All students are required to complete a FAFSA or sign a FAFSA waiver form when other funding sources exist.

Responsibility for financing an education rests first with students and their families. Financial aid should be viewed as supplementary, to be used only after the full resources of students and their families are committed.

Eligibility

Each funding source has its own eligibility requirements; further information is available through the Financial Aid Office.

Grants

Federal Pell Grant*
Federal Supplemental Educational Opportunity Grant (FSEOG)*
PHEAA Grant (Pennsylvania Higher Education Assistance Agency)*
Johnson College Institutional Grant*

Loans

Federal Direct Subsidized Student Loan*
Federal Direct Unsubsidized Student Loan
Federal Direct Parent Loan for undergraduate Students (PLUS)

*Indicates need-based aid to eligible students

Student Employment

Students who are interested in on-campus employment may obtain further information from the Financial Aid Office. Federal Work-Study: a federally-funded employment program that provides supplemental assistance to students who demonstrate financial need. Students participating in the Federal Work- Study program will be required to

perform community service hours at an off-campus location in the academic year in which they receive federal funds.

Johnson College Student Employment: an on-campus, institutionally-funded employment program that provides supplemental assistance to students regardless of financial need.

Satisfactory Academic Progress (SAP)

Students attending Johnson College who wish to be considered for Federal Title IV (*Pell Grant, Federal Supplemental Educational Opportunity Grant (FSEOG), Federal Work-Study, Direct Student Loan, or Direct Parent PLUS Loan)* and institutional aid, in addition to meeting other eligibility criteria, must maintain satisfactory academic progress (SAP) in the course of study being pursued. The college is required to establish a SAP standard in accordance with U.S. Department of Education regulation 34 CFR 668.34. This SAP Policy is as strict as or stricter than academic policies for students who are not receiving Title IV Aid. Students' academic records will be reviewed at the end of each enrolled term (i.e., fall semester, spring semester, and summer session) after grades are calculated by the Registrar's Office. All semesters in which the student is enrolled, including summer, must be considered in the determination of SAP, even semesters for which the student did not receive federal financial aid.

Satisfactory Academic Progress Minimum Standards

SAP is measured on three standards: Completion Rate (CR), Cumulative Grade Point Average (CGPA), and Maximum Time Frame (MTF). Students requesting consideration for federal financial aid must demonstrate a positive forward movement toward their degree and must meet the following standards:

Certificate Programs of One Year or Less	**1 to 15 credits**	**16 credits and greater**
CR	67%	
CGPA	1.85	2.0
MTF	Total credits attempted cannot exceed 150% of program length.	
Undergraduate Degree		
CR	67%	
CGPA	See CGPA chart below	
MTF	Total credits attempted cannot exceed 150% of program length.	

Completion Rate (CR)
Completion Rate is a quantitative measurement of your progress towards graduation. In order to complete your degree in a timely manner you must complete a certain percentage of the credits that you attempt.

Attempted credits include all course credits in which the student remains enrolled past the last day of the Add/Drop period. Included in the number of attempted credits are F (fails), I (incompletes), R (repeats), and W (withdrawals). Credits transferred into Johnson College are considered attempted and earned. Developmental courses are counted as hours attempted and, if successfully completed, hours earned.

To calculate CR = $\frac{\text{Cumulative number of credits that you have successfully completed}}{\text{Cumulative number of credits that you have attempted}}$ = %

Examples:

Undergraduate Degree	$\frac{\text{12 earned}}{\text{18 attempted}} = 67\%$	Successful CR
Undergraduate Degree	$\frac{\text{9 earned}}{\text{18 attempted}} = 50\%$	Unsuccessful CR

Cumulative Grade Point Average (CGPA)
Your CGPA is a qualitative measurement of your academic achievement. All students must maintain the minimum CGPA set forth in this policy. Credits that are not calculated into the SAP CGPA include "I" (Incompletes), "W" (Withdrawals), "P/F" (Pass/Fail) and transfer credits.

Undergraduate degree of more than one year	**1 to 15 credits**	**16 to 30 credits**	**31 to 45 credits**	**46 or more credits**
	1.80	1.85	1.95	2.0

Maximum Time Frame (MTF)
The Maximum Time Frame (MTF) cannot exceed 150% of the program length. Full-time students should earn approximately 15 credits a semester in order to stay on MTF. Developmental courses are counted as hours attempted and, if successfully completed, hours earned. Credits earned are counted toward academic progress but do not count towards a degree. Therefore, these credits will be excluded from the MTF requirement. Total credits for MTF cannot be rounded up or down. To calculate MTF multiply program length x 150%.

Examples:

Program	Program Length	MTF
Welding Certificate	30	45
Advanced Manufacturing Engineering Technology	63	94.5
Radiologic Technology	73	110

Repeat Coursework
Financial aid is available for the first repeat of any previously passed course. Financial aid is available for each attempt of a previously failed course. However, each attempt is considered into the CR and MTF. *If a student receives a non-passing grade, (i.e. below a 'C' in a 'health science' program) and repeats the course, the newly earned grade replaces the original grade in the CGPA*
*Audited classes are not counted into CGPA, CR or MTF.

Consecutive Enrollment
If a student fails to meet the CGPA or CR requirements for two (2) consecutive terms, whether or not they are receiving financial aid, they will be considered to have unsatisfactory academic progress (USAP). This status will result in a USAP suspension and loss of their financial aid eligibility. Students who exceed Maximum Time Frame will have USAP suspension immediately.

Change of Major
The first time a student changes their Major program of study, the courses that pertain to the previous major are not included in the SAP calculation. However, all courses that fulfill requirements for the new major are used in the SAP calculation. Subsequent changes to a student's major ARE calculated into Satisfactory Academic Progress.

Second Certificate or Degree
If a student enrolls for a second certificate or degree, after completion of a certificate or degree, the student may be eligible for an additional 150 % Maximum Time Frame of financial aid for their new program of study. This will be determined based upon compliance of ALL other federal regulations.

Unsatisfactory Academic Progress (USAP)

Failure to meet satisfactory academic progress (SAP) requirements set forth by Johnson College in accordance with federal regulations result in unsatisfactory academic progress (USAP).

USAP Statuses:

USAP Warning Status
You will be placed on a USAP Warning the first time you do not meet SAP standards. This means you are one enrolled term away from losing your financial aid eligibility. You still have financial aid eligibility for one enrolled term to meet SAP standards.

USAP Suspension Status
If you are placed on a Warning and, at the end of the next term you have not met the SAP standards you placed on USAP Suspension. You will not receive federal or institutional financial aid. You may appeal this status.

USAP Probation Status
If you have successfully appealed a Suspension, you will be placed on USAP Probation for one enrolled term. If you meet the SAP standards at the end of the Probation term, your SAP Status will be considered met and you will no longer be considered USAP. If you do not meet the SAP standards at the end of your Probation, you will be placed back into USAP Suspension.

USAP Academic Plan Status
If you have successfully appealed a USAP Suspension by completing the Unsatisfactory Academic Progress Appeal Form, you may be placed on an Academic Plan. You must successfully follow your SAP Academic Plan while in this status. You will be monitored by the Financial Aid Office at the end of each term. If you do not meet the criteria outlined in your SAP Academic Plan, you will be placed back into Suspension. If you are meeting the criteria outlined in your SAP Academic Plan, you will remain in this status until either the plan expires or you are meeting SAP standards.

If you meet SAP standards while on Probation or while on your SAP Academic Plan, your SAP Status will be considered met for the next term.

If you do not meet SAP standards and your SAP Academic Plan expires, you will need to submit a new USAP Appeal in order for your aid eligibility to be re-reviewed.

REINSTATEMENT OF FINANCIAL AID ELIGIBILITY

If you lose federal and institutional aid eligibility because you are not meeting the SAP Cumulative GPA or Completion Rate standards, you may regain eligibility in one of the following ways:

1. Submit an Unsatisfactory Academic Progress (USAP) Appeal Form with supporting documentation. That form provides a non-exhaustive list of circumstances for which you may appeal. You must advance toward attaining a degree and show progress within your SAP Academic plan for graduation.

2. Attend Johnson College using your own resources. You must advance toward attaining a degree and adhere to SAP Standards. You must contact our office after grades have been posted by the Registrar's Office in order for your financial aid to be reviewed for reinstatement.

If you lose federal and institutional aid eligibility because you are not meeting the SAP Timeframe standard, you must submit a USAP Appeal Form for approval in order to regain eligibility.

Once you regain eligibility, you will be awarded financial aid subject to your financial aid eligibility *and* the availability of funds.

PHEAA Academic Progress

Pennsylvania State Grant academic requirements are mandated by PHEAA. A student is required to successfully complete a minimum of six (6) semester credits per semester for each part-time State Grant award received and a minimum of twelve (12) credits per semester for each full-time State Grant award received. Credits earned for repeat courses which were previously counted when State Grant progress was verified cannot be counted again. Academic progress is confirmed by the financial aid administrator at the end of each award year. Failure to meet the minimum requirements means that you are ineligible for further State Grant aid until you have successfully completed the required number of credits.

Industry Tuition Reimbursement Plans

Many companies provide their employees with reimbursement for education expenses. Students should consult their employer for further information. Arrangements for this type of payment should be set up with the Student Business Office prior to the start of classes.

Scholarships and Merit Awards

Johnson College offers a variety of scholarships to meet the financial needs of new and returning students. These awards may be based on financial need, community commitment, and/or academic standing. Each scholarship has specific criteria. For the most up-to-date scholarship information, please visit our website at:
http://www.johnson.edu/prospective-students/financial-aid/scholarships
The scholarship application which consists of four questions can be submitted via the web, email, in person, or by mail. Please be sure to follow the instructions carefully; each part of the application is reviewed and critiqued by Johnson College's Scholarship Committee. *Any student who submits a scholarship application who has not completed a FAFSA will not be taken into consideration for a scholarship until the FAFSA is complete.*

Applicants will receive a notification letter from the Financial Aid office indicating receipt of their application, and the timeframe in which it will be reviewed by the scholarship committee. ***Priority deadline for returning students is May 1st and priority deadline for new students is August 1st.*** Upon review by the committee, all submissions will receive a response. Recipients will be required to attend the annual scholarship breakfast and to the send the donor of their scholarship a thank you letter.

Award amounts for endowed scholarship funds are determined annually according to earnings on the funds and in accordance with Johnson College policies.

Applicants who are accepted to Johnson College must meet the requirements listed below:

Federal Guidelines

In accordance with federal regulations, students who receive federal financial aid and withdraw from Johnson College during the first 60% of a semester will have their federal financial aid adjusted based on the percentage of the semester completed prior to the withdrawal. Students will be entitled to retain the same percentage of the federal financial aid received as the percentage of the semester completed. This percentage is calculated by dividing the number of days in the semester (excluding breaks of five days or longer) into the number of days completed prior to the withdrawal (excluding breaks of five days or longer). The date of withdrawal will be based on the official date of withdrawal or the last day of documented class attendance as determined by the Registrar.

Once the amount of federal funds to be returned has been calculated, the funds will be returned in the following order:

- Unsubsidized Federal Direct Student Loans
- Subsidized Federal Direct Student Loans
- Federal Direct Parent Loan for Undergraduate Students (PLUS)
- Pell Grants
- Federal Supplemental Educational Opportunity Grants (FSEOG)

The amount to be returned to a specific federal program may not exceed the total amount awarded from that program.

First-year, first-time borrowers who withdraw before the 30th calendar day of the program of study are prohibited from receiving Federal Direct Student Loan funds (Unsubsidized Direct Loans and Subsidized Direct Loans) at the time they withdraw.

Application of Policy

(1) Applicants who have not visited the school prior to enrollment will have the opportunity to withdraw without penalty within three business days following either the regularly scheduled orientation procedures or following a tour of the school facilities and inspection of equipment where training and services are provided.

(2) All monies paid by an applicant must be refunded if requested within three days after signing an enrollment agreement and making an initial payment. An applicant requesting cancellation more than three days after signing an enrollment agreement and making an initial payment, but prior to entering the school, is entitled to a refund of all monies paid minus a registration fee of 15% of the contract price of the program, but in no event may the school retain more than $150. Any refunds due to applicants shall be refunded within 30 days from a notice of cancellation or failure to appear on or before the first day of class.

(3) Any refunds due to students who begin attending classes shall be refunded within 30 days from the date of withdrawal or the last day of attendance as determined by the Registrar, whichever is later.

(4) The last date of attendance is used to determine the percentage of the period of enrollment completed and, therefore, the amount of aid a student has earned. The date of determination that the student is no longer enrolled is used in the following circumstances:

- Students who receive a refund of financial aid prior to withdrawing from Johnson College may owe a repayment of the federal financial aid funds received. Students will be contacted by the Financial Aid Office in such situations and will be given 45 days from the date of determination to repay the funds to Johnson College. Students who fail to return the unearned portion of federal financial aid funds given to them will become ineligible for continued receipt of financial aid until such time as the repayment is made.
- Within 45 days of the date of determination, Johnson College must return the amount of federal funds for which it is responsible.
- Within 30 days of the date of determination, Johnson College must offer withdrawing students any amount of post-withdrawal disbursement that is not credited to the student's account.
- Within 90 days of the date of determination, Johnson College must respond to a request by a student or parent to make all or a portion of the post-withdrawal disbursement.

Further information about refunds of financial aid may be obtained from the Financial Aid Office.

STUDENT SERVICES

Student Handbook

The Johnson College **Student Handbook** is accessible through the Johnson College website at http://www.johnson.edu/student-handbook. The handbook is available to all students to explain assistance, regulations, organizations, and facilities. Johnson College adheres to a strict disciplinary sanction policy for violations of the campus rules and/or regulations. Students may reference this Sanction Policy in the Johnson College Student Handbook. It is the responsibility of the student to read the Handbook entirely and to comply with all regulations.

Facilities

Library / Resource Center

Patrons can access the library collection using Destiny, the Library's Online Public Access Catalog, which offers a variety of search strategies, including author, titles, subject and keyword searching.

The book collection exceeds 5,000 volumes. Continuous additions are made to these resources throughout the year to assure the students and faculty the most current information and the latest technology in each major field of study. Currently, the library receives over 100 periodicals, and an extensive collection of back issue periodicals is maintained.

The Library currently subscribes to the following online databases available on and off campus: GALE, ProQuest, CREDO Academic Core, and Statista available through LIRN (Library& Information Resources Network). In addition, the Library has over 50,000 e-book titles available through EBSCO's eBook Community College Collection. The Library also furnishes SLACK Interactive for the Physical Therapist Assistant program and On the Floor at Dove for our Veterinary Technology program.

Computer workstations are available for students. Accessible programs on these computers include Internet access, Microsoft Office, and program-related web resources, the library's catalog, and online databases.

The Library offers Interlibrary Loan (ILL) through OCLC's WorldShare Interlibrary Loan program.

Computer Labs

Three computer labs are conveniently located on campus for student use. Computers are equipped with the latest available versions Microsoft Windows and the Office Suite is available online. Computers are also available in the Library / Resource Center for student use. Johnson College also provides wireless access campus wide.

Fitness Center
The Fitness Center at Johnson College is available free of charge to current students, faculty and staff. Located in the Moffat Student Center, the Fitness Center offers cardiovascular equipment and a selection of free weights. The hours of operation are contingent upon the facility's availability and will be closed on official college holidays.

Gymnasium
The Gymnasium, located in the Moffat Student Center is available to all current students, faculty and staff upon the facility's availability for "open gym." During open gym students, faculty and staff have the ability to participate in activities such as basketball, dodgeball, flag football, soccer, kickball and other activities. Equipment is available in the Student Engagement Office. Only sneakers or rubber-soled athletic shoes may be used on the gym floors.

Cafeteria
Located in the Moffat Student Center, the cafeteria is professionally staffed and provides breakfast, lunch, and snacks. The cafeteria is generally open Monday through Friday from 7:30am-5:00pm. Vending machines are available for after-hours snacks and beverages.

Campus Housing
Microtel - Johnson College has an arrangement with the Microtel in Dickson City, PA to house students. Each room is furnished with a desk and desk chair, (2) queen size beds with linen provided, a 42" flat screen television, telephone, microfridge and, full bathroom. Bed linens are changed weekly and toiletries and towels are changed daily. Additional amenities include a continental breakfast, access to the fitness facility, meeting room, ice machine, and coin operated washer and dryer.

For additional information, please refer to the Housing Guide located in the Student Engagement Office in the Moffat Student Center.

Bookstore

Johnson College provides students with an on-line bookstore for text purchases. The bookstore can be accessed by visiting https://jc.ecampus.com/. The online store allows students a variety of choices in their book purchases. Students have options to purchase new or used text materials, or if available, utilize the book rental and eBook options. Any questions regarding your on-line purchases can be directed to the library located in the Moffat Student Center.

CAREER SERVICES

Johnson College Career Services offers assistance to students and alumni seeking employment and internship opportunities. Career Services are available to help them to learn about their skills and interests as they relate to the exploration of career options as well as assistance with resume preparation, job search strategies, career fair preparation, interviewing skills and etiquette in individual appointments and class presentations. Career

Services presentations are also conducted at Open House, Orientation, including Parent Panel and Student Success classes. Fall and Spring Career Fairs are held on campus where students and alumni can explore various employment opportunities with a variety of organizations and options for further education. The Director of Career Services regularly visits employers to learn more about the employment requirements and advises them of the various Johnson College technical programs in addition to Greater Scranton Chamber of Commerce and Leadership Lackawanna networking events. Information from these visits is shared with faculty, students and alumni. Employers are also invited to campus to present to students and conduct interviews. Presentations are also provided to students on topics such as LinkedIn, networking, as well as Federal and Civil Service applications and entrepreneurship. Job announcements are emailed to graduates and faculty from the appropriate program of study and posted on the Johnson College Group on LinkedIn.

STUDENT ENGAGEMENT

Student Engagement Office
The mission of the Student Engagement Office is to develop well-rounded and responsible graduates by engaging our students in recreation, leadership, and social opportunities while providing support services in an inclusive environment. New student orientation, security, student conduct, student organizations and events, recreation, and housing are under the supervision of the Student Engagement Office.

Johnson College offers intramural sports programs. Student organizations include Student Ambassador Program, Student Government, Johnson Activity Group, Peer Academic Leaders, and the Social Force Club. There are also specific clinical clubs with information available from clinical staff.

Counseling Services
The mission of Counseling Services at Johnson College is to assist students who may be experiencing social, personal, or academic challenges. These services include individual sessions to students as well as psychoeducational programming and outreach. Faculty or staff members may refer students to the Counseling Services or students may self-refer. All supportive counseling services on campus are free and confidential. In some cases, the Counselor may decide that a student's needs would be best met through a community agency. Referrals to off-campus counseling/agencies may be made if a student's needs exceed the supportive services that we provide on campus.

Tutoring
Tutoring opportunities are available for general education and technical area courses. Scheduling of the tutoring session(s) is coordinated in conjunction with the Library and/or the Student Success Coaches and is dependent on the availability of the tutor and the student.

Students may be referred for tutoring by their instructor, their Student Success Coach, or they may self-refer. Students must register with the Library and/or the Student Success Coaches by completing a Tutor Intake form and signing a Student Tutor Contract. By signing these agreements, the student agrees to attend the scheduled tutoring sessions or to

notify both the Library and/or Student Success Coach and tutor if they are unable to attend. If the student misses three sessions without notifying staff, the contract can be voided by Johnson College staff. The appointment time slot is then opened for another student. Tutors are comprised of both professional and peer tutors.

Tutoring services consist of individual and group sessions, and are offered in a scheduled and walk-in format.

Evaluations are completed each semester by the tutors and the tutees. There is no additional cost to the student for tutoring services.

Disability Services

The mission of Disability Services at Johnson College is to provide equal access opportunities, including the establishment and coordination of appropriate accommodations, auxiliary aids and programs to qualified students in accordance with Section 504 of the Rehabilitation Act of 1973 and Americans with Disabilities Act of 1990 as amended by the ADA Amendments Act of 2008. The office exercises a reasonable good faith effort to coordinate accommodations designed to enable students with permanent or temporary disabilities to maximize their educational potential. Students must contact the Counselor/Manager of Disability Services to find out what documentation may be required to substantiate the need for accommodations and to make a request for accommodations. Please refer to the Policies and Procedures section of the Student Handbook for additional information or contact the Counselor/Manager of Disability Services by phone at (570) 702-8956.

Student Advising Center

Academic advisors are open to all currently enrolled Johnson College students. Through the Academic Learning Center at Johnson College, you will find support for your academic goals in a friendly atmosphere. One of the many challenges for new students is developing learning and study skills for college level achievement. Our trained advisors are eager to assist you in your college experience by showing you strategies for effective learning, and working with you to improve your academic skills. This includes, but is not limited to, guiding you to find the proper resources to assist with successful strategies in time management, academic advising, tutoring, and studying. Academic Advising is a collaborative relationship between a student and an academic advisor, and it is **the student's responsibility** to register for the classes they have been advised to enroll in.

Deaf / Hard of Hearing

Students requesting a Sign Language Interpreter should contact the Counselor/Manager of Disability Services as soon as they are accepted to the college. Policies for students utilizing Sign Language Interpreting Services can be found in the Policies and Procedures section of the Student Handbook.

REGISTRAR INFORMATION

Approval for Off-Campus Study

Johnson College will accept credits from other institutions for courses taken by a current student provided the student receives approval from the appropriate Department Chairperson prior to registering for the course and completes the necessary paperwork. The student also must provide the Johnson College Registrar with an official transcript verifying a grade of "C" or higher upon completion of the course. It is the responsibility of the student to ensure these transcripts are forwarded to the Office of the Registrar. Students may not transfer more than six credits in approved off-campus classes. Approval forms may be obtained through the Office of the Registrar or are available on the Registrar' page of the College's website at www.johnson.edu/registrar

Transfer of Credit with Baccalaureate Institution

Johnson College has program specific articulation agreements with baccalaureate awarding institutions. The latest listing can be found at www.johnson.edu/registrar/articulation-agreements

Transcript Requests

Johnson College will provided official transcripts for a fee of $10 each upon written request. Request forms may be obtained from the Office of the Registrar. Official transcripts (bearing the seal of the College and the signature of the Registrar) are sent directly to the university, college, agency or employer indicated by the student. Official transcripts will not be issued unless all financial obligations have been met at the time of the request. Johnson College is permitted to withhold official transcripts from former students who have defaulted on a federal Stafford Loan. A copy of the transcript will be furnished to the former student with the notation "unofficial" stamped on it. Unofficial transcripts may be requested by students for their personal use at a fee of $5.
To request a transcript, visit the registrar's website at www.johnson.edu/registrar

Non-Matriculating Students

A student who wishes to enroll as a non-degree seeking student at Johnson College may do so upon approval from the Chief Academic Officer and department representative of the desired program. Please contact the Office of the Registrar for more information regarding enrolling in classes.

Course Audits

Students may audit a course for personal enrichment. They may attend classes and participate in lectures and laboratory activities but are not required to complete assignments or take tests. Students who elect to audit a course will receive a grade of "AU" on their

transcript that indicates that no grade or credit has been given for the course. The charge for audited courses is the same as for credit courses. Course audit forms are available in the Registrar's office, and must be filled out prior to course audit.

Change of Name / Address

The Office of the Registrar must be informed in writing of any changes to a student's personal information, such as name, address, and telephone number. It is the student's responsibility to keep the College informed of any changes to student information. In the event of a name change, a marriage license or divorce decree must be presented along with the Name Change form. These forms can be found on the registrar's webpage at www.johnson.edu/registrar.

Prior Learning Assessment

Prior Learning Assessment (PLA) in Pennsylvania is a joint collaboration by the Pennsylvania Department of Education and the Pennsylvania Department of Labor & Industry. PLA is defined as a validated process to evaluate knowledge and skills students gain from life experiences. When these prior learning experiences demonstrate college-level learning and align with college course competencies, postsecondary institutions may award college credit. (Evaluation of prior learning completed 5 years before the request date is based on review by a the Office of Academics, appropriate faculty, and Office of the Registrar.)

Johnson College has entered into a Prior Learning Assessment Agreement with the Pennsylvania Department of Education to apply PLA standards in the following manner.

For more information, please refer to the Registrar's webpage.

Credit by Examination

- **AP (ADVANCED PLACEMENT) -** Students who have completed advanced courses in high school or vocational-technical school may be eligible for advanced placement. Students seeking advanced placement should indicate their intention to the Admissions Office prior to the beginning of the semester. Such students will be required to complete an application for advanced placement and to take a competency exam. Upon completion of the exam (a grade of "C" or above is required for advanced placement), students will be notified and the information will be entered on their transcript but not calculated into their GPA. Advanced Placement scores from the College Board may be substituted for the College's advanced placement exam.

- **CLEP (College Level Examination Program) –** Students who have completed CLEP exams prior to attending Johnson College should submit their exam scores at the time of application to the College (a grade of "B" or above is required). The appropriate faculty member and the Office of the Registrar will review the

test to determine applicability to awarding credit for Johnson College coursework.

- **ECE (Excelsior College Examinations) –** Students who have completed Excelsior exams prior to attending Johnson College should submit their exam scores at the time of application to the College (a grade equivalent to "B" or above is required). The appropriate faculty member and the Office of the Registrar will review the test to determine applicability to awarding credit for Johnson College coursework.

- **DSST (DANTES (Defense Activity for Non-Traditional Education Support) Subject Standardized Tests) –** Students who have completed DSST exams prior to attending Johnson College should submit their exam scores at the time of application to the College (a grade equivalent to "B" or above is required). The appropriate faculty member and the Office of the Registrar will review the test to determine applicability to awarding credit for Johnson College coursework.

- **Johnson College Challenge Examination –** Full-time students, who are currently enrolled in a course and who believe they have adequate knowledge of the subject, may request to receive credit by examination. To complete a course under this policy, a student must make arrangements with the class instructor and obtain approval by the appropriate faculty member, a Senior Director within the Office of Academics, and the Office of the Registrar. Students should submit a completed Challenge Examination Form which is obtainable from the Office of the Registrar.

  Grades earned on the Challenge Exam will be placed on the student transcript. Testing must take place prior to the completion of the first week of class.

  Students, including those with a "deposit confirmed" status, who believe they have adequate knowledge in a subject area whether through military service, non-credit training, work experience, etc. and who do not have transcripts documenting that learning may be eligible to sit for a Johnson College Challenge Examination. To complete a course under this policy, a student must obtain a Challenge Exam form from the Office of the Registrar then meet with the appropriate faculty for an assessment to determine eligibility. Once approved by the faculty member, student must obtain approval from a Senior Director within the Office of Academics and the Office of the Registrar. Grades earned on the Challenge Examination will be placed on the student transcript after successful completion of the first semester of study.

  Johnson College reserves the right to make an exception to the above policy for students with an "accept" status based on circumstances surrounding that student as discussed with a Senior Director within the Office of Academics.

The fee for taking the Challenge Exam is $100 and must be paid prior to the examination; student must present a paid business office receipt to the exam proctor. The fee will be waived with proof of veteran status. The college will not allow more than three full-course equivalents completed by Challenge Examination to count toward a degree without approval of a Senior Director within the Office of Academics.

Center for Professional Development Students must complete Continuing Education certificate program to qualify for taking exam without credit enrollment at Johnson College. The fee is $100.

More information can be found by visiting the Office of the Registrar's website: www.johnson.edu/registrar/

Credit for Military Experience – Educational Programs

Students who have completed educational programs offered by branches of the American armed services may be granted academic credit for their coursework. Students should submit an official transcript of their coursework as part of the admissions process. Transcripts will be evaluated according to the guidelines stated by the American Council on Education (ACE) Guide to the Evaluation of Educational Experiences in the Armed Services in determining the credit value of learning acquired in military service. Upon review by the appropriate faculty and the Office of the Registrar, credit may be awarded for appropriate learning acquired in military service at levels consistent with ACE Guide recommendations and/or those transcripted by the Community College of the Air Force when applicable to a service member's program of study. Applicants who have served in the armed services must submit a certified copy of form DD-214, Report of Separation. A final determine of transfer evaluation credit is at the discretion of the institution.

Credit for Military Experience – Military Workplace Learning

Johnson College assists service members and veterans to incorporate credits into their degree programs based on collegiate-level learning achieved not only through formal school training but also through occupational experience and nationally recognized non-traditional learning testing programs (see Credit by Examination).

Johnson College recognizes the value of specialized military training courses. The appropriate faculty and the Office of the Registrar will review and if appropriate award credit for Military Occupational Specialties (MOS) and Navy Rates and Ratings as recommended by the ACE Guide to the Evaluation of Educational Experiences in the Armed Services. Students must submit an official transcript of their military training courses for evaluation. A final determine of transfer evaluation credit is at the discretion of the institution.

Workforce Training

Johnson College recognizes the knowledge and skills that students may acquire as result of training in the workplace. The American Council on Education (ACE) National Guide to College Credit for Workforce Training is used to determine if the knowledge and skills demonstrate college-level learning. Credit recommendations from ACE may be used to obtain college credit or for advanced placement.

Students seeking credit for Workforce Training should send an official transcript from the ACE Transcript Service to the Office of the Registrar for review. The appropriate faculty member and the Office of the Registrar will review such transcripts on a case-by-case basis.

If a student has participated in Workforce Training that is not recognized by the American Council of Education, they may seek validation of that training for credit through use of the Johnson College Challenge Exam procedure.

Registration

The Office of the Registrar will announce the procedures and dates of registration. Students who have outstanding balances will be put on Bursar's Hold by the Student Business Office and will not be permitted to register until that hold is released by the Student Business Office.

All students must meet with the Student Advising Center prior to registration otherwise they will be placed on an Advising Hold. Students will be given registration access to the Student Portal, which enables them to register online for classes. The complete advising policy can be found in the student handbook.

Students are permitted to attend only those classes for which they have officially registered and paid for. It is the responsibility of students to ensure that they are following the suggested program scope and sequence while meeting all program requirements for graduation. Failure to do so may result in extending their program of education.

Change of Schedule

After a student is registered, changes to the schedule may be made through the process of adding and/or dropping a course. Students may be admitted to another course or change sections, depending on availability of seats, only during the first week of the semester. Schedule Change forms are available through the Office of the Registrar.

Any change in schedule must first be approved by an academic advisor.

Formation of Sections and Cancellation of Courses

Johnson College reserves the right to cancel a program, course, or section, to change the time of meeting, to subdivide a section, or to combine two or more sections as circumstances may require. Every effort is made to minimize the impact of such changes on students. Students who are involved in a change of schedule should see their academic advisor; the Office of the Registrar will process the changes.

Student-Initiated Dropping of a Course
From the first day of class to the end of the first week of the semester, a student may drop a course without notation, provided a Drop/Add form is submitted with the required signatures. Dropping a course during this period results in no grade or transcript record. The form is available from the Registrar's office.

From the second week of the semester to the end of the tenth week of class, a student-initiated withdrawal receives a grade of "W" (Withdrew) which is not calculated into the student's Grade Point Average (GPA) but does appear on the student's transcript.

From the eleventh week to the last day of the course, students are not permitted to withdraw from a class and will receive the grade they earned for the course.

Student-Initiated Adding of a Course
A student may add a course during the first week of a 15-week semester provided a Drop/Add form is submitted with the required signatures. The form is available from the Registrar's office. Distance Education courses cannot be added after the start of the semester.

Change of Major

Students may apply to change their major during the first academic week of a semester. Currently enrolled students who wish to change their major must complete a Change of Major form and obtain the required approval/signatures as indicated on the form. Forms may be obtained through the Office of the Registrar by appointment only.

Withdrawal from the College

Students who wish to withdraw from Johnson College must:

- Meet with the Senior Director of the Student Advising Center. You may be referred to other student supports.
- Complete an official Withdrawal form available from the Office of the Registrar or by emailing registrar@johnson.edu

Upon official withdrawal, grades will be recorded on the transcript as "W" (Withdrew).

Johnson College does not consider absence from class an official notice of withdrawal. A student who stops attending class without officially withdrawing will receive the grade earned in that course.

Medical Withdrawal

In the case that a student feels the need to medically withdraw themselves from Johnson College, the student will need to provide medical documentation if planning to return to Johnson College. The student will still need to follow the Re-Admission/Re-Enrollment policy pending on when the student actually returns.

Medical documentation will be housed in the Registrar's Office separately from student files. The Registrar's Office will work with Academic Advising to maintain student medical withdrawals and ensure that all proper documentation is provided.

If the student wishes to provide medical documentation prior to withdrawing themselves from the college, the college will still accept the documentation but will still require a release from a medical professional stating that the student has been remedied and that you are capable of resuming college studies.

Student Records and Record Maintenance

In accordance with the Family Educational Rights and Privacy Act of 1974 (FERPA), student records are maintained in the Office of the Registrar of the College and are available for review by appointment during normal business hours. All documents are the property of Johnson College and may not be copied, duplicated or removed.

Student records may be viewed by College officials with a legitimate educational interest, certain federal and state agencies responsible for enforcement of the Privacy Act, officials of other colleges to which the student has sought enrollment, and accrediting institutions. In the case of a health or safety emergency, parents who claim a student as a dependent for income tax purposes may also view the records. All other requests for student educational records must have the written consent of the student.

The Privacy Act exempts certain records from the individual's examination, as follows:

- financial records of parents
- medical or paramedical records used only for treatment purposes; the individual may have a doctor or other competent professional review these records.
- law enforcement records that are used solely for law-enforcement purposes
- confidential letters of reference submitted prior to January 1, 1975 or letters of reference submitted after January 1, 1975 that were designated as confidential by the student at the time of his/her solicitation or submission.

Student Rights of Privacy and Access

Unless directed by the courts or by determination of a school official that a "need to know" situation exists, information other than "directory information" is not released without a student's written consent. Directory information is determined to be a student's name, address, telephone number, enrollment status, e-mail address, program of study, dates of attendance, participation in activities and sports, honors received, degrees awarded and dates of awarding.

If a student does not wish directory information to be released, a Request to Prevent Disclosure of Directory Information at
http://www.johnson.edu/docs/registrar/Request_to_Prohibit_Disclosure_of_Directory_Information.pdf
must be submitted to the Office of the Registrar within the first two weeks of a semester. Students may restrict directory information from being released without their permission; however, this also will prevent the Registrar from releasing information to the media regarding graduation or awards since that information includes the student's address.

Johnson College assumes that failure on the part of any student to specifically request the withholding of categories of "directory information" indicates individual approval for disclosure.

Johnson College will not release grade information to a student's parent(s) or guardian(s) without the student's written permission; no grade information will be released over the telephone; transcripts will not be faxed or emailed.

Readmission Policy

Johnson College encourages students to complete their education degrees. To assist students in this endeavor, the College has established the following readmission policy.

Readmitted students are those students who have been separated from Johnson College for no more than two consecutive semesters, excluding summer session, except those students who are going from a non-health related program to a health related program. Otherwise, the student is considered a new applicant and must contact the Enrollment Department to file a new application.

Students wishing to be readmitted, as defined above, must apply for readmission by contacting the Registrar's Office. A readmission application must be completed and submitted with a $50 readmission fee. Students who desire to be readmitted must have no financial balance and/or any other obligation due to the College.

Students wishing to return who were on academic probation at their time of separation from Johnson College may also be required to meet with the Office of Academics prior to being considered for re-admission.

Students who have been dismissed from Johnson College for academic reasons may seek readmission using the procedure outlined above. A representative from The Office of Academics will make the decision for readmission. Students will be enrolled on a probationary status and may be required to an academic probation action plan.

Students who are readmitted are required to complete the graduation requirements in effect at the time they re-enter Johnson College. Coursework previously completed will be evaluated to determine if it meets current requirements. Students who have taken courses at other post-secondary institutions since their last date of attendance at Johnson College must submit official college transcripts of that coursework.

Veterans' Readmission
Johnson College complies with Readmission Requirements for Service Members as outlined in the Higher Education Opportunity Act (HEOA) section 487.

The HEOA provides that an institution may not deny readmission to a service member of the uniformed services for reasons relating to that service. In addition, a student who is readmitted under this section must be readmitted with the same academic status as the student had when he or she last attended the institution.

This applies to service in the uniformed services, whether voluntary or involuntary, on active duty in the Armed Forces, including service as a member of the National Guard or Reserve, for a period of more than 30 days under a call or order to active duty of more than 30 days. To view the full act visit: http://www2.ed.gov/heoa

Readmission Procedure

1) The Registrar's Office will first go over all material needed in the readmission procedure.
2) The Student Business Office will then review all applications to determine if the student is in good financial standing with the college. There is a fee to be paid prior to readmission.
3) Applications of students deemed eligible for readmission will be reviewed by an academic advisor for review and to determine if there are any stipulations to be added to readmission.
4) Students eligible for readmission may be required to adhere to a specific academic plan.
5) Students then must complete normal course registration procedures in conjunction with an academic advisor.
6) After notification of readmission and any requirements for readmission, student must meet with the Financial Aid to develop a plan to finance their education.
7) After meeting with the academic advisor, student will meet with the Registrar's Office to fill out appropriate enrollment paperwork and to register for classes.

* If a student originally left Johnson College for medical reasons, student must provide a medical release from a licensed medical provider to the Office of the Registrar and then approved by an appropriate individual from the Office of Academics.

Carl D. Perkins Vocational and Applied Technology Act

The Perkins Grant program is a federal grant that enables Johnson College to provide support services to students who qualify within the program's guidelines. The program includes a comprehensive system of advising, counseling, and tutorial support.

Any action taken by Johnson College in implementing the Perkins Grant program may be appealed by current students, parents of current students, teachers employed by Johnson College, or local area residents, in writing, to the Director of the Perkins Grant at the address listed below. The appeal must be received in the office of the Director of the Perkins Grant within ninety (90) calendar days from the date the action is taken or announced, whichever occurs first.

The Director of the Perkins Grant will present the written appeal to the Executive Committee of the Perkins Advisory Board of Johnson College at a session convened within fourteen (14) calendar days from the receipt of the appeal. The Executive Committee will review the appeal and determine if further action is necessary. The Committee will notify the person(s) in writing within ten (10) days of the Executive Committee's decision.

If the Committee's decision is adverse to the person(s) filing the appeal, the written appeal will be presented to the full Perkins Advisory Board at its next regularly scheduled session. The Board will vote on the action to be taken. A majority of the full Advisory Board will be necessary to reverse the decision recommended by the Executive Committee.

The Director of the Perkins Grant will notify the person(s) of the full Advisory Board's decision in writing within ten (10) calendar days. The next level of appeal is the Commissioner of Post-Secondary Education, Bureau of Post-Secondary Services, Division of Program Services, Pennsylvania Department of Education, 333 Market Street, Harrisburg, PA 17126-0333.

A copy of this procedure will be:

- Posted in the lobby of the Moffat Student Center.
- Provided to faculty and staff.

Petitions may be sent to:

Director of the Perkins Grant
Johnson College
3427 North Main Ave
Scranton, PA 18508

Johnson College is an Equal Opportunity / Affirmative Action College.

OFFICE OF ACADEMICS

Length of Programs

The academic year, consisting of two 15-week semesters, begins in August and ends in May. The College offers six-week semesters during winter and summer break. Programs of degree-based education are 24 months in length (four semesters totaling 60 weeks) except those which may require summer internships/practicums. The Physical Therapist Assistant program is 29 months in length (five semesters totaling 75 weeks).

The Diesel Preventative Maintenance Technology certificate program of education is 9 months in length; the Welding Technology certificate program is 9 months in length. Total program hours vary by department.

Student Academic Course Load

A student is considered full-time when registered for a minimum of 12 credits per semester. A student is considered part-time when registered for fewer than 12 credits. A student typically carries 12 to 20 credits in both the fall and spring semesters. An academic overload occurs when a student attempts to register for more than 20 credits in a semester. Students who wish to register for more than 20 credits must have the permission of a Senior Director within the Office of Academics. Students who are granted permission for an academic overload are subject to additional tuition charges.

Credit Hours and Grading System

The U.S. Department of Education, at 34 CFR Section 600.2, defines "credit hour" as:
"…an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

(1) one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or,

(2) at least an equivalent amount of work as required in paragraph (1) of this definition for other academic activities as established by the institution, including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours."

The Pennsylvania regulation states, in part, "A semester credit hour represents a unit of curricular material that normally can be taught in a minimum of 14 hours of classroom instruction, plus appropriate outside preparation or the equivalent as determined by the faculty. A quarter credit hour represents a unit of curricular material that normally can be taught in a minimum of 10 hours or classroom instruction, plus appropriate outside

preparation or the equivalent as determined by the faculty." 22 Pa. Code Section 31.21(b).u

Each course has a credit-hour value based upon the required number of hours per week in the classroom, laboratory, or program area as well as the appropriate number of additional outside work clock hours that support the didactic component of the class.

clock hour = 50 minute period
15 hours of lecture + 30 clock hours of additional outside work = 1 credit
30 hours of lab +15 clock hours of additional outside work = 1 credit
45 hours of internship = 1 credit
Clincal hours = See programmatic handbook

Course achievement levels and cumulative Grade Point Averages (GPA) are provided on semester transcripts using the following grading system:

Letter Grade	**Numerical Relationship**	**Quality Points**
A	96-100	4.0
A-	92-95	3.67
B+	88-91	3.33
B	84-87	3.0
B-	80-83	2.67
C+	76-79	2.33
C	72-75	2.0
C-	68-71	1.67
D+	64-67	1.33
D	60-63	1.0
F	0-59	0.0

I**	Incomplete
W	Withdrew
SA	Equivalent to "F"
NA	Never Attended

** A grade of "Incomplete" will be awarded only in exceptional circumstances. A grade of "Incomplete" must be completed within 10 school days. If the grade is still "Incomplete" beyond this period, the grade will be reviewed and may be listed as an "F" or Failure and the course must be repeated.

Cumulative Grade Point Average is computed using the following formula:

$$\text{Cumulative GPA} = \frac{\text{total quality points earned per semester(s)}}{\textit{total credit hours attempted per semester(s)}}$$

Repeated Courses

Students may repeat a course in which they earned a "D+", "D" or "F" in order to improve their Grade Point Average (GPA). The repeated course will appear on the student's transcript twice. The original grade will be replaced with an "R" and only the new grade will be used in calculating the student's GPA. A course may be repeated no more than two times.

Students receiving a grade of "D+", "D" or "F" may elect to take the course at another institution and transfer the credit for it to Johnson College. In this event, the original grade will be replaced with an "R" and will be used only in calculating the total number of credits required for graduation. Transfer credit will not be used in the calculation of a student's cumulative GPA.

Criminal Background Check / Drug and Alcohol Screening

All academic programs of study, clinical practicums, and internships, as well as potential employers, may randomly conduct a criminal background check, child abuse clearance, fingerprinting and/or drug screening. Johnson College is not responsible for the decisions or actions of other institutions or organizations that may result from students' failure of drug screening or background check. Students' failure to report the results of these incidents to the College will be subject to disciplinary action.

The results of a criminal background check will not necessarily preclude admission to Johnson College, however students may not be able to complete the academic program.

Attendance Policy

While each college develops its own methods for tracking class attendance and for defining conditions for excused absences, Johnson College adheres to federal regulations that require verification of class attendance for all students receiving federal financial aid. These regulations dictate that a student MUST attend the classes for which he/she is awarded financial aid. Financial aid may be reduced or cancelled based on student attendance information.

Federal regulations require institutions to report attendance information for students who have stopped attending class or those who never attended. Students will be notified via their Johnson College email account. A student who is reported to have never attended (N/A) will be assigned a grade of (N/A).

A student who is reported to have stopped attending will be assigned a grade of SA for that class. The registrar will be notified by Academic Advisors.

Students will be automatically withdrawn the class after the allowed absences, regardless of excused and/or unexcuses absences.

class meets	3 X a week	2 X a week	once a week
absences allowed	6	4	2

Students who are administrative withdrawn from the class must repeat the class in a subsequent semester in order to meet degree requirements. Students with extenuating circumstances should contact their instructor immediately to discuss their individual situation.

- Possible excused absences include but may not be limited to: military, bereavement, extended illness, participation in school function, jury duty.
- Portal attendance entries will consist of "Late," "Unexcused," "Excused," "Stop Attend"

Administrative Withdrawal Appeal Procedure:
It is the philosophy of the institution that administrative withdrawal appeals will be handled informally between the student and the instructor. Only after the student has attempted to resolve the matter with the instructor, should a formal appeal be initiated. The student shall submit, in writing, to the Office of Academics evidence as to why the administrative withdrawal should be reversed. This must occur within five (5) days of being withdrawn by the instructor. The Office of Academics will review the information and notify the student of the decision within three (3) days of the receipt of the appeal. The decision of the Chief Academic Officer is final.

Final Examination Attendance:
Attendance at final examinations is mandatory. Such examinations are administered in all academic subjects at the end of each semester in accordance with academic calendar determined by the Office of Academics.

Class Cancellation
Except in unusual circumstances, instructors are expected to conduct all classes on the days and times assigned and to teach for the full-allotted time. If the instructor does not arrive within the first 15 minutes of class time, then class is cancelled. Students should take attendance and bring it to the Office of Academics.

Weather / Emergency Cancellation
When classes are cancelled because of inclement weather or other emergencies, information can be obtained from the Johnson College website (www.johnson.edu) or by calling the main office line at 570-342-6404 and following the prompts. It is also prudent to watch the local television channels.
You also can elect to be notified by text message to your cell phone. For this service, please go to www.johnson.edu/campus-alerts

Distance Education Attendance Policy

Students are responsible for understanding and adhering to the following attendance policy:

- Students are required to be present for scheduled conferences with instructors, and College administrators, whether in a face-to-face or in a virtual environment.
- Faculty members are required to record attendance weekly. A student will be considered in attendance if the student submitted at least one graded activity per week (for example, quizzes, discussions, or dropbox assignments).
- Students are required to participate in online classes.
- Students are required to log into the online classroom at least three (3) times a week.
- **Students who miss two weeks of a course will be administratively withdrawn and will earn a failing grade for the course.**

Online classes will **not** be cancelled due to inclement weather. All online coursework will retain their deadlines regardless of weather conditions. If a technological emergency results in the Desire2Learn server being down, students will be notified through an announcement on the College's website (www.johnson.edu). Students may sign up for text and/or email notifications at https://www.johnson.edu/campus-alerts/ . Please note, Desire2Learn is not housed on the Johnson College campus; emergencies on campus will have little to no effect on distance education courses.

Make-up Work

When students are absent because of conditions beyond their control, they may be permitted to make up lost time in their academic and/or major courses. It is the responsibility of the student to request consideration for make-up work from the instructor. Make-up work is not permitted for the purpose of receiving Veterans Administration Training Allowances.

Academic Advising

At Johnson College, academic advising provides students with the opportunity to build a relationship with their advisor for the purpose of gaining assistance in planning their educational career, in learning skills needed for academic success, and in learning how to access the variety of resources and services available to them on campus.

Academic advising is a collaborative educational process whereby students and their advisors are partners in meeting the learning outcomes, ensuring student academic success, and outlining the steps for achievement of the students' personal, academic, and career goals. This advisor/student partnership requires participation and involvement of both the advisor and the student as it is built over the student's entire educational experience at the college. Both the student and the advisor have clear responsibilities for ensuring the advising partnership is successful.

Advisor Responsibilities - What you can expect from your advisor:

- Understand and effectively communicate the curriculum, graduation requirements, and college policies through use of the course catalog and student Portal
- Encourage and support you as you gain the skills to develop a clear and attainable educational plan
- Provide you with information about strategies for utilizing college resources and services
- Monitor and accurately document your progress toward meeting your academic goals and graduation requirements
- Be accessible for meetings with you via office hours for advising; For distance education classes, be accessible for meetings with you via office hours for advising, telephone, email, or web access
- Enter advising information such as date and time of advising as well as classes you advised the student to register for in the student's Portal
- Maintain confidentiality

Advisee Responsibilities - What you are expected to do:

- Schedule appointments with me during each semester and come prepared to each appointment with questions pertaining to fulfilling the graduation requirements
- Learn how to use the course catalog and student Portal to select courses that fulfill your educational plan
- Ask questions if you don't understand an issue or have a specific concern
- Keep a personal record of your progress toward meeting the graduation requirements
- Register for the classes that you were advised to register for
- Accept responsibility for your decisions

Below is a listing of procedures necessary to achieve these goals.

- Each fall semester the spring schedule is posted on the Johnson College website in September and each spring semester the fall schedule is posted in February.
- The registrar notifies the students that the respective schedules have been posted on D2L and the student portal.
- Meeting with your advisor is a requirement for all students. Students who do not meet with their advisor will have an advising hold place on their portal. This hold prevents the student from registering until s/he has met with the advisor who will clear the student for registration.
- The official advising period typically starts in early November (for upcoming spring semester) and early March (for the upcoming fall semester). However, students are encouraged to meet with their advisor once the official schedule has been posted.
- Registration is broken down into 3 sections: priority registration, sophomore registration and freshmen registration. Registration is open to the student in mid-November and early April.
- It is the responsibility of the student to ensure that s/he is following the suggested program outline and meeting all program requirements for graduation. Failure to do so may result in extending their program of study.
- Once the registration period is opened, registration is on a first come, first served basis. Therefore, it is in the best interest of the student to complete his or her registration as quickly as possible.
- If a student has a bursar hold, s/he would be notified of the hold by the respective department or the advisor. The student must satisfy these holds before proceeding with the registration process. Consultation with the advisor may assist on how this can be accomplished
- The advisor and students should discuss any current courses where the possibility of not maintaining academic progress may occur. The advisor and the student must discuss changes to the student's schedule that may occur due to unsatisfactory progress in a course. They should also discuss the possible implications to the student's program of study. This may include but limited to seeing Financial Aid concerning Student Academic Progress (SAP), extension of the students program of study, eligibility for internships or clinical assignments, etc.
- Students participating in priority registration will be notified by the Registrar of the time and dates for this registration. It is the responsibility of the student to schedule a meeting with his/her advisor to discuss classes and to register for classes during the allotted timeframe. Students who do not comply with these procedures will have to register during the alternative times set for all other students.

- The student is responsible to make an appointment with their advisor during the advisor's office hours. The student should come to the meeting with a predetermined schedule and degree audit to review and discuss with the advisor for the upcoming semester.
- The advisor will review each student's schedule and advise the student on which classes they need to register to meet academic requirements towards graduation.
- The advisor will make notes in the student's SIS as to what classes the student was advised to take. This process will release the student from the advisor and allow him/her to register for classes.

If the student misses the appropriate times for registration, it is still the student's responsibility to meet with his/her advisor. Students failure to register within the college registration period will result in a late registration fee.

Academic Integrity

The faculty of Johnson College has a high regard for the integrity of the educational process; therefore, the college wishes to recognize students not only for their academic skills and dedication, but also according to a code of ethical academic behavior.

Good ethics include such principles as the following:

1. Acting at all times with integrity
2. Accepting responsibility for one's work
3. Specifying contributing members of a group, where group work is authorized
4. Naming references, where reference use is authorized
5. Submitting work which is the sole creation of the student, when neither group work nor reference use is authorized
6. Never contributing to the academic dishonesty of others

Academic dishonesty in any form will not be tolerated. Dishonesty includes, but is not limited to, the following:

1. Cheating
2. Plagiarism
3. Submitting work which does not cite references used when working in courses where reference materials are authorized
4. Submitting work which does not cite contributing members of the group when working in courses where group work is authorized
5. Submitting work which has not been created solely by the individual seeking credit when working in courses where neither references nor group work is authorized
6. Sharing of digital work (flash drives, googledocs, etc.)
7. Facilitating acts of academic dishonesty by others
8. Tampering with academic work of others

This will result in any or all of the following penalties:

First Offense: An "F" for the assignement
Second Offense: Automatic failure of the Course
Third Offense: Referral to judicial authorities. Penalties imposed by the Office of Academics may include up to termination from the college.

ACADEMIC STATUS

Academic Probation

At the end of each semester, the Office of Academics and the Office of the Registrar will review students Grade Point Average (GPA) to determine academic status within the college. Students must maintain a satisfactory Grade Point Average (GPA) as detailed below:

Undergraduate degree of more than one year	**1 to 15 credits**	**16 to 30 credits**	**31 to 45 credits**	**46 and greater**
	1.80	1.85	1.95	2.0

Certificate Program of one year or less	**1 to 15 credits**	**16 and greater**
	1.85	2.0

Student who do not meet the satisfactory GPA requirement will be place on academic probation. Students will meet with the Academic Probation Committee prior to the next semester to review and sign their individual Student Probation Action Plan. Failure to read and sign the document may result in being held from the classroom.

At the conclusion of the probation semester, the Registrar and the Academic Team will review the student progress and determine how to proceed based on

1) Academic performance
2) adherence to the Student Probation Action Plan

An inability to meet the minimum CGPA requirement specified above could result in academic termination.
*Health Science (PTA, RAD, & VET) probation policies can be found in programmatic handbooks.

Students who are in danger of not meeting the CGPA requirement are advised to meet first with their academic advisor, then with Financial Aid, and then with the Office of the Registrar to discuss options. Students on financial aid who fail to meet the completion rate (67% of registered courses) and GPA requirements and/or fail to complete their degree within 150% of the program timeframe may jeopardize their financial aid packages.

Academic Termination

Johnson College makes every effort to assist students in achieving their academic goals; however, the College reserves the right to dismiss students due to poor academic performance or violation of academic code of conduct. An inability to meet the minimum CGPA requirement for two consective semester will result in termination from the college.

In such cases, the Office of Academics will notify students of their dismal:

- Meeting with academic advisor
- Send letter of termination

Terminated students will still be held responsible for all financial obligations.

Academic Dismissal from a Program of Study

The Physical Therapist Assistant, Radiologic and Veterinary Technology programs have specific Grade Point Average (GPA) requirements for their major courses. Specific dismissal policies for Physical Therapist Assistant, Radiologic Technology and Veterinary Technology students can be found in their respective Programmatic Handbooks.

Graduation Requirements

Students must meet the following requirements in order to be eligible to graduate from Associate Degree programs:

- Completion of Student Success Seminar (SSS 101)
- Completion of course curriculum as stated in entry to programs, minimum of 60 credits
- Completion of a minimum of 35 credits at Johnson College
- Completion of clinical/internship for students in the Biomedical Equipment Technology, Physical Therapist Assistant, Radiologic Technology and Veterinary Technology programs
- Completion of ePortfolio program requirements
- Achievement of a cumulative Grade Point Average (GPA) of 2.00. Refer to the retention section in the respective program areas for Physical Therapist Assistant, Radiologic Technology and Veterinary Technology
- Full payment or satisfactory arrangement to fulfill all financial obligations
- Submission of a completed Graduation Application form by the stated deadline

Students must meet the following requirements in order to be eligible to graduate from certificate program:

- Completion of the scope and sequence for Certificate programs
- Full payment or satisfactory arrangement to fulfill all financial obligations
- Submission of a completed Graduation Application form by the stated deadline
- Completion of a minimum of 15 credits at Johnson College

Students who have not met the graduation requirements will not be allowed to participate in Commencement ceremonies, and all other related activities.

Academic Honors and Recognition

The President's List
The President's List is published at the end of each semester citing students who achieve a minimum 3.90 GPA, while carrying a minimum of 12 Johnson College credits and matriculating toward a degree. Students who receive a grade of "W, F, or I" on their transcript for the semester will not qualify for the President's List.

Honors upon Graduation
Graduating students are eligible for recognition based upon scholastic merit. Highest Honors Awards are conferred on graduates with the highest cumulative GPAs among the candidates for the Associate in Applied Science and the Associate in Science degrees. Students with a minimum of a 3.0 will be eligible for departmental honors.

Citations conferred by the College for exceptional academic achievement and completion of a challenging curriculum are:

- *Summa Cum Laude* >= 3.9 cumulative GPA with a minimum of 45 credits
- *Magna Cum Laude* >= 3.8 cumulative GPA with a minimum of 45 credits
- *Cum Laude* >= 3.7 cumulative GPA with a minimum of 45 credits

Graduation honors are calculated based on grades achieved at the end of the fall semester preceding the May graduation date.

National Honor Society

Alpha Beta Kappa
Alpha Beta Kappa is a national honor society open to students who attain a cumulative GPA of 3.50 or higher by the beginning of their last semester at Johnson College and who have participated in a student group/organization for at least one semester during their time on campus. Eligible groups/organizations include Student Government Association, Social Force, Gamer Geekz, Johnson Activity Group, Kappa Psi Nu, athletics, and/or serving as a peer tutor, Ambassador, or Resident Assistant. Peer tutors must tutor a minimum of once a week for at least one semester. Students are inducted into the Omega of Pennsylvania chapter during a ceremony prior to graduation.

Second Degree

Students who wish to obtain a second degree may do so if they fulfill the following requirements:

- Students may not begin a second degree program until all the requirements from their first degree are satisfied.
- Students must apply for and be admitted into the major program in which the second degree is desired by the Enrollment Department.
- Students must meet all of the curriculum requirements of the second degree for both major and required courses and successfully complete those courses which cannot be equated with courses taken in the first degree program.

- Students must meet with the Registrar and/or the appropriate faculty member(s) of the second degree program to determine the minimum number of credits that need to be completed for the second degree in addition to the credits taken in the first degree program.

Distance Education Classes

Johnson College currently offers select classes in a distance education format. Classes offered using this delivery will be noted during class registration in the spring, summer, and fall. These classes are also noted in the College's catalog and require students to successfully complete the Student Online Success Strategies, a 60 minute training course. Students who fail to complete this training course will not be permitted to take any Distance Education (DE) coursework. Distance Education classes are provided to students to improve access to classes, provide flexibility options, and to reduce the amount of time needed to be on campus to complete their program. Students enrolled in a Distance Education class will have access to all library materials currently available to on-campus students. All online resources are connected to the college library's homepage. This includes Destiny (OPAC-Online Public Access Catalog), LIRN (Library and Information Resources Network), an online database to full-text publications, and Online Reference Center. All book and magazine article requests will be delivered via USPS, email, or fax. The library will support Distance Education programs through online access to electronic databases and access to the librarian by telephone, email requests or texting the librarian.

The written policies for each of the services provided to the Distance Education student are found in the Appendix of the Student Handbook (Distance Education Student Services Policy.) The services will be handled with the same resources used in the current face-to-face classes. These services include the following departments: Financial Aid, Department of Academics, Registrar, Student Business Office, and Career Services.

Student Complaint / Grievance Procedure

Johnson College makes every effort to resolve student complaints internally, using policies and procedures. It is expected that students will fully utilize any and all such administrative procedures to address concerns and/or complaints in as timely a manner as possible. The college defines a grievance as an issue related to a perceived academic or non-academic injustice, whereby a student believes she/he has been deal with arbitrarily, unfairly or in a way that violates established laws, rules, policies, by an employee of the college.

Schools accredited by the Accrediting Commission of Career Schools and Colleges must have a procedure and operational plan for handling student complaints. If a student does not feel that the school has adequately addressed a complaint or concern, the student may consider contacting the Accrediting Commission. All complaints considered by the Commission must be in written form, with permission from the complainant(s) for the Commission to forward a copy of the complaint to the school for a response. The complainant(s) will be kept informed as to the status of the complaint as well as the final resolution by the Commission. Inquiries may be directed to the Accrediting Commission

of Career Schools and Colleges, 2101 Wilson Blvd./Suite 302, Arlington, VA 22201; (703) 247-4212; http://www.accsc.org/
A copy of the Commission's Complaint Form is available at the College and may be obtained by contacting a Senior Director within the Office of Academics.

For procedures regarding:
Non-Academic Complaints: refers to incidents of unprofessional behavior and other complaints that are not of an academic grade concern. Contact the Human Resource Department

Americans with Disabilities Act: refer to
https://www.johnson.edu/current-students/student-support/learning-support/

Harassment or Discrimination: refer to
https://www.johnson.edu/prospective-students/about/heoa-student-customer-information/

Affirmative Action: refer to Human Resources

Family Educational Rights and Privacy Act (FERPA): refer to the Student Privacy and Release of Information policy

Criminal Activity: Complaints involving matters of a criminal nature, such as assault, battery, and theft should be directed to Scranton Police Department 570-348-4130 or
http://www.scrantonpa.gov/scrantonpd/

Institutional Complaint: refer to
http://www.msche.org/documents/FilingaComplaint.pdf

Academic Complaints: The Office of Academic will respond to any academic complaint within 48 hours of written notification. Student should follow the procedure set forth by the Office of Academics.

Appealing a Grade

If a student wishes to question or appeal a grade, the student will, prior to the next semester. Communication will be made using the College email accounts. Students wishing to appeal a grade must follow the follow procedure:

1. Contact the instructor for an explanation of the grade determination. The instructor of the course will review how the grade was determined. If a grade change is warranted, instructor will complete and submit a grade change form.
2. If not satisfied with the grade and explanation, the student will then appeal to the program director of program division. The program director will review the grade determination with the course instructor, and then meet with the student to explain the outcome of the appeal.
3. A student who remains unsatisfied with the results of the appeal must, prior to the end of the semester, submit a letter of appeal to the Office of Academics. The letter must include a summary of the meetings with the instructor and the appeal results, as well as a rationale for the appeal. After discussing the appeal with the instructor

and the program director, the Chief Academic Officer will meet with the student to explain the final decision.

Student Responsibilities, Conduct, and Dress

Johnson College students are responsible for reading and abiding by all rules and policies described in this **Catalog** and the **Student Information Handbook**. Students are personally responsible for following policies and procedures as they affect their academic progress, financial obligations, and relationships with College authorities, and eligibility for graduation.

Johnson College students are expected at all times to conduct themselves in a responsible manner that conforms to generally accepted standards of adult behavior. Students should show courtesy and respect for other students and the faculty as well as the administrative and support staff of the College. Students also must accept the need for various College regulations and comply with the directives of those authorized to enforce the regulations. Failure to conduct themselves in an acceptable manner may subject students to penalties such as suspension, expulsion or arrest.
Johnson College students are also expected to exercise good judgment in selecting attire that is appropriate to an educational environment and to abide by all College policies regarding the wearing and use of safety equipment and apparel.

When in doubt about any College directive, students should seek advice from their faculty advisor or the appropriate office within the College.

PROGRAM OBJECTIVES

Descriptions of programs on the following pages include a sequence of courses for each program. The sequence is designed to satisfy prerequisite requirements, to ensure access to courses that are not available every semester, and to ensure the completion of course requirements. Students are encouraged to adhere to the sequence as much as possible in order to complete the program in the traditional two-year time frame.

The sequence of the programs by semester addresses students starting the program in the fall. Johnson College recognizes that not all students are able to progress through the course sequence as presented. Students admitted into and beginning their coursework at the college in the spring semester should consult with an Enrollment Specialist and/or the Program Director for further information.

Students who are not able to adhere to the sequence are encouraged to consult with their advisors in order to ensure completion of graduation requirements. It is the students responsibility to follow the curriculum guides as reflect on their advising sheet.

Courses designated with a green leaf  prepares students with skills labeled by the Commonwealth of Pennsylvania as those used in traditional or evolving green occupations.

General Education - Mission

General Education Department at Johnson College provides students with skills needed in the real world to develop professional competency through critical thinking and problem solving, written and oral communication, scientific and quantitative reasoning, technological competency and information literacy and equity and inclusion.

Johnson College General Education Grid

Category	Courses
Arts	ART 101, ART 103, ART 105, ART 110, ART 115, ART 116, ART 125, ART 126, ART 129, ART 130, HMN 101
Communication	COM 211, COM 212, CSM 105, ENG 101
Humanities	CSM 105, ENT 101, HMN 101, SSS 101
Mathematics	MAT 100, MAT 101, MAT 110, MAT 121, MAT 123, MAT 201, MAT 202, MAT 205, PHY 101, SCI 201
Science	BIO 105, BIO 107, BIO 108, BIO 109, BIO 110, CHM 101, CHM 102, PHY 101, PHY 201, SCI 150, SCI 201
Social Science	BUS 101, CSM 105, ECO 101, ENT 101, PSY 101, PSY 105, SOC 101
Technology	CPT 101, CPT 210, MAT 121, SCI 201

Art		
ART 101	Blueprint Reading for Welders	1
ART 103	Intro to Print Reading and Shop Drawings (CCM)	3
ART 105	Blueprint / Schematic Reading (AMET)	3
ART 110	Contract Drawings (ADT, CCM, ECM, HVAC)	3
ART 115	Web Programming, Client Side Scripting	2
ART 116	Web Programming, Client Side Scripting Lab	1
ART 125	3D Printing	2
ART 126	3D Printing Lab	1
ART 129	Intro. to Woodcraft and Design	2
ART 130	Intro. to Woodcraft and Design Lab	1
HMN 101	Introduction to Humanities	3
Communication		
ENG 101	English Composition	3
COM 211	Communication Theory	3
COM 212	Public Speaking	3
CSM 105	Customer Service	3
Humanities		
CSM 105	Customer Service	3
ENT 101	Entrepreneurship	3
HMN 101	Introduction to Humanities	3
SSS 101	Student Success Seminar	1
Mathematics		
MAT 100	Math for Welders	3
MAT 101	College Algebra I & Trig	3
MAT 110	Trigonometry	3
MAT 121	Introduction to Statistics	3
MAT 123	Math for Carpenters	1
MAT 201	College Algebra II & Trig	3
MAT 202	Pre-Calculus	3
MAT 205	Medicine and Math	3
PHY 101	Introduction to Physics	3
SCI 150	How It Works	3
SCI 201	Statics and Strengths of Materials	3
Science		
BIO 105	Physiology and Anatomy (BET)	3
BIO 107	Human Anatomy and Physiology I	3
BIO 108	Human Anatomy and Physiology I Lab	1
BIO 109	Human Anatomy and Physiology II	3
BIO 110	Human Anatomy and Physiology II Lab	1
CHM 101	Chemistry	3
CHM 102	Chemistry Lab	1
PHY 101	Introduction to Physics	3
PHY 201	Imaging Physics (RAD)	3
SCI 150	How It Works	3
SCI 201	Statics and Strengths of Materials	3
Social Science		
BUS 101	Introduction to Business	3
CSM 105	Customer Service	3
ECO 101	Introduction to Economics	3
ENT 101	Entrepreneurship	3
PSY 101	General Psychology	3
PSY 105	Industrial and Organizational Psychology	3
SOC 101	Introduction to Sociology	3
Technology		
CPT 101	Microcomputer I	3
CPT 210	Microcomputer II	3
MAT 121	Introduction to Statistics	3
SCI 201	Statics and Strengths of Materials	3

Advanced Manufacturing Technology (AAS)

Program Objective
The Advanced Manufacturing Technology program is designed to prepare students for the modern manufacturing environment of today. This program will prepare students for entry level positions within companies that have implemented team-oriented design, production, quality, and maintenance systems within the manufacturing environment. The technical courses provide the graduate with a solid foundation of advanced manufacturing procedures. The combination of the general education courses and technical courses equip the graduates with the communication, mathematics, and problem solving skills necessary to perform in the modern workplace.

Career Opportunities
American manufacturers are becoming increasingly dependent upon the use of high-tech equipment that involves multiple, integrated systems. It is critical that these companies be able to recruit and employ individuals who know how to operate, troubleshoot, and maintain this high-tech equipment.

Program Learning Goals:

Goal 1: Graduates will possess the skills necessary to obtain entry-level technical positions in the manufacturing environment.

Student Learning Outcomes - Students will:

- Demonstrate the knowledge of work environment, behavior and dress
- Demonstrate the ability to properly choose and wear personal protective equipment (PPE)
- Demonstrate correct and safe hand tool use

Goal 2: Graduates will be able to troubleshoot electrical, electronic, and mechanical systems using theoretical principles and measured values to resolve operational issues.

Student Learning Outcomes - Students will:

- Demonstrate competence in digital multimeter use
- Recognize the effects of mechanical malfunctions
- Employ corrective actions to make repairs to systems under test

Goal 3: Graduates will demonstrate the ability to communicate in a professional manner to determine the nature of a problem or to explain repairs.

Student Learning Outcomes - Students will:

- Describe a malfunction found and propose corrective action to remedy the situation
- Provide written communication on work performed

Goal 4: Graduates will demonstrate the proper and safe use of hand tools, measuring equipment and test equipment used during manufacturing or troubleshooting.

Student Learning Outcomes - Students will:

- Demonstrate correct and accurate use of measuring instruments
- Demonstrate correct use of a multimeter to measure voltage, resistance and current in series, parallel and series/parallel circuits.

Goal 5: Graduates will possess the skills necessary to correctly and safely operate machines used in the production of mechanical parts.

Student Learning Outcomes - Students will:

- Demonstrate the ability to safely setup and operate manual lathes, mills and CNC machines

Advanced Manufacturing Technology
Major Courses (41 Credits)

AMT 101	Principles for Advanced Manufacturing	3
AMT 151	Fundamentals of Metal Cutting	2
AMT 152	Fundamentals of Metal Cutting Lab	1
AMT 153	Subtractive Manufacturing	1
AMT 154	Subtractive Manufacturing Lab	2
AMT 155	Introduction to Electricity	2
AMT 156	Introduction to Electricity Lab	1
AMT 157	Sensors and Systems in Automation	2
AMT 158	Sensors and Systems in Automation Lab	1
AMT 251	Computer Numerical Control Machining	1
AMT 252	Computer Numerical Control Machining Lab	2
AMT 253	Programmable Logic Controllers	2
AMT 254	Programmable Logic Controllers Lab	2
AMT 255	Additive Manufacturing	2
AMT 256	Additive Manufacturing Lab	1
AMT 257	Computer Aided Design/Computer Aided Manufacturing	2
AMT 258	Computer Aided Design/Computer Aided Man. Lab	1
AMT 259	Automation and Robotics	2
AMT 260	Automation and Robotics Lab	1
AMT 261	Systems Integration (Capstone Project)	1
AMT 262	Systems Integration (Capstone Project) Lab	3
or AMT 299	Internship	4
LOG 291	Total Quality Management	3
MAT 121	Introduction to Statistics	3

General Education (22 Credits)

ART 105	Blueprint / Schematic Reading	3
BUS 101	Introduction to Business	3
ENG 101	English Composition I	3
COM 212	Public Speaking	3
CPT 101	Microcomputer I	3
MAT 101	College Algebra I and Trigonometry	3
PHY 101	Introductory Physics	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **63**

Advanced Manufacturing Technology
Associate in Applied Science (AAS)
Semester Program Outline

Semester 1		**Credits**
AMT 101	Principles for Advanced Manufacturing	3
AMT 151	Fundamentals of Metal Cutting	2
AMT 152	Fundamentals of Metal Cutting Lab	1
AMT 155	Introduction to Electricity	2
AMT 156	Introduction to Electricity Lab	1
ART 105	Blueprint / Schematic Reading	3
MAT 101	College Algebra I and Trigonometry	3
SSS 101	Student Success Seminar	1
		16
Semester 2		
AMT 153	Subtractive Manufacturing	1
AMT 154	Subtractive Manufacturing Lab	2
AMT 157	Sensors and Systems in Automation	2
AMT 158	Sensors and Systems in Automation Lab	1
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
MAT 121	Introduction to Statistics	3
		15
Semester 3		
AMT 251	Computer Numerical Control Machining	1
AMT 252	Computer Numerical Control Machining Lab	2
AMT 253	Programmable Logic Controllers	2
AMT 254	Programmable Logic Controllers Lab	2
BUS 101	Introduction to Business	3
COM 212	Public Speaking	3
PHY 101	Introductory Physics	3
		16
Semester 4		
AMT 255	Additive Manufacturing	2
AMT 256	Additive Manufacturing Lab	1
AMT 257	Computer Aided Design / Computer Aided Manufacturing	2
AMT 258	Computer Aided Design / Computer Aided Man. Lab	1
AMT 259	Automation and Robotics	2
AMT 260	Automation and Robotics Lab	1
AMT 261	Systems Integration (Capstone Project)	1
AMT 262	Systems Integration (Capstone Project) Lab	3
or AMT 299	Internship	4
LOG 291	Total Quality Management	3
		16
Minimum Credits to Graduate		**63**

Architectural Drafting & Design Technology (AAS)

Certified Curriculum: American Drafting and Design Association International (ADDA)

Program Objective
The Architectural Drafting & Design Technology program prepares students as entry-level technicians in computer-assisted drafting (CAD) and Building Information Modeling (BIM) for residential and commercial construction. Students will work and learn in all areas of Architectural design and drafting. Instruction and hands-on learning includes all phases of building design drafting, print reading, cost estimating, specifications writing and sustainability concepts.

Career Opportunities
Graduates work as designers, computer drafting technicians, construction estimators, architects' representatives, engineering technicians, facility management technicians and field construction inspectors.
Typical employers in the architectural career field are residential, commercial, and industrial contractors and land developers; architectural design firms, civil design firms, and structural engineering companies; modular and mobile home builders; facilities management companies; real estate developers; and government design agencies.

Program Learning Goals:

Goal 1: Graduates will acquire the skills necessary to obtain an entry-level position in the design field.

Student Learning Outcomes - Students will:

- Accurately draw architectural drawings
- Interpret architectural drawings and sketches
- Coordinate design skills to complete projects

Goal 2: Graduates will demonstrate professional behavior and ethics in order to meet the challenges of work within their field.

Student Learning Outcomes - Students will:

- Work in a team environment
- Be willing to learn new skills

Goal 3: Graduates will acquire critical thinking and decision making skills.

Student Learning Outcomes - Students will:

- Make project decisions based on design skills, codes and ordinances
- Organize and prioritize projects

Architectural Drafting & Design Technology
Major Courses (40/41 Credits)

ADT 151	Introduction to Computer Assisted Drafting (CAD)	2
ADT 152	Introduction to Computer Assisted Drafting (CAD) Lab	2
ADT 153	Residential Planning	2
ADT 154	Residential Planning Lab	2
ADT 155	Residential Cost Estimating	3
ADT 251	Building Information Modeling, Residential	2
ADT 252	Building Information Modeling, Residential Lab	2
ADT 253	Codes and Ordinances	3
ADT 255	Specifications	3
ADT 257	Building Information Modeling, Commercial	2
ADT 258	Building Information Modeling, Commercial Lab	2
ADT 259	Commercial Cost Estimating	3
ADT 261	Sustainability Design	3
or ADT 299	Internship	4
BUS 110	Business Research and Report Writing	3
BTT ##	Building Trades Elective	3
MAT 110	Trigonometry	3

General Education - (22 Credits)

ART 110	Contract Drawings	3
BUS 101	Introduction to Business	3
or CSM 105	Customer Service and Our World	
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
COM 212	Public Speaking	3
MAT 101	College Algebra I and Trigonometry	3
SCI 201	Statics & Strength of Materials	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **62**

Architectural Drafting & Design Technology
Associate in Applied Science (AAS)
Semester Program Outline

Semester 1		**Credits**
ADT 151	Introduction to Computer Assisted Drafting (CAD)	2
ADT 152	Introduction to Computer Assisted Drafting (CAD) Lab	2
ART 110	Contract Drawings	3
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
MAT 101	College Algebra I and Trigonometry	3
SSS 101	Student Success Seminar	1
		17
Semester 2		
ADT 153	Residential Planning	2
ADT 154	Residential Planning Lab	2
ADT 155	Residential Cost Estimating	3
BUS 101	Introduction to Business	3
or CSM 105	Customer Service and Our World	
MAT 110	Trigonometry	3
SCI 201	Statics & Strength of Materials	3
		16
Semester 3		
ADT 251	Building Information Modeling, Residential	2
ADT 252	Building Information Modeling, Residential Lab	2
ADT 253	Codes and Ordinances	3
ADT 255	Specifications	3
COM 212	Public Speaking	3
BTT ##	Building Trades Elective	3
		16
Semester 4		
ADT 257	Building Information Modeling, Commercial	2
ADT 258	Building Information Modeling, Commercial Lab	2
ADT 259	Commercial Cost Estimating	3
ADT 261	Sustainability Design	3
or ADT 299	Internship	4
BUS 110	Business Research and Report Writing	3
		13/14
Minimum Credits to Graduate		**62**

Automotive Technology (AAS)

Program Objective
The Automotive Technology program prepares students as entry-level technicians in the automobile and diesel industries.

Career Opportunities
Graduates can work for employers in the automotive career fields of automotive, truck, farm and earthmoving equipment dealerships; truck, power generation and construction companies; automotive service centers; engine repair/machine shops; automotive equipment distributors; independent service garages; automotive parts manufacturers; sales representation; and auto insurance companies. Graduates may work with brake systems, transmissions, alignments and repairs; be representatives in claim, sales and service, or become truck/fleet maintenance technicians.

Program Learning Goals

Goal 1: Graduates will possess the appropriate skills needed for entering the Automotive Technology field.

Student Learning Outcomes - Students will:

- Identify tools necessary to perform job duties
- Demonstrate ability to perform basic automobile services
- Practice Safe work habits for all jobs performed

Goal 2: Graduates will understand the importance of professional behavior, as well as comply with the daily changes within the Automotive Industry and will meet the challenges of continued growth within the Automotive Technology Profession.

Student Learning Outcomes - Students will:

- Interpret basic repair instructions
- Follow diagnostic flow charts to properly diagnose problems
- Take basic skills to the next level with on the job training

Goal 3: Graduates will be provided the skills that will allow them to choose careers in the field.

Student Learning Outcomes - Students:

- Can become electrical systems specialists
- Will be able to recognize importance of customer satisfaction
- Can use their automotive knowledge to become Parts Specialists

Programmatic Accreditation
The Automotive Technology program is accredited by the
National Automotive Technician Education Foundation (NATEF),
101 Blue Seal Drive, S.E., Suite 101, Leesburg, VA 20175
Email: webmaster@natef.org
Phone: (703) 669-6650
Website: www.natef.org

Senior Testing Fees
In addition to tuition, Automotive Technology Students will have fees associated with their major reflected yearly per the Enrollment Agreement. These fees cover State and Federal Licensing Requirements. These are all mandatory to complete the program. State inspection fees can be waived for those students who have achieved this credential and/or out-of-state students not needing such a credential.

Automotive Technology
Major Courses (41 Credits)

VMR 151	Introduction to Vehicle Maintenance & Repair Technology	1
VMR 153	Brake Systems	2
VMR 154	Brake Systems Lab	1
VMR 155	Steering and Suspension Systems	2
VMR 156	Steering and Suspension Systems Lab	1
VMR 157	Introduction to Welding for Auto and Diesel	2
VMR 159	Electrical & Electronic Systems	2
VMR 160	Electrical & Electronic Systems Lab	1
VMR 251	HVAC Vehicle Systems	2
VMR 252	HVAC Vehicle Systems Lab	1
VMR 253	Certifications for Automotive and Diesel Technicians	1
AUT 161	Engine Performance & Emissions	2
AUT 162	Engine Performance & Emissions Lab	1
AUT 163	Internal Combustion Engine Fundamentals	2
AUT 164	Internal Combustion Engine Fundamentals Lab	1
AUT 261	Gasoline Engine Overhaul Procedures	2
AUT 262	Gasoline Engine Overhaul Procedures Lab	2
AUT 263	Advanced Automotive Electrical Technology	2
AUT 264	Advanced Automotive Electrical Technology Lab	1
AUT 265	Automatic Transmissions & Transaxles	2
AUT 266	Automatic Transmissions & Transaxles Lab	1
AUT 267	Manual Transmissions & Differentials	2
AUT 268	Manual Transmissions & Differentials Lab	1
AUT 299	Internship	4
IET 101	Introduction to Automotive and Diesel Electronics	2

General Education (22 Credits)

BUS 101	Introduction to Business	3
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
COM 212	Public Speaking	3
MAT 101	College Algebra I and Trigonometry	3
ART ###	Art Elective	3
SCI ###	Science Elective	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **63**

Automotive Technology
Associate in Applied Science (AAS)
Semester Program Outline

Semester 1		**Credits**
VMR 151	Introduction to Vehicle Maintenance & Repair Technology	1
VMR 153	Brake Systems	2
VMR 154	Brake Systems Lab	1
VMR 155	Steering and Suspension Systems	2
VMR 156	Steering and Suspension Systems Lab	1
VMR 157	Introduction to Welding for Auto and Diesel	2
IET 101	Introduction to Automotive & Diesel Electronics	2
CPT 101	Microcomputer I	3
SSS 101	Student Success Seminar	1
		15
Semester 2		
VMR 159	Electrical & Electronic Systems	2
VMR 160	Electrical & Electronic Systems Lab	1
AUT 161	Engine Performance & Emissions	2
AUT 162	Engine Performance & Emissions Lab	1
AUT 163	Internal Combustion Engine Fundamentals	2
AUT 164	Internal Combustion Engine Fundamentals/Lab	1
BUS 101	Introduction to Business	3
ENG 101	English Composition I	3
MAT 101	College Algebra I and Trigonometry	3
		18
Semester 3		
AUT 261	Gasoline Engine Overhaul Procedures	2
AUT 262	Gasoline Engine Overhaul Procedures Lab	2
AUT 263	Advanced Automotive Electrical Technology	2
AUT 264	Advanced Automotive Electrical Technology Lab	1
AUT 265	Automatic Transmissions & Transaxles	2
AUT 266	Automatic Transmissions & Transaxles Lab	1
COM 212	Public Speaking	3
ART ###	Art Elective	3
		16
Semester 4		
VMR 251	HVAC Vehicle Systems	2
VMR 252	HVAC Vehicle Systems Lab	1
VMR 253	Certifications for Auto and Diesel Technicians	1
AUT 267	Manual Transmissions & Differentials	2
AUT 268	Manual Transmissions & Differentials Lab	1
AUT 299	Internship	4
SCI ###	Science Elective	3
		14
Minimum Credits to Graduate		**63**

Biomedical Equipment Technology (AAS)

Program Objective
The Biomedical Equipment Technology program prepares students as entry-level biomedical technicians with skills training that include medical terminology and human physiology principles, as well as the maintenance and support, planning and acquisition, and installation of medical equipment according to standards and guidelines.

Career Opportunities
Graduates work as technicians and sales representatives in the field of Healthcare Technology Management (HTM). Typical employers in this field are hospitals; medical centers; contract maintenance firms; dental, medical, and optical facilities; computer, electronic and medical instrumentation manufacturers.

Program Learning Goals:

Goal 1: Graduates will possess the skills necessary to obtain an entry-level Biomedical Technician position.

Student Learning Outcomes - Students will:

- Successfully complete a 200 hour biomedical internship
- Acquire the broad knowledge necessary for success as a Biomedical Technician as demonstrated by passing required courses in Chemistry, Physics, Mathematics, Anatomy & Physiology as well as their core Biomedical Program courses.
- Demonstrate competency in biomedical tasks through successful completion of lab work and practical tests that are patterned after tasks required in the field.

Goal 2: Graduates have proven their understanding of many requirements of Healthcare Technology Management such as maintenance, repair, and record-keeping for medical equipment

Student Learning Outcomes - Students will:

- Demonstrate maintenance skills by disassembly, and preventive maintenance as necessary on medical devices during assigned biomedical lab work.
- Demonstrate skills in using a computerized medical maintenance software system through successfully completing assigned labs that include inventory, work order generation and completion.

Goal 3: Graduates have proven competence with biomedical test equipment and basic testing techniques on common medical devices through hands-on competency tests.

Student Learning Outcomes - Students will:

- Demonstrate skills with specialized biomedical test equipment on real medical devices meeting a 90% minimum score on each test as a requirement for completion of the course.

- Demonstrate knowledge and skills required to verify correct performance of selected medical devices meeting a 90% minimum score on each test as a requirement for completion of the course.

Special Enrollment Requirements
Prior to the start of the first semester, students must provide proof of a criminal background check and hepatitis B vaccination. Proof of a PPD two-step testing (TB test) is required prior to the start of the student's second year.

Internship
A 200 hour internship at an approved site may be completed after a student has completed 30 credits and receives approval from the Department Chairperson. Students are required to complete an internship, and must satisfy the internship requirements of both Johnson College and the internship provider as a condition of graduation. Students must have a cumulative GPA of 2.00 to meet the minimum qualification for internship through Johnson College. Some internship sites may require students to obtain a higher GPA in their agreement.

Many internship sites require proof of current health care coverage, criminal, child abuse and FBI background checks, and/or drug and nicotine tests. Internship sites may bar students from an internship if a criminal record exists or a drug/nicotine test has a positive result. Johnson College cannot guarantee internship placement. Costs for travel to and from an internship site are the responsibility of the student. The schedule for meeting the requirement of this experience will be arranged between the student, faculty member and internship site.

Biomedical Equipment Technology
Major Courses (44 Credits)

EET 161	DC Electricity and Instrumentation	2
EET 162	DC Electricity and Instrumentation Lab	1
EET 163	Alternating Current and Passive Devices	2
EET 164	Alternating Current and Passive Devices Lab	1
EET 165	Digital Electronics	2
EET 166	Digital Electronics Lab	2
EET 167	Introduction to Semiconductors	2
EET 168	Introduction to Semiconductors Lab	1
EET 169	Integrated Circuits & Thyristors	2
EET 170	Integrated Circuits & Thyristors Lab	1
BET 231	Medical Equipment Standards and Testing	2
BET 232	Medical Equipment Standards and Testing Lab	2
BET 233	Physiological Monitoring Devices	2
BET 234	Physiological Monitoring Devices Lab	2
BET 235	Life Support Systems	2
BET 236	Life Support Systems Lab	2
BET 237	Specialized Medical Systems	2
BET 238	Specialized Medical Systems Lab	1
BET 299	Internship	4
BIO 105	Physiology and Anatomy	3
CIT 183	Network Architectures, Principles, and Protocols	2
CIT 184	Network Architectures, Principles, and Protocols Lab	1
PHY 101	Introductory Physics	3

General Education (23 Credits)

CHM 101	Chemistry I	3
CHM 102	Chemistry I Lab	1
COM 212	Public Speaking	3
CPT 101	Microcomputer I	3
CSM 105	Customer Service and Our World	3
ENG 101	English Composition I	3
MAT 110	Trigonometry	3
ART ###	Art Elective	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **67**

Biomedical Equipment Technology
Associate in Applied Science (AAS)
Semester Program Outline

Semester 1		**Credits**
EET 161	DC Electricity and Instrumentation	2
EET 162	DC Electricity and Instrumentation Lab	1
EET 163	Alternating Current and Passive Devices	2
EET 164	Alternating Current and Passive Devices Lab	1
EET 165	Digital Electronics	2
EET 166	Digital Electronics Lab	2
CHM 101	Chemistry I	3
CHM 102	Chemistry I Lab	1
MAT 110	Trigonometry	3
SSS 101	Student Success Seminar	1
		18
Semester 2		
EET 167	Introduction to Semiconductors	2
EET 168	Introduction to Semiconductors Lab	1
EET 169	Integrated Circuits & Thyristors	2
EET 170	Integrated Circuits & Thyristors Lab	1
BIO 105	Physiology and Anatomy	3
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
PHY 101	Introductory Physics	3
		18
Semester 3		
BET 231	Medical Equipment Standards and Testing	2
BET 232	Medical Equipment Standards and Testing Lab	2
BET 233	Physiological Monitoring Devices	2
BET 234	Physiological Monitoring Devices Lab	2
CIT 183	Network Architectures, Principles, and Protocols	2
CIT 184	Network Architectures, Principles, and Protocols Lab	1
CSM 105	Customer Service and Our World	3
		14
Semester 4		
BET 235	Life Support Systems	2
BET 236	Life Support Systems Lab	2
BET 237	Specialized Medical Systems	2
BET 238	Specialized Medical Systems Lab	1
BET 299	Internship	4
COM 212	Public Speaking	3
ART ###	Art Elective	3
		17
Minimum Credits to Graduate		**67**

Business Management
Logistics & Supply Chain Management Track (AAS)

Program Objective
Logistics & Supply Chain Management prepares students for industry certification exams and entry-level management positions in the field of supply chain management. Careers include inventory management, master resource planning, scheduling and planning, transportation logistics management, route planning, physical distribution management, transportation marketing, customer service, procurement, quality control and operations management. Typical employers include warehousing and transportation distributors, large manufacturing facilities, retail and wholesale distributors.

Career Opportunities
Typical employers include warehousing and transportation distributors, large manufacturing facilities, government, third party logistics, retail and wholesale distributors.

Program Learning Goals

Goal 1: Graduates will possess the skills necessary to obtain industry certification and entry-level positions in logistics and supply chain management areas.

Student Learning Outcomes:

- Graduates will demonstrate the ability to manage the complete flow of material in a supply chain.
- Graduates will apply statistical analysis to answer questions important to making sound business decisions.
- Graduates will demonstrate PC literacy, specifically with the Microsoft Office Suite.
- Graduates will forecast inventory requirements.
- Graduates will develop delivery schedules in accordance to customer needs.
- Graduates will develop a master schedule.

Goal 2: Graduates will possess the appropriate skills needed for supervision, decision-making, project management, and critical thinking, allowing for advancement into supervisory positions.

Student Learning Outcomes:

- Graduates will demonstrate effective writing skills.
- Graduates will demonstrate effective verbal communication skills.
- Graduates will evaluate business situations to determine customer and employee needs.
- Graduates will apply decision-making techniques via case study analysis to determine optimal outcomes.

Goal 3: Graduates will be able to recognize areas for improvement that will lead to cost reductions and provide logistical advantages over the competition.

Student Learning Outcomes:

- Graduates will identify and mitigate project costs.
- Graduates will identify and mitigate project risks.
- Graduates will interpret financial statements
- Graduates will turn source documents into trackable transactions to be used in decision-making for business.

Internship

A 200 hour internship at an approved site may be completed after a student has completed 30 credits and receives approval from the Department Chairperson. Students electing to complete an internship must satisfy the internship requirements of both Johnson College and the internship provider as a condition of graduation. Students must have a cumulative GPA of 2.00 to meet the minimum qualification for internship through Johnson College. Some internship sites may require students to obtain a higher GPA in their agreement. Some internship sites may also require proof of current health care coverage, a criminal background check, and/or a drug test. Internship sites may bar students from an internship if a criminal record exists or a drug test has a positive result. Costs for travel to and from an internship site are the responsibility of the student. The schedule for meeting the requirement of this experience will be arranged between the student, faculty member and internship site.

Business Management
Logistics & Supply Chain Management Track
Major Courses (43 Credits)

LOG 191	Basics of Supply Chain Management	3
LOG 192	Transportation Management	3
LOG 194	Warehousing and Distribution	3
LOG 195	Production and Inventory Control	3
LOG 291	Total Quality Management	3
LOG 294	International Logistics	3
LOG 298	Capstone	4
or LOG 299	Internship	
ACC 101	Accounting I	3
BSL 201	Business Law	3
BUS 101	Introduction to Business	3
BUS 201	Project Management	3
ECO 211	Introduction to Macroeconomics	3
MNG 185	Principles of Management	3
MNG 284	Management and Supervision	3

General Education Courses (22 Credits)

CPT 101	Microcomputer I	3
ECO 111	Introduction to Microeconomics	3
ENG 101	English Composition I	3
COM 212	Public Speaking	3
MAT 121	Introduction to Statistics	3
PSY 105	Industrial and Organizational Psychology	3
SOC 101	Introduction to Sociology	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **65**

Business Management -
Logistics & Supply Chain Management Track
Associate in Applied Science (AAS)
Semester Program Outline

Semester 1		**Credits**
BUS 101	Introduction to Business	3
CPT 101	Microcomputer I	3
ECO 101	Principles of Economics	3
ENG 101	English Composition I	3
MAT 121	Introduction to Statistics	3
SSS 101	Student Success Seminar	1
		16
Semester 2		
LOG 191	Basics of Supply Chain Management	3
LOG 192	Transportation Management	3
COM 212	Public Speaking	3
PSY 105	Industrial and Organizational Psychology	3
ART ###	Art Elective	3
		15
Semester 3		
ACC 101	Accounting I	3
BUS 201	Project Management	3
LOG 194	Warehousing and Distribution	3
LOG 195	Production and Inventory Control	3
MNG 185	Principles of Management	3
SCI ###	Science Elective	3
		18
Semester 4		
BSL 201	Business Law	3
LOG 291	Total Quality Management	3
LOG 294	International Logistics	3
LOG 298	Capstone	4
or LOG 299	Internship	4
MNG 284	Management and Supervision	3
		16
Minimum Credits to Graduate		**65**

Business Management
Project Management Track (AAS)

Program Objective
Students successfully completing this program will be able to demonstrate the skills necessary for entry-level employment in a variety of business and management settings, including utilities, manufacturing, merchandising, retail, sales, construction, consulting, government, supply chain and non-profit organizations. More advanced program outcome skills include project and business design, budgeting, team management, project management, and project evaluation.

Career Opportunities
Careers can lead to a variety of entry and supervisory level positions in construction, architectural firms, sales, customer service, office management, supply chain and project management organizations. Potential job titles include project coordinator, project administrator, and sales or customer service supervisor. Students who continue to work in the field can look forward to positions like scheduler, cost estimator, sales manager, and procurement planner. The degree also offers career enhancement through the addition of marketable skills in one's current field of employment.

Program Learning Goals

Goal 1: Graduates will possess the skills necessary to obtain industry certification and entry-level positions in business.

Student Learning Outcomes:

- Graduates will apply statistical analysis to answer questions important to making sound business decisions.
- Graduates will demonstrate PC literacy, specifically with the Microsoft Office Suite.
- Graduates will apply the principles found in the Project Management Body of Knowledge (PMBOK).

Goal 2: Graduates will possess the appropriate skills needed for supervision, decision-making, project management, and critical thinking, allowing for advancement into supervisory positions.

Student Learning Outcomes:

- Graduates will demonstrate effective writing skills.
- Graduates will demonstrate effective verbal communication skills.
- Graduates will evaluate business situations to determine customer and employee needs.
- Graduates will apply decision-making techniques via case study analysis to determine optimal outcomes.

Goal 3: Graduates will be able to recognize areas for improvement that will lead to cost reductions and provide logistical advantages over the competition.

Student Learning Outcomes:

- Graduates will identify and mitigate project costs.
- Graduates will identify and mitigate project risks.
- Graduates will interpret financial statements
- Graduates will turn source documents into trackable transactions to be used in decision-making for business.

Business Management – Project Management Track
Major Courses (42/43 Credits)

LOG 191	Basics of Supply Chain Management **or** ADT 223	3
ADT 223	Codes and Ordinances	3
LOG 195	Production and Inventory Control **or** ADT 220	3
ADT 220	Building Information and Modeling/Lab	4
LOG 291	Total Quality Management	3
ACC 101	Accounting I	3
BSL 201	Business Law	3
BUS 101	Introduction to Business	3
BUS 110	Business Research and Reporting	3
BUS 201	Project Management	3
BUS 210	Sales Negotiation and Customer Relationship	3
BUS 220	Advanced Project Management	3
CPT 210	Microcomputer II	3
ECO 211	Introduction to Macroeconomics	3
MNG 284	Management and Supervision	3

General Education Courses (22 Credits)

CPT 101	Microcomputer I	3
ECO 111	Introduction to Microeconomics	3
ENG 101	English Composition I	3
COM 212	Public Speaking	3
MAT 121	Introduction to Statistics	3
MNG 185	Principles of Management	3
PSY 105	Industrial Organizational Psychology	3
or SOC 101	Introduction to Sociology	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **64**

Business Management – Project Management Track

Associate in Applied Science (AAS)

Semester Program Outline		Credits
Semester 1		
BUS 101	Introduction to Business	3
CPT 101	Microcomputer I	3
ECO 101	Principles of Economics	3
ENG 101	English Composition I	3
MAT 121	Introduction to Statistics	3
SSS 101	Student Success Seminar	1
		16
Semester 2		
LOG 191	Basics of Supply Chain Management	3
or ADT 253	Codes and Ordinances	
BUS 110	Business Research and Reporting	3
COM 212	Public Speaking	3
CPT 210	Microcomputer II	3
PSY 105	Industrial and Organizational Psychology	3
ART ###	Art Elective	3
		18
Semester 3		
ACC 101	Accounting I	3
BUS 201	Project Management	3
BUS 210	Sales Negotiation and Customer Relationship	3
LOG 195	Production and Inventory Control	3
or ADT 251	Building Information Modeling, Residential	2
and ADT 252	Building Information Modeling, Residential Lab	2
MNG 185	Principles of Management	3
		15/16
Semester 4		
BSL 201	Business Law	3
LOG 291	Total Quality Management	3
BUS 220	Advanced Project Management	3
MNG 284	Management and Supervision	3
SCI ###	Science Elective	3
		15
Minimum Credits to Graduate		**64**

Carpentry & Cabinetmaking Technology (AAS)

Program Objective
The Carpentry & Cabinetmaking Technology program prepares students as entry-level trades people in the layout, estimation, and construction of residential construction including the installation of trim, furniture, stairs and cabinets. The skill set would also include weatherization installers and technicians and conservation retrofitters. Leadership and management skills are stressed. Students work with industry standard tools and equipment such as table saws, jointers, power tools, hand tools, pneumatic nailers, and laser levels.

Career Opportunities
Graduates work as rough and finish carpenters, cabinetmakers, mill workers, building product representatives, and custom woodworkers.
Typical employers in the carpentry and cabinetmaking career field are residential, commercial, and industrial construction companies; remodeling contractors; cabinet and showcase manufacturers; mill-work companies and lumber yards; wholesale and retail building product suppliers; modular home manufacturers; large institutional, business, and industrial complexes; and architectural engineering firms.

Program Learning Goals:

Goal 1: The carpentry and cabinet making program will prepare the student for entry level employment in a variety of fields of construction.

Student Learning Outcomes – Students will:

- Identify different construction materials
- Select and use appropriate power tools for specific project
- Produce and interpret cabinet shop drawings

Goal 2: The program will cover residential construction from the "ground to the clouds" and does so with an emphasis on safety first.

Student Learning Outcomes – Students will:

- Demonstrate the ability to hook up a harness
- Observe job site, shop safety and tool safety practices

Goal 3: The student will examine the pre-planning phases of construction through the sale of the structure and apply sound customer relation practices.

Student Learning Outcomes – Students will:

- Accurately provide residential estimates
- Propose and interpret appropriate plans based on building site layouts

Carpentry and Cabinetmaking Technology
Major Courses (40 Credits)

ART 103	Introduction to Print Reading and Shop Drawings	1
BTT 149	Construction Safety	1
CCM 151	Woodworking Hand and Portable Tools & Materials	2
CCM 152	Woodworking Hand and Portable Tools & Materials Lab	1
CCM 153	Woodworking Tools and Machines	2
CCM 154	Woodworking Tools and Machines Lab	1
CCM 155	Kitchen & Bath Design Standards	1
CCM 159	Interior Finishes	2
CCM 160	Interior Finishes Lab	1
CCM 161	Cabinet and Component Construction	2
CCM 162	Cabinet and Component Construction Lab	1
CCM 163	Exterior Finishes	2
CCM 164	Exterior Finishes Lab	1
CCM 251	Site Layout & Foundations	2
CCM 252	Site Layout & Foundations Lab	1
CCM 253	Floor/Wall Framing Principles	2
CCM 254	Floor/Wall Framing Principles Lab	1
CCM 255	Roof Framing	2
CCM 256	Roof Framing Lab	1
CCM 257	Stairs	2
CCM 258	Stairs Lab	1
CCM 259	Advanced Roof Framing	2
CCM 260	Advanced Roof Framing Lab	1
CCM 261	Construction Estimating	3
MAT 110	Trigonometry	3
MAT 123	Mathematics for Carpenters	1

General Education (22 Credits)

ART 110	Contract Drawings	3
BUS 101	Introduction to Business	3
or CSM 105	Customer Service and Our World	
COM ###	Communication Elective	3
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
MAT 101	College Algebra I and Trigonometry	3
SCI ###	Science Elective	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **62**

Carpentry & Cabinetmaking Technology
Associate in Applied Science (AAS)
Semester Program Outline

Semester 1		**Credits**
ART 103	Introduction to Print Reading and Shop Drawings	1
BTT 149	Construction Safety	1
CCM 151	Woodworking Hand and Portable Tools & Materials	2
CCM 152	Woodworking Hand and Portable Tools & Materials Lab	1
CCM 153	Woodworking Tools and Machines	2
CCM 154	Woodworking Tools and Machines Lab	1
CCM 155	Kitchen & Bath Design Standards	1
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
MAT 123	Mathematics for Carpenters	1
SSS 101	Student Success Seminar	1
		17
Semester 2		
CCM 159	Interior Finishes	2
CCM 160	Interior Finishes Lab	1
CCM 161	Cabinet and Component Construction	2
CCM 162	Cabinet and Component Construction Lab	1
CCM 163	Exterior Finishes	2
CCM 164	Exterior Finishes Lab	1
BUS 101	Introduction to Business	3
or CSM 105	Customer Service and Our World	
MAT 101	College Algebra I and Trigonometry	3
		15
Semester 3		
ART 110	Contract Drawings	3
CCM 251	Site Layout & Foundations	2
CCM 252	Site Layout & Foundations Lab	1
CCM 253	Floor/Wall Framing Principles	2
CCM 254	Floor/Wall Framing Principles Lab	1
CCM 255	Roof Framing	2
CCM 256	Roof Framing Lab	1
MAT 110	Trigonometry	3
		15
Semester 4		
CCM 257	Stairs	2
CCM 258	Stairs Lab	1
CCM 259	Advanced Roof Framing	2
CCM 260	Advanced Roof Framing Lab	1
CCM 261	Construction Estimating	3
COM ###	Communication Elective	3
SCI ###	Science Elective	3
		15

Minimum Credits to Graduate **62**

Computer Information Technology (AS)

Program Objective
The Computer Information Technology Program prepares students as entry-level technicians for the maintenance, repair, and troubleshooting of the hardware and software used in today's local and wide area computer networking and information systems.

Career Opportunities
Typical employers are any business or industry using information technology today. Some examples of these are banks, hospitals, educational institutions, government facilities, mail order facilities, retail chains, school districts, and manufacturing facilities. Students work with current industry standard computers, and computer networks.

Program Learning Goals:

Goal 1: Graduates will possess the appropriate skills needed for entering the Computer Information Technology field.

Student Learning Outcomes – Students will**:**

- Assemble, performance test, troubleshoot, repair, maintain and secure personal computers and servers.
- Design, install, performance test, troubleshoot, repair and maintain Local and Wide area networks.

Goal 2: Graduates will learn the importance of good communications skills with all areas of a project.

Student Learning Outcomes – Students will**:**

- Interpret measures used to resolve a computer related problem and translate them into Layman's terms for the service report.
- Interpret inter-team communications in order to help build a customer network.
- Organize and manage team meetings in order to develop an IP address design for new networks.

Goal 3: Graduates will develop critical thinking skills for troubleshooting various hardware and software issues.

Student Learning Outcomes – Students will**:**

- Recognize the importance of safe work habits and conditions
- Interpret customer needs and create a network based on those needs
- Investigate operating system malfunctions, recognize the cause, and develop a plan to resolve the malfunction.

Computer Information Technology
Major Courses (39/40 Credits)

CIT 181	Computer Hardware and Operating Systems	2
CIT 182	Computer Hardware and Operating Systems Lab	1
CIT 183	Network Architectures, Principles, and Protocols	2
CIT 184	Network Architectures, Principles, and Protocols Lab	1
CIT 185	TCP/IP Network Design Configuration, Maintenance	2
CIT 186	TCP/IP Network Design Configuration, Maintenance Lab	1
CIT 187	Linux Networking Service and Support	2
CIT 188	Linux Networking Service and Support Lab	1
CIT 189	Information System Security Design, Administration	2
CIT 190	Information System Security Design, Administration Lab	1
CIT 281	LAN/WAN Design and Maintenance Principles	2
CIT 282	LAN/WAN Design and Maintenance Principles Lab	1
CIT 283	Server and Network Operating System Principles	2
CIT 284	Server and Network Operating System Principles Lab	1
CIT 285	Advanced Network Operating System Principles	2
CIT 286	Advanced Network Operating System Principles Lab	1
CIT 287	Internetworking Applications	2
CIT 288	Internetworking Applications Lab	1
or CIT 289	Web Programming, Server Side Scripting	2
CIT 290	Web Programming, Server Side Scripting Lab	1
or CIT 299	Internship	4
CSM 105	Customer Service and Our World	3
DAT 201	Database: Principles & Applications	3
MAT 201	College Algebra II and Trigonometry	3
PRG 101	Programming for the Enterprise	3

General Education (22 Credits)

ART 115	Web Programming, Client Side Scripting	2
ART 116	Web Programming, Client Side Scripting Lab	1
BUS 101	Introduction to Business	3
COM 212	Public Speaking	3
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
MAT 101	College Algebra I and Trigonometry	3
SCI ###	Science Elective	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **61**

Computer Information Technology
Associate in Science (AS)
Semester Program Outline

Semester 1		**Credits**
CIT 181	Computer Hardware and Operating Systems	2
CIT 182	Computer Hardware and Operating Systems Lab	1
CIT 183	Network Architectures, Principles, and Protocols	2
CIT 184	Network Architectures, Principles, and Protocols Lab	1
PRG 101	Programming for the Enterprise	3
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
SSS 101	Student Success Seminar	1
		16
Semester 2		
CIT 185	TCP/IP Network Design Configuration, Maintenance	2
CIT 186	TCP/IP Network Design Configuration, Maintenance Lab	1
CIT 187	Linux Networking Service and Support	2
CIT 188	Linux Networking Service and Support Lab	1
CIT 189	Information System Security Design, Administration	2
CIT 190	Information System Security Design, Administration Lab	1
BUS 101	Introduction to Business	3
MAT 101	College Algebra I and Trigonometry	3
		15
Semester 3		
CIT 281	LAN/WAN Design and Maintenance Principles	2
CIT 282	LAN/WAN Design and Maintenance Principles Lab	1
CIT 283	Server and Network Operating System Principles	2
CIT 284	Server and Network Operating System Principles Lab	1
DAT 201	Database: Principles & Applications	3
MAT 201	College Algebra II and Trigonometry	3
CSM 105	Customer Service and Our World	3
		15
Semester 4		
ART 115	Web Programming, Client Side Scripting	2
ART 116	Web Programming, Client Side Scripting Lab	1
CIT 285	Advanced Network Operating System Principles	2
CIT 286	Advanced Network Operating System Principles Lab	1
CIT 287	Internetworking Applications	2
CIT 288	Internetworking Applications Lab	1
or CIT 289	Web Programming, Server Side Scripting	2
CIT 290	Web Programming, Server Side Scripting Lab	1
or CIT 299	Internship	4
COM 212	Public Speaking	3
SCI ###	Science Elective	3
		15/16
Minimum Credits to Graduate		**61**

Diesel Truck Technology (AAS)

Program Objective
The Diesel Truck Technology program prepares students as entry-level technicians with the latest information on diagnosis, repair procedures, preventive maintenance, and necessary safety applications in diesel technology. The course prepares students to take the voluntary mechanic certification test (ASE) in heavy-duty trucks. Graduates work as tune-up, brakes, transmission and refrigeration technicians; diesel truck repair and fleet maintenance technicians; service writing technicians; and sales and service representatives.

Career Opportunities
Typical employers of diesel truck technicians are truck, farm, and earth-moving equipment dealerships; trucking, power generation, and construction companies; truck service centers; engine repair/machine shops; truck equipment distributors; independent service garages; automotive parts manufacturers; sales representatives; and insurance companies.

Program Learning Goals

Goal 1: Graduates will possess the appropriate skills and safety awareness that are needed for decision-making and critical thinking for entry into the Diesel Truck Technology field.

Student Learning Outcomes - Students will:

- Understand the use of proper safety equipment, for both themselves and shop practices.
- Visualize situations to predict any concerns before attempting them.
- Multitask and follow safety precautions while displaying well thought-out time management.

Goal 2: Graduates will understand the importance of professional behavior and life-long learning within the Diesel Truck Industry.

Student Learning Outcomes - Graduates will:

- Communicate with managers, supervisors, or company owners in a professional and technical manner.
- Seek opportunities for continued training after graduation and keep up with current technology.

Goal 3: Graduates will meet the needs of the Diesel Truck Technology field. Graduates will be provided the skills that will provide them the opportunities in various areas of the diesel profession.

Student Learning Outcomes - Students will:

- Be able to troubleshoot heavy duty vehicle brake systems for safety concerns and faults.
- Diagnose a diesel engine and repair a variety of different types of engines.

Senior Testing Fees

In addition to tuition, Diesel Truck Technology Students will have fees associated with their major reflected yearly per the Enrollment Agreement. These fees cover State and Federal Licensing Requirements. These are all mandatory to complete the program.

State inspection fees can be waived for those students who have achieved this credential and/or out-of-state students not needing such a credential.

Diesel Truck Technology
Major Courses (42 Credits)

VMR 151	Intro. to Vehicle Maintenance & Repair Technology	1
VMR 153	Brake Systems	2
VMR 154	Brake Systems Lab	1
VMR 155	Steering and Suspension Systems	2
VMR 156	Steering and Suspension Systems Lab	1
VMR 157	Introduction to Welding for Auto and Diesel	2
VMR 159	Electrical & Electronic Systems	2
VMR 160	Electrical & Electronic Systems Lab	1
VMR 251	HVAC Vehicle Systems	2
VMR 252	HVAC Vehicle Systems Lab	1
VMR 253	Certifications for Automotive and Diesel Students	1
DTT 175	Diesel Engine Overhaul	2
DTT 176	Diesel Engine Overhaul Lab	2
DTT 177	Diesel Fuel Injection Systems	2
DTT 178	Diesel Fuel Injection Systems Lab	1
DTT 275	Diesel Engine Performance and Tune-up Procedures	2
DTT 276	Diesel Engine Performance and Tune-up Procedures Lab	2
DTT 277	Manual Transmission Overhaul	2
DTT 278	Manual Transmission Overhaul Lab	1
DTT 279	Differentials and Drive Line	2
DTT 280	Differentials and Drive Line Lab	1
DTT 281	Auto. Transmission Diagnostics, Basic Hydraulics	2
DTT 282	Auto. Transmission Diagnostics, Basic Hydraulics Lab	1
DTT 283	Applied Diesel Truck Principles and Applications	2
DTT 284	Applied Diesel Truck Principles and Applications Lab	2
or DTT 299	Internship	4
IET 101	Introduction to Automotive and Diesel Electronics	2

General Education (22 Credits)

BUS 101	Introduction to Business	3
COM 212	Public Speaking	3
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
MAT 101	College Algebra I and Trigonometry	3
ART ###	Art Elective	3
SCI ###	Science Elective	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **64**

Diesel Truck Technology
Associate in Applied Science (AAS)
Semester Program Outline

Semester 1		**Credits**
VMR 151	Introduction to Vehicle Maintenance & Repair Technology	1
VMR 153	Brake Systems	2
VMR 154	Brake Systems Lab	1
VMR 155	Steering and Suspension Systems	2
VMR 156	Steering and Suspension Systems Lab	1
VMR 157	Introduction to Welding for Auto and Diesel	2
IET 101	Introduction to Automotive & Diesel Electronics	2
CPT 101	Microcomputer I	3
SSS 101	Student Success Seminar	1
		15
Semester 2		
VMR 159	Electrical & Electronic Systems	2
VMR 160	Electrical & Electronic Systems Lab	1
DTT 175	Diesel Engine Overhaul	2
DTT 176	Diesel Engine Overhaul Lab	2
DTT 177	Diesel Fuel Injection Systems	2
DTT 178	Diesel Fuel Injection Systems Lab	1
ENG 101	English Composition I	3
MAT 101	College Algebra I and Trigonometry	3
		16
Semester 3		
DTT 275	Diesel Engine Performance and Tune-up Procedures	2
DTT 276	Diesel Engine Performance and Tune-up Procedures Lab	2
DTT 277	Manual Transmission Overhaul	2
DTT 278	Manual Transmission Overhaul Lab	1
DTT 279	Differentials and Drive Line	2
DTT 280	Differentials and Drive Line Lab	1
BUS 101	Introduction to Business	3
COM 212	Public Speaking	3
SCI ###	Science Elective	3
		19
Semester 4		
DTT 281	Automatic Transmission Diagnostics, Basic Hydraulics	2
DTT 282	Automatic Transmission Diagnostics, Basic Hydraulics/Lab	1
DTT 283	Applied Diesel Truck Principles and Applications	2
DTT 284	Applied Diesel Truck Principles and Applications Lab	2
or DTT 299	Internship	4
VMR 251	HVAC Vehicle Systems	2
VMR 252	HVAC Vehicle Systems Lab	1
VMR 253	Certifications for Automotive and Diesel Students	1
ART ###	Art Education Elective	3
		14
Minimum Credits to Graduate		**64**

Electrical Construction & Maintenance Technology (AAS)

Program Objective:
The Electrical Construction and Maintenance Technology program prepares students as entry-level technicians for the operation, inspection, installation, calibration, repair, maintenance and safety of residential and commercial electrical equipment.

Career Opportunities:
Graduates work as residential and commercial electricians, industrial engineering technicians in production environments. Graduates will also be prepared as quality assurance technicians, linemen or technicians for the power industry. Typical employers in the electrical field are telecommunications companies, utilities, Union and Non-union electrical companies and manufacturing companies.

Program Learning Goals:

Goal 1: The student will be prepared as an entry-level technician in the electrical construction and maintenance industry

Student Learning Outcomes – Students will:

- Install cables and raceways
- Read and understand electrical prints
- Be proficient in meter usage

Goal 2: Graduates will demonstrate safe electrical practices and understand how important they are in the electrical environment.

Student Learning Outcomes – Students will:

- Properly demonstrate lock out / tag out practices
- Perform tasks in accordance with OSHA guidelines
- Demonstrate proper usage of personal protective equipment (PPE)

Goal 3: Graduates will acquire a foundation of education and skills for career advancement and lifelong learning.

Student Learning Outcomes – Students will:

- Perform in a professional manner
- Understand the National Electrical Code (NEC)
- Demonstrate proper installation and worksite housekeeping

Electrical Construction & Maintenance Technology
Major Courses (42 Credits)

BTT 149	Construction Safety	1
ECM 171	Fundamentals of Electricity	2
ECM 172	Fundamentals of Electricity Lab	1
ECM 173	Introduction to Residential Wiring	2
ECM 174	Introduction to Residential Wiring Lab	1
ECM 175	Commercial Wiring	2
ECM 176	Commercial Wiring Lab	1
ECM 177	Electrical Grounding and Bonding	2
ECM 178	Electrical Grounding and Bonding Lab	1
ECM 179	Advanced Residential Circuit Installation	2
ECM 180	Advanced Residential Circuit Installation Lab	1
ECM 181	Service Installation & Troubleshooting	2
ECM 182	Service Installation & Troubleshooting Lab	1
ECM 251	Industrial Motor Control	2
ECM 252	Industrial Motor Control Lab	1
ECM 253	Industrial Maintenance I	2
ECM 254	Industrial Maintenance I Lab	1
ECM 255	Advanced Motor Control Circuits	2
ECM 256	Advanced Motor Control Circuits Lab	1
ECM 257	Industrial Maintenance II	2
ECM 258	Industrial Maintenance II Lab	1
ECM 259	Applied Practice and Special Topics	2
ECM 260	Applied Practice and Special Topics Lab	2
or ECM 299	Internship	4
AMT 253	Programmable Logic Controllers	2
AMT 254	Programmable Logic Controllers Lab	2
MAT 201	College Algebra II and Trigonometry	3

General Education (22 Credits)

ART 110	Contract Drawings	3
BUS 101	Introduction to Business	3
COM 211	Communication Theory	3
or COM 212	Public Speaking	
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
MAT 101	College Algebra I and Trigonometry	3
SCI ###	Science Elective	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **64**

Electrical Construction & Maintenance Technology
Associate in Applied Science (AAS)
Semester Program Outline

Semester 1		**Credits**
BTT 149	Construction Safety	1
ECM 171	Fundamentals of Electricity	2
ECM 172	Fundamentals of Electricity Lab	1
ECM 173	Introduction to Residential Wiring	2
ECM 174	Introduction to Residential Wiring Lab	1
ECM 175	Commercial Wiring	2
ECM 176	Commercial Wiring Lab	1
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
SSS 101	Student Success Seminar	1
		17
Semester 2		
ECM 177	Electrical Grounding and Bonding	2
ECM 178	Electrical Grounding and Bonding Lab	1
ECM 179	Advanced Residential Circuit Installation	2
ECM 180	Advanced Residential Circuit Installation Lab	1
ECM 181	Service Installation & Troubleshooting	2
ECM 182	Service Installation & Troubleshooting Lab	1
BUS 101	Introduction to Business	3
MAT 101	College Algebra I and Trigonometry	3
		15
Semester 3		
ART 110	Contract Drawings	3
AMT 253	Programmable Logic Controllers	2
AMT 254	Programmable Logic Controllers Lab	2
ECM 251	Industrial Motor Control	2
ECM 252	Industrial Motor Control Lab	1
ECM 253	Industrial Maintenance I	2
ECM 254	Industrial Maintenance I Lab	1
MAT 201	College Algebra II and Trigonometry	3
		16
Semester 4		
ECM 255	Advanced Motor Control Circuits	2
ECM 256	Advanced Motor Control Circuits Lab	1
ECM 257	Industrial Maintenance II	2
ECM 258	Industrial Maintenance II Lab	1
ECM 259	Applied Practice and Special Topics	2
ECM 260	Applied Practice and Special Topics Lab	2
or ECM 299	Internship	4
COM ###	Communication Elective	3
SCI ###	Science Elective	3
		16
Minimum Credits to Graduate		**64**

Electronic Engineering Technology (AAS)

Program Objective
The Electronic Engineering Technology program prepares graduates as entry-level technicians. Students will become proficient in the theoretical and practical applications associated with electronic devices, instrumentation controls, and systems.

Career Opportunities
Graduates work as technicians and sales representatives in the field of electronic instrumentation and computer repair. Typical employers in the electronic career are machine, tool, and instrumentation manufacturers; electronic service companies; communication industries; electronic media; and electronic sales.

Program Learning Goals:

Goal 1: Graduates will be able to troubleshoot electronic circuits and systems using theoretical principles and measured values to resolve operational issues.

Student Learning Outcomes – Students will:

- Demonstrate competence with circuit identification
- Demonstrate competence in using various pieces of test equipment to gather information about a circuit or systems operation
- Employ corrective actions to make repair to systems under test

Goal 2: Graduates will demonstrate the ability to communicate with a customer, team member or supervisor in a professional manner to determine the nature of a problem or to explain repairs.

Student Learning Outcomes – Students will:

- Explain the defect found in circuits or systems and the solution to rectify the problem
- Produce written reports on work performed outlining work performed

Goal 3: Graduates will be able to use hand tools and test equipment in a safe manner.

Student Learning Outcomes – Students will:

- Demonstrate the safe use of a multimeter while making measurements in live circuits
- Demonstrate the safe use of oscilloscopes and other lab equipment to make measurements or apply signals.

Electronic Engineering Technology
Major Courses (42 Credits)

EET 161	DC Electricity and Instrumentation	2
EET 162	DC Electricity and Instrumentation Lab	1
EET 163	Alternating Current and Passive Devices	2
EET 164	Alternating Current and Passive Devices Lab	1
EET 165	Digital Electronics	2
EET 166	Digital Electronics Lab	2
EET 167	Introduction to Semiconductors	2
EET 168	Introduction to Semiconductors Lab	1
EET 169	Integrated Circuits & Thyristors	2
EET 170	Integrated Circuits & Thyristors Lab	1
EET 261	Communication Electronics	2
EET 262	Communication Electronics Lab	1
EET 263	Industrial Electronics	2
EET 264	Industrial Electronics Lab	1
EET 265	Applied Electronics Principles & Applications	2
EET 266	Applied Electronics Principles & Applications Lab	2
or EET 299	Internship	4
AMT 157	Sensors and Systems in Automation	2
AMT 158	Sensors and Systems in Automation Lab	1
AMT 253	Programmable Logic Controllers	2
AMT 254	Programmable Logic Controllers Lab	2
AMT 259	Automation and Robotics	2
AMT 260	Automation and Robotics Lab	1
CIT 183	Network Architectures, Principles, and Protocols	2
CIT 184	Network Architectures, Principles, and Protocols Lab	1
MAT 201	College Algebra II and Trigonometry	3

General Education (22 Credits)

ART 105	Blueprint / Schematic Reading	3
BUS 101	Introduction to Business	3
COM 212	Public Speaking	3
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
MAT 101	College Algebra I and Trigonometry	3
SCI ###	Science Elective	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **64**

Electronic Engineering Technology
Associate in Applied Science (AAS)
Semester Program Outline

Semester 1		**Credits**
EET 161	DC Electricity and Instrumentation	2
EET 162	DC Electricity and Instrumentation Lab	1
EET 163	Alternating Current and Passive Devices	2
EET 164	Alternating Current and Passive Devices Lab	1
EET 165	Digital Electronics	2
EET 166	Digital Electronics Lab	2
CPT 101	Microcomputer I	3
MAT 101	College Algebra I and Trigonometry	3
SSS 101	Student Success Seminar	1
		17
Semester 2		
EET 167	Introduction to Semiconductors	2
EET 168	Introduction to Semiconductors Lab	1
EET 169	Integrated Circuits & Thyristors	2
EET 170	Integrated Circuits & Thyristors Lab	1
AMT 157	Sensors and Systems in Automation	2
AMT 158	Sensors and Systems in Automation Lab	1
ART 105	Blueprint / Schematic Reading	3
ENG 101	English Composition I	3
SCI ###	Science Elective	3
		18
Semester 3		
AMT 253	Programmable Logic Controllers	2
AMT 254	Programmable Logic Controllers Lab	2
EET 261	Communication Electronics	2
EET 262	Communication Electronics Lab	1
EET 263	Industrial Electronics	2
EET 264	Industrial Electronics Lab	1
COM 212	Public Speaking	3
MAT 201	College Algebra II and Trigonometry	3
		16
Semester 4		
AMT 259	Automation and Robotics	2
AMT 260	Automation and Robotics Lab	1
BUS 101	Introduction to Business	3
CIT 183	Network Architectures, Principles, and Protocols	2
CIT 184	Network Architectures, Principles, and Protocols Lab	1
EET 265	Applied Electronics Principles & Applications	2
EET 266	Applied Electronics Principles & Applications Lab	2
or EET 299	Internship	4
		13
Minimum Credits to Graduate		**64**

Heating Ventilation & Air Conditioning Technology (AAS)

Program Objective
The Heating Ventilation and Air Conditioning program is to provide students with the skills needed for entry-level positions in the installing, repairing and troubleshooting various heating and cooling equipment. Students will work with industrial standard tools associated with equipment such as oil and gas furnaces, refrigeration units, and air conditioning equipment.

Career Opportunities
Graduates can work as HVAC Installers, Controls Technicians, Service Technicians, Maintenance Mechanics and Plumbers. Typical employers in the HVAC trade career include custom job shops; research laboratories; wholesale and retail sales.

Program Learning Goals:

Goal 1: Graduates will possess the skills necessary to obtain an entry-level HVAC Technician position.

Student Learning Outcomes – Students will:

- Assist in the installations of Heating, Air Conditioning and Refrigeration equipment.
- Pipe a hydronic heating system
- Perform preventive maintenance on heating and air conditioning systems

Goal 2: Graduates will have an understanding of safe HVAC practices and how important they are in the HVAC environment.

Student Learning Outcomes – Students will:

- Identify site hazards
- Know when to use proper PPE (Personal Protective Equipment).
- Prepare the work area, thereby creating a safe working environment.

Goal 3: Graduates will understand the importance of professional behavior and life-long learning, and will meet the challenges of continued technological growth within the field.

Student Learning Outcomes – Students will:

- Conduct themselves as professionals at all times
- Convey a professional appearance through proper grooming and appropriate attire.
- Keep up with technology through training during their careers.

Senior Testing Fee
A onetime EPA certification fee will be charged prior to the start of their senior year.

Heating Ventilation & Air Conditioning Technology
Major Courses (42 Credits)

BTT 149	Construction Safety	1
HAC 171	Introduction to Refrigeration	2
HAC 172	Introduction to Refrigeration Lab	2
HAC 173	HVAC/R Electricity I	2
HAC 174	HVAC/R Electricity I Lab	1
HAC 175	Pipefitting	2
HAC 176	Pipefitting Lab	1
HAC 177	HVAC/R Electricity II	2
HAC 178	HVAC/R Electricity II Lab	1
HAC 179	Air Conditioning Systems	2
HAC 180	Air Conditioning Systems Lab	2
HAC 271	HVAC Controls I	2
HAC 272	HVAC Controls I Lab	1
HAC 273	Hydronic Heating Systems	2
HAC 274	Hydronic Heating Systems Lab	1
HAC 275	Heating System Design & Installation	2
HAC 276	Heating System Design & Installation Lab	2
HAC 277	HVAC Controls II	2
HAC 278	HVAC Controls II Lab	1
HAC 279	Refrigeration Applications Commercial Systems	2
HAC 280	Refrigeration Applications Commercial Systems Lab	2
HAC 281	Applied HVAC Principles and Applications	2
HAC 282	Applied HVAC Principles and Applications Lab	2
or HAC 299	Internship	4
MAT 201	College Algebra II and Trigonometry	3

General Education (22 Credits)

ART 110	Contract Drawings	3
BUS 101	Introduction to Business	3
or CSM 105	Customer Service and Our World	
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
COM 211	Communication Theory	3
MAT 101	College Algebra I and Trigonometry	3
PHY 101	Introductory Physics	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **64**

Heating Ventilation & Air Conditioning Technology

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

Semester Program Outline

Semester 1		**Credits**
HAC 171	Introduction to Refrigeration	2
HAC 172	Introduction to Refrigeration Lab	2
HAC 173	HVAC/R Electricity I	2
HAC 174	HVAC/R Electricity I Lab	1
HAC 175	Pipefitting	2
HAC 176	Pipefitting Lab	1
ENG 101	English Composition I	3
MAT 101	College Algebra I and Trigonometry	3
SSS 101	Student Success Seminar	1
		17
Semester 2		
HAC 177	HVAC/R Electricity II	2
HAC 178	HVAC/R Electricity II Lab	1
HAC 179	Air Conditioning Systems	2
HAC 180	Air Conditioning Systems Lab	2
CPT 101	Microcomputer I	3
MAT 201	College Algebra II and Trigonometry	3
PHY 101	Introductory Physics	3
BTT 149	Construction Safety	1
		17
Semester 3		
ART 110	Contract Drawings	3
HAC 271	HVAC Controls I	2
HAC 272	HVAC Controls I Lab	1
HAC 273	Hydronic Heating Systems	2
HAC 274	Hydronic Heating Systems Lab	1
HAC 275	Heating System Design & Installation	2
HAC 276	Heating System Design & Installation Lab	2
BUS 101	Introduction to Business	3
or CSM 105	Customer Service and Our World	
		16
Semester 4		
HAC 277	HVAC Controls II	2
HAC 278	HVAC Controls II Lab	1
HAC 279	Refrigeration Applications Commercial Systems	2
HAC 280	Refrigeration Applications Commercial Systems Lab	2
HAC 281	Applied HVAC Principles and Applications	2
HAC 282	Applied HVAC Principles and Applications Lab	2
or HAC 299	Internship	4
COM 211	Communication Theory	3
		14
Minimum Credits to Graduate		**64**

Physical Therapist Assistant (AS)

Program Objective
The Physical Therapist Assistant program prepares students for entry-level positions in a variety of clinical settings. Graduates will be prepared to take the National Physical Therapy Exam for Physical Therapist Assistants.

Career Opportunities
Physical therapy is a very rewarding and diverse profession. Practicing physical therapist assistants have the option to work in a variety of settings, including: hospitals, inpatient and outpatient rehabilitation settings, skilled nursing facilities, private practices, home health, and schools. PTAs can also teach in physical therapist assistant programs or if they choose, can further their education in a variety of related fields.

Program Mission Statement
The mission of the Physical Therapist Assistant Program at Johnson College is to prepare students to be competent and caring entry-level physical therapist assistants who work under the direction and supervision of a physical therapist in a variety of settings. Students will be committed to developing and continuing professional competence, demonstrating lifelong learning, and adhering to the behavioral expectations outlined in the APTA Guide for Conduct and Standards of Ethical Conduct for the PTA.

What do Physical Therapist Assistants do?
Physical therapy plays a vital role in helping individuals achieve their optimal level of mobility and independence. Physical therapist assistants work under the direction and supervision of licensed physical therapists and work directly with patients to help improve quality of life. Physical therapist assistants must be well educated and personable.

Programmatic Accreditation
The Physical Therapist Assistant Program at Johnson College is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE)
1111 North Fairfax Street, Alexandria, Virginia 22314; telephone: 703-706-3245;
email: accreditation@apta.org; website: http://www.capteonline.org.

Program Goals

Goal 1: To prepare graduates to meet the professional and licensure requirements necessary to function as entry-level PTA's under the direction and supervision of a physical therapist in a variety of clinical settings.

Student Learning Outcomes – Students will:

- Students/graduates will exhibit conduct that reflects practice standards that are legal, ethical, and safe and that reflects a commitment to meet the expectations of members of society and members of the profession of physical therapy.
- Students/graduates will demonstrate competence implementing interventions identified in the plan of care under the direction and supervision of the physical therapist.
- Students/graduates will demonstrate competency performing components of data collection skills under the direction and supervision of the physical therapist.
- Students/graduates will recognize when interventions should be modified or not provided due to changes in the patient's status or due to violations in practice guidelines and report this to the supervising physical therapist.
- Students/graduates will communicate effectively with other health care providers and with patients, family members, and caregivers in order to achieve patient outcomes based on the physical therapy plan of care.
- Students/graduates will implement risk management strategies during all lab and clinical activities to ensure the safety of themselves and others.
- Students/graduates will complete thorough, accurate, logical, concise, timely, and legible documentation that meets the requirements of the facility.
- Graduates will pass the NPTAE at a rate consistent with CAPTE requirements within one year of graduation.
- Graduates who seek employment will be employed in the field within one year of graduation.

Goal 2: To ensure that educators of the program, both didactic and clinical provide instruction and guidance that meets the needs of the students and the program.

Outcomes:

- Faculty will maintain current licensure in PA.
- Faculty will participate in continuing professional competence related to teaching responsibilities.
- Faculty will utilize effective instructional methods during didactic, laboratory, and clinical courses.

Goal 3: To provide students with a curriculum and resources that are current and in compliance with standards set forth by the Commission on Accreditation in Physical Therapy Education (CAPTE), by the American Physical Therapy Association (APTA), by the PA Physical Therapy state practice act, and by the institution.

Outcomes:

- The curriculum will be reviewed annually by the Program Director, core faculty, and the Program Advisory Committee to ensure it is aligned with current requirements and practice trends.
- The program resources will be reviewed annually by the Program Director, core faculty, and the Program Advisory Committee to ensure adequacy to meet the needs of the program.

Special Admissions Requirements

Admittance to the Physical Therapist Assistant Program at Johnson College is based on a selective admission process that has been developed to ensure that students who are admitted to the Johnson College PTA Program are prepared to succeed in the program and enter the work force as competent entry-level physical therapist assistants. Students are admitted based on their merit without being discriminated against on the basis of race, religion, color, sex, age, national origin, non-job related disability, sexual orientation, or veteran status. Current enrollment is limited to 12 new students per year based on the number of applicants who meet the admission criteria and qualifications.

The procedure for applicants who desire to seek acceptance into the PTA program is as follows:

1. Applicants must contact the Johnson College admissions staff to initiate the application process, which includes submitting an application
2. Students must meet the following minimum requirements:
    a. SAT scores of 900 (combined math and verbal with not less than 450 on either section) or above or ACT scores 18 or above
    b. Accuplacer Scores of 70 on each section
    c. GPA 3.0 or higher*
    d. 1 year of Algebra with a "C+" or higher*
    e. 2 years of English with a "C+" or higher*
    f. 1 year of Biology with a "C+" or higher*
    g. Recommended: 1 year of an additional life or physical science with a "C+" of higher*
    h. Observation/Volunteer/Work at a Physical Therapy Clinic for a minimum of 15 hours (Recommended at both inpatient and outpatient facilities)
    i. PTA Admissions Questionnaire
    j. 2 Recommendations (1 from a Physical therapist or physical therapist assistant)

(*denotes pre-requisites that can be completed in high school or college; college level courses will be weighted more in the scoring process)

3. Once the applicant has completed all of the above pre-requisites, the admissions representative will send the file to the program director for review.
4. An interview will follow if applicant meets the minimum requirements. Students who meet all of the academic requirements (a.- g.) except for one may still be considered for acceptance if the student meets the rubric score requirement listed below.

5. The applicant will be scored based on the rubric which can be found on the program website.
6. Acceptance will be based on the following scores:
    - **Rubric Score of 19 - 31**: automatic acceptance into the program based on rolling acceptance beginning November 1st of the academic year prior to the anticipated year of matriculation
    - **Rubric Score of 10 - 18**: decision for acceptance will be made after May 1st based on pool of applicants
    - **Rubric Score of < 10**: not accepted

Special Enrollment Requirements
Prior to admission, students must complete 15 hours of observation in a physical therapy clinic with a Physical Therapist Assistant or a Physical Therapist and provide verification and complete the program admissions questionnaire.

Special Fees
In addition to tuition and program fees, students are responsible for the cost of physical exams and immunizations. Students are also required to join the American Physical Therapy Association as student PTA members.

Retention
Students are required to show both didactic and clinical progression each semester in order to progress through the Physical Therapist Assistant Program.

- The student **MUST PASS** each Physical Therapist Assistant didactic course, as well as related courses MTR 100, BIO 107, BIO 108, BIO 109, and BIO 110 with a grade of at least a C+ (76) or higher.
- In order to successfully pass each PTA course and progress through the program, students must:
    - receive a 76% or higher in each lecture and lab portion of the course
    - receive an overall grade of a 76% or higher
    - achieve a written exam average (written exams + final exam) of 76% or higher
    - complete all skill checklists
    - pass each Practical Exam with a 76% or higher
    - demonstrate appropriate professional behaviors as assessed by the Professional Behavior Assessment Form.

  If any of the above criteria are not met, students may Fail the course and will not be able to progress in the PTA program. If students do not obtain a 76 written exam average, but meet all of the other criteria, the students' grade will be based on the written exam average. A student who fails the practical will receive an F in the course.
- The student **MUST PASS** each of the three clinical education courses (PTA 270, PTA 280, and PTA 290).
- The student **MUST PASS** all laboratory practical exams, with a grade of at least a C+ (76%) or better.(Refer to Lab Practical Policy)

- The student **MUST** demonstrate competency for all skills checklists for all PTA classes. (Refer to Skills Check Policy)
- The student **MUST** maintain a GPA each semester of 2.33 or higher.
- The student **MUST** demonstrate appropriate Professional Behaviors

Please refer to the **Physical Therapist Assistant Student Handbook** for further information.

Clinical Education
Clinical education is a significant part of the Physical Therapist Assistant Program. Prior to the clinical education experiences, students must complete criminal background checks, fingerprinting, child abuse clearance, and drug testing. Students must satisfy the clinical requirements for both Johnson College and the clinical sites in order to successfully complete the program.

Physical Therapist Assistant Student Handbook
Physical Therapist Assistant students are responsible for reading and abiding by all policies and procedures in the Physical Therapist Assistant Student Handbook and Clinical Handbook.

Physical Therapist Assistant
Major Courses (46 credits)

PTA 103	Intro. to Physical Therapy for the Physical Therapist Asst.	2
PTA 151	Patient Care	2
PTA 152	Patient Care Lab	1
PTA 153	Physical Therapy Procedures	2
PTA 154	Physical Therapy Procedures Lab	1
PTA 155	Principles of Therapeutic Exercise	1
PTA 156	Principles of Therapeutic Exercise Lab	1
PTA 221	Pathophysiology	2
PTA 223	Applied Kinesiology	3
PTA 224	Applied Kinesiology Lab	1
PTA 255	Interventions in Musculoskeletal	3
PTA 256	Interventions in Musculoskeletal Lab	1
PTA 257	Interventions in Neurology	3
PTA 258	Interventions in Neurology Lab	1
PTA 259	Topics in Rehabilitation	3
PTA 260	Topics in Rehabilitation Lab	1
PTA 270	Clinical Experience I (8 hours/15wks)	2
PTA 280	Clinical Experience II (40hrs/6wks)	5
PTA 290	Clinical Experience III (40hrs/6wks)	5
PTA 295	Professional Seminar	1
BIO 109	Human Anatomy & Physiology II	3
BIO 110	Human Anatomy & Physiology Lab II	1
MTR 100	Medical Terminology	1

General Education (23 credits)

ART ###	Art Elective	3
BIO 107	Human Anatomy &Physiology I	3
BIO 108	Human Anatomy & Physiology I Lab	1
COM 212	Public Speaking	3
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
MAT 121	Introduction to Statistics	3
PSY 101	General Psychology	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **69**

Physical Therapist Assistant
Associate in Science (AS)
Semester Program Outline

Semester 1		**Credits**
BIO 107	Human Anatomy & Physiology I	3
BIO 108	Human Anatomy & Physiology I Lab	1
MTR 100	Medical Terminology	1
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
PSY 101	General Psychology	3
SSS 101	Student Success Seminar	1
		15
Semester 2		
BIO 109	Human Anatomy & Physiology II	3
BIO 110	Human Anatomy & Physiology II Lab	1
COM 212	Public Speaking	3
MAT 121	Introduction to Statistics	3
ART ###	Art Elective	3
		13
Semester 3		
PTA 103	Intro to Physical Therapy for the Physical Therapist Assistant	2
PTA 151	Patient Care	2
PTA 152	Patient Care Lab	1
PTA 153	Physical Therapy Procedures	2
PTA 154	Physical Therapy Procedures Lab	1
PTA 155	Principles of Therapeutic Exercise	1
PTA 156	Principles of Therapeutic Exercise Lab	1
PTA 221	Pathophysiology	2
PTA 223	Applied Kinesiology	3
PTA 224	Applied Kinesiology Lab	1
		16
Semester 4		
PTA 255	Interventions in Musculoskeletal	3
PTA 256	Interventions in Musculoskeletal Lab	1
PTA 257	Interventions in Neurology	3
PTA 258	Interventions in Neurology Lab	1
PTA 259	Topics in Rehabilitation	3
PTA 260	Topics in Rehabilitation Lab	1
PTA 270	Clinical Experience I (1day/15wks)	2
		14
Semester 5		
PTA 280	Clinical Experience II (40hrs/6wks)	5
PTA 290	Clinical Experience III (40hrs/6wks)	5
PTA 295	Professional Seminar	1
		11
Minimum Credits to Graduate		**69**

Radiologic Technology (AS)

Program Objective
The Radiologic Technology program prepares students for entry-level positions in a hospital or outpatient clinical setting. Graduates will be prepared to take the national certification for the American Registry of Radiologic Technologists (ARRT) examination to become a registered technologist.

Career Opportunities
Graduates can work as technologists in hospitals, medical service centers, and outpatient imaging centers, or with additional training and education, career advancement into other imaging modalities is possible.

The Radiologic Technology program at Johnson College offers several career and employment post-graduation paths. Upon successfully passing the ARRT national certification examination, students may continue their education in a nine-month certificate program in MRI or CT scanning.
Students may also further their education to complete an online Bachelor of Science degree in Applied Health Studies (BAH) through an articulation agreement with Pennsylvania College of Technology.

Program Mission Statement
The mission of the Radiologic Technology Program at Johnson College is to develop competent, professional radiographers whose expertise will meet the community they serve by providing patient-centered care in a professional, compassionate and responsible manner.

Program Vision Statement
The vision of the Radiologic Technology Program is consistent with the vision of Johnson College. The vision of the Radiologic Technology Program is to achieve excellence by the means of the outcome of assessments and continuous improvement. Johnson College will provide the students with the industrial skills and learning opportunities to foster critical thinking and problem solving.

What do Radiologic Technologists do?
The Radiologic Technologist must be well educated in:

- Anatomy
- Equipment protocols
- Basic patient care
- Patient positioning
- Radiation safety
- Exam techniques
- Radiation protection

The technologist will be responsible for patient assessment and preparation for radiologic procedures and image production. You are an important part of the diagnostic team responsible for producing a quality diagnostic image. The physicians that are specialized in the field of radiology (Radiologists) interpret these images to obtain an accurate diagnosis to rule out disease, injury, and develop a course of treatment.

Programmatic Accreditation
The Radiologic Technology program is accredited by the
Joint Review Committee on Education in Radiologic Technology (JRCERT)
20 North Wacker Drive, Suite 2850 Chicago, IL 60606-3182
Phone: (312) 704-5300
E-mail: mail@jrcert.org
Website: www.jrcert.org

Program Goals

Goal 1: Graduates will possess the skills necessary to obtain an entry-level radiologic position.

Student Learning Objectives - Graduates will:

- Demonstrate competence in positioning skills
- Be able to utilize the knowledge to set appropriate technical factors.
- Practice safe radiation techniques.

Goal 2: Graduates will understand the importance of professional behavior and life-long learning.

Student Learning Objectives - Students/Graduates will:

- Be a responsible member of the healthcare team.
- Display professionalism in the medical environment.
- Demonstrate a good work ethic in the clinical environment.

Goal 3: Graduates will possess the appropriate skills needed for decision making and critical thinking, and make professional advancement within the Radiologic Technology field.

Student Learning Objectives - Students/Graduates will:

- Partake in personal and professional growth opportunities.
- Assess patient condition and adjust the situation or procedure accordingly.
- Be able to critique images for diagnostic purposes

Goal 4: Graduates will meet the needs of the patient.

Student Learning Objectives - Graduates will:

- Demonstrate the necessary oral and written communication skills with patients and other medical professionals within the clinical setting.
- Be able to adjust standard procedures to meet the needs of the individual patient for non-routine exams.

Goal 5: Ensure that educators of the program, both didactic and clinical, provide instruction and guidance that meet the needs of the students and the program

Program Objectives - Faculty will:

- Maintain current licensure and participate in professional development
- Recruit qualified tutors / mentors to help enhance student experience

Goal 6: Faculty will provide students with current curriculum and resources to meet the demands of today's industry

Program Objectives:

- Curriculum will be reviewed by faculty to remain in compliance with JRCERT Standards and ASRT curriculum
- Resources will be reviewed annually by faculty and program advisory committee to ensure the needs of the program are being met.

Special Admissions Requirements

A minimal Scholastic Aptitude Test (SAT) score of 900 for combined math and verbal or a minimal American College Test (ACT) of 20 is required for admission. The new writing component of the SAT will be reviewed by the Admissions Office and may assist in determining placement and/or admission to the College.
Applicants must take either Biology or Physics and attain a grade of "C" or higher.
Application deadline is February 15 of each year.

Retention

Students are required to show both didactic and clinical progression each semester in order to progress through the Radiologic Technology program:

- The student **MUST PASS** each Radiologic didactic course, as well as related courses MTR 100, BIO 107, BIO 108, BIO 109, BIO 110, PHY 101 and PHY 201 with a grade of at least a B- (80) or higher.
- In order to successfully pass each RAD course and progress through the program, students must:
    - receive an 80% or higher in each lecture and lab portion of the course
    - receive an overall grade of 80% or higher
    - achieve a written exam average (written exams + final exam) of 80% or higher
    - complete all skill checklists
    - pass each Practical Exam with a 80% or higher
    - demonstrate appropriate professional behaviors as assessed by the Professional Behavior Assessment Form.

If any of the above criteria are not met, students may fail the course and will not be able to progress in the Radiology program. If students do not obtain an 80 written exam average, but meet all of the other criteria, the students' grade will be based on the written exam average. A student who fails the practical will receive an F in the course.

- The student **MUST PASS** each of the four clinical education courses (RAD 163, RAD 165, RAD 251, RAD 259).
- The student **MUST PASS** all laboratory practical exams, with a grade of at least a B- (80%) or better.
- The student **MUST** demonstrate appropriate Professional Behaviors

Please refer to the **Radiologic Technology Student Handbook** for further information.

Throughout the program of study, students are required to maintain a cumulative Grade Point Average (GPA) of at least 2.00 and a minimum grade of 2.67 (B-) in each Radiologic Technology major course in order to remain in the program. Students who do not meet the GPA requirements for Radiologic Technology subjects will be placed on Academic Probation as outlined in the **Radiologic Technology Student Handbook** at the instructor's discretion.

Clinical Practicums
Clinical practicum rotations at approved sites must be completed. Students must satisfy the clinical requirements of both Johnson College and the clinical provider as a condition of graduation.

Clinical sites require criminal background checks, fingerprinting, child abuse clearance and drug testing. Clinical sites may bar students from clinical rotations if a criminal record exists or a drug test has a positive result.

Student Handbook
Radiologic Technology students are responsible for reading and abiding by all policies and procedures in the **Radiologic Technology Student Handbook.**

Radiologic Technology
Major Courses (42 credits)

RAD 151	Radiologic Positioning I	3
RAD 152	Radiologic Positioning I Lab	1
RAD 153	Radiologic Exposures & Principles I	3
RAD 154	Radiologic Exposures & Principles I Lab	1
RAD 155	Patient Care I	2
RAD 157	Radiologic Positioning II	2
RAD 158	Radiologic Positioning II Lab	1
RAD 159	Radiologic Exposures & Principles II	3
RAD 161	Patient Care II	2
RAD 163	Clinical Practicum I	2
RAD 165	Clinical Practicum II	4
RAD 251	Clinical Practicum III	2
RAD 253	Radiation Biology & Protection	3
RAD 255	Image Analysis	2
RAD 257	Advanced Exposures	2
RAD 259	Clinical Practicum IV	3
RAD 261	Radiologic Pathology	2
RAD 263	Advanced Medical Imaging	2
RAD 295	Professional Seminar	2

Related Courses (12 credits)

BIO 107	Human Anatomy & Physiology I	3
BIO 108	Human Anatomy & Physiology I Lab	1
BIO 109	Human Anatomy & Physiology II	3
BIO 110	Human Anatomy & Physiology II Lab	1
MTR 100	Medical Terminology	1
PHY 201	Imaging Physics	3

General Education (22 credits)

ENG 101	English Composition I	3
COM ###	Communications Elective	3
HMN 101	Introduction to Humanities	3
MAT 101/201	*(Determine by Placement Test)*	3
MAT 121	Introduction to Statistics	3
PHY 101	Introductory Physics	3
PSY 101	General Psychology	3
or SOC 101	Introduction to Sociology	
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **76**

Radiologic Technology
Associate in Science (AS)
Semester Program Outline

Semester 1		**Credits**
RAD 151	Radiologic Positioning I	3
RAD 152	Radiologic Positioning I Lab	1
RAD 153	Radiologic Exposures & Principles I	3
RAD 154	Radiologic Exposures & Principles I Lab	1
RAD 155	Patient Care I	2
BIO 107	Human Anatomy & Physiology I	3
BIO 108	Human Anatomy & Physiology I Lab	1
MAT 101/201	Determined by Placement Test	3
MTR 100	Medical Terminology	1
SSS 101	Student Success Seminar	1
		19
Semester 2		
RAD 157	Radiologic Positioning II	2
RAD 158	Radiologic Positioning II Lab	1
RAD 159	Radiologic Exposures & Principles II	3
RAD 161	Patient Care II	2
RAD 163	Clinical Practicum I	2
BIO 109	Human Anatomy & Physiology II	3
BIO 110	Human Anatomy & Physiology II Lab	1
PHY 101	Introductory Physics	3
ENG 101	English Composition I	3
		20
Summer Session I		
RAD 165	Clinical Practicum II	**4**
Semester 3		
RAD 251	Clinical Practicum III	2
RAD 253	Radiation Biology & Protection	3
RAD 255	Image Analysis	2
RAD 257	Advanced Exposures	2
COM ###	Communications Elective	3
PHY 201	Imaging Physics	3
PSY 101	General Psychology	3
or SOC 101	Introduction to Sociology	
		18
Semester 4		
RAD 259	Clinical Practicum IV	3
RAD 261	Radiologic Pathology	2
RAD 263	Advanced Medical Imaging	2
RAD 295	Professional Seminar	2
HMN 101	Introduction to Humanities	3
MAT 121	Introduction to Statistics	3
		15
Minimum Credits to Graduate		**76**

Veterinary Technology (AS)

Program Objective
The Veterinary Technology program prepares students to join an animal-care team as entry-level technicians. Technicians collect samples, perform lab tests, take radiographs, prepare the surgical suite, assist in surgery, monitor anesthesia, provide general nursing care to patients, and assume other clinical duties. Second-year students complete clinical rotations in the Animal Care Center, a pet wellness center on the campus of Johnson College. The program prepares students to become Certified Veterinary Technicians (CVT) upon passing the Veterinary Technician National Exam (VTNE).

Career Opportunities
Graduates work in many areas of veterinary medicine such as small and large animal clinics, research facilities, academia, zoos, laboratories, pharmaceutical companies, and government agencies such as the United States Department of Agriculture (USDA).

Program Goals

Goal 1: To prepare graduates to function as an entry-level veterinary technician in a variety of clinical settings.

Student Learning Outcomes – Students Will:

- Demonstrate competence in the skills needed as outlined by the CVTEA, Policies & Procedures Manual, Appendix I, and required tasks for licensure/certification as an entry level Veterinary Technician.
- Conduct themselves in a manner in accordance with the standards set forth by the AVMA-CVTEA & the Johnson College Veterinary Technology Program for a Veterinary Technician.
- Demonstrate competence in the following skills to include but not limited to: Understanding the approach to providing safe and effective care for birds, reptiles, amphibians, rabbits and ferrets.
- Demonstrate competence in the following skills to include but not limited to: Small animal dentistry, patient assessment and patient care.
- Demonstrate competence in the following skills to include but not limited to: Basic husbandry, handling, medicating and clinical procedures for equine and bovine patients.
- Demonstrate competence in the following skills to include but not limited to: Safely and effectively handle common laboratory animals used in animal research and their husbandry needs.
- Demonstrate competence in the following skills to include but not limited to: Laboratory/clinical pathology; sample collection, perform lab tests, and prepare samples for off-site testing.
- Demonstrate competence in the following skills to include but not limited to: Radiography; perform radiographs, process radiographs, determine diagnostic quality.
- Demonstrate competence in the following skills to include but not limited to: Pharmacology/ anesthesiology; proper administration,

mechanism of action and related side effects of medications, monitoring of general/light anesthesia, how to employ critical thinking skills for medical calculations.

- Demonstrate competence in the following skills to include but not limited to: Surgical; surgical suite preparation, surgical assistance, proper aseptic and sterile techniques.
- Students/graduates will demonstrate competence in the following skills to include but not limited to: Other clinical duties; general office skills, public relations, public communications.

Goal 2: To prepare students to pass the Veterinary Technology National Exam (VTNE) and to obtain employment as a Certified Veterinary Technician (CVT.)

Student Learning Outcomes:

- Graduates will pass the VTNE at a rate consistent with AVMA-CVTEA requirements.

Goal 3: To ensure that educators of the program, both didactic and clinical, provide instructions and guidance that meets the needs of the students and the program.

Outcomes:

- Faculty will maintain current licensure in PA
- Faculty will participate in continuing professional competence related to teaching responsibilities.
- Faculty will utilize effective instructional methods during didactic and clinical laboratory courses.

Goal 4: To provide students with a curriculum and resources that are current and in compliance with the standards set forth by the American Veterinary Medical Association (AVMA), by the Committee of Veterinary Technician Education and Activities (CVTEA), by the International Animal Care and Use Committee (IACUC), by the United States Department of Agriculture (USDA), by the American Association of Veterinary State Boards (AAVSB), and by the institution.

Outcomes:

- The program director will review all requirements and update program documents accordingly
- The curriculum will be reviewed annually by the Program Advisory Committee to ensure it is aligned with current practice trends.
- The program resources will be reviewed annually to ensure adequacy to meet the needs of the program.

Immunizations & Scrubs

In addition to tuition and fees, students are responsible for the costs of immunizations.

Veterinary Technology students will be required to purchase Johnson College scrubs during their 4th semester in preparation for VET 212/213. The student will be required to wear these scrubs during the entire 5-week rotation.

Programmatic Accreditation
The Veterinary Technology program is accredited by the American Veterinary Medical Association (AVMA).

Special Admissions Requirements
A minimal high school grade point average (GPA) of 2.5 along with a minimal Scholastic Aptitude Test (SAT) score of 900 (math and verbal) total or a minimal American College Test (ACT) of 18 is required for admission.

1 year of Algebra with a "C" or higher
2 year of English with a "C" or higher
2 years of Biology or a Life Science with a "C" or higher
1 year of Chemistry with a "C" or higher

Applicants must take 2 years of Biology and/or Life Sciences, and Inorganic Chemistry and attain a grade of "C" or higher. A completed Veterinary Technology questionnaire must be submitted and ten hours of observation at a veterinary clinic is required. Any personal references must be from a veterinarian/veterinary staff or animal husbandry individual.

Special Enrollment Requirements
Prior to the start of the first semester, students must provide proof of tetanus and rabies. Rabies inoculation is in order to participate in any laboratory and clinical activities involving animals.

Retention
Veterinary Technology students are required to maintain a cumulative 2.33 GPA (76% or higher) in VET courses. Additionally, a student must receive an average grade of "C+" (76%) or higher in each VET course. If a student receives a grade below 76%, the student must re-take the course at his/her own expense. If the student's GPA falls below 2.33, the student will be placed on academic probation. Please review to the Veterinary Technology Academic Progression Policy for details concerning academic progress and probation details.

VET 204 and VET 208, Senior Clinical Rotations I and II are capstone courses. The clinical experiences are to provide an environment allowing students to incorporate and enhance all AVMA required tasks. Students must receive a score of 76% or better on Clinical Rotation written final exams, oral/practical exams, and instructor evaluations of students. Students who do not obtain a minimum score of 76% in any of the three evaluations will receive a letter grade of "F" for the rotation and must repeat the course. Students are also required to adhere to strict guidelines on patient neglect or cruelty.

Internship
A five-week internship at an approved site must be completed after the last semester of the second year. Students must satisfy the internship requirements of both Johnson College and the internship provider as a condition of graduation.

Some internship sites may require a criminal background check and/or a drug test. Internship sites may bar students from an internship if a criminal record exists or a drug test has a positive result. Costs for travel to and from an internship site are the responsibility of the student.

Rabies / Tetanus Inoculations:
The Center for Disease Control considers individuals working with animals (including veterinarians and their staff) to be in the high-risk category. The CDC's recommendation for these individuals is to obtain a primary course of rabies vaccinations followed by serologic testing or booster vaccination every two years.

Vaccinations against tetanus and rabies are required for all Veterinary Technology students. Proof of rabies and tetanus inoculation prior to handling animals is required.

Student Handbook
Veterinary Technology students are responsible for reading and abiding by all policies and procedures in the **Veterinary Technology Student Handbook.**

Veterinary Technology
Major Courses (48 Credits)

MAT 205	Medicine & Mathematics	3
VET 151	Intro. to Veterinary Tech. / Clinical Management	1
VET 153	Clinical Applications for Large Animals	2
VET 154	Clinical Applications for Large Animals Lab	1
VET 155	Clinical Applications for Small Animals	2
VET 156	Clinical Applications for Small Animals Lab	1
VET 157	Animal Anatomy and Physiology I	3
VET 158	Animal Anatomy and Physiology Lab I	1
VET 159	Animal Anatomy and Physiology II	3
VET 160	Animal Anatomy and Physiology Lab II	1
VET 161	Parasitology & Immunology	2
VET 162	Parasitology & Immunology Lab	1
VET 165	Animal Husbandry/Breeds/Nutrition	2
VET 251	Pharmacology & Anesthesia	3
VET 253	Clinical Pathology	2
VET 254	Clinical Pathology Lab	1
VET 257	Clinical Rotation - surgery	1
VET 259	Surgical Nursing I	2
VET 263	Surgical Nursing II	2
VET 265	Clinical Rotation - Medicine	1
VET 267	Veterinary Radiology	1
VET 268	Veterinary Radiology Lab	1
VET 269	Intensive Care Applications	3
VET 271	Diseases & Zoonoses	3
VET 295	Professional Seminar	1
VET 299	Internship	4
General Education (22 Credits)		
CHM 101	Chemistry I	3
CHM 102	Chemistry I Lab	1
CSM 105	Customer Service and Our World	3
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
COM 212	Public Speaking	3
MAT 101	College Algebra I and Trigonometry	3
ART ###	Art Elective	3
SSS 101	Student Success Seminar	1
Minimum Credits to Graduate		**71**

Veterinary Technology
Associate in Science (AS)
Semester Program Outline

Semester 1		**Credits**
VET 151	Introduction to Veterinary Technology/Clinical Management	1
VET 153	Clinical Applications for Large Animals	2
VET 154	Clinical Applications for Large Animals Lab	1
or VET 155	Clinical Applications for Small Animals	2
VET 156	Clinical Applications for Small Animals Lab	1
VET 157	Animal Anatomy & Physiology I	3
VET 158	Animal Anatomy & Physiology Lab I	1
CPT 101	Microcomputer I	3
MAT 101	College Algebra I and Trigonometry	3
ENG 101	English Composition I	3
SSS 101	Student Success Seminar	1
		18
Semester 2		
VET 153	Clinical Applications for Large Animals	2
VET 154	Clinical Applications for Large Animals Lab	1
or VET 155	Clinical Applications for Small Animals	2
VET 156	Clinical Applications for Small Animals Lab	1
VET 159	Animal Anatomy and Physiology II	3
VET 160	Animal Anatomy and Physiology Lab II	1
VET 161	Parasitology & Immunology	2
VET 162	Parasitology & Immunology Lab	1
MAT 205	Medicine & Mathematics	3
CHM 101	Chemistry I	3
CHM 102	Chemistry I Lab	1
		17
Semester 3		
VET 165	Animal Husbandry/Breeds/Nutrition	2
VET 251	Pharmacology & Anesthesia	3
VET 253	Clinical Pathology	2
VET 254	Clinical Pathology Lab	1
VET 257	Clinical Rotation - Surgery	1
or VET 265	Clinical Rotation - Medicine	
VET 259	Surgical Nursing I	2
ART ###	Art Elective	3
		14

Semester 4		
VET 257	Clinical Rotation - Surgery	1
or VET 265	Clinical Rotation - Medicine	
VET 263	Surgical Nursing II	2
VET 267*	Veterinary Radiology	1
VET 268*	Veterinary Radiology Lab	1
VET 269	Intensive Care Applications	3
VET 271	Diseases & Zoonoses	3
VET 295	Professional Seminar	1
COM 212	Public Speaking	3
CSM 105	Customer Service and Our World	3
		18
Summer Semester		
VET 299	Internship	4
Minimum Credits to Graduate		**71**

* Must be taken concurrently with VET 257 or VET 265 offered in Semester 3 & 4.

CERTIFICATE PROGRAMS

Diesel Preventative Maintenance Technology (Certificate)

The Diesel Preventative Maintenance Technician program prepares students to enter the workforce ready to perform routine repair procedures, preventive maintenance, and safety applications.

Graduates work as brake technicians as well as perform routine maintenance and make general repairs.

Typical employers of Diesel Preventative Maintenance technicians are truck, farm, and earth-moving equipment dealerships; trucking companies; truck service centers; engine repair/machine shops; truck equipment distributors; independent service garages.

Diesel Preventative Maintenance Technology Major Courses (21 Credits)

VMR 151	Introduction to Vehicle Maintenance & Repair Technology	1
VMR 153	Brake Systems	2
VMR 154	Brake Systems Lab	1
VMR 155	Steering and Suspension Systems	2
VMR 156	Steering and Suspension Systems Lab	1
VMR 157	Introduction to Welding for Auto and Diesel	2
VMR 159	Electrical & Electronic Systems	2
VMR 160	Electrical & Electronic Systems Lab	1
DTT 175	Diesel Engine Overhaul	2
DTT 176	Diesel Engine Overhaul Lab	2
DTT 177	Diesel Fuel Injection Systems	2
DTT 178	Diesel Fuel Injection Systems Lab	1
IET 101	Introduction to Automotive and Diesel Electronics	2

General Education (10 Credits)

BUS 101	Introduction to Business	3
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate **31**

For more information about our graduation rates, the median debt of students who completed the program, and other important information, please visit our website at http://www.johnson.edu/prospective-students/certificate-programs-gainful-employment/

DIESEL PREVENTATIVE MAINTENANCE TECHNOLOGY CERTIFICATE**

Semester Program Outline

Semester 1		**Credits**
VMR 151	Introduction to Vehicle Maintenance & Repair Technology	1
VMR 153	Brake Systems	2
VMR 154	Brake Systems Lab	1
VMR 155	Steering and Suspension Systems	2
VMR 156	Steering and Suspension Systems Lab	1
VMR 157	Introduction to Welding for Auto and Diesel	2
IET 101	Introduction to Automotive & Diesel Electronics	2
CPT 101	Microcomputer I	3
SSS 101	Student Success Seminar	1
(* MAT 099	College Prep Algebra-based on ACCUPLACER score)	3
Total Semester 1		**15/18***
Semester 2		
VMR 159	Electrical & Electronic Systems	2
VMR 160	Electrical & Electronic Systems Lab	1
DTT 175	Diesel Engine Overhaul	2
DTT 176	Diesel Engine Overhaul Lab	2
DTT 177	Diesel Fuel Injection Systems	2
DTT 178	Diesel Fuel Injection Systems Lab	1
BUS 101	Introduction to Business	3
ENG 101	English Composition I	3
Total Semester 2		**16***
TOTAL CREDITS CERTIFICATE		**31**

* MAT 101 is required for students preparing to enter the Diesel Truck Technology Program.
**Refer to the Diesel Truck Technology program for course descriptions.

Welding Technology (Certificate)

The Welding Technology certificate course prepares students for entry-level work in the welding industry. Students learn about safety, hand tools, oxy-acetylene torches, plasma arc, shielded metal arc welding (stick), gas metal arc welding (MIG), gas tungsten arc welding (TIG), flux cored arc welding, metallurgy, print reading, and weld symbols.

Graduates work as welders, welder/fabricators, maintenance welders, fitters, ornamental metal sculptors, and welder helpers.

Typical employers in the welding industry include structural steel fabricators, custom metal shops, industrial contractors, shipyards, pipe and pressure vessel fabricators, and retail welding sales.

Program Learning Goals:

Goal 1: The welding program will prepare the student for entry level employment in welding.

Student Learning Outcomes - Students will:

- Demonstrate safe welding practices
- Work as welders, fabricators, fitters and welder helpers
- Perform basic welding skills in SMAW (stick), GMAW (mig), GTAW (tig) and oxyfuel cutting procedures
- Maintain arc welders

Welding Technology Major Courses (18 Credits) *		
WTC 151	Shielded Metal Arc Welding	2
WTC 152	Shielded Metal Arc Welding Lab	4
WTC 153	Gas Metal and Flux Cored Arc Welding I	1
WTC 154	Gas Metal and Flux Cored Arc Welding I Lab	2
WTC 155	Gas Metal and Flux Cored Arc Welding II	1
WTC 156	Gas Metal and Flux Cored Arc Welding II Lab	2
WTC 157	Gas Tungsten Arc Welding	2
WTC 158	Gas Tungsten Arc Welding Lab	4

Related Courses (5 Credits)		
ART 101	Blueprint Reading	1
BTT 149	Construction Safety	1
MAT 100	Applied Mathematics for Welders	3

General Education Courses (7 Credits)		
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
SSS 101	Student Success Seminar	1

Minimum Credits to Graduate	**30**

WELDING TECHNOLOGY CERTIFICATE

Semester Program Outline

Semester 1		**Credits**
ART 101	Blueprint Reading	1
BTT 149	Construction Safety	1
MAT 100	Applied Mathematics for Welders	3
SSS 101	Student Success Seminar	1
WTC 151	Shielded Metal Arc Welding I	2
WTC 152	Shielded Metal Arc Welding I Lab	4
WTC 153	Gas Metal and Flux Cored Arc Welding I	1
WTC 154	Gas Metal and Flux Cored Arc Welding I Lab	2
		15
Semester 2		
WTC 155	Gas Metal and Flux Cored Arc Welding II	1
WTC 156	Gas Metal and Flux Cored Arc Welding II Lab	2
WTC 157	Gas Tungsten Arc Welding	2
WTC 158	Gas Tungsten Arc Welding Lab	4
CPT 101	Microcomputer I	3
ENG 101	English Composition I	3
		15
TOTAL CREDITS CERTIFICATE		**30**

COURSE DESCRIPTIONS – PROGRAMS OF STUDY

Advanced Manufacturing Technology

Course No.	Course Title	Credits

AMT 101 **Principles for Advanced Manufacturing** **3**

This course introduced the students to advanced manufacturing and the man areas into which it is incorporated. The focus of the course will be on manufacturing processes, CAD/CAM basics, robotics, sustainable design and manufacturing, and related manufacturing principles. The course is designed to give the students an understanding of advanced manufacturing's main applications, and the many occupational possibilities it presents.

AMT 151 **Fundamentals of Metal Cutting** **2**

This course covers machine trade theory including safety practices and working concepts of hand tools, band saws, belt sanders, pedestal grinders, drill presses, and cutting tools. Measuring instruments are also stressed throughout this course.

AMT 152 **Fundamentals of Metal Cutting Lab** **1**

This course introduces students to a safe and productive shop environment. It also provides practical applications including jobs and projects involving hand tools, cutting, deburring, sharpening, and grinding various cutting tools. Students are taught have to accurately read and use multiple measuring instruments.

AMT 153 **Subtractive Manufacturing** **1**

Safety, cutting speeds, types of lathes, lathe accessories, lathe operation, and measuring instruments are covered in this course. Information about safety, types of milling machines, milling machine attachments, milling operations are covered in this course. Technical competence in the use of measuring instruments is also stressed. (*Prerequisite:* AMT 151)

AMT 154 **Subtractive Manufacturing Lab** **2**

This covers the practical portion of the subtractive manufacturing course. Lathe operations covered include facing, turning, center drilling, reaming, boring, tapering, knurling, and thread chasing. Milling operations include squaring a piece, locating holes, drilling operations, and milling slots.

AMT 155 **Introduction to Electricity** **2**

In this course, students will investigate the properties of electricity and its use in the industrial setting for powering systems and controlling them. The course will start with an introduction to electricity, its properties, and safety concerns when engaging it. The students will then work with the

industrial aspects of electricity to include three phase systems for power and lower voltage systems for control purposes. Electrical safety, test and measurement of these systems to ensure proper operation will be an integral part of this course.

AMT 156 Introduction to Electricity Lab 1

In this course students will build and test circuits that demonstrate electrical theory. Students will use digital meters to test series, parallel, and series parallel circuit they have built. The student will also work with electrical components commonly found in industry. This work will center on setting these components up, testing and troubleshooting them. Safe work practices will be emphasized throughout this course.

AMT 157 Sensors and Systems in Automation 2

This course will introduce the students to common types of detection devices and relays used in industrial automation. The theory of operation, setup, and troubleshooting techniques for those detection devices will be discussed. The course continues with an introduction to hydraulic and pneumatic systems used in the industrial setting for the control of actuators and grippers in an automated system. Safety when working with automated and fluid power systems is emphasized throughout the course.
(Prerequisites: EET 161 or AMT 155 or instructor's approval*)

AMT 158 Sensors and Systems in Automation Lab 1

This course will allow the student to set-up, operate and troubleshoot the different types of sensing devices commonly found in the industrial automation environment. The student will work industrial control relays and the various sensors covered in AMT 157 to control a conveyor. As the student progresses they will also work with hydraulic and pneumatic trainers develop practical skills for setup, troubleshooting, and integration of these systems into the larger control scheme of an automated system.
(Prerequisites: EET 161 or AMT 155 or instructor's approval

AMT 251 Computer Numerical Control Machining 1

This course covers the general information, such as G codes and M codes needed to program CNC lathes and vertical machining centers. CNC lathe and vertical machining center safety procedures, tooling set-up, programming, and operation theory are covered in the course. Tool offsets are also covered in this course. (*Prerequisites:* AMT 151, AMT 153)

AMT 252 Computer Numerical Control Machining Lab 2

This course instructs students on the writing of G and M code CNC language. Student learn to write code by hand and insert it into machine. Students then create work offsets in order to set up the machine and parts. They then makes the parts with an emphasis on precision and repeatability. (*Prerequisites:* AMT 151, AMT 153)

AMT 253 **Programmable Logic Controllers** **2**

This course is designed to introduce the student to modern programmable logic controllers base on Control Logix and Compact Logix Programmable Automation Controllers (PAC's). The student will investigate the specification, setup, configuration, programming, and implementation of the controller. The course then continues with an examination of the different types of hardware devices that are used in conjunction with PAC's. An emphasis is placed on programming projects throughout the course.

AMT 254 **Programmable Logic Controllers Lab** **2**

The student will investigate the setup, configuration, programming, and implementation of the controllers through lab exercises designed to have the student build a system from beginning to end. As the student progresses through this course the experiments will progressively build toward real world applications.

AMT 255 **Additive Manufacturing** **2**

This course introduces the students in the design of 3D watertight meshes to create physical parts utilizing a 3D printer. Topics covered include the history of additive manufacturing, types of printing technologies, design for additive manufacturing, materials used, and corporate application of this process.

AMT 256 **Additive Manufacturing Lab** **1**

This course instructs the students in the use of various software packages to design and create the code required use a 3D printer. Software packages taught include; Catalyst, Cura, TinkerCAD, Solidworks, Fusion360, and Meshmixer. After creation of parts using the CAD software students then setup the part to be printed. When finished printing, students are then instructed in cleaning the part of support material and checking for accuracy and functionality.

AMT 257 **Computer Aided Design/Computer Aided Manufacturing** **1**

This course introduces the students to the use of Computer Aided Design (CAD) software to create 2 D geometry. Once the 2D geometry is complete tool paths are created to machine parts, editing tool paths, and downloading appropriate information to CNC and machine.
(*Prerequisite:* AMT 251)

AMT 258 **Computer Aided Design / Manufacturing Lab** **2**

This course instructs the student in the application of CAD/CAM with CNC equipment. Students learn to create part models using Solidworks and then write machining code using Mastercam. CNC machines are setup by the students to create the parts. Once parts are completed, students are instructed on inspection and quality control of the parts.
(*Prerequisite:* AMT 251)

AMT 259 **Automation and Robotics** **2**

This course begins with a study of the terminology for automated and robotic systems. Then the students will work with the classifications, coordinate systems, and physical makeup of a robotic system. This course continues with an examination of the power systems, lifting capacities and applications for automation and robots. An investigation of sensors, vision, artificial intelligence, the principles and techniques involved in working with robotics. Safety is emphasized throughout the course.
(*Prerequisite:* AMT 253 or instructor's approval*)

AMT 260 **Automation and Robotics Lab** **1**

This course is designed to work in parallel with AMT 269. The student will work with a FANUC industrial robot and design programs to guide the robot through movement paths. An emphasis is placed on safety at all time. Projects will range from linear and circular motion to palletizing applications. (*Prerequisite:* AMT 253 or instructor's approval*)

AMT 261 **Systems Integration (Capstone Project)** **1**

This course will require all students to attend a scheduled weekly meeting to discuss the scope of their work, projects to be completed, project timelines, budgets, and progress made during the previous week. Successes and challenges encountered during the previous week will also be discussed. All students are expected to participate and contribute in a positive manner.

AMT 262 **Systems Integration (Capstone Project) Lab** **3**

This lab consists of the physical development, prototyping, and building of the capstone project. During the lab time the students will work on; manufacturing of parts using the labs machinery, assembly of any electronics needed, programming, testing, a live demonstration and presentation.

AMT 299 **Internship** **4**

This educational experience is designed to expose the student to an actual industrial, commercial, or clinical environment. Students are placed into a contracted facility after completing 47 credit hours, maintaining a 2.0 GPA, and having met all other program prerequisites and academic requirements prior to their final spring semester. The student is expected to adhere to all policies and regulations associated with their work term facility. Students will work on projects selected to expose the student to "live" work situations, while building upon the student's knowledge, skill and attitude as an entry-level technician. These previously mentioned criteria will also be used as a component of the student's grade for this course. The schedule for meeting the requirement of this experience will be arranged between the student, faculty member and internship site. (200 hours)

Architectural Drafting & Design Technology

This course prepares students with skills labeled by the Commonwealth of Pennsylvania as those used in traditional or evolving green occupations

Course No.	Course Title	Credits

ADT 151 **Introduction to Computer-Assisted Drafting (CAD)** **2**

This course is an introductory course into Computer-Assisted Drafting. It explains basic CAD commands required to produce working drawings. Students will work with basic lines and editing commands to more complicated concepts in computer drafting. They will produce basic Floor Plans, Elevations, Sections and Details required in the residential drafting field.

ADT152 **Introduction to Computer-Assisted Drafting Lab** **2**

This lab session aligns with ADT151 and enhances the lecture session with practical Computer-Assisted drafting experiences. Students will practice their skills and techniques with the AutoCad Program creating contract drawings to industry standards.

ADT 153 **Residential Planning** **2**

This course will provide hands on Computer-Assisted Drafting (CAD) to create Residential Floor Plans, Residential Elevations, Site Layouts, Structural Framing Plans, Plumbing Plans and Electrical drawings. It will explain in detail what is required on a Residential Set of drawings for permitting purposes and will introduce students to basic Sustainability concepts and procedures. (*Prerequisite:* ADT 151)

ADT 154 **Residential Planning Lab** **2**

This lab session aligns with ADT153 and enhances the lecture session with practical Computer-Assisted drafting experiences. Students will practice their skills and techniques with the AutoCad Program creating contract drawings to industry standards. (*Prerequisite:* ADT 151)

ADT 155 **Residential Cost Estimating** **3**

This course will train students to use Residential Drawings to calculate areas, volumes and other material quantities in order to estimate material costs. It will introduce students to gathering information from various types of drawings such as Site Plans, Floor Plans, Structural Plans, building systems plans and use that information to estimate construction costs for the projects.

ADT 225 **Commercial Cost Estimating** **3**

This course will bring a new dimension to estimating and will focus on Commercial Building Projects. It will include estimates on commercial

building methods such as site work, structural steel systems and commercial building products.

ADT 251 **Building Information Modeling, Residential** **2**
This course expands computer skills to include Building Information Modeling (BIM) for residential construction. This course includes basic Residential building modeling and presentation of the projects in multi-views. It contains sustainability concepts such as site orientation studies for sustainability design.

ADT 252 **Building Information Modeling, Residential Lab** **2**
This lab session aligns with ADT251 and enhances the lecture session with practical Building Information Modeling (BIM) drafting experiences. Students will practice their skills and techniques with the AutoDesk Revit Program creating contract drawings to industry standards.

ADT 253 **Codes and Ordinances** **3**
This course introduces students to the many regulatory agencies that govern over the drafting and design field. It emphasizes the preparation of permit information for residential projects along with commercial building regulations for the protection of public health, safety and welfare. This course explains in further detail what it means to be sustainable and what practices can be used in "Green Building" Technology.

ADT 255 **Specifications** **3**
This course explores building project materials and product specifications from the CSI format and how these materials and products relate to the drafting and design process. Students will research and write basic building material specifications and sketching necessary to define the scope of work, construction materials, methods and quality control.

ADT 257 **Building Information Modeling, Commercial** **2**
This course expands BIM skills to include Commercial Building Projects and the use of features such as structural steel, multi-levels, curtain walls and store fronts. Students will expand the use of Building Information Modeling by using more advanced program features to implement commercial design into the projects.

ADT 258 **Building Information Modeling, Commercial Lab** **2**
This lab session aligns with ADT257 and enhances the lecture session with practical Building Information Modeling (BIM) drafting experiences. Students will practice their skills and techniques with the AutoDesk Revit Program creating contract drawings to industry standards.

ADT 261 **Sustainability Design** **3**
This course will explain what "sustainability" is and include the construction materials and methods used in sustainability design and how

it relates to building design. Students will expand their knowledge to include energy usage, energy conservation and sustainability concepts into practical construction methods and details used in drafting and design.

ADT 299 **Internship** **4**

This work experience is designed to expose the student to an industrial, commercial, or clinical environment. Students are placed into a contracted facility after completing 16 credit hours and completing a full semester of AutoCAD, having a 2.50 GPA, and meeting all other program prerequisites and academic requirements. Upon the recommendation of the ADT Department Chair, Students are expected to contact and interview with the industry partner. Upon agreement, adhere to all policies and regulations associated with the facility and the college. Students will work on projects selected to expose the student to "live" work situations, while building upon the student's knowledge, skill and attitude as an entry-level technician and will be used to grade the student's performance for the course. The schedule for meeting the requirement of this experience will be arranged between the student, faculty member and internship site. (*200 hours*)

Automotive Technology

This course prepares students with skills labeled by the Commonwealth ofPennsylvania as those used in traditional or evolving green occupations

Course No.	Course Title	Credits
VMR 151	**Introduction to Vehicle Maintenance & Repair Technology**	**1**

This course covers information on hand tools, machines, and equipment common to the Vehicle maintenance field, general service procedures, lubricants, reference manuals, pre-delivery inspection of new and used vehicles and preventive maintenance procedures. This course is designed to prepare students to work properly with all of the for mentioned topics along with building safe and thorough work habits.

VMR 153 **Brake Systems** **2**

This course covers information on hydraulic and air brake systems. Mechanical foundation, air supply, service system principles, major components, parking brake systems, brake system diagnostics, service to drum brake assemblies, air lines and hoses, brake switches, antilock brake principles and service are all a part of this course. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test.

VMR 154 **Brake Systems Lab** **1**

This lab covers service practice procedures on hydraulic and air brake systems. Competency tasks will be performed on mechanical foundation, air supply, service system principles, major component diagnosis and repair, parking brake systems, brake system diagnostics, service to drum brake assemblies, air lines and hoses, brake switches, antilock brake principles and service are all a part of this course. High priority tasks recommended by ASE (Automotive Service Excellence) are practiced and performed to industry standards. This lab will prepare students to take the ASE technician certification test in brake systems.

VMR 155 **Steering and Suspension Systems** **2**

This course covers information on steering and suspension systems, theory and principles, independent suspensions, geometric principles, factors affecting wheel alignment, tools and equipment used for steering and suspension, troubleshooting of suspension and steering, wheel bearings service, manual steering and power steering system operation. This lecture on theory will prepare students to take the ASE technician certification test for steering and suspension systems.

VMR 156 **Steering and Suspension Systems Lab** **1**

This lab covers service practice procedures on steering and suspension

systems. Students will utilize the theory learned in VMR 155 to diagnose steering and suspension issues and the effect on wheel alignment. Students will perform competency tasks with the tools and equipment used for steering and suspension adjustment and repair, troubleshooting of suspension and steering, wheel bearings service, manual steering and power steering systems. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test for steering & suspension systems.

VMR 157 **Introduction to Welding for Auto and Diesel** **2**

This course is designed to introduce students to the basic principles and practices of several different types of welding. Students will learn the principles and safety issues related to Gas welding and cutting, MIG welding, Stick welding, Flux Core welding and TIG welding. Students will have the opportunity to practice the techniques used with all types of welding. This course will prepare students to perform welding tasks and minor fabrication tasks when they are in the industry setting.

VMR 159 **Electrical & Electronic Systems** **2**

This course covers information on electricity, basic electrical circuits, tools and equipment, batteries, charging systems, starting systems, lighting systems, horn, wipers and washers, cooling fans, instrument circuits and body electrical systems. This will prepare students to take the ASE technician certification test for electrical systems.

VMR 160 **Electrical & Electronic Systems Lab** **1**

This lab covers competency tasks on basic electrical circuits, practical use of tools and equipment used to diagnose batteries, charging systems, starting systems, lighting systems, horn, wipers and washers, cooling fans, instrument circuits and body electrical systems. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test for electrical systems.

VMR 251 **HVAC Vehicle Systems** **2**

This course covers information on the operation of heating and air conditioning as applied to today's cars and trucks. Students will learn the theory of air conditioning systems in passenger vehicles and light trucks, heavy-duty trucks and trailer refrigeration systems. New learning experiences in the troubleshooting and servicing of these systems are taught. This will prepare students to take the ASE technician certification test for HVAC systems.

VMR 252 **HVAC Vehicle Systems Lab** **1**

This lab covers competency tasks on the operation of heating and air conditioning systems. Students will utilize modern service equipment to perform competencies for recovering, recycling and recharging refrigerant in HVAC systems. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test for HVAC systems.

VMR 253 **Certifications for Automotive and Diesel Technicians** **1**

This course is designed to provide necessary training and practical testing to assist students in obtaining certifications for PA Safety Inspector, PA Emissions Inspector, and Mobile Air Conditioning refrigerant recovery and handling certification. These certifications will provide students with credentials that employers in the transportation industry are seeking.

AUT 161 **Engine Performance & Emissions** **2**

This course covers information theory on the operation and approved servicing of emission systems, fuel injection systems, computerized emission control systems, computerized engine procedures. Computer diagnostics is introduced, including closed-loop theory, closed-loop diagnostics; basic troubleshooting and scan tool operation is also covered. Proper safety procedure related to fuel and emission systems is also covered. This will prepare students to take the ASE technician certification test for engine performance.

AUT 162 **Engine Performance & Emissions Lab** **1**

This lab provides practical experience on the operation and approved servicing of emission systems, fuel injection systems, computerized emission control systems, computerized engine procedures and utilizes live vehicles to reinforce the information presented. Students will perform competency tasks utilizing diagnostic equipment and proper safety procedures related to fuel and emission systems diagnostics and repair. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test for engine performance.

AUT 163 **Internal Combustion Engine Fundamentals** **2**

This course covers the theory on the operation and approved servicing of engine cooling systems and lubrication systems. The four- and two-stroke engine configurations are addressed along with various camshaft configurations. Proper safety procedures related to the diagnosis and repair of the internal combustion engine are also covered. This will prepare students to take the ASE technician certification test for engine diagnostics and overhaul.

AUT 164 **Internal Combustion Engine Fundamentals Lab** **1**

This lab consists of practical experience on the operation and approved servicing of engine cooling systems and lubrication systems. Proper safety procedures related to the diagnosis and repair of the internal combustion engine are covered. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test engine diagnostics and overhaul..

AUT 261 **Gasoline Engine Overhaul Procedures** **2**

Information and theory is provided for engine overhaul procedures. Emphasis is placed on the repair of cylinder heads, valve trains, and engine blocks. Proper safety procedures related to engine overhaul are covered. Proper diagnostics will be stressed as well as component inspection, measuring and testing. This will prepare students to take the ASE technician certification test engine diagnostics and overhaul. .

AUT 262 **Gasoline Engine Overhaul Procedures Lab** **2**

This lab contains competency tasks for engine overhaul procedures. Emphasis is placed on properly diagnosing, inspecting and measuring component of cylinder heads, valve trains, and engine blocks. Proper safety procedures related to engine overhaul will also be practiced while performing live work. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test engine diagnostics and overhaul.

AUT 263 **Advanced Automotive Electrical Technology** **2**

This course will further reinforce theories and principles of automotive electronics through the use of diagnostic equipment for practical troubleshooting scenarios. Students will learn advanced techniques of wiring diagram reading. Students will be able to follow electrical flow through a circuit on a vehicle wiring diagram. Proper safety procedures related to electrical troubleshooting will also be discussed.
(*Prerequisite:* IET 101)

AUT 264 **Advanced Automotive Electrical Technology Lab** **1**

This lab will consist of problem scenarios created by the instructor. Students will perform specific tasks using the diagnostic equipment covered in the lecture portion of this course. Shop experiments will be performed to trace and repair electrical issues with the use of wiring diagrams. Students will use their ability to follow electrical flow through a circuit on a vehicle wiring diagram to diagnose and repair wiring defects. Proper safety procedures related to electrical troubleshooting will also be practiced. High priority tasks recommended by ASE (Automotive Service

Excellence) are completed as competency exercises. This will prepare students to take the ASE technician certification test for electrical and electronics. (*Prerequisite:* IET 101)

AUT 265 Automatic Transmissions and Transaxles 2

This course covers the information and theory necessary to service automatic transmissions. Systematic troubleshooting procedures, adjustments and unit overhaul are discussed in this course. Students will learn how to find information on repairing and troubleshooting the modern electronically controlled automatic transmissions. This will prepare students to take the ASE technician certification test for automatic transmissions.

AUT 266 Automatic Transmissions and Transaxles Lab 1

This lab contains practical competency tasks that students will perform to hone their skills diagnosing and servicing automatic transmissions. Systematic troubleshooting procedures, adjustments and unit disassembly and assembly are part of this program. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test for automatic transmissions.

AUT 267 Manual Transmissions and Differentials 2

This course covers the theory and service procedure on complete power-train systems for front-, rear-, and four-wheel drive vehicles. Students will be taught the theory and mechanics of manual transmissions, drive axles and final drives. The students will utilize the theory of operation to help with diagnosing defective drive line components. Proper safety procedures related to manual transmissions and differentials will be discussed. This will prepare students to take the ASE technician certification test manual transmissions and drive axles.

AUT 268 Manual Transmissions and Differentials Lab 1

This lab includes disassembly and assembly of components of complete power-train systems for front-, rear-, and four-wheel drive vehicles. New learning experiences include inspection, replacement, servicing, and rebuilding procedures and proper diagnostics of manual transmissions, transaxles, and locking hubs. In addition, servicing, troubleshooting and overhaul procedures for 4-wheel drive differentials and drive differentials and drive shafts will be practiced. Proper safety procedures related to manual transmissions and differentials will also be used when performing tasks and live work. High priority competency tasks recommended by ASE (Automotive Service Excellence) are performed and assessed. This will prepare students to take the ASE technician certification test for manual transmissions and drive axles.

AUT 299 **Internship** **4**

This work experience is designed to expose the student to an industrial, commercial, or clinical environment. Students are placed into a contracted facility after completing 30 credit hours, having a 2.00 GPA, and meeting all other program prerequisites and academic requirements prior to their final spring semester. Students are expected to adhere to all policies and regulations associated with the facility. Students will work on projects selected to expose the student to "live" work situations, while building upon the student's knowledge, skill and attitude as an entry-level technician and will be used to grade the student's performance for the course. The schedule for meeting the requirement of this experience will be arranged between the student, faculty member and internship site. (*200 hours)*

IET 101 **Introduction to Automotive & Diesel Electronics** **2**

This course will provide the student with an introduction to DC electric principles and the different electronic devices seen in modern diesel and automotive vehicles. It will explain instruments and procedures used in testing and measuring these devices. Students will learn basic electricity and the theory behind Ohm's Law. Students will learn how to apply Ohm's law in an electrical circuit. Students will practice building simple circuits and be able to troubleshoot and calculate current, resistance and voltage in a circuit. This course is designed to give students a head start on the electrical and electronics in modern passenger cars, light trucks and heavy duty vehicles.

Biomedical Equipment Technology

This course prepares students with skills labeled by the Commonwealth ofPennsylvania as those used in traditional or evolving green occupations

Course No.	Course Title	Credits

BET 231 **Medical Equipment Standards and Testing** **2**

The student learns the requirements and methods of testing medical equipment for conformance with current standards of the Biomedical industry, also known as Healthcare Technology Management (HTM). Students are introduced to the hierarchy of statutes, regulations, standards including accreditation standards, and hospital policies for healthcare equipment management and safety. Students learn principles of electrical safety testing, HTM and medical ethics as they pertain to the Biomedical Technician. Equipment management principles that maximize life span and minimize life-cycle costs are stressed. Sustainable practices to minimize resource and chemical use are also emphasized.

BET 232 **Medical Equipment Standards and Testing Lab** **2**

Students perform extensive equipment testing to verify conformance with national standards and manufacturer's specifications. Students learn standard practices for electrical safety testing, and conformance with industry standards, manufacturer's specifications as they pertain to the HTM field. Extensive testing of medical devices including centrifuges, IV pumps and physical therapy devices is practiced with students proving their skills in performance tests. Equipment management software inventory and work order entry are practiced to prepare the student with entry-level HTM skills.

BET 233 **Physiological Monitoring Devices** **2**

This course explains many hazards encountered in the hospital environment and the role of the BMET in controlling them. It continues by discussing the different types of transducers and electrodes used with biomedical equipment. The cardiovascular system is prominent as the student learns the principles of electrocardiography and blood pressure measurement. The course concludes by examining ECG and pressure monitors, as well as the principles of other bedside monitoring parameters, and the types of specialized test equipment used in HTM to test and verify accuracy of these medical devices.

BET 234 **Physiological Monitoring Devices Lab** **2**

The course concludes by examining ECG and pressure monitors, concentrating on the test equipment used to test and verify accuracy. Specialized test equipment is used in hands-on training. Extensive testing of medical devices such as ECG, blood pressure, pulse oximetry and capnography is stressed with students proving their skills in performance

tests. Equipment management software inventory and work order entry are practiced to prepare the student with entry-level HTM skills.

BET 235 Life Support Systems 2

This course is an overview of the types of medical equipment needed to support patients who have life threatening problems. Examples of such equipment are defibrillators, pacemakers, ventilators and hemodialysis units. The function of each type of equipment is discussed. Some pieces of equipment are examined thoroughly in relation to functional testing, preventive maintenance, parts identification, and description of circuits. A mock certification exam is the capstone of this course.

BET 236 Life Support Systems Lab 2

Extensive testing of medical devices including defibrillators, external pacers, ventilators, and electrosurgical units is practiced with students proving their skills in performance tests. Specialized test equipment is used in hands-on training. Equipment management software inventory and work order entry are practiced to prepare the student with entry-level HTM skills.

BET 237 Specialized Medical Systems 2

This course describes the different types of specialized medical equipment found in the hospital environment. Lasers, x-ray, ultrasound imaging and nuclear imaging equipment are examples of the modalities covered. The basic theory and function of each system is explained with emphasis on quality control, patient and personal safety.

BET 238 Specialized Medical Systems Lab 1

Lab experiments include video system setup and testing, diagnostic ultrasound familiarization and quality control checks, x-ray system familiarization and quality control checks and video display quality control checks. Equipment management software inventory and work order entry are practiced to prepare the student with entry-level HTM skills. Students prove their skills in performance tests.

BET 299 Internship 4

Students work for 200 hours in a health care facility or medical equipment repair facility after completing 50 credit hours, having a cumulative GPA of 2.00, and meeting all other program prerequisites and academic requirements prior to their final spring semester. The internship offers students applied healthcare technology management and service experience. In the internship, the student performs preventive maintenance, safety analysis, and minor repairs on selected pieces of medical equipment. Students are expected to adhere to all policies and regulations associated with their internship facility. The schedule for meeting the requirement of this experience will be arranged between the student, faculty member and internship site. (*200 hours*)

Business Management –
Logistics & Supply Chain Management Track

Course No.	Course Title	Credits

ACC 101 **Accounting I** **3**

This introductory course covers the basic principles of accounting: the accounting equation, the accounting cycle, the trial balance, accounting worksheet, adjusting and closing entries and the preparation of basic financial statements will be covered. Students will also learn QuickBooks Online.

BSL 201 **Business Law** **3**

This course is an overview of the law as it pertains to the business environment. An introduction to law, legal process, negligence and contracts, among other topics, will be reviewed. (*Prerequisites*: BUS 101)

BUS 101 **Introduction to Business** **3**

This course includes a survey of current business practices with an examination of the topics of management, ethics, organization, finance, marketing, and human resources function. Particular attention will be paid to examining the current economic environment. Students will also learn about basic personal income, household money management and financial planning skills as well as basic economic decision-making skills. This course may also be offered in a distance education format, when available.

BUS 201 **Project Management** **3**

Project Management explores the fundamental knowledge, terminology and processes of effective project management. Topics include project integration management, project scope, time, and cost management, human resource management, communication, ethics, risk, and procurement. The curriculum is derived from the Project Management Body of Knowledge (PMBOK). The course will help prepare students to sit for the CAPM or PMP certification exams. (*Prerequisite*: BUS 101)

ECO 101 **Introduction to Economics** **3**

This course covers the basic concepts of economics. Topics include supply and demand, optimizing economic behavior, prices and wages, monetary system, interest rates, banking system, unemployment, inflation, taxes, government spending and international trade. Upon completion, students should be able to explain alternative solutions for economic problems faced by private and government sectors.

LOG 191 **Basics of Supply Chain Management** **3**

The basic concepts in managing the complete flow of materials in a supply chain from suppliers to customers are covered in the Basics module. This

module covers manufacturing, distribution, service, and retail industries. This includes the fundamental relationships in the design, planning, execution, monitoring, and control that occur. Coursework is intended to prepare students for Part I of the APICS CPIM Certification exam.

LOG 192 Transportation Management 3

Past, present, and future trends in product movement to and from the product's origin are reviewed. Time and cost of various transporters and routes are discussed. Government regulation for safe product handling is covered. (*Prerequisite*: LOG 191)

LOG 194 Warehousing and Distribution 3

This course covers all aspects of the supply and distribution chain and management including computer operations, bar codes, resupply, storage, handling, and subcontracting. An overview of the use of industry specific programs is also covered. Materials handling and OSHA requirements will be covered. (*Prerequisite:* LOG 191)

LOG 195 Product and Inventory Control 3

Master Planning of Resources and Detailed Scheduling and Planning are covered in this course. The course will explore demand management, sales and operations planning, master scheduling, and distribution planning. The effects of techniques such as MRP, CRP, lean, TOC, will also be covered. Coursework is intended to prepare students for Part II of the APICS CPIM Certification exam. In addition, standard measurements for inventory and materials will be examined. (Prerequisite: LOG 191)

LOG 291 Total Quality Management 3

This course focuses on the development of efficient product management from production to customer relations. Various manufacturing processes are evaluated and the importance of employee input is stressed. Products are followed for quality control beyond production to purchase and warranty. The course will center around the Lean Six Sigma methodologies and will help prepare students for the Yellow Belt or Green Belt examinations.

LOG 294 International Logistics 3

This course examines the policies and procedures used in the global transfer of materials and products. Consideration of cultures, manpower, geography, politics, natural resources, and communication are introduced, and strategic planning is coordinated to meet the requirements of international trade. (*Prerequisites:* LOG 194, LOG 195)

LOG 298 Capstone 4

The logistics and supply chain management capstone course is designed for students to synthesize both the theoretical and practical skills they have learned throughout the program in a capstone project using case

analysis and software simulations to address supply chain management challenges. At the completion of this course, students will have shown a thorough understanding of the tools and techniques used to successfully manage a complex network of companies. (*Prerequisite*: Students must provide proof of employment to Department Chair for approval prior to registration.)

LOG 299 **Internship** **4**

This is a planned and supervised off-campus experience in the workplace. It may be paid or unpaid. A selection of acceptable work sites and situations is offered to give students exposure to schedules, pressures, and responsibilities that are encountered in the world of work. Students are placed into a contracted facility after completing 45 credit hours and having a 2.00 GPA. With the approval of the program advisor, students can petition to enroll in an internship after completion of 30 credits. The schedule for meeting the requirement of this experience will be arranged between the student, faculty member and internship site. *(200 hours)*

MNG 185 **Principles of Management** **3**

This is an introductory study of the fundamental concepts and approaches to the management of employees and production. Traditional and current organizational methods of planning, decision making, and motivating are reviewed. Emphasis is on diversity in the workforce and ethics in the business environment. This course may also be offered in a distance education format, when available. (*Prerequisite:* BUS 101)

MNG 284 **Management and Supervision** **3**

This course deals with the more complex aspects of management. Because of the needs of today's business world, students will be taught not only how to manage people but also how to manage performance, processes, and relationships. Learning to deal with pressure and constant change will be discussed. (*Prerequisite:* MNG 185)

Business Management –
Project Management Track

Course No.	Course Title	Credits

ACC 101 **Accounting I** **3**

This introductory course covers the basic principles of accounting: the accounting equation, the accounting cycle, the trial balance, accounting worksheet, adjusting and closing entries and the preparation of basic financial statements will be covered. Students will also learn QuickBooks Online.

BSL 201 **Business Law** **3**

This course is an overview of the law as it pertains to the business environment. An introduction to law, legal process, negligence and contracts, among other topics, will be reviewed. (*Prerequisites:* BUS 101)

BUS 101 **Introduction to Business** **3**

This course includes a survey of current business practices with an examination of the topics of management, ethics, organization, finance, marketing, and human resources function. Particular attention will be paid to examining the current economic environment. Students will also learn about basic personal income, household money management and financial planning skills as well as basic economic decision-making skills. This course may also be offered in a distance education format, when available.

BUS 110 **Business Research and Report Writing** **3**

This course focuses on the skills and techniques required to research, write and format professional business reports. Topics include locating technical specification, evaluating information, writing specifications, communicating specifications to others, formatting and presenting information. (*Prerequisite:* ENG 101)

BUS 201 **Project Management** **3**

Project Management explores the fundamental knowledge, terminology and processes of effective project management. Topics include project integration management, project scope, time, and cost management, human resource management, communication, ethics, risk, and procurement. The curriculum is derived from the Project Management Body of Knowledge (PMBOK). The course will help prepare students to sit for the CAPM or PMP certification exams. (*Prerequisite*: BUS 101)

BUS 210 **Sales Negotiation and Customer Relationship** **3**

This course will enable the student to communicate with prospective internal and external customers to understand their needs, match those needs with the appropriate product or service, present an effective

presentation and negotiate contracts. Through the use of terminology, practice in role-plays and an understanding of the appropriate approaches and strategies, the student will gain an understanding of the opportunities in the field of personal selling and what it takes to be successful.

BUS 220 Advanced Project Management 3

This course explores the management of a project using Microsoft Project 2016. Students will identify project management concepts, create and define a new project plan, create and organize tasks, manage resources in a project plan, and finalize a project plan. Students will be assigned a campus-based project through which they will apply the skills learned throughout the program. (*Prerequisite:* BUS 201)

ECO 101 Introduction to Economics 3

This course covers the basic concepts of economics. Topics include supply and demand, optimizing economic behavior, prices and wages, monetary system, interest rates, banking system, unemployment, inflation, taxes, government spending and international trade. Upon completion, students should be able to explain alternative solutions for economic problems faced by private and government sectors.

LOG 191 Basics of Supply Chain Management 3

The basic concepts in managing the complete flow of materials in a supply chain from suppliers to customers are covered in the Basics module. This module covers manufacturing, distribution, service, and retail industries. This includes the fundamental relationships in the design, planning, execution, monitoring, and control that occur. Coursework is intended to prepare students for Part I of the APICS CPIM Certification exam.

LOG 195 Product and Inventory Control 3

Master Planning of Resources and Detailed Scheduling and Planning are covered in this course. The course will explore demand management, sales and operations planning, master scheduling, and distribution planning. The effects of techniques such as MRP, CRP, lean, TOC, will also be covered. Coursework is intended to prepare students for Part II of the APICS CPIM Certification exam. In addition, standard measurements for inventory and materials will be examined. (*Prerequisite:* LOG 191)

LOG 291 Total Quality Management 3

This course focuses on the development of efficient product management from production to customer relations. Various manufacturing processes are evaluated and the importance of employee input is stressed. Products are followed for quality control beyond production to purchase and warranty. Methodologies like Lean and Six Sigma will be addressed. (*Prerequisites:* BUS 101, MAT 121)

MNG 185 **Principles of Management** **3**

This is an introductory study of the fundamental concepts and approaches to the management of employees and production. Traditional and current organizational methods of planning, decision making, and motivating are reviewed. Emphasis is on diversity in the workforce and ethics in the business environment. This course may also be offered in a distance education format, when available. (*Prerequisite:* BUS 101)

MNG 284 **Management and Supervision** **3**

This course deals with the more complex aspects of management. Because of the needs of today's business world, students will be taught not only how to manage people but also how to manage performance, processes, and relationships. Learning to deal with pressure and constant change will be discussed. (*Prerequisite:* MNG 185)

Carpentry & Cabinetmaking Technology

Course No.	Course Title	Credits

CCM 151 **Woodworking Hand and Portable Tools & Materials** **2**
Classroom lecture and demonstrations in the safe use of hand and portable tools used in the carpentry/cabinetmaking field will introduce the student to woodworking. Also covered are the properties of wood and the fasteners used in the carpentry/cabinetmaking field.

CCM 152 **Woodworking Hand and Portable Tools & Materials Lab** **1**
Intensive and safe use of hand and portable tools used in the carpentry/cabinetmaking field will introduce the student to woodworking. Students will also apply their knowledge of the properties of wood and fasteners used in the carpentry/cabinetmaking field.

CCM 153 **Woodworking Tools and Machines** **2**
Identifying safe operations of stationary woodworking equipment are the core elements of this course. Through demonstration, the student will be introduced to the safe use of the table saw, the radial arm saw, the band saw, the planer, the jointer, the overhead router, the drill press, the shaper, and the tenoner.

CCM 154 **Woodworking Tools and Machines Lab** **1**
Students will safely operate stationary woodworking equipment in this course. Through guided application, the student will use the table saw, the radial arm saw, the band saw, the planer, the jointer, the overhead router, the drill press, the shaper, and the tenoner.

CCM 155 **Kitchen & Bath Design Standards** **1**
The focus of this course is in the design and types of construction of the various cabinets and counters found in a typical residential structure. It is essential that all woodworkers know the sizes, construction, and standards used in the construction industry. This course develops the skills necessary to read a set of drawings to either construct or install cabinetry.

CCM 159 **Interior Finishes** **2**
Interior finishes is the study and practice of the common materials and procedures used for finishing the interior of a building. Students will be exposed to skills in the safe use of equipment and materials common to the construction industry. Students will be required to demonstrate knowledge of different materials and applications in the construction industry. (*Prerequisites*: CCM 153 and CCM 154)

CCM 160 **Interior Finishes Lab** **1**
Students will demonstrate the safe use of equipment and materials common to the construction industry. Students will apply their knowledge

of interior finishing techniques in this lab as they work on individual projects. (*Prerequisite*: CCM 153 and CCM 154)

CCM 161 Cabinet and Component Construction 2

The focus of this course is the identification and understanding of the components of cabinets, face frames, doors and drawers common to the cabinetmaking industry. Hinges, pulls, slides and similar door and drawer hardware are also studied.

CCM 162 Cabinet and Component Construction Lab 1

The focus of this course is the cutting of components and construction of cabinets, face frames, doors and drawers common to the cabinetmaking industry. The special operations required on specific wood working machinery and the assembly of these cabinets' components is practiced in this course. Students will also appropriately apply various hinges, pulls, slides, and similar door and drawer hardware to their projects.

CCM 163 Exterior Finishes 2

Exterior finishes is the study and practice of the common materials and procedures used for finishing the exterior of a building. Students will be exposed to skills in the safe use of equipment and materials common to the construction industry. Students will gain knowledge of different materials, applications and estimating procedures of the various resources used in the construction industry. (*Prerequisite*: CCM 153 and CCM 154)

CCM 164 Exterior Finishes Lab 1

Students will be demonstrate the safe use of equipment and materials common to the construction industry. Students will be required to apply their knowledge of different materials, applications and estimating procedures to various resources used in the construction industry. (*Prerequisite*: CCM 153 and CCM 154)

CCM 251 Site Layout & Foundations 2

This course covers the factors needed to be considered before the start of a building project. The kind and type of footing and foundation, the use of the structure, soil and climate conditions, methods of construction, and placement of the structure on the lot are examples of subjects studied in this course. Elements of the building codes and zoning laws that apply to site layout procedures are also examined in this course.
(*Prerequisite*: CCM 159 and CCM 160)

CCM 252 Site Layout & Foundations Lab 1

Students will apply the knowledge of site layout and foundations in this course. Student will select foot and foundation material in reference to the type of structure, soil and climate conditions, methods of construction, and placement of the structure on the lot.
(*Prerequisite*: CCM 159 and CCM 160)

CCM 253 **Floor/Wall Framing Principles** **2**

This course covers the construction terminology, materials, methods and practical lessons in the various types of floor and wall framing principles found in the construction industry today. Student involvement with building codes, construction terminology, materials estimating and proper construction techniques give the student a broad knowledge of modern construction practices. (*Prerequisite*: CCM 163 and CCM 164)

CCM 254 **Floor/Wall Framing Principles Lab** **1**

Students will construct mini-houses and other structures to demonstrate their knowledge of the terminology, materials, and methods of floor and wall framing principles. This course will focus on the creation and installation of walls and floors including windows, headers, and drywall. (*Prerequisite*: CCM 163 and CCM 164)

CCM 255 **Roof Framing** **2**

Extensive study in the framing of a common gable roof is the main elements of this course. Construction terminology, safe framing practices to follow when framing a gable roof, understanding of building codes, and solving for rafter lengths are all considered. Estimating materials and roof coverings concludes this course. (*Prerequisite*: CCM 163 and 164)

CCM 256 **Roof Framing Lab** **1**

Extensive practice in the framing of a common gable roof is the main elements of this course. Students will apply safe practices when framing a gable roof and applying building codes, as well as in the cutting and fitting rafters. (*Prerequisite*: CCM 163 and 164)

CCM 257 **Stairs** **2**

This is a course designed to teach the student the basics of stair construction. Covered during this course will be the math calculations necessary to design a safe and functional stairway and the methods of layout and construction necessary to install stairs.
(*Prerequisite*: CCM 159 and CCM 160)

CCM 258 **Stairs Lab** **1**

This is a course designed to allow the student to practice the basics of stair construction. Students will calculate rise and run to determine a safe and functional stairway while practicing the methods of layout and construction necessary to install stairs.
(*Prerequisite*: CCM 159 and CCM 160)

CCM 259 **Advanced Roof Framing** **2**

This course is designed as a study of the construction principles of the many different and complicated roof systems found in the construction industry today. Beginning with the hip roof, then the intersecting roof and

special roof systems, such as an unequal slope roof system, this course offers the specialized framing skills sought in industry.
(*Prerequisite: CCM 255 and CCM 256*)

CCM 260 Advanced Roof Framing Lab 1

This course is designed to reflect the skills taught in Advanced Roof Framing. Students will practice the layout and design of complicated roof systems. Students may build hip roofs, intersecting roofs and/or special roof systems, such as an unequal slope roof system.
(*Prerequisite:CCM 255 and CCM 256*)

CCM 261 Construction Estimating 3

This course is designed to introduce the students to the basics of material take off and estimating for a residential structure. The areas of focus include the footing and foundation systems, concrete flat work, the wood framing components, insulation and ventilation systems, interior and exterior finishes, cabinets and millwork. The course is intended to give the students an understanding of the cost, quantities and quality of materials needed to construct a residential structure.

Computer Information Technology

Course No.	Course Title	Credits

CIT 181 **Computer Hardware and Operating Systems** **2**

The focus of this course includes, but is not limited to the essential knowledge needed to assemble, configure, repair, upgrade, optimize and perform preventative maintenance on personal computer hardware and operating systems. This course also covers topics such as safety and environmental issues, as well as communication and professionalism. Knowledge gained in this course will help prepare students for the CompTIA A+ Essentials and Practical Application certification examinations.

CIT 182 **Computer Hardware and Operating Systems Lab** **1**

The focus of this lab includes, but is not limited to the essential "hands-on" skills needed to assemble, configure, repair, upgrade, optimize and perform preventative maintenance on personal computer hardware and operating systems. This course also covers topics such as safety and environmental issues, as well as communication and professionalism. "Hands-on" experience gained in this course will help prepare students for the CompTIA A+ Essentials and Practical Application certification examinations.

CIT 183 **Network Architectures, Principles, and Protocols** **2**

The focus of this course includes, but is not limited to a vendor-neutral view of the knowledge necessary to design, install and support the modern networking systems. This course builds the student's knowledge of network media, topologies, protocols and standards, as well as network implementation methods and support skills. This course also covers topics such as safety, environmental issues and professionalism. Knowledge gained in this course will help prepare students for the CompTIA Network+ and CompTIA A+ Essentials.

CIT 184 **Network Architectures, Principles, and Protocols Lab** **1**

The focus of this lab includes, but is not limited to a vendor-neutral "hands-on" practice necessary to design, install and support modern networking systems. This course builds the student's "hands-on" knowledge of network media, topologies, and network implementation methods, as well as, support skills. This course also covers topics such as safety, environmental issues and professionalism. During the completion of this lab students will design, build and test a complete Local Area Network. "Hands-on" experience gained in this course will help prepare students for the CompTIA Network+ and CompTIA A+ Essentials.

CIT 185 TCP/IP Network Design Configuration and Maintenance
The focus of this course includes basic and advanced concepts of network and computer addressing with TCP/IP, both v4 and v6. This course provides the foundational information needed for network design, management, maintenance and support. Knowledge gained in this course will help prepare students for the CompTIA A+ Essentials certification examinations, as well as many Cisco certification examinations.

CIT 186 TCP/IP Network Design Configuration and Maintenance Lab 1
This lab provides the foundational information needed and "hands-on" practice necessary to understand basic network design, management, maintenance and support. Students will learn to configure and support TCP/IP on both Microsoft and Linux based networks, as well as install and support TCP/IP applications and services. "Hands-on" experience gained in this course will help prepare students for the CompTIA A+ Essentials and Practical Application certification examinations, as well as many Cisco certification examinations.

CIT 187 Linux Networking Service and Support 2
The focus of this course includes the exploration of the theory behind tools, techniques, procedures and utilities necessary to design and implement a Linux-based Local Area Network. The coursework includes comprehensive details of potential areas of network and system configuration, troubleshooting, performance monitoring, debugging. Writing shell scripts for the purpose of performance monitoring and troubleshooting in a Linux environment will be covered in depth. Knowledge gained in this course will help prepare students for the CompTIA Linux +.

CIT 188 Linux Networking Service and Support Lab 1
The focus of this lab includes the "hands-on" exploration of tools, techniques, procedures and utilities necessary to design, implement and support a Linux-based Local Area Network. The lab work includes but is not limited to comprehensive details of network and system configuration, troubleshooting, performance monitoring, and debugging. Students will write shell scripts for the purpose of performance monitoring and troubleshooting in a Linux environment. "Hands-on" experience gained in this course will help prepare students for the CompTIA Linux +.

CIT 189 Information System Security Design and Administration 2
The focus of this course includes theory necessary to pass the CompTIA Security + certification examination. Students will learn to design and implement a secure and reliable Local Area Network, and physical environment. The theory behind successful administration of both Windows and Linux users, groups and their permissions within the network environment, as well as drafting many relevant IT and physical security policy statements for a network environment will be covered in

depth. Students will also begin to explore the theory behind a Disaster Recovery plan for a sustainable & secure network environment; students will use this to begin building their own unique portfolio.

CIT 190 Information System Security Design and Administration Lab 1

The focus of this lab includes hands-on experience necessary to pass the CompTIA Security + certification examination. Students will learn to design and implement a secure and reliable Local Area Network environment. The administration of both Windows and Linux users, groups and their permissions within the network environment, as well as drafting many relevant IT security policy statements. Physical security of a network environment will be worked as well. Students will also begin to prepare a Disaster Recovery plan for a sustainable & secure network environment. Students will use their Disaster Recovery Plan to begin building their own unique portfolio. "

CIT 281 LAN/WAN Design and Maintenance Principles 2

The focus of this course includes the exploration of theory essential to designing, securing, and building an effective routed Local and Wide Area Networks. Students will also gain knowledge necessary for creating VLANS and trunk ports. Knowledge gained in this course will help prepare students for the Cisco CCNA ICND1 examination.

CIT 282 LAN/WAN Design and Maintenance Principles Lab 1

The focus of this lab includes the exploration of lab exercises essential to designing, securing, and building an effective routed Local and Wide Area Networks. Students will also gain "hands-on" experience creating VLANS and trunk ports. "Hands-on" experience gained in this course will help prepare students for the Cisco CCNA ICND1 examination.

CIT 283 Server and Network Operating System Principles 2

The focus of this course includes the theory related Installation and configuring of Windows Server. The course also includes but is not limited to both the theory of on-site and remote service and support network servers. The theory covered includes the interconnection of multiple servers. Active directory and network services will also be covered.

CIT 284 Server and Network Operating System Principles Lab 1

The focus of this lab includes "hands-on" experience related to both on-site and remote service and support network servers. "Hands-on" Lab-work includes the Installation, local and remote management, file storage services, Active Directory, Group Policies, TCP/IP Networking services and Hyper-V. Students successfully completing this lab will gain "hands-on" knowledge required to obtain the Microsoft MCSA certification.

CIT 285 **Advanced Network Operating System Principles** **2**

The focus of this course includes advanced theory and principles related to industry standard server Network Operating System platform and server virtualization. Theory of Installation, configuration and remote administration of both Host Network Operating Systems and Guest Network Operating System network services and Active Directory will be covered in detail. Theory relating to service and support of both Microsoft and Linux based server platforms, as well as Microsoft Internet Information Server will explored.

CIT 286 **Advanced Network Operating System Principles Lab** **1**

The focus of this lab includes "hands-on" experience related to Microsoft's newest server platform and features. The scope of the "hands-on" experience in this lab includes but is not limited to Storage Space Direct, Nano Server, and Windows Containers, and Hyper-V virtualization. Installation, configuration and remote administration of both Host Network Operating Systems and Guest Network Operating Systems. Students successfully completing this lab will gain "hands-on" knowledge required to obtain the Microsoft MCSA, as well as the Cloud Platform and Infrastructure certification.

CIT 287 **Internetworking Applications** **2**

The focus of this course includes, but is not limited to an application of systems theory and hands-on experience gained throughout the program's previous courses. Students will work in teams while using project-based learning to master both old and new concepts of network design, implementation, and support.
(Prerequisites: CIT 183, CIT 184, CIT184, CIT186, CIT281, CIT282, MAT 101, DAT 201, PRG 101*)*

CIT 288 **Internetworking Applications Lab** **1**

The focus of this lab includes, but is not limited to an application of systems "hands-on" experience gained throughout the program's previous courses. Students will work in teams while using project-based learning to master both old and new concepts of network design, implementation, and support.
(Prerequisites: CIT 183, CIT 184, CIT184, CIT186, MAT 101, PRG 101*)*

CIT 289 **Web Programming, Server Side Scripting** **2**

The focus of this course includes, but is not limited to an introduction to theory related to server-side scripting and web data access using a currently popular server side application platform and relational database.

CIT 290 **Web Programming, Server Side Scripting Lab** **2**

The focus of this lab includes, but is not limited to an introduction to server-side scripting and web data access using a currently popular server side application platform and relational database.

CIT 299 **Internship** **4**

This work experience is designed to expose the student to an industrial, commercial, or clinical environment. Students are placed into a contracted facility after completing 30 credit hours, maintaining a 2.00 GPA, and meeting all other program prerequisites and academic requirements prior to their final spring semester. The schedule for meeting the requirement of this experience will be arranged between the student, faculty member and internship site. (*200 Hours*)

DAT 201 **Database: Principles & Applications** **3**

This course is designed to introduce the student to database processing by examining basic database models and applying these models to creating and managing multi-user database systems. This course uses instructor guided project based learning to become proficient with Microsoft Access and SQL Server. (*Prerequisite:* PRG 101)

PRG 101 **Programming for the Enterprise** **3**

This introductory programming course is required for Computer Information Technology students. Topics include introductory programming concepts, procedures and functions, object-oriented programming design and implementation, and problem-solving skills. The course focuses on Visual Basic and Hypertext Markup Language (HTML) in a lab environment.

Diesel Truck Technology

This course prepares students with skills labeled by the Commonwealth ofPennsylvania as those used in traditional or evolving green occupations

Course No.	Course Title	Credits

VMR 151 **Introduction to Vehicle Maintenance & Repair Technology** **1**

This course covers information on hand tools, machines, and equipment common to the Vehicle maintenance field, general service procedures, lubricants, reference manuals, pre-delivery inspection of new and used vehicles and preventive maintenance procedures. This course is designed to prepare students to work properly with all of the for mentioned topics along with building safe and thorough work habits.

VMR 153 **Brake Systems** **2**

This course covers information on hydraulic and air brake systems. Mechanical foundation, air supply, service system principles, major components, parking brake systems, brake system diagnostics, service to drum brake assemblies, air lines and hoses, brake switches, antilock brake principles and service are all a part of this course. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test.

VMR 154 **Brake Systems Lab** **1**

This lab covers service practice procedures on hydraulic and air brake systems. Competency tasks will be performed on mechanical foundation, air supply, service system principles, major component diagnosis and repair, parking brake systems, brake system diagnostics, service to drum brake assemblies, air lines and hoses, brake switches, antilock brake principles and service are all a part of this course. High priority tasks recommended by ASE (Automotive Service Excellence) are practiced and performed to industry standards. This lab will prepare students to take the ASE technician certification test in brake systems.

VMR 155 **Steering and Suspension Systems** **2**

This course covers information on steering and suspension systems, theory and principles, independent suspensions, geometric principles, factors affecting wheel alignment, tools and equipment used for steering and suspension, troubleshooting of suspension and steering, wheel bearings service, manual steering and power steering system operation. This lecture on theory will prepare students to take the ASE technician certification test for steering and suspension systems.

VMR 156 **Steering and Suspension Systems Lab** **1**

This lab covers service practice procedures on steering and suspension

systems. Students will utilize the theory learned in VMR 155 to diagnose steering and suspension issues and the effect on wheel alignment. Students will perform competency tasks with the tools and equipment used for steering and suspension adjustment and repair, troubleshooting of suspension and steering, wheel bearings service, manual steering and power steering systems. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test for steering & suspension systems.

VMR 157 **Introduction to Welding for Auto and Diesel** **2**

This course is designed to introduce students to the basic principles and practices of several different types of welding. Students will learn the principles and safety issues related to Gas welding and cutting, MIG welding, Stick welding, Flux Core welding and TIG welding. Students will have the opportunity to practice the techniques used with all types of welding. This course will prepare students to perform welding tasks and minor fabrication tasks when they are in the industry setting.

VMR 159 **Electrical & Electronic Systems** **2**

This course covers information on electricity, basic electrical circuits, tools and equipment, batteries, charging systems, starting systems, lighting systems, horn, wipers and washers, cooling fans, instrument circuits and body electrical systems. This will prepare students to take the ASE technician certification test for electrical systems.

VMR 160 **Electrical & Electronic Systems Lab** **1**

This lab covers competency tasks on basic electrical circuits, practical use of tools and equipment used to diagnose batteries, charging systems, starting systems, lighting systems, horn, wipers and washers, cooling fans, instrument circuits and body electrical systems. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test for electrical systems.

VMR 251 **HVAC Vehicle Systems** **2**

This course covers information on the operation of heating and air conditioning as applied to today's cars and trucks. Students will learn the theory of air conditioning systems in passenger vehicles and light trucks, heavy-duty trucks and trailer refrigeration systems. New learning experiences in the troubleshooting and servicing of these systems are taught. This will prepare students to take the ASE technician certification test for HVAC systems.

VMR 252 **HVAC Vehicle Systems Lab** **1**

This lab covers competency tasks on the operation of heating and air conditioning systems. Students will utilize modern service equipment to perform competencies for recovering, recycling and recharging refrigerant in HVAC systems. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test for HVAC systems.

VMR 253 **Certifications for Automotive and Diesel Technicians** **1**

This course is designed to provide necessary training and practical testing to assist students in obtaining certifications for PA Safety Inspector, PA Emissions Inspector, and Mobile Air Conditioning refrigerant recovery and handling certification. These certifications will provide students with credentials that employers in the transportation industry are seeking.

DTT 175 **Diesel Engine Overhaul** **2**

Diesel engine principles of operation on four- and two-stroke engines are covered. Component identification, measurement and replacement, along with complete tear down and overhaul procedures are covered in this course. This will prepare students to take the ASE technician certification test.

DTT 176 **Diesel Engine Overhaul Lab** **2**

Diesel engine principles of operation on four- and two-stroke engines are covered with competency based tasks the students are required to perform. Component identification, measurement and replacement, along with complete tear down and overhaul procedures are practiced in this lab. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test.

DTT 177 **Diesel Fuel Injection Systems** **2**

This course covers information on the theory and operation of the different types of diesel fuel injection pumps, nozzles and injectors, including current electronic fuel injectors. In-depth study of fuel system preventive maintenance, troubleshooting diagnostics, injection pump timing and installation procedures, and replacement methods for injectors and nozzles are taught. This will prepare students to take the ASE technician certification test.

DTT 178 **Diesel Fuel Injection Systems Lab** **1**

This includes competency tasks on the diagnosis and service of the different types of diesel fuel injection pumps, nozzles and injectors, including current electronic fuel injectors. In-depth servicing and repair of fuel system preventive maintenance, troubleshooting diagnostics, injection pump timing and installation procedures, and replacement

methods for injectors and nozzles are practiced in this lab. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test.

DTT 275 **Diesel Engine Performance Tune-up Procedures** **2**
This course covers information and theory on the operation and approved servicing, troubleshooting, and tune-up procedures on several different current models of diesel engines. This will prepare students to take the ASE technician certification test.

DTT 276 **Diesel Engine Performance Tune-up Procedures Lab** **2**
This lab includes competency based tasks on the operation and approved servicing, troubleshooting, and tune-up procedures on several different current models of diesel engines. Students will practice these competencies and be assessed on industry standards. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test.

DTT 277 **Manual Transmission Overhaul** **2**
This course covers the information and theory of heavy duty truck manual transmissions. New learning experiences include inspection, replacement, servicing, rebuild procedures, proper diagnostics of manual transmissions and power take-off systems. This will prepare students to take the ASE technician certification test.

DTT 278 **Manual Transmission Overhaul Lab** **1**
This lab includes competency based tasks on the operation and approved servicing, troubleshooting, and tune-up procedures on several different current models of diesel engines. New learning experiences include inspection, replacement, servicing, rebuild procedures, proper diagnostics of manual transmissions and power take-off systems. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test.

DTT 279 **Differentials and Drive Line** **2**
This course covers the theory of operation of the heavy duty truck differentials and drive lines. Students will learn how the differential is used to transfer energy to the wheels of the vehicle. Students will be trained in the theory of transferring engine power to the final drive of the vehicle utilizing the drive shaft. All components of this system will be described and the operation of each will be explained. This will prepare students to take the ASE technician certification test.

DTT 280 **Differentials and Drive Line Lab** **1**
This includes competency based tasks on overhaul, service and troubleshooting of the rear differentials and drive shafts. All safety

procedures involved in working with differentials and drive lines will be followed while participating in the lab activities.High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test.

DTT 281 **Automatic Transmission Diagnostics, Basic Hydraulics** **2**
This course provides information and practical theory necessary to service automatic transmissions found in many heavy diesel trucks. Systematic troubleshooting procedures are all part of this program to assist the technician in the proper repair procedures, installation, and repair of hydraulic systems. This will prepare students to take the ASE technician certification test.

DTT 282 **Automatic Transmission Diagnostics, Basic Hydraulics Lab** **1**
This lab will have students performing competency tasks that include but are not limited to, transmission removal, disassembly, component inspection and measurements, and reassembly. Systematic troubleshooting procedure tasks are all part of this lab to assist the technician in the proper repair procedures, installation, and repair of hydraulic systems. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test.

DTT 283 **Applied Diesel Truck Principles and Applications** **2**
This course is intended to re-examine and emphasize specific mechanical knowledge and diagnostic experience and to apply that to principles and theories learned in previous courses. Students are expected to hone the specific skills to prepare them for entry-level positions upon graduation. This will prepare students to take the ASE technician certification test.

DTT 284 **Applied Diesel Truck Principles and Applications Lab** **2**
This lab is intended to re-examine and emphasize specific mechanical skills and diagnostic techniques and to apply them to principles and theories learned in previous courses. Students are expected to hone the specific skills by performing competency tasks to industry standards. Doing this will prepare students for entry-level positions upon graduation. High priority tasks recommended by ASE (Automotive Service Excellence) are covered. This will prepare students to take the ASE technician certification test.

DTT 299 **Internship** **4**
This work experience is designed to expose the student to an industrial, commercial, or clinical environment. Students are placed into a contracted facility after completing 30 credit hours, having a 2.00 GPA, and meeting all other program prerequisites and academic requirements prior to their final spring semester. Students are expected to adhere to all policies and regulations associated with the facility. Students will work on projects

selected to expose the student to "live" work situations, while building upon the student's knowledge, skill and attitude as an entry-level technician and will be used to grade the student's performance for the course. The schedule for meeting the requirement of this experience will be arranged between the student, faculty member and internship site. (*200 Hours*)

IET 101 **Introduction to Automotive & Diesel Electronics** **2**

This course will provide the student with an introduction to DC electric principles and the different electronic devices seen in modern diesel and automotive vehicles. It will explain instruments and procedures used in testing and measuring these devices. Students will learn basic electricity and the theory behind Ohm's Law. Students will learn how to apply Ohm's law in an electrical circuit. Students will practice building simple circuits and be able to troubleshoot and calculate current, resistance and voltage in a circuit. This course is designed to give students a head start on the electrical and electronics in modern passenger cars, light trucks and heavy duty vehicles.

Electrical Construction & Maintenance Technology

Course No.	Course Title	Credits

ECM 171 **Fundamentals of Electricity** **2**
This course covers general safety principles, basic construction guidelines, laws governing electricity, basic hand tool usage, print reading, electrical safety, circuit construction and operation. This course will also begin to outline use and interpretation of the National Electrical Code (NEC).

ECM 172 **Fundamentals of Electricity Lab** **1**
This course allows the student to apply the concepts covered in ECM 171. Students will practice using general safety principles, basic hand tools, glueprints, electrical safety, circuit construction and operation.

ECM 173 **Introduction to Residential Wiring** **2**
This course will provide information on conductor ratings, wiring styles, grounding, and practical experience in basic residential electrical wiring. DC circuit theory will be introduced in this course.

ECM 174 **Introduction to Residential Wiring Lab** **1**
This course allows the student to apply the concepts covered in ECM 173. Students will practice grounding and other basic residential electrical wiring tasks.

ECM 175 **Commercial Wiring** **2**
This course provides information and practical experience in installation of electrical systems for commercial buildings, reading architectural drawings, and branch circuit feeders and installation, as well as appliance and special systems found in commercial buildings. Students receive practical experience in conduit bending. Three phase circuits and inductive loads will be covered in this course.

ECM 176 **Commercial Wiring Lab** **1**
This course allows the student to apply the concepts covered in ECM 175. This course provides practical experience in installation of electrical systems for commercial buildings, reading architectural drawings, and branch circuit feeders and installation, as well as appliance and special systems found in commercial buildings. Students will also receive practical experience in conduit bending.

ECM 177 **Electrical Grounding and Bonding** **2**
This course is a continuation of Introduction to Residential Wiring with advanced practical experience in lighting branch circuits and special purpose circuits. DC circuit theory will continue to be discussed in this course. *(Prerequisite:* ECM 173 and ECM 174).

ECM 178 Electrical Grounding and Bonding Lab 1
This course allows the student to apply the concepts covered in ECM 177. Students will work with lighting branch circuits and special purpose circuits. Practice with DC circuits will continue. *(Prerequisite:* ECM 173 and ECM 174).

ECM 179 Advanced Residential Circuit Installation 2
This course will teach advanced residential wiring. In addition to examination of skills, troubleshooting, and the maintenance and repair of electrical circuits, the course will cover NEC requirements and installation of residential electrical services. AC circuit theory will be introduced in this course.
(Prerequisites: ECM 171, ECM 172, ECM 173 and ECM 174*).*

ECM 180 Advanced Residential Circuit Installation Lab 1
This course allows the student to apply the concepts covered in ECM 179. The course will allow practical application of troubleshooting and the maintenance and repair of electrical circuits. Students will apply NEC requirements and practice installation of residential electrical services. *(Prerequisites:* ECM 171, ECM 172, ECM 173 and ECM 174*)*

ECM 181 Service Installation & Troubleshooting 2
This course is a continuation of electrical residential wiring. The focus of the course is on problem solving skills and panel board selection, electric service, and overcurrent protection such as fuses and circuit breakers, as well as low voltage lighting and cooling systems. AC circuit theory will continue to be discussed in this course.
(Prerequisite: ECM 171, ECM 172*)*

ECM 182 Service Installation & Troubleshooting Lab 1
This course allows the student to apply the concepts covered in ECM 181. The focus of this practical experience is problem solving as related to panel board selection, electric service, and overcurrent protection such as fuses and circuit breakers, as well as low voltage lighting and cooling systems. *(Prerequisite:* ECM 171, ECM 172*)*

ECM 251 Industrial Motor Control 2
This course will introduce the basic principles and practices of motor control pertaining to magnetism, AC/DC contactors and motor starters, time delay and control devices, motor types and motor theory. *(Prerequisite:* ECM 171, ECM 172)

ECM 252 Industrial Motor Control Lab 1
This course allows the student to apply the concepts covered in ECM 251. Students will apply the basic principles and practices of motor control pertaining to magnetism, AC/DC contactors and motor starters, time delay

and control devices, motor types and motor theory. *(Prerequisite:* ECM 171, ECM 172)

ECM 253 Industrial Maintenance I 2
This course covers the theory and practice of industrial mechanics including calculations, rigging, lifting, ladders, hydraulics, lubrication, flexible belt drive systems, vibration and alignment.

ECM 254 Industrial Maintenance I Lab 1
This course allows the student to apply the concepts covered in ECM 253. Students will practice industrial mechanics including calculations, rigging, lifting, ladders, hydraulics, lubrication, flexible belt drive systems, vibration and alignment.

ECM 255 Advanced Motor Control Circuits 2
This course is a continuation of the theory of reversing motor circuits, power distribution systems, solid-state electronic control devices, electro-mechanical relays, reduced voltage and accelerating/decelerating methods. Also covered is an introduction to programmable logic controller (PLC) wiring and programming. *(Prerequisite:* ECM 251, ECM 252)

ECM 256 Advanced Motor Control Circuits Lab 1
This course allows the student to apply the concepts covered in ECM 255. Students will practice reversing motor circuits, power distribution systems, solid-state electronic control devices, electro-mechanical relays, reduced voltage and accelerating/decelerating methods. Students will also practice programmable logic controller (PLC) wiring and programming. *(Prerequisite:* ECM 251, ECM 252)

ECM 257 Industrial Maintenance II 2
This course covers the service and repair principles for industrial electrical systems, industrial electronic devices, programmable controllers, welding, boilers, HVAC, mechanical and pneumatic and fluid power systems. *(Prerequisite:* ECM 253, ECM 254)

ECM 258 Industrial Maintenance II Lab 1
This course allows the student to apply the concepts covered in ECM 257. Students will apply service and repair principles for industrial electrical systems, industrial electronic devices, programmable controllers, welding, boilers, HVAC, mechanical and pneumatic and fluid power systems. *(Prerequisite:* ECM 253, ECM 254)

ECM 259 Applied Practice and Special Topics 2
This comprehensive course provides the opportunity to integrate all theory and practical experiences learned in previous modules. It is intended to be student project based which will prepare students for an entry-level

position. In addition, special topics such as high voltage will be introduced to further enhance their problem-solving and practical skills.

ECM 260 **Applied Practice and Special Topics Lab** **2**

This comprehensive course allows the student to apply the concepts covered in ECM 259. It is intended to be student project based which will prepare students for an entry-level position. In addition, special topics such as high voltage will be practiced.

ECM 299 **Internship** **4**

This work experience is designed to expose the student to an industrial, commercial, or clinical environment. Students are placed into a contracted facility after completing 30 credit hours, having a 2.00 GPA, and meeting all other program prerequisites and academic requirements prior to their final spring semester. Students are expected to adhere to all policies and regulations associated with the facility. Students will work on projects selected to expose the student to "live" work situations, while building upon the student's knowledge, skill and attitude as an entry-level technician and will be used to grade the student's performance for the course. The schedule for meeting the requirement of this experience will be arranged between the student, faculty member and internship site. (200 hours)

Electronic Engineering Technology

This course prepares students with skills labeled by the Commonwealth of Pennsylvania as those used in traditional or evolving green occupations.

Course No.	Course Title	Credits

EET 161 **DC Electricity and Instrumentation** **2**

This course introduces the student to the theory and operation of basic DC circuits, circuit construction, operation and troubleshooting. Basic alternative energy technologies are introduced. The student will also receive instruction on soldering, digital multi-meter usage, and Ohm's Law applications for testing and troubleshooting electric circuits. Elements of proper disposal of batteries and other circuit components considered to be hazardous waste are included.

EET 162 **DC Electricity and Instrumentation Lab** **1**

This course applies the theory taught in EET 161 through hands on building and testing of basic electric circuits. The student will also gain practical experience in soldering, digital multi-meter usage, and Ohm's Law applications for testing and troubleshooting the electric circuits they build. Elements of proper disposal of batteries and other circuit components considered hazardous waste are emphasized throughout this course.

EET 163 **Alternating Current and Passive Devices** **2**

This course introduces the student to circuitry basic to AC electrical theory. It identifies the fundamental differences between AC and DC energy sources and circuit components. It also introduces oscilloscope usage, AC units, nomenclature and electromagnetism. The course will also cover inductors, transformers, and capacitors and their effects in AC circuits. Work place energy efficiency and conservation habits are included. The concepts of RCL circuits and their use as passive filters will be covered.

EET 164 **Alternating Current and Passive Devices Lab** **1**

This course applies the theory taught in EET 163 through hands on building and testing of basic AC circuits. The student will use oscilloscopes and digital meters to measure amplitude, frequency and phase of an AC signal. As the student progresses through the course, test equipment will be used to test transformers, inductive circuits, capacitive circuits, and passive filters. The student will also be introduced to troubleshooting techniques and have time to practice those techniques on circuits they build.

EET 165 **Digital Electronics** **2**

This course begins by familiarizing the student with the fundamental gates, numbering systems and simplification techniques used for the

implementation of digital circuitry. It continues by introducing the student to the different digital codes, seven segment displays and flip-flops with emphasis placed on schematic interpretation, nomenclature and troubleshooting. This course continues with the investigation of the circuits used for counters, registers, arithmetic logic circuits and digital to analog interfacing. It examines the circuitry of each section with emphasis on circuit timing, characteristic waveforms and troubleshooting.

EET 166 **Digital Electronics Lab** **2**

This course is designed to provide the student with hands on testing and troubleshooting of the digital circuits discussed in EET 169. The circuits investigated will begin with basic logic gates and continue through flip-flops, counters, and shift registers. The student will be expected to use test equipment, such as the oscilloscope, digital meter and logic probe, to test and troubleshoot the circuits built throughout this course.

EET 167 **Introduction to Semiconductors** **2**

This course provides an introduction to semiconductor theory, the different types of semiconductor components, their symbols, characteristics, and uses. Basic power supplies, small signal amplifiers, large signal amplifiers and coupling techniques are covered. This course will concentrate on characteristic waveforms, theory and troubleshooting. Practice is provided regarding diodes, transistors and circuit applications. Sustainable practices to minimize resources and chemical use are an integral part of the course.
(*Prerequisites*: EET 161 and EET 163)

EET 168 **Introduction to Semiconductors Lab** **1**

This course provides the student with the opportunity to apply the theoretical concepts from EET 165 to real world circuits. The student will use various pieces of test equipment to verify circuit operation and to troubleshoot circuits that are faulty. At all times safety will be emphasized throughout this course. Some of the circuits included in this course are rectifiers, voltage multipliers, amplifiers from the bipolar junction transistor and the field effect transistor families. The student will use digital meters and oscilloscopes to evaluate the operational performance of the circuits used in this course.
(*Prerequisites*: EET 161 and EET 163)

EET 169 **Integrated Circuits and Thyristors** **2**

This course provides an introduction to integrated circuits through the operational amplifier, its characteristics and configurations. Amplifier troubleshooting is included, highlighting methods of determining causes of failures and locating problems. This study of integrated circuits will continue by investigating the operation of integrated voltage regulators

and the 555 universal timer. The thyristors family of electronic components is introduced through lecture to identify the characteristics, circuitry, and methods of troubleshooting this family of components.
(*Prerequisites*: EET 161 and EET 163 or instructor's approval*)

EET 170 Integrated Circuits and Thyristors Lab 1
This course will provide the student the opportunity to work with operational amplifiers integrated voltage regulators and 555 universal timers. These devices and others will be used to build and troubleshoot amplifiers, active filters and power supply circuits. The thyristors family of electronic components is also investigated through experimentation, testing and troubleshooting.
(*Prerequisites*: EET 161 and EET 163)

EET 261 Communication Electronics 2
This course begins by familiarizing the student with the fundamental theory, safety, circuits and test equipment used in communications. The course continues to cover modulation techniques, transmitters, receivers, transmission lines and antennas. The topics of safety and testing of communication circuits are an integral part of this course.
(*Prerequisites*: EET 163, EET 165, and EET 169)

EET 262 Communication Electronics Lab 1
This course has the student work with test equipment used to design and evaluate circuits common to the communications industry. Students in this course will work with oscilloscopes, spectrum analyzers, digital meters, RF meters, ELVIS and LabVIEW testing environments. Construction, safety and testing of communication circuits are an integral part of this course.
(*Prerequisites*: EET 163, EET 165, and EET 169)

EET 263 Industrial Electronics 2
This course begins with a study of industrial solid state and logic devices and compares these devices to the standard devices used for small scale electronics. The course continues with a comparison between digital logic and relay logic. The issues of power control and triggering circuits are examined with the use of power transistors, thyristors and associated circuitry. The course concludes with a study of sensors, transducers, output devices and an introduction to control topologies. Safety and troubleshooting are emphasized throughout the course.
(*Prerequisites*: EET 165 & EET 167)

EET 264 Industrial Electronics Lab 1
This course applies the theory discussed in EET 264 to practical circuits used in industry. The student begins with building and testing circuits used for timing and power control. The student will then build and test motor control circuits using starters, control relays, sensors, transducers and output

devices to build working control topologies. Safety and safe troubleshooting techniques are emphasized throughout the course.
(*Prerequisites*: EET 165 & EET 167)

EET 265 Applied Electronics Principles & Applications 2
This course is intended to provide practical electronic projects and procedures to principles and theories learned over the previous courses. Students will be expected to hone their practical skills to better prepare them for an entry-level position upon graduation. Associate theory will be discussed to enhance the student's practical abilities.
(*Prerequisites:* EET 263, AMT 253 & ART 105)

EET 266 Applied Electronics Principles & Applications Lab 2
In this course students will evaluate pieces of test equipment to hone their skills in measurement and troubleshooting in various scenarios. The students will be expected to work with oscilloscopes, digital meters, spectrum analyzers, soldering equipment, other pieces of test equipment, and time management in practical settings.
(*Prerequisites:* EET 263, AMT 253 & ART 105)

EET 299 Internship 4
This work experience is designed to expose the student to an industrial, commercial, or clinical environment. Students are placed into a contracted facility after completing 50 credit hours, having a 2.00 GPA, and meeting all other program prerequisites and academic requirements prior to their final spring semester. Students are expected to adhere to all policies and regulations associated with the facility. Students will work on projects selected to expose the student to "live" work situations, while building upon the student's knowledge, skill and attitude as an entry-level technician and will be used to grade the student's performance for the course. *(200 hours)*

Heating Ventilation & Air Conditioning Technology

Course No.	Course Title	Credits

HAC 171 **Introduction to Refrigeration** **2**

This is the first of four (4) courses in refrigeration. The course familiarizes its students with safety procedures for the use of tools and materials; basic principles of operation of compressors, condensers, and evaporators; control of systems; and performance of standard tests.

HAC 172 **Introduction to Refrigeration Lab** **2**

This course allows the student to apply the concepts covered in HAC 171. This is the second of four (4) courses in refrigeration. Students with apply the appropriate safety procedures for the use of tools and materials, operate compressors, condensers, and evaporators; control of systems, and perform standard tests.

HAC 173 **HVAC/R Electricity I** **2**

This course introduces students to AC and DC circuits, interpretation of electrical schematics, use of electrical test equipment, regulation of electrical systems, and installation of electrical equipment in accordance with the National Electrical Code.

HAC 174 **HVAC/R Electricity I Lab** **1**

This course allows the student to apply the concepts covered in HAC 173. Students will work with AC and DC circuits, interpret electrical schematics, use electrical test equipment, regulate of electrical systems, and install electrical equipment in accordance with the National Electrical Code.

HAC 175 **Pipefitting** **2**

The fundamental tools, equipment, and procedures used in pipefitting are covered in this course. Matching system components and making proper connections are studied, planned, and practiced. Applications to domestic water distribution and hot water production will be discussed. The student will also be introduced to duct work fabrication.

HAC 176 **Pipefitting Lab** **1**

This course allows the student to apply the concepts covered in HAC 175. Students will use the fundamental tools, equipment, and procedures used in pipefitting. Students will match system components and make proper connections. The student will also practice duct work fabrication.

HAC 177 HVAC/R Electricity II 2

This course is a continuation of HVAC/R 152. Motor controls used in HVAC systems will be reviewed with emphasis on reading of electrical prints, wiring, and troubleshooting of these systems.
(*Prerequisites:* HAC 173, HAC 174)

HAC 178 HVAC/R Electricity II Lab 1

This course allows the student to apply the concepts covered in HAC 178. Students will use motor controls in HVAC systems and will read electrical prints, practice wiring, and troubleshoot these systems.
(*Prerequisites:* HAC 173, HAC 174)

HAC 179 Air Conditioning Systems 2

This course exposes the student to the design, operation, and installation of air conditioning systems. All of the systems' components are studied in relation to their compatibility for ventilation, air handling, and climate control. Calculation formulas are studied, appropriate systems are discussed, and components are arranged to meet specifications and to comply with codes. *(Prerequisites:* HAC 171, HAC 172*)*

HAC 180 Air Conditioning Systems Lab 2

This course allows the student to apply the concepts covered in HAC 179. Students will design, operate, and install air conditioning systems. Students will calculate the appropriate formulas to meet specifications and to comply with codes. *(Prerequisites:* HAC 171, HAC 172*)*

HAC 271 HVAC Controls I 2

The regulation of residential HVAC systems is the focus of this course. All HVAC controlling units from circuit breakers to thermostats are reviewed. (*Prerequisites:* HAC 173, HAC 174)

HAC 272 HVAC Controls I Lab 1

This course allows the student to apply the concepts covered in HAC 271. Students will apply the regulation of residential HVAC systems for all controls. (*Prerequisites:* HAC 173, HAC 174)

HAC 273 Hydronic Heating Systems 2

The boilers and furnaces of forced hot-water heating systems are studied in this course, along with their distribution and return piping. The systems are evaluated for their efficiency as well as for their cost for components, installation, and operation.
(*Prerequisites:* HAC 175, HAC 176)

HAC 274 Hydronic Heating Systems Lab 1

This course allows the student to apply the concepts covered in HAC 273. Students will evaluate systems for efficiency, and determine cost for components, installation, and operation.

(*Prerequisites:* HAC 175, HAC 176)

HAC 275 Heating System Design & Installation 2
Gas, fuel oil, electric, and coal heating systems are covered in this course. Also included is the calculation of heat requirements, production, circulation, and loss. Various boiler units and their related accessories are evaluated for fuel choice, efficiency, and installation. Heating needs within a variety of climate zones and the formulas to calculate heat loss are also studied.

HAC 276 Heating System Design & Installation Lab 2
This course allows the student to apply the concepts covered in HAC 275. Students will calculate heat requirements, production, circulation, and loss and evaluated various boiler units and their related accessories for fuel choice, efficiency, and installation.

HAC 277 HVAC Controls II 2
The regulation of large-scale, commercial HVAC systems is the focus of this course. Operational theory and compatibility of controls to specific systems are the course's main concentration. Both electric and computer controls are integrated into single and multi-zone air-handling systems. An overview of pneumatic controls will be discussed.
(*Prerequisites:* HAC 271, HAC 272)

HAC 278 HVAC Controls II Lab 1
This course allows the student to apply the concepts covered in HAC 278. Students will determine the compatibility of controls to specific systems. Students will also integrate both electric and computer controls into single and multi-zone air-handling systems.
(*Prerequisites:* HAC 271, HAC 272)

HAC 279 Refrigeration Applications Commercial Systems 2
This course stresses the refrigeration systems used to regulate air temperature, humidity, and circulation. Both stationary and mobile units are examined in a variety of large walk-in applications. Proper handling of refrigerants is stressed in accordance with federal regulations. Calibration, testing, and troubleshooting of all components are covered. Electrical, mechanical, and material safety is emphasized.
(*Prerequisites*: HAC 171, HAC 172, HAC 179, HAC 180)

HAC 280 Refrigeration Applications Commercial Systems Lab 2
This course allows the student to apply the concepts covered in HAC 279. Students will practice the proper handling of refrigerant, and will calibrate, test, and troubleshoot all of the components covered in HAC 279. Students will practice electrical, mechanical, and material safety.
(*Prerequisites*: HAC 171, HAC 172, HAC 179, HAC 180)

HAC 281 **Applied HVAC Principles and Applications** **2**

This comprehensive course is intended to re-examine and emphasize mechanical skills and diagnostic techniques and to apply them to principles and theories learned in previous modules. Students are expected to hone the specific skills to prepare them for entry-level positions upon graduation.
(*Prerequisites:* Must complete the first three semesters of classes)

HAC 282 **Applied HVAC Principles and Applications Lab** **2**

This course allows the student to apply the concepts covered in HAC 281. Students will apply diagnostic techniques in all areas of previous study. Students are expected to hone the specific skills to prepare them for entry-level positions upon graduation. (*Prerequisites:* Must complete the first three semesters of classes)

HAC 299 **Internship** **4**

This work experience is designed to expose the student to an actual industrial, commercial, or clinical environment. Students are placed into a contracted facility after they have completed 30 credit hours, have a 2.0 GPA, and have met all other program prerequisites and academic requirements prior to their final spring semester. The student is expected to adhere to all policies and regulations associated with their work term facility. Students will work on projects selected to expose the student to "live" work situations, while building upon the student's knowledge, skill and attitude as an entry-level technician and will be used to grade the student's performance for the course. The schedule for meeting the requirement of this experience will be arranged between the student, faculty member and internship site. (*200 hours*)

Physical Therapist Assistant

Course No.	Course Title	Credits

PTA 103 **Introduction to Physical Therapy for the Physical Therapist Assistant** **2**

This course introduces the student to the physical therapy profession. Topics include history of physical therapy, the variety of physical therapy practice settings, an introduction to the Guide to PT Practice, the Code of Ethics and Standards of Ethical Conduct for the PT/PTA, the laws and regulations that oversee the profession, an introduction to principles of teaching and learning as they apply to patient instruction, the PT/PTA relationship, the PTA/patient relationship, cultural competence, patient confidentiality, and Evidence Based Practice (EBP).
Prerequisites: Completion of all general education requirements.

PTA 151 **Patient Care** **2**

This course introduces students to the skills necessary to provide basic patient management during physical therapy interventions. Topics include assessing/monitoring vital signs, body mechanics, positioning and draping, bed mobility, transfer techniques, gait training, appropriate selection and use of assistive devices, wheelchair management, and documentation.
Prerequisites: Completion of all general education requirements.

PTA 152 **Patient Care Lab** **1**

This lab course aligns with PTA 151 and focuses on the application and practice of the skills learned in PTA 151 with special attention to technique and safety. The focus is on general patient care skills required of a PTA, including, but not limited to: assessing/monitoring vital signs, body mechanics, positioning and draping, bed mobility, transfer techniques, gait training, appropriate selection and use of assistive devices, wheelchair management.

PTA 153 **Physical Therapy Procedures** **2**

This course introduces students to the therapeutic use of physical agents. Topics studied and applied include superficial heat, cryotherapy, ultrasound, diathermy, hydrotherapy, traction, compression, electrical modalities, light therapy, biofeedback, and ultraviolet radiation. Students will be introduced to principles, indications, contraindications, precautions, and application techniques.
Prerequisites: Completion of all general education requirements.

PTA 154 **Physical Therapy Procedures Lab** **1**

This lab course aligns with PTA 153 and focuses on the application of the therapeutic physical agents with special attention to technique and safety. Students will be required to demonstrate competency on the application

and judicial use of superficial heat, cryotherapy, ultrasound, diathermy, hydrotherapy, traction, compression, electrical modalities, biofeedback, light therapy, and ultraviolet radiation.
Prerequisites: Completion of all general education requirements.

PTA 155 Principles of Therapeutic Exercise 1
This course introduces the PTA student to the fundamentals, techniques, and application of therapeutic exercise as it relates to the understanding and implementing the plan of care developed by the physical therapist. Topics include principles of aerobic exercise, stretching, and improving muscle performance for the prevention, treatment, and management of injuries. *Prerequisites:* Completion of all general education requirements.

PTA 156 Principles of Therapeutic Exercise Lab 1
This lab course aligns with PTA 155 and focuses on the implementation of therapeutic interventions commonly used in physical therapy clinics with special attention to technique and safety. The focus is on therapeutic interventions including but not limited to: strengthening, stretching, aerobic exercise, PNF, NDT, motor learning, and functional activities. *Prequisites:* Completion of all general education requirements.

PTA 221 Pathophysiology 2
This course addresses the processes of inflammation and healing and disease processes relevant for the PTA student and practitioner. Topics include pathologies of the immune system, cardiovascular system, respiratory system, musculoskeletal system, neurological system, integumentary system, digestive system, urinary system, and reproductive system, in addition to topics related to neoplasms, the intensive care unit, and the geriatric patient. Students will discuss the medical and pharmaceutical management of these pathologies and the effect on the provision of physical therapy services.
Prerequisites: Completion of all general education requirements.

PTA 223 Applied Kinesiology 3
This course delivers an in-depth study of the musculoskeletal system and body movement. The study of human movement from the point of view of the physical sciences. Fundamentals of human motion are examined from the anatomical, physiological and biomechanical perspectives with an emphasis on motor skill application.
Prerequisites: Completion of all general education requirements.

PTA 224 Applied Kinesiology Lab 1
This lab course aligns with PTA 223 and focuses on the application of the biomechanical principles and muscle actions of each region to gait and postural analysis, manual muscle testing, and goniometry with attention to safety and technique.
Prerequisites: Completion of all general education requirements.

PTA 255 Interventions in Musculoskeletal 3

This course includes an exploration of pathology, prevention and management of injuries and conditions associated each region of the musculoskeletal system with a focus on the role of the physical therapist assistant in implementing a physical therapy plan of care.

Prerequisites: Completion of PTA 103, PTA 151, PTA 152, PTA 153, PTA 154, PTA 155, PTA 156, PTA 221, PTA 223, PTA 224.

PTA 256 Interventions in Musculoskeletal Lab 1

This lab course aligns with PTA 255 and focuses on the integration and practice of previously learned material and new skills / techniques / interventions commonly used to treat pathologies of the musculoskeletal system with a focus on the role of the physical therapist assistant in implementing a physical therapy plan of care.

Prerequisites: Completion of PTA 103, PTA 151, PTA 152, PTA 153, PTA 154, PTA 155, PTA 156, PTA 221, PTA 223, PTA 224.

PTA 257 Interventions in Neurology 3

This course is an introduction to neuro-rehabilitation for the PTA. Topics include but are not limited to normal movement development across the lifespan, motor control, motor learning, and neuroplasticity, along with an exploration of pathology and management of a variety of neurological disorders including but limited to CVA, spinal cord injury, traumatic brain injury, and degenerative neurological conditions.

Prerequisites: Completion of PTA 103, PTA 151, PTA 152, PTA 153, PTA 154, PTA 155, PTA 156, PTA 221, PTA 223, PTA 224.

PTA 258 Interventions in Neurology Lab 1

This lab course aligns with PTA 257 and focuses on the integration of previously learned material and new skills/techniques into the comprehensive rehabilitation of selected neurological disorders with a focus on the role of the physical therapist assistant in implementing a physical therapy plan of care.

Prerequisites: Completion of PTA 103, PTA 151, PTA 152, PTA 153, PTA 154, PTA 155, PTA 156, PTA 221, PTA 223, PTA 224.

PTA 259 Topics in Rehabilitation 3

This course will explore different topics in rehabilitation including cardio/ pulmonary issues, diabetes, amputations, burns, prosthetics/orthotics, gender specific issues, and vestibular issues. This course will provide the students with the opportunity to incorporate their knowledge of treatment procedures and techniques previously learned to specific populations in rehabilitation.

Prerequisites: Completion of PTA 103, PTA 151, PTA 152, PTA 153, PTA 154, PTA 155, PTA 156, PTA 221, PTA 223, PTA 224.

PTA 260 **Topics in Rehabilitation Lab** **1**

This lab course aligns with PTA 259 and focuses on the integration of previously learned material and new skills/techniques into the comprehensive rehabilitation of a variety of populations in rehabilitation with a focus on the role of the physical therapist assistant in implementing a physical therapy plan of care.

Prerequisites: Completion of PTA 103, PTA 151, PTA 152, PTA 153, PTA 154, PTA 155, PTA 156, PTA 221, PTA 223, PTA 224.

PTA 295 **Professional Seminar** **1**

This course will provide students with the tools necessary for professional development after graduation, including but not limited to resume writing and preparation for the NPTE for PTA's.

Prerequisites: Completion of PTA 103, PTA 151, PTA 152, PTA 153, PTA 154, PTA 155, PTA 156, PTA 221, PTA 223, PTA 224, PTA 255, PTA 256, PTA 257, PTA 258, PTA 259, PTA 260.

PTA 270 **Clinical Experience I** **2**

This is the first of three clinical experiences. It is an integrated part-time clinical experience that will take place during the students' fourth semester in the PTA program. The focus is on the application of knowledge, skills and behaviors that the PTA student has learned during their didactic and practical classroom work. During this affiliation, students should become comfortable with basic patient care skills. Students will have the opportunity to gain proficiency in the skills they have learned in prerequisite courses, including functional training, application of physical agents, mechanical modalities, electrotherapeutic modalities, basic wound care, and subsequent data collection. Students will have the opportunity to participate in direct patient care under the direction and direct supervision of either a licensed physical therapist or a physical therapist and physical therapist assistant team assigned by the facility.

Prerequisites: Completion of PTA 103, PTA 151, PTA 152, PTA 153, PTA 154, PTA 155, PTA 156, PTA 221, PTA 223, PTA 224.

Also must be enrolled in PTA 255, PTA 256, PTA 257, PTA 258, PTA 259, and PTA 260.

PTA 280 **Clinical Experience II** **5**

This is the second of three clinical experiences that will take place during the first six weeks of the students' fifth semester in the PTA program. The focus is on the application of knowledge, skills and behaviors that the PTA student has learned during their didactic and practical classroom work. During the six weeks, students have the opportunity to participate in direct patient care under the direction and direct supervision of either a licensed physical therapist or a physical therapist and physical therapist assistant team assigned by the facility. At this point, students have completed all didactic coursework and should be able to apply those skills to real patient care. In addition to the basic patient care skills, students should be able to

implement and progress treatment plans outlined by a physical therapist in a professional manner.
Prerequisites: Completion of PTA 103, PTA 151, PTA 152, PTA 153, PTA 154, PTA 155, PTA 156, PTA 221, PTA 223, PTA 224, PTA 255, PTA 256, PTA 257, PTA 258, PTA 259, PTA 260, & PTA 270.

PTA 290 Clinical Experience III 5
This final clinical experience will take place after **PTA 280** in the fifth semester. The focus of this final clinical experience is to prepare the PTA student to function as an entry-level PTA. During the six weeks, students have the opportunity to participate in direct patient care under the direction and direct supervision of either a licensed physical therapist or a physical therapist and physical therapist assistant team assigned by the facility. Students have completed all didactic coursework and have completed 360 hours of clinical education experience. As in **PTA 270** and **280**, students should be competent at all basic patient care skills, at following a physical therapist's plan of care and at progressing patients as appropriate. They should be independent with documentation and with working under the rules outlined by the APTA, the state, and the specific clinic.
Prerequisites: Completion of PTA 103, PTA 151, PTA 152, PTA 153, PTA 154, PTA 155, PTA 156, PTA 221, PTA 223, PTA 224, PTA 255, PTA 256, PTA 257, PTA 258, PTA 259, PTA 260, PTA 270, & PTA 280.

BIO 107 Human Anatomy and Physiology I 3
This course is the first semester of a medically-oriented study of the structure and function of the human body. It is designed for students specializing in health-related and science programs. Topics include basic biochemistry; basic genetics; cells; tissues; and the integumentary, skeletal, muscular, endocrine and nervous systems. Successful completion of recent high school biology and chemistry courses is highly recommended.

BIO 108 Human Anatomy & Physiology I Lab 1
This lab is designed to enhance and reinforce topics covered in HAP 101 lecture. Topics will include body organization, cell anatomy, histology and tissues organization, the integumentary system, the skeletal system, the muscular system, and the nervous system. In addition to the lab manual, this course will utilize McGraw Hill's Anatomy and Physiology Revealed (APR) which is a computerized system that enables students to explore the human anatomy and physiology through the use of a virtual dissection, histological review, and self-paced quizzing.

BIO 109 Human Anatomy and Physiology II 3
This course is the second semester of a medically-oriented study of the structure and function of the human body. Topics include digestive, cardiovascular, respiratory, lymphatic, immune, urinary, reproductive

systems and the inclusion of anatomical topography and transverse anatomy. *Prerequisite:* BIO 107

BIO 110 **Human Anatomy & Physiology II Lab** **1**

This lab is designed to enhance and reinforce topics covered in HAP 102 lecture. Topics will include the blood and circulation, the cardiovascular system, the lymphatic system and immunity, the respiratory system, the urinary system, the reproductive system, the digestive system, and the endocrine system, as well as human development and genetics and metabolic function and nutrition. In addition to the lab manual, this course will utilize McGraw Hill's Anatomy and Physiology Revealed (APR) which is a computerized system that enables students to explore the human anatomy and physiology through the use of a virtual dissection, histological review, and self-paced quizzing. *Prerequisite*: BIO 108

MTR 100 **Medical Terminology** **1**

This course is a survey of the terminology used routinely in the medical environment. It will begin with a learning of the common root words used in constructing medical terms and integrate commonly used medical acronyms and abbreviations. The information will be presented according to anatomical systems. The student will be responsible for knowing the written and auditory recognition of the terminology reviewed.

Radiologic Technology

Course No.	Course Title	Credits

RAD 151 **Radiologic Positioning I** **3**

This course introduces the student to basic terminology used in radiographic positioning. The curriculum provides a comprehensive study of theory and principles of basic positions of the upper and lower extremities, bony thorax, chest and abdomen. This course is designed to synthesize the information and exhibit the knowledge for criteria, centering, and positioning of anatomy to produce a diagnostic image.

RAD 152 **Radiologic Positioning I Lab** **1**

This course introduces the student to the practical knowledge and application of positioning. The curriculum provides a comprehensive application of the principals of basic positions of the upper and lower extremities, bony system. It is designed to develop competency through laboratory practicum applications. Laboratory experiences utilizes phantom apparatuses and an energized lab to complement the classroom portion of the course.

RAD 153 **Radiologic Exposures & Principles I** **3**

This course is an introduction to the fundamental concepts and techniques relating to the production of x-rays. Emphasis is placed on the factors affecting an acceptable radiograph: contrast, receptor exposure, spatial resolution and all of the geometric properties associated with diagnostic imaging.

RAD 154 **Radiologic Exposures & Principles I Lab** **1**

This course is a laboratory experience utilizing model apparatus in an energized lab which allows the students to apply the concepts acquired in the classroom environment.

RAD 155 **Patient Care I** **2**

This course will provide a comprehensive study of basic concepts regarding patient care. The student will study proper body mechanics, transfer techniques, medical asepsis, communication skills with patients and co-workers, how to measure vital signs, how to deal with medical emergencies, and isolation techniques. It progresses into theory and advanced application of the clinical concepts of patient care and medical techniques in the radiology department.

RAD 157 **Radiologic Positioning II** **2**

This course is a continuation of RAD 151. The course is designed to develop competency in diagnostic procedures of the vertebral column, cranium, gastrointestinal system, biliary tract, and urinary system.

(*Prerequisites:* RAD 151,RAD 152, RAD 153, RAD 154, RAD 155, BIO 107, BIO 108, MTR 100)

RAD 158 Radiologic Positioning II Lab 1

This course is a continuation of RAD 151 and RAD 152. The course is designed to develop competency in diagnostic procedures of the vertebral column, cranium, gastrointestinal system, biliary tract, and urinary system. Competence will be demonstrated on a weekly basis in a laboratory setting. Further practice will come in the actual clinical setting under the guidance of an assigned clinical radiographer.
(*Prerequisites:* RAD 151, RAD 153 RAD 155, BIO 101, MTR 100)

RAD 159 Radiologic Exposures & Principles II 3

A continuation of RAD 153, this course is designed to acquaint students with the comprehensive analysis of the factors affecting image quality requiring integration of all exposure and technical factors previously learned. The student will learn the components, principles and operation of fluoroscopy, tomography, mobile and digital radiology imaging systems and the factors that impact image acquisition, display, and retrieval in radiology.
(*Prerequisites:* RAD 151, RAD 152, RAD 153, RAD 154, BIO 107, BIO 108, MTR 100)

RAD 161 Patient Care II 2

This course will discuss the use of pharmacodynamics and drug classifications; it focuses on radiopaque contrast media used in imaging procedures. Pharmacokinetics coverage describes how drugs are absorbed, metabolized, distributed, and eliminated. The second half of the course will review today's health care and hospital environment, proper documentation, accrediting bodies, and the professional ethics guiding the health worker today. Professionalism and legal implications will also be discussed. This course will also include legal doctrines and patient consent forms. The details of Quality Assurance, Quality Management, and Quality Control will also be reviewed in this course.
(*Prerequisite:* RAD 155)

RAD 163 Clinical Practicum I 2

An introduction to the clinical radiographic experience applies radiographic theory and provides learning experiences to help the student acquire expertise and proficiency in a variety of diagnostic radiographic procedures at specified levels of competency. Students will work on various radiographic equipment, and show competency in anatomy and physiology and radiographic positioning. Additionally, students will integrate knowledge of patient care, medical ethics and apply critical thinking skills into daily radiographic practice. Students will spend a minimum of 15 per week hours in the clinical environment. Students must

have verification of current CPR certification, annual health examination, immunizations, and all current clearances required by Johnson College.
(*Prerequisites:* RAD 151, RAD 152, RAD 153, RAD 155, BIO 107)

RAD 165 Clinical Practicum II 4

A continuation of the clinical radiography experience applies radiographic theory and provides learning experiences to help the student acquire expertise and proficiency in a variety of diagnostic radiographic procedures at specified levels of competency. Students will display basic radiation protection standards, become familiar with various radiographic equipment, and show competency in anatomy and physiology as well as radiographic positioning. Additionally, students will integrate knowledge of patient care, develop critical thinking skills and medical ethics into daily radiographic practice. Students will spend a minimum of 40 hours in the clinical environment per week, which will include one weekend shift. Students must have verification of current CPR certification, annual health examination immunizations, and all current clearances required by Johnson College.
(*Prerequisites:* RAD 163, BIO 107, RAD 157, RAD 159, RAD 161)

RAD 251 Clinical Practicum III 2

A continuation of the clinical radiography experience applies radiographic theory and provides learning experiences to help the student acquire expertise and proficiency in a variety of diagnostic radiographic procedures at specified levels of competency. Students will work on various radiographic equipment, and show competency in anatomy and physiology and radiographic positioning. Additionally, students will integrate knowledge of patient care, develop critical thinking skills and medical ethics into daily radiographic practice. Students will spend a minimum of 16 hours per week in the clinical environment. Students must have verification of current CPR certification, annual health examination, immunizations and all current clearances required by Johnson College.
(*Prerequisite:* RAD 165)

RAD 253 Radiation Biology & Protection 3

This course describes the effects of ionizing radiation on cells in the human body and how the effects of x-ray radiation affect biological tissue. Radiation protection, monitoring, and dose limits will be reviewed in this course with an emphasis on the ALARA concept. The course will also review and define the roles of the regulatory agencies and their involvement in radiation protection.
(*Prerequisites:* RAD 151, RAD 153, RAD 155, BIO 109)

RAD 255 Image Analysis 2

This course is designed to provide students with a basis for analyzing radiographic images for diagnostic purposes. Students will become acquainted with the importance of minimum imaging standards, problem

solving technique for image evaluation and the factors that can affect the image quality. Students will be responsible for critiquing radiographs to decide whether they are diagnostically acceptable and assure consistency in the production of quality images. (*Prerequisites:* RAD 157, RAD 159, BIO 109)

RAD 257 Advanced Exposures 2

This course is an introduction of the basic principles and techniques of digital radiology. Topics include image acquisition, display, archiving along with principles of both digital system and quality assurance, quality management, quality control and maintenance.
(*Prerequisites:* RAD 157, RAD 159, RAD 161, RAD 165)

RAD 259 Clinical Practicum IV 3

The clinical radiography experience applies radiographic theory and provides learning experiences to help the student acquire expertise and proficiency in a variety of diagnostic radiographic procedures at specified levels of competency. Students will work on various radiographic equipment, and show competency in anatomy and physiology and radiographic positioning. Additionally, students will integrate knowledge of patient care, develop critical thinking skills and medical ethics into daily radiographic practice. Students will spend a minimum of 24 hours per week in the clinical environment. During this final practicum, students will be offered an optional rotation through specialized modalities. Students must have verification of current CPR certification, annual health examination, immunizations and all current clearances required by Johnson College. (*Prerequisite:* RAD 251)

RAD 261 Radiologic Pathology 2

This course emphasizes human pathology on a gross anatomic level. Inflammatory, immunology, infections, traumatic and neoplastic processes will be emphasized. Specific diseases will be studied in further depth from an organ system approach.
(*Prerequisites:* RAD 159, RAD 157, BIO 109)

RAD 263 Advanced Medical Imaging 2

This course familiarizes the student with the different modalities within the field of radiology. The students will explore topics in specialized areas such as CT, MRI, Nuclear Medicine, Mammography, PET, Bone Densitometry, Ultrasound, and Radiation Oncology. The students will review, cross sectional anatomy, trauma radiology, myelograms, arthrograms and pediatric imaging.
(*Prerequisites:* RAD 253, RAD 257, PHY 201)

RAD 295 **Professional Seminar** **2**

This course is established to assist the student in preparing for the registry examination given by the American Registry of Radiologic Technologists (ARRT). (*Prerequisite:* RAD 251)
Must pass competency examination with a minimum score of 76%.)

MTR 100 **Medical Terminology** **1**

This course is a survey of the terminology used routinely in the medical environment. It will begin with a learning of the common root words used in constructing medical terms and integrate commonly used medical acronyms and abbreviations. The information will be presented according to anatomical systems. The student will be responsible for knowing the written and auditory recognition of the terminology reviewed.

Veterinary Technology

Course No.	Course Title	Credits

VET 151 **Intro. to Veterinary Technology / Clinical Management** **1**

This course focuses on the duties and responsibilities of veterinary technicians as well as job opportunities in the field of veterinary technology. The human-animal bond and ethical issues are introduced to the student. This course provides students with the basic understanding of operations in a clinical setting in addition to office and managerial duties of technicians such as scheduling, ordering, inventory control, teamwork dynamics, and compassion fatigue. Students are required to attend an OSHA training in order to complete clinical assignments (a certificate will be granted upon completion). Students may be required to participate in activities of the Johnson College Animal Care Center to gain hands on experience to enhance the course material.

VET 153 **Clinical Applications for Large Animals** **2**

The focus of this course is to introduce students to large animals (horses, cattle, small ruminants). Students will learn about restraint and handling of large animals with an emphasis placed on safety. Course material will also include basic nursing care (medicating, physical exams, sample collections, as well as other routine procedures). Students will familiarize themselves with the large animal setting (farms/barns) in addition to tools and techniques found in large animal medicine. This course compliments VET 154, Large Animal Clinical Applications Lab

VET 154 **Clinical Applications for Large Animals Lab** **1**

The focus of this course is to introduce students to large animals (horses and cattle). Students will learn how to safely restrain and handle large animals. Course material will also include basic nursing care (medicating, physical exams, sample collections, etc). Students will familiarize themselves with the large animal setting (farms/barns) and various tools, equipment and techniques used in large animal medicine. This course compliments VET 153, Large Animal Clinical Applications.

VET 155 **Clinical Applications for Small Animals** **2**

This course will provide information on skills needed to work in a clinical setting. Emphasis will be on safety, handling & restraint techniques, general patient care and assessment, and medicating small animals. The course will also concentrate on husbandry and care of laboratory animals. ***Companion animal and Lab animal daily rotations are associated with this course requiring weekend and holiday animal rotations. Schedule will be provided.*** This course compliments VET 156, Small Animal Clinical Applications Lab.

VET 156 Clinical Applications for Small Animals Lab 1

This lab class allows students hands-on experience with various small animal species (*small rodents, rabbits, cats & dogs with availability*), including handling & restraint, administration of medication, and performing physical exams. Students must provide proof of prophylactic rabies inoculation and tetanus inoculation in order to participate in the lab. ***Companion animal and Lab animal daily rotations are associated with this course requiring weekend and holiday animal rotations. Schedule will be provided.*** This course compliments VET 155, Small Animal Clinical Applications.

VET 157 Animal Anatomy and Physiology I 3

This course places an emphasis on cellular anatomy and morphology, principles of histology, and microscopic anatomy of tissues. Genetics, cellular reproduction, anatomy & physiology of blood, skeletal, muscle and nervous systems will be included in this course noting specific differences between species and emphasizing clinical use. Proper terminology is utilized to describe the major organs of each system, their location and functions. This course compliments VET 158, Animal Anatomy and Physiology Lab.

VET 158 Animal Anatomy and Physiology Lab I 1

Topics covered in this course include anatomic directions, cells, cell type, morphology, histology, organ systems and the skeleton. In addition, the student will learn the proper use of a microscope. Personal protective equipment (PPE)/laboratory safety are covered. This course compliments VET 157, Animal Anatomy and Physiology.

VET 159 Animal Anatomy and Physiology II 3

This course is a study of the anatomical and physiological systems of animals that may be encountered by the veterinary technician. It provides exposure to major anatomical and physiological systems, noting specific differences between species and emphasizing clinical use. Proper terminology is utilized to describe the major organs of each system, as well as their locations, and functions. The course will cover the following systems: nervous, integument, special senses, cardiac, respiratory, immune, alimentary, endocrine, urinary, and reproduction as well as basic avian anatomy and physiology. This course compliments VET 160, Animal Anatomy and Physiology.
(*Prerequisites*: VET 151, VET 157, VET 158)

VET 160 Animal Anatomy and Physiology Lab II 1

This lab course emphasizes the study of muscle, gastro-intestinal, nervous (including sensory organs), cardiovascular, respiratory, endocrine, urinary, and reproductive structure of the cat, dog, horse and ruminant. This course utilizes preserved cat, mink, and heart and eye specimens. This

course compliments VET 159, Animal Anatomy and Physiology II. (*Prerequisites*: VET151, VET 157, VET 158)

VET 161 **Parasitology & Immunology** **2**

This course will provide a foundation of microbiology, immunology, and parasitology for veterinary technicians. This course will cover characteristics of bacteria, fungi, viruses, and parasites, including emphasis on specific disease causing organisms, diagnosis, treatment, and prevention. In addition, this course will introduce some basic concepts of humoral and cellular immunity, emphasizing uses in laboratory diagnostics and vaccines. This course compliments VET 162, Parasitology & Immunology Lab.
(*Prerequisites*: VET 151, VET 157, VET 158)

VET 162 **Parasitology & Immunology Lab** **1**

This course involves identification of parasites, bacteria, viruses, and fungi common to veterinary medicine. Students will practice sample collection and preparation for parasitological and microbiological examination. Sample collection, handling, preparation & precautions are stressed. This course compliments VET 161, Parasitology & Immunology. (*Prerequisites*: VET 151, VET 157, VET 158)

VET 165 **Animal Husbandry / Breeds / Nutrition** **2**

This course introduces students to the basic care, management and breeding of common companion, farm and exotic animals. Various breeds of each species are highlighted as well as basic nutritional requirements. Reptile and avian species, husbandry and reproduction will be covered as well. Students will be required to participate in activities off campus to gain hands-on experience with farm animals. (*Prerequisite*: VET 151)

VET 251 **Pharmacology & Anesthesia** **3**

This course is the study of the theory and application of pharmacology. Classifications of drugs and their usage, with specific information on mechanism of action, side effects, and dosing will be discussed. Students will be exposed to drug calculations and be expected to prepare and administer medications. This course covers dispensing medication and client instruction on how to give medications as well as educate clients on adverse reactions to medications.
(*Prerequisites:* VET 151, VET 153, VET 155, VET 157, VET 159, CHM 101, CHM 102)

VET 253 **Clinical Pathology** **2**

This course is designed to familiarize the student with diagnostic laboratory procedures commonly performed in the veterinary field. Discussions include clinical chemistry, veterinary hematology, urology and cytology. Sample collection and handling along with instrumentation and equipment maintenance is discussed. This course compliments

VET 254, Clinical Pathology Lab.
(Prerequisites: VET 151, VET 157, VET 158, VET 159, VET 160)

VET 254 Clinical Pathology Lab 1

This lab is designed to enhance and reinforce lecture and/or demonstrations by allowing students the opportunity to practice a variety of laboratory tests common to veterinary medicine. Students will perform hematological analyses, clinical chemistries, and urinalysis in addition to ear and skin cytology. This course compliments VET 253, Clinical Pathology.
(Prerequisites: VET 151, VET 153, VET 155, VET 157, VET 158, VET 159, VET 160)

VET 257 Clinical Rotation - Surgery 1

Each student will be assigned to specific areas within the Johnson College Animal Care Center. Areas will include radiology, lab, kennel, reception, pharmacy, and examination rooms, as well as other areas within the facility. Students will work alongside a licensed technician to hone skills learned in lecture and in labs. NOTE: successful completion of this course requires a 76% or better score on the written final exam, oral/practical exam, and instructor evaluations' of students. *Kennel rotations are associated with this course requiring weekday and weekend rotation times.* (*Prerequisite:* Students must have successfully completed all first year courses)

VET 259 Surgical Nursing I 2

This course focuses on anesthesia principles and practices and standard surgical procedures. This course covers the role of a surgical technician in regards to preoperative procedures, prepping, scrubbing, assisting, and post-operative procedures, as well as client education/communication. (*Prerequisites*: VET 153, VET 154, VET 155, VET 156, VET 159, VET 160)

VET 263 Surgical Nursing II 2

Dental procedures will be a focus of this course. Additionally, this course focuses on surgical procedures (spays and neuters as well as other common surgeries of both small and large animals) as well as ECG application and interpretation for patient monitoring. The course places special emphasis on pain management, wound management, physical therapy and other nursing care duties and responsibilities of technicians.
(*Prerequisite*: VET 259)

VET 265 Clinical Rotation - Medicine 1

Each student will be assigned to specific areas within the Animal Care Center. Areas will include treatment, lab, kennel, and surgery, as well as other areas within the facility. Students will work alongside a licensed technician to hone skills learned in lecture and in labs. NOTE: successful

completion of this course requires a 76% or better score on the written final exam, oral/practical exam, and instructor evaluations' of students. *Kennel rotations are associated with this course requiring weekday and weekend rotation times.* (*Prerequisite*: Students must have successfully completed all first year courses)

VET 267 Veterinary Radiology 1

This course is a study of radiological procedures for domestic animals common to veterinary medicine. It includes an overview of radiographic properties and equipment, restraint and positioning techniques, as well as exposing, developing and assessing radiographs. Record keeping and safety issues are discussed in addition to specialized radiographic studies. Students are provided hands-on opportunity to practice the techniques learned in class. This course compliments VET 268, Veterinary Radiology Lab. (*Prerequisites*: VET 151, VET 153, VET 154, VET 155, VET 156, VET 159, VET 160)

VET 268 Veterinary Radiology Lab 1

This course provides a hands-on study of radiological procedures for domestic animals common to veterinary medicine. It encourages the practice of how to work with radiographic properties and equipment, restraint and positioning techniques, as well as exposing, developing and assessing radiographs. Appropriate record keeping and safety issues are reviewed in addition to specialized radiographic studies. Students are provided hands-on opportunity to practice the techniques learned in lecture. This course compliments VET 267, Veterinary Radiology Lab (*Prerequisites*: VET 151, VET 153, VET 154, VET 155, VET 156, VET 159, VET 160)

VET 269 Intensive Care Applications 3

This course is a study of the technician's role in emergency and intensive care. Students will study fluid therapy, blood transfusion, CPR and other procedures associated with emergency and critical care protocols. This course also includes 8 hours of exposure to emergencies in an emergency facility. (*Prerequisites*: VET 151, VET 153, VET 154, VET 155, VET 156, VET 159, VET 160)

VET 271 Diseases and Zoonoses 3

This course is primarily the study of diseases (infectious, contagious, zoonotic, inflammatory, and organ system) and toxicology. Species studied include canine/feline, bovine/equine, porcine, small ruminant and select exotic species such as birds, ferrets, rabbits and reptiles. Topics such as the etiology, clinical signs, diagnostic tools, prevention techniques, treatments and public health issues for particular diseases are presented. A study of vaccine protocols for each species is also included where applicable. (*Prerequisites*: VET 151, VET 153, VET 154, VET 155, VET 156, VET 159, VET 160, VET 161, VET 162, VET 165, VET 251)

VET 295 **Professional Seminar** **1**

This 1 credit course is a capstone of the Veterinary Technology program. The course will focus on preparing the student to sit for the VTNE licensing exam buy concentrating on material from the nine (9) practice domains on the exam. The course will also provide information & skills necessary to participate in the internship/co-op requirement and CV writing. Students will be required to complete an online CPR certification. Students will be challenged utilizing case-based scenarios and complete multiple VTNE style practice exams in preparation for the VTNE. (*Prerequisite*: Must have successfully completed all 1st through 3rd semester courses. Must be taken the final semester prior to internships.)

VET 299 **Internship** **4**

This work experience is designed to expose the students to an actual clinical environment. Students go into a contracted facility after they have met all program requirements. The students are expected to adhere to all policies and regulations associated with their work-term facility. This work experience is intended to expound upon the students' knowledge, skill and aptitude as an entry-level technician. Students will be expected to purchase a minimum of 2 full sets of Johnson College scrubs. A uniform fitting is scheduled prior to the internship. (Prerequisites: Must have successfully completed all VET 1st and 2nd year courses).

Welding Technology

Course No.	Course Title	Credits

WTC 151 **Shielded Metal Arc Welding** **2**

This course is designed to teach the student the basic safety, principles, practices, and applications of SMAW. This course covers welding trade theory including safety, tool usage, equipment set up and standard terms and definitions. Basic welding and cutting techniques in the flat, horizontal, vertical and overhead position, tank safety and welding safety will be taught. The course also covers basic metallurgy and how to identify weld problems and defects. This course will progress to the most advanced SMAW practices with concentration on vertical and overhead welding techniques conforming to the AWS structural welding code. Weld problems, corrections and specific techniques will be covered in this course.

WTC 152 **Shielded Metal Arc Welding Lab** **4**

This course is designed to allow students to apply the theory and techniques taught in WTC151 Shielded Metal Arc Welding. Student will practice basic safety, principles, practices, and applications of SMAW, basic welding and cutting techniques in various positions. Weld problems, corrections and specific techniques will also be practiced in this course.

WTC 153 **Gas Metal and Flux Cored Arc Welding** **1**

This course is designed to teach the student the basic principles, practices, and applications of GMAW and FCAW. This course covers gas metal arc welding and flux cored arc welding in the flat and horizontal position. Students will be given classroom theory and hands on instruction in both processes. American Welding Society weld symbols will also be covered.

WTC 154 **Gas Metal and Flux Cored Arc Welding Lab** **2**

This course is designed to allow students to apply the theory and techniques taught in WTC 153 Gas Metal and Flux Cored Arc Welding I. Student will practice basic safety, principles, practices, and applications of GMAW and FCAW in the flat and horizontal positions. Weld problems, corrections and specific techniques will also be practiced in this course.

WTC 155 **Gas Metal and Flux Cored Arc Welding** **1**

This course covers the most advanced GMAW/FCAW practices. The concentration will be on vertical and overhead welding techniques conforming to the AWS structural welding code. Weld problems, corrections and specific techniques will be covered in this course.

WTC 156 Gas Metal and Flux Cored Arc Welding Lab 2

This course is designed to allow students to apply the theory and techniques taught in WTC 155 Gas Metal and Flux Cored Arc Welding II. Student will practice basic safety, principles, practices, and applications of GMAW and FCAW in the vertical and overhead positions. Weld problems, corrections and specific techniques will also be practiced in this course.

WTC 157 Gas Tungsten Arc Welding 2

This course is designed to teach the student the basic safety, principles, practices, and applications of GTAW. This course covers GTAW welding theory including safety, tool usage, equipment set up and standard terms and definitions. Basic welding techniques using GTAW in the flat, horizontal, vertical and overhead positions will be taught. The course also covers related metallurgy, and how to identify weld problems and defects when using this process.

WTC 158 Gas Tungsten Arc Welding Lab 4

This course is designed to allow students to apply the theory and techniques taught in WTC 157 Gas Tungsten Arc Welding. Student will practice basic safety, principles, practices, and applications of GTAW in the flat, horizontal, vertical and overhead positions. Weld problems, corrections and specific techniques will also be practiced in this course.

GENERAL EDUCATION COURSES

Student Success Seminar

The Student Success Seminar course is designed to help first year students transition to the college environment, reflect on their personal and academic goals, develop a better understanding of the learning process, and acquire essential skills for success in college and beyond.

SSS 101 is an interdisciplinary introduction to the college experience, including policies and resources, study skills, test preparation, use of college resources, technology, electronic mail, academic and career planning, time and money management, and discussion of relevant contemporary topics in health and wellness. The students will learn how to navigate the technology-learning tool Desire 2 Learn and become familiar with campus resources. This course may also be offered in a distance education format, when available.

Successful completion of SSS 101 – Student Success Seminar is a graduation requirement. Failure to successfully complete the course will require a rescheduling of the course for a subsequent semester or at the end of the freshman year to an intensive Independent Study. Students who have previously earned an associate's degree or higher from an appropriately accredited institution of higher education will be exempt from this course with official verification.

Art

Course No.	Course Title	Credits

ART 101 **Blueprint Reading for Welders** **1**

This course provides detailed information to help the students gain the skills that are required to read prints that are most common in the welding industry. Basic lines and view, dimensions, bill of materials and structural shapes are emphasized in this course. Accuracy of measurements and attention to detail will be stressed in the course.

ART 103 **Intro. To Print Reading and Shop Drawings** **1**

This course is designed to introduce the students to the basics of print reading and interpretation. The areas of focus include the lines types, symbols, views, title blocks, that are encountered when dealing with cabinetmaking and industrial prints. Sketching, materials, and finishes are also discussed. The course is intended to give the students an understanding of industrial prints and how their information is conveyed in both diagrammatic and sentential forms.

ART 105 **Blueprint / Schematic Reading** **3**

This course conveys to the students an understanding of the procedures for reading and interpreting industrial prints. The course includes related peripheral information that will enhance the students' understanding of the

diversity that is characteristic of industrial prints. Many types of industrial prints and their applications will be covered during this course.

ART 110 Contract Drawings 3

This course will introduce students to reading and understanding Contract Drawings for residential and commercial construction. This course will cover the composition of different industry drawings such as Residential House Plans, Commercial Architectural Plans, Civil Plans, Structural Plans, Plumbing Plans, HVAC Plans and Electrical drawings. Students will be instructed on what type of information these drawings contain and what purpose these drawings serve.

ART 115 Web Programming, Client Side Scripting 2

The focus of this course includes but is not limited to the knowledge and techniques necessary to author industry standard web pages using HTML, XML, CSS, and Java script. Students will analyze problems and develop solutions for a typical company web page, as well as the web pages installation and support on both Windows Internet Information Server and Linux Apache Web Server platforms. Students will also be exposed to basic techniques used to resolve database issues.

ART 116 Web Programming, Client Side Scripting Lab 1

The focus of this lab includes but is not limited to the knowledge and techniques necessary to author industry standard web pages using HTML, XML, CSS, and Java script. Students will analyze problems and develop solutions for a typical company web page, as well as the web pages installation and support on both Windows Internet Information Server and Linux Apache Web Server platforms. Students will also be exposed to basic techniques used to resolve database issues.

ART 125 Art in Industry 2

This course introduces students of various divisions of study to 3D printing in an Art & Design setting. The students will be exposed to how the various industries represented at the college use 3D printing. Lecture topics will include adapting designs for the 3D printing process, creation of an iterative design, designing with texture, modification of primitive polyhedral shapes, and learning rules of 3D design. Students will be exposed to a variety of techniques, processes, materials, and technology commonly used in 3D printing. The students will create and print using a variety of 3D printers and learn post-processing techniques for how to achieve a desired finish on their projects.

ART 126 Art in Industry Lab 1

This course is designed to accompany ART 125 Art in Industry. Students will create and print using a variety of 3D printers and learn post-processing techniques for how to achieve a desired finish on their projects.

ART 129 **Introduction to Woodcraft and Design** **2**

The course involves the theoretical and practical knowledge in designing and fabrication of wooden products. Topics will include the fundamentals of functional design, basic woodworking skills, and safe use of hand and power tools. This course will explore different wood materials and assembly methods while focusing on conservation of natural resources.

ART 130 **Introduction to Woodcraft and Design Lab** **1**

This lab course complements the lecture portion of ART 129 Introduction to Woodcraft and Design and will focus on the hands-on practice of design, basic woodworking skills, and safe use of hand and power tools.

Building Trades and Technology

Course No.	Course Title	Credits

BTT 149 **Construction Safety** **1**

This course is an industry-designed course covering safety topics specific to the construction industry. Students who successfully complete the course will earn an OSHA 10 hour card. The course is taught by a certified OSHA 10 trainer.

Communication

Course No.	Course Title	Credits

COM 211 **Communication Theory** **3**

This course addresses specialized communication that helps readers and/or listeners respond to the challenges of the world of technology while being ethically and legally responsible. Class content focuses on understanding communication in the workplace, acquiring the tools/strategies needed for effective workplace communication, and creating effective workplace documents. Students complete a mock interview, journal assignments, and a PowerPoint presentation. This course may also be offered in a distance education format, when available. (*Prerequisite:* ENG 101)

COM 212 **Public Speaking** **3**

Stressed in this course is the importance of oral communication for understanding, evaluating, and explaining various occupationally-related conditions. The course content includes theory and practice in the organization, preparation, delivery, and evaluation of extemporaneous discourse. Each student completes a mock interview and delivers a minimum of six different types of speeches. This course may also be offered in a distance education format, when available.

ENG 101 **English Composition I** **3**

This course develops writing competency through the students' construction of essays and an academic research paper. Outlining, mechanics, syntax, and format are stressed in all writing assignments. This course may also be offered in a distance education format, when available.

Humanities

Course No.	Course Title	Credits

CSM 105 **Customer Service and Our World** **3**

This course explores the today's business landscape and the forces influencing culture and consumers including media, art, religion, geopolitics and literature. It provides a solid foundation for understanding customers and the philosophy of customer service from the perspective of several different industries. Students will engage in role play, case studies, and activities that will stress the importance of customer satisfaction. This course may also be offered in a distance education format, when available.

ENT 101 **Entrepreneurship I** **3**

This course acquaints the student with a realistic approach to the problems and concerns of starting a small business. An understanding of the economic and social environment within which the small business functions will be developed. The student will be familiarized with the writing of a business plan. This course may also be offered in a distance education format, when available. (*Prerequisite:* BUS 101)

HMN 101 **Introduction to Humanities** **3**

This course creates an appreciation for cultural values and differences as portrayed in music, painting, architecture, video and literature. When possible, examples that include multiple arts are studied. Diversity is stressed in all examples. This course may also be offered in a distance education format, when available.

Mathematics

Course No.	Course Title	Credits

MAT 100 **Applied Mathematics for Welders** **3**

This course is an examination of basic arithmetic, (adding, subtracting, multiplying, and dividing whole numbers, decimals and fractions) as well as percentages. This course also covers metric system measurements, computation of geometric measure and shapes, angular development and

measurement, and including bends, stretchouts, economical layout and takeoffs.

MAT 101 **College Algebra I and Trigonometry** **3**

This course covers linear equations and inequalities, ratio and proportions, basic operations involving algebraic, polynomial and rational expressions, exponent rules and factoring, an introduction to geometry, including perimeter, area and volume, right triangle trigonometry and radian measure. This course may also be offered in a distance education format, when available.

MAT 110 **Trigonometry** **3**

This course investigates angles triangles, trigonometric functions and equations, radian and degree measurements, circular functions, graphs, identities, vectors, complex numbers, polar coordinates, parametric equations, and applications. This course may also be offered in a distance education format, when available. (*Prerequisite*: MAT 101)

MAT 121 **Introduction to Statistics** **3**

This course is intended to introduce students to the basic concepts of data collection, data analysis and statistical inference. Topics include an overview of observational and experimental study designs, graphical and numerical descriptive statistics, probability distributions for simple experiments and random variables, sampling distributions, confidence intervals and hypothesis testing for the mean and proportion in the one sample case. The emphasis is on developing statistical reasoning skills and concepts. This course may also be offered in a distance education format, when available.

MAT 123 **Math for Carpenters** **1**

This course is an examination of basic arithmetic, (adding, subtracting, multiplying, and dividing whole numbers, decimals and fractions) as well as percent, formulas as it applies to the carpentry courses. This will also include costs, conversion of units, linear, square, cubic, and board measures. This course may also be offered in a distance education format, when available.

MAT 201 **College Algebra II and Trigonometry** **3**

This course covers systems of equations, solutions to quadratic and higher degree equations, roots and radicals, and oblique triangles. This course may also be offered in a distance education format, when available. (*Prerequisite*: MAT 101)

MAT 202 **Pre-calculus** **3**

The course investigates fundamentals of plane analytical geometry, conic sections, complex numbers and polynomial, rational, exponential, logarithmic, and trigonometric functions. (*Prerequisite*: MAT 201)

MAT 205 **Medicine and Mathematics** **3**

The course is designed to help students with an interest in medicine learn how medications dosages are properly determined for a patient. This course can help students interested in medicine or health professions improve the skills needed for their future careers or goals. The course will explore concepts of drug dosing and calculations for the use of fractions, percentages, ratios, proportions and conversions as they relate to the medical world. Units within the apothecary and household systems will also be compared and issues with our interpretation of each system will be discussed. (*Prerequisite*: MAT 101)

Science

Course No.	Course Title	Credits

BIO 105 **Physiology and Anatomy** **3**

The structure and functions of the human body as related to biomedical instrumentation are the subject matter covered in this course. Major body systems are discussed, followed by correlations to the physiological variables to be measured and the basic principles of instrumentation that could be used.

BIO 107 **Human Anatomy and Physiology I** **3**

This course is the first semester of a medically-oriented study of the structure and function of the human body. It is designed for students specializing in health-related and science programs. Topics include basic biochemistry; basic genetics; cells; tissues; and the integumentary, skeletal, muscular, endocrine and nervous systems. Successful completion of recent high school biology and chemistry courses is highly recommended.

BIO 108 **Human Anatomy & Physiology I Lab** **1**

This lab is designed to enhance and reinforce topics covered in BIO 107 lecture. Topics will include body organization, cell anatomy, histology and tissues organization, the integumentary system, the skeletal system, the muscular system, and the nervous system. In addition to the lab manual, this course will utilize McGraw Hill's Anatomy and Physiology Revealed (APR) which is a computerized system that enables students to explore the human anatomy and physiology through the use of a virtual dissection, histological review, and self-paced quizzing.

BIO 109 **Human Anatomy and Physiology II** **3**

This course is the second semester of a medically-oriented study of the structure and function of the human body. Topics include digestive, cardiovascular, respiratory, lymphatic, immune, urinary, reproductive

systems and the inclusion of anatomical topography and transverse anatomy. (*Prerequisite:* BIO 107)

BIO 110 **Human Anatomy & Physiology II Lab** **1**

This lab is designed to enhance and reinforce topics covered in BIO 109 lecture. Topics will include the blood and circulation, the cardiovascular system, the lymphatic system and immunity, the respiratory system, the urinary system, the reproductive system, the digestive system, and the endocrine system, as well as human development and genetics and metabolic function and nutrition. In addition to the lab manual, this course will utilize McGraw Hill's Anatomy and Physiology Revealed (APR) which is a computerized system that enables students to explore the human anatomy and physiology through the use of a virtual dissection, histological review, and self-paced quizzing. (*Prerequisite*: BIO 108)

CHM 101 **Chemistry I** **3**

This course emphasizes the fundamentals of basic chemistry. Students will learn the concept of atoms, molecules and compounds. Students will then apply this knowledge to the concepts including arrangement of the periodic table; chemical equations; Stoichiometry; states of matter, concentrations, solutions, and pH (including acids and bases).

CHM 102 **Chemistry I Lab** **1**

This course emphasizes the fundamentals of basic chemistry through the practical experimentation. Students will learn the concept of atoms, molecules and compounds. Students will then apply this knowledge to the concepts including arrangement of the periodic table; chemical equations and reactions; Stoichiometry; the gas laws, concentrations, solutions, and pH (including acids and bases).

PHY 101 **Introductory Physics** **3**

This course covers the fundamentals of basic physics. Students will understand the concepts of technical measurement, energy, force and vectors, equilibrium and friction, and uniform acceleration. (*Prerequisite*: MAT 101)

PHY 201 **Imaging Physics** **3**

This course is structured to help the student understand the physics of radiology and the equipment used to produce x-rays, the electrical principles of x-ray production, and atomic physics.
(*Prerequisite:* C or better in MAT 101, C or better in PHY 101, or permission from the Mathematics/General Science Chair.)

SCI 150 **How It Works** **3**

This course will familiarize students with some basic principles of physics through their applications to selected devices such as radios, cell phones,

the basic electronic components of computers, lasers and LEDs, radiation therapy in medicine, and even nuclear weapons. In learning the basic physics behind these modern inventions, you will develop a deeper understanding of how the physical world works and gain a new appreciation of everyday phenomena that are ordinarily taken for granted. This course is designed for non-science students with an interest in the natural world.

SCI 201 **Statics & Strength of Materials** **3**

This course is an examination of coplanar force systems, analysis of trusses, axial stress and strain, material properties, centroids, moment of inertia, stresses in beams, beam design, and torsion.

Social Science

Course No.	Course Title	Credits

BUS 101 **Introduction to Business** **3**

This course includes a survey of current business practices with an examination of the topics of management, ethics, organization, finance, marketing, and human resources function. Particular attention will be paid to examining the current economic environment. Students will also learn about basic personal income, household money management and financial planning skills as well as basic economic decision-making skills. This course may also be offered in a distance education format, when available.

ECO 101 **Introduction to Economics** **3**

This course covers the basic concepts of economics. Topics include supply and demand, optimizing economic behavior, prices and wages, monetary system, interest rates, banking system, unemployment, inflation, taxes, government spending and international trade. Upon completion, students should be able to explain alternative solutions for economic problems faced by private and government sectors.

PSY 101 **General Psychology** **3**

This course introduces terms and concepts dealing with basic psychological research methods, human and animal behavior, life-span development, states of consciousness, learning, memory, intelligence, motivation, personality structure, stress and coping, behavior disorders, social pressures and cultures. Students are encouraged to apply critical thinking strategies through their participation in various discussions of psychological theories and concepts throughout this course. This course may also be offered in a distance education format, when available.

PSY 105 **Industrial and Organizational Psychology** **3**

This course is designed to introduce students to major areas relevant to the behavior of people at work from the time they enter the labor force until retirement. This course focuses both on understanding the psychological bases of work behavior and on the organizational practices used to create a good fit between people's characteristics and work's demands. The goal of this course is to understand how businesses can be designed so that both efficiency and the quality of employee life are improved. Topics will include the history of Industrial and Organizational psychology, job analysis, psychological assessments, personal decisions, training and development, organizational change, teamwork, motivation, job satisfaction, leadership, work-family balance, work stress and health. This course may also be offered in a distance education or hybrid format, when available.

SOC 101 **Introduction to Sociology** **3**

Sociology is a way to understand the world. This course is designed to introduce students to the basic principles of sociological inquiry. It includes analysis of social structures and social behavior, including culture and socialization, social institutions, race, class, gender, deviance and social change. Students will be exposed to the basic theoretical and methodological approaches of the discipline. An introduction to sociology will assist students in developing an approach that will allow them to think about and evaluate social situations and issues, thus, acquiring the sociological perspective. This course may also be offered in a distance education format, when available.

Technology

Course No.	Course Title	Credits

CPT 101 **Microcomputer I** **3**

This course provides a basic overview of microcomputer fundamentals and applications. It includes a study of word processing using Microsoft Word; spreadsheet applications using Microsoft Excel; and simple databases using Microsoft Access. The student is also exposed to basic computer operations, managing files, and a brief introduction to PowerPoint. This course may also be offered in a distance education format, when available.

CPT 210 **Microcomputer II** **3**

This course provides an overview of advanced Microsoft Suite applications, including Microsoft Word, Microsoft Excel, and Microsoft Access. The course will increase business and personal productivity through the use of microcomputer applications. This course may also be offered in a distance education format, when available.
(*Prerequisite*: CPT 101)

Developmental Courses

Students placed in remedial courses based on college entrance exam are required to complete them before registering for college coursework. Students registered for these courses must complete the course with a "B-" or 2.67 to continue in their academic program. Development course do not satisfy requirements for graduation.

Course No.	Course Title	Credits

ENG 099 **Basic College Writing** **3**

This course is designed to help the entering college student prepare for college-level writing. Word choice and mechanics are reviewed. Emphasis is placed on sentence and paragraph structure and development in writings such as article reviews and brief essays.

MAT 099 **College Prep Algebra** **3**

This course covers arithmetic with the real number system, fractions, percentages, measurements, unit conversions, algebraic and polynomial expressions and their simplification, linear equations and formulas, ratios and proportions.

RSS 099 **College Reading / Study Skills** **3**

This course is designed to develop the student's fundamental reading abilities. Through extensive practice, the student learns to read efficiently and critically. Improved vocabulary and increased reading rate of speed are accomplished while the student's ability to comprehend and retain what he/she reads is developed. The study skills portion of the course allows students to develop the academic skills necessary for success in college-level work. The basic study skills of listening, note-taking, and time management are reviewed. Various study formulas and test-taking strategies are discussed and practiced by the students. A discussion of stress management and theories of memory round out the course content to aid the college student.

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May 2018 – April 2019

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Associate Vice President of Student Success	**Janine Tomaszewski** M.Ed., Pennsylvania State University B.A., Pennsylvania State University

Faculty

A.S. Degree

Computer Information Technology — **Joseph J. Polinsky**
Department Chairperson
A.S., Pennsylvania State University
Certified Cisco Network Associate (CCNA)
Microsoft Certified Systems Engineer Windows (MCSE)
Microsoft Certified Data Base Administrator SQL 7.0 (MCDBA)

Physical Therapist Assistant — **Melissa A. Cencetti, PT, DPT**
Department Chairperson
DPT & MS, Arcadia University
B.S., King's College
Pediatric Specialty Certificate, Misericordia University
Certificate in Advance Graduate Study in Health Professions, Simmons College

Academic Coordinator of Clinical Education — **Nicole Fabricatore, PTA, BS**
Physical Therapist Assistant
B.S., Grand Canyon University
A.S., Keystone College

Radiologic Technology — **Barbara Byrne, M.Ed., R.T. (R) (MR)**
Program Director
Senior Director of Faculty
M.Ed., Concordia University
B.S., Misericordia University
American Registry of Radiologic Technologists

Radiologic Technology — **Roxanne M. Caswell, R.T. (R) (M)**
Clinical Coordinator / Instructor
B.S., Misericordia University
A.A.S., Broome Community College
American Registry of Radiologic Technologists

Radiologic Technology — **Jaclyn Salierno, R.T. (R) (MR)**
Clinical Instructor
B.S., Misericordia University
American Registry of Radiologic Technologists

Veterinary Technology — **Kimberly A. Konopka, CVT**
Program Director
B.S., Wilkes University
A.S., Johnson College

Veterinarian — **Jayne Kubat, DVM**
DVM, Cornell University
B.A., Bucknell University

Veterinary Instructor — **Jolynn Lawler, CVT**
A.S., Johnson College

Veterinary Instructor — **Amanda Melnyk, CVT**
A.S., Johnson College

A.A.S. Degree

Advanced Manufacturing Technology — **Cole Hastings Goldstein**
Department Chairperson
M.F.A., Maine College of Art
B.F.A., Kutztown University

Architectural Drafting & Design Technology — **John F. DeAngelis**
Department Chairperson
B.S., Temple University
A.S., Pennsylvania State University
NICET Certified Engineering Technician
(National Institute of Certified Engineering Technicians)
Associate Member American Institute of Architects
Certified Member of the ADDA International

Automotive Technology — **Mark Kozemko**
Department Chairperson
A.S.T., Johnson College
ASE Cert. Master Auto. Tech.

Automotive Technology — **James Williams**
Instructor
A.A.S., Johnson College

Biomedical Equipment Technology — **Douglas D. Hampton**
Department Chairperson
A.S., Community College of the Finger Lakes
A.A.S., Auburn Community College

Business Management — **Laura Little**
Department Chairperson
Director of Continuing Education
Director of Curriculum
Director of the Office of Online Learning
M.B.A., Cameron University
B.A., Binghamton University
PMP, Project Management Institute

Carpentry & Cabinetmaking Technology — **Todd Campbell**
Department Chairperson
A.S.T., Johnson College
Licensed General Contractor

Diesel Technology **Willard Hobbs**
Program Director

Electrical Construction & Maintenance Technology **Frank Mickavicz**
Associate Department Chairperson A.A.S., Johnson College

Electronic Technology **Richard P. Fornes**
Department Chairperson B.S. State University of New York, Binghamton
A.S., Broome Community College
A.S.T., Johnson College

Heating Ventilation & Air-Conditioning Technology **TBA**
Instructor

Certificate

Welding Program Director **Anthony Delucca**
Certificate, Welder Training and Testing Institute
Motorcycle Fabrication Certificate
AWS D1.1 Certified Welder

Faculty

English Instructor **Heather Bonker**
M.A., College of Charleston
B.A., Saint Vincent College
Post-Masters Certificate in Education, Capella University

General Education **Colleen Beavers**
Program Director M.S., Wilkes University
B.A., East Stroudsburg University

Technical Instructor **James Burden**
B.S., Northern Arizona University

Staff

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Jeffrey Bauman
M.A., Messiah College
B.S., Wilkes University

Academic Assistant
Barbara Castanzo
B.A., Kutztown University

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Kristin Alfieri
M.B.A., University of Scranton
B.S., University of Scranton

Accounts Payable Clerk (p/t)
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B.S., York College

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Greg J. Race
A.S., Johnson College

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M.B.A., Misericordia University
B.S., Misericordia University
A.A.S., Luzerne County Community College

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B.A., East Stroudsburg University

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B.A., Marywood University

Coordinator of Development
Lauren Kukawinski
B.A., Oakland University

Coordinator of Student Business Services
Brittany Corrigan
B.S., Marywood University

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Emily G. Holmes, CRC
M.S., University of Scranton
B.A., St. Joseph's University

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Financial Aid Advisor	**TBA**
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Manager of Information Technology	**Patrick A. Appel** A.S., Johnson College CompTIA A+ Certificate
Recruitment Advisor	**Alex Ellsworth** B.S., University of Scranton

Recruitment Advisor — **Rose Jacklinski**
M.S., Marywood University
B.S., Marywood University

Recruitment Advisor — **John R. Lawless**
B.A., Marywood University

Recruitment Advisor — **Angela M. Semkew**
M.S., Slippery Rock University
B.S., Slippery Rock University

Registrar — **Aubree Armezzani**
B.A., Wilkes University

Registrar Office Coordinator — **Lynn M. Krushinski**

Resource Officer — **Ashley Cease Hassenbein**
M.A., Marywood University
B.A., Shippensburg University

Senior Director of Finance — **Liz A. Renda**
B.S., University of Scranton

Senior Director of Student Affairs — **Andrew V. Zwanch**
B.S., State University of New York, Oswego
A.S.T., Johnson College

Student Care Coordinator — **Jessenia Zamora**
B.A., Long Island University

Student Engagement Assistant — **Laura Jane Moser**
B.A., Cedar Crest College