2014-2016 Catalog

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Mitchell Technical Institute (MTI) publishes this catalog to provide general information regarding program and course offerings. The information is accurate at the time of publication, but changes may occur before the next catalog is printed.

Reservation of the Right to Modify

Materials listed in this catalog are believed to be accurate at the time of printing. The Institute reserves the right to make changes that seem necessary or desirable, including course and program cancellations, requirements, financial fees and to add, alter or delete courses and programs. While reasonable efforts will be made to publicize changes, a student is encouraged to seek current information from appropriate offices. Content is subject to change without notice and does not constitute an offer to contract with any person. **It is ultimately the student's responsibility to be aware of current regulations, curriculum and the status of specific programs.** Students must also read the Student Handbook, available on the MTI website, which contains more information on student life and Institute policies.

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Mitchell Technical Institute

The best jobs start here!

About Mitchell Technical Institute

History

Growth and expansion have been the recent focus at Mitchell Technical Institute. For the first time since opening in 1968, the entire Institute is now located on one campus. Highly visible from Interstate 90, the campus, consisting of four buildings, is situated on 80 acres.

MTI opened in 1968 in a system of post-high school vocational technical education in South Dakota that included four area institutes and the South Dakota Office of Adult, Vocational and Technical Education. More than 15,000 individuals have graduated from MTI since it opened. The central mission of the Institute is to provide job preparatory programs on a full- or part-time basis to all who can benefit.

The Institute is governed by the Board of Education of the Mitchell School District 17-2 and operates under rules and regulations set forth by the South Dakota Board of Education. The Institute enjoys a close relationship with Mitchell and the James River Valley community. MTI has established advisory committees of community and regional representatives who provide program input and support.

MTI is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools and received a recommendation for a 10-year renewal of accreditation in 2011. In addition, the school is one of the top 150 community colleges nationwide as identified by the Aspen Institute.

MTI takes pride in the quality of its technical programs, in the high rate of graduate employment and in the rapid adaptability to business and industry needs by developing new programs and adding new dimensions to existing programs.

MTI offers general education courses applicable in the technical world. Community and advisory committee input enables MTI to adapt to changing technologies, employer expectations, student interests and employment opportunities.

MTI also strives to meet the needs of the community through adult, business and industrial training programs. Services available to the general public include preparatory classes in communications and math, community education courses and corporate education programs. Programs range from day-long business training to 24 month-long programs.

Vision Statement

Mitchell Technical Institute will be a leader in technical education and a valued partner in global workforce development, equipping students for career success and lifelong learning in a changing world.

Mission Statement

It is the mission of Mitchell Technical Institute to provide skills for success in technical careers.

Our Primary Purposes:

- **Technical Education:** MTI provides high-quality Associate of Applied Science degree and diploma programs which prepare students for occupational success.
- **Life Skills:** MTI prepares graduates for lifelong learning through general education courses that support technical education and build skills in technology, communication, professionalism, problem-solving, teamwork and adaptability.
- **Respect and Diversity:** MTI seeks and values a diverse student population, responds to the unique needs of individuals and recognizes the dignity and worth of all people.
- **Excellence:** MTI commits to improve student learning and institutional effectiveness through a system of assessment and continuous review.
- **Community:** MTI builds student community through social and recreational activities, counseling support and a student government structure administered through an organized student services office.
- **Human Capital:** MTI recruits, develops and invests in skilled, dedicated and student-oriented faculty and staff.
- **Advocacy:** MTI promotes the value of technical education through broad-based marketing and public relations activities.
- **Access:** MTI provides customized training, seminars, workshops, courses and consulting services to business, industry and the community.

Institutional Learning Outcomes

Mitchell Technical Institute promotes the development of six core abilities—foundational learning outcomes that will prepare a student to become a productive member of the workforce and a life-long learner ready to grow within his or her chosen profession. The MTI institutional learning outcomes will enable a graduate to:

- Communicate effectively through both oral and written means
- Demonstrate a professional attitude and work ethic
- Apply reasoning and critical thinking to solve problems and seek information
- Work cooperatively in a team environment
- Use computer technology within a field of study
- Apply technical skills required of an entry-level technician in a chosen field.

General Education Philosophy

General Education is that part of our students' education that goes beyond learning technical skills and allows students to become well-rounded, higher-functioning citizens of the world. As an institute of higher learning, we are committed to the inherent value of general education and know that critical thinking ability, communication skills, information literacy, math and problem solving skills and more, are crucial for our graduates' success in their future technical careers. We also recognize that an associate's degree or diploma at Mitchell Technical Institute must mean something more than job skills. Our students must become lifelong learners with the ability to adapt to a changing world and ever-increasing job expectations. To this end, general education learning outcomes that all MTI graduates should possess have been identified as follows:

Math

Students will understand and apply essential mathematical processes and analysis.

- Perform computations using appropriate methods and/or technologies
- Demonstrate knowledge and application of measurement
- Demonstrate knowledge and application of formulas
- Use math processes to solve problems
- Apply problem-solving steps.

Human Relations

Students will apply human relationship skills to work successfully in a diverse society.

- Demonstrate awareness and respect for people and their differences
- Ask for and listen to others' opinions and solutions
- Identify individual strengths and challenges in occupational relationships
- Apply team skills to group projects
- Demonstrate conflict resolution techniques
- Understand the benefits of community involvement and civic responsibility.

Technology

Students will use computer technology to access, organize and communicate information.

- Use word processing, e-mail and presentation software to effectively and professionally communicate information
- Create and manage workbooks using spreadsheet software
- Access and manipulate data using database software
- Use electronic resources to conduct research.

Communication

Students will communicate effectively with others using a variety of contexts and formats.

- Use standard English spelling, mechanics, grammar and structure
- Create written communication appropriate to the audience which clearly, concisely and accurately expresses ideas and conveys needs
- Participate effectively in groups by demonstrating the ability to speak, listen, respond and interpret
- Speak effectively, both formally and informally, in a variety of contexts
- Conduct, examine, interpret and document research responsibly.

Accreditation

The MTI Medical Laboratory Technology program, offered for the AAS degree, is accredited by:

The National Accrediting Agency for Clinical Laboratory Sciences
8410 West Bryn Mawr Avenue Suite 670
Chicago, IL 60631
(773) 714-8880
www.naacls.org

The MTI Medical Assistant program, offered for the AAS degree, is accredited by The Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of the Medical Assisting Education Review Board (MAERB).

Commission on Accreditation of Allied Health Education Programs
1361 Park Street
Clearwater, FL 33756
(727) 210-2350
www.caahep.org

The MTI Radiologic Technology program, offered for the AAS degree, is accredited by:

The Joint Review Committee on Education in Radiologic Technology
20 N. Wacker Drive, Suite 2850
Chicago, IL 60606-3182
(312) 704-5300; Fax: (312) 704-5304
www.jrcert.org

The MTI Radiation Therapy program is in the process of applying for initial accreditation with the Joint Review Committee on Education in Radiologic Technology.

The MTI Heating and Cooling Technology program is accredited by:

HVAC Excellence
PO Box 491
Mt. Prospect, IL 60056
(800) 394-5268
www.hvacexcellence.org

The MTI Culinary Academy is accredited by the American Culinary Federation, Educational Foundation, Accreditation Commission (ACFEFAC):

American Culinary Federation
180 Center Place Way
St. Augustine, FL 32095
(800) 624-9458
www.acfchefs.org

Membership is maintained with many industrial associations, which provide licensing or certification for students.

Where Are We Located

MTI is located adjacent to Interstate 90 in Mitchell, South Dakota. The campus consists of four buildings: the Campus Center which houses most administrative offices, the Bookstore, Instructional Services Center, food service, health programs and most general education classrooms; the Technology Center, home to the administrative offices of the MTI Foundation and Engineering division programs; the Energy Training Center for Energy division programs; and the Trades Center where students will find programs in the Ag & Transportation Technology and Construction & Manufacturing Technology divisions, in addition to the South Dakota Center for Farm/Ranch Management.

MTI also has a program in Yankton, South Dakota, through our outreach program, Industrial Maintenance Technology.

Directions and maps to these sites can be found at: http://www.mitchelltech.edu/aboutus/campusmaps/.

Admissions

Admissions Requirements

Any person 16 years of age or older is eligible to apply for admission, regardless of previous education. Applicants will be accepted into educational programs in which they demonstrate a reasonable prospect for success. The Institute reserves the right to admit applicants based upon previous academic achievements and life experiences.

To be accepted to MTI and placed in a program, students must meet the admissions requirements of the Institute and the requirements established for each program. Institute requirements are as follows:

- Applicant must provide **proof that he/she is a legal US resident** (driver's license, Social Security card, student visa, resident alien card, etc.).
- Applicants must have a **high school diploma or a high school equivalency certificate** (GED) for full-time admission. (High school students requesting dual credit status must receive approval.)
- Applicants must **complete the established application process** as listed.
- Applicants must meet the **requirements of each program.** (Program requirements are found in each program section of this catalog.)
- Applicants must meet **minimum entrance examination scores.** (Remedial courses are offered to students desiring to improve their math and English skills.)

If the program is fully enrolled, students will be placed on a waiting list.

Admission to MTI is open to anyone without regard to race, color, creed, religion, sex, handicap, economic status, national origin, or ancestry, in accordance with federal law.

How to Apply for Admission

Interested persons are invited to call, write or visit Mitchell Technical Institute. Offices are open Monday through Friday. Campus tours and presentations may be arranged. The staff can provide the necessary forms for admission to the Institute and the program of your choice.

Admissions Process

In order to be considered for admission to Mitchell Technical Institute, an applicant must complete the following requirements:

1. Submit an Application for Admission. The application form is available at most high school guidance offices, at the MTI campus and online on the MTI website.
2. Send an *official* copy of your academic records (high school transcript, college transcript or high school equivalency certificate). Your high school, the registrar of the last college you attended, or the testing center where you took the General Education Development test can provide copies of your academic records.
3. In order to be accepted into a full-time program of study, you must meet the required entrance examination scores or submit entrance examination test scores ie. ACT, SAT, ACCUPLACER, Compass, etc. All applicants must submit entrance examination scores or schedule an appointment to complete the entrance exam. The admissions test may be waived for students enrolled in fewer than 12 semester credit hours.
4. Provide MTI with a photocopy of a birth certificate, driver's license, or other legal document to certify age and resident status.
5. Students in health sciences programs will be required to submit to a criminal background check. The cost is the responsibility of the student.
6. Pay a $60 non-refundable matriculation fee.
7. After acceptance to a program:
    - A start date will be identified.
    - Students will register for courses.
8. Once a program is full, a tuition deposit of $150 will be required of all students accepted to that program. This is a tuition deposit and will be applied to the student's tuition the first semester of classes. In the event a student opts not to attend, **the tuition deposit is non-refundable.**

Students with Disabilities

All facilities at MTI accommodate physically disabled students. Additional accommodations may be arranged through the Learning Services Coordinator.

Most programs have minimum physical standards that students must meet. Individual program standards can be reviewed with an Admissions representative.

Placement Testing Policies

1. The tester must have applied to Mitchell Technical Institute (MTI) before testing.
2. The Placement Tests offered at MTI are the ACCUPLACER and the Residual ACT.
    a. ACCUPLACER
        i. All Programs
            1. Sentence Skills
            2. Elementary Algebra
            3. Reading
    b. Residual ACT
        i. Students applying for Radiologic Technology
        ii. Home schooled students
        iii. Students qualifying for Star Scholar
            1. Must already have High School GPA of 3.0 or higher
3. Cost
    a. Residual ACT
        i. Free to prospective Radiologic Technology students
        ii. Free to home schooled students
        iii. $35 for students trying to qualify for Star Scholar
    b. ACCUPLACER
        i. Free for initial placement test
        ii. Free re-testing for acceptance
        iii. $10 per section or $35 for entire test if retesting to "test-out" of prep class less than one week prior to start of school
        iv. $50 Test Out fee if retesting to Test-out of prep class after the start of school
4. Retesting
    a. Students must wait 30 days before re-testing
5. Transfer/Transcribed Credit
    a. Transfer/Transcribed credit for ENGL 101 or ENGL 201 meets the placement testing requirements for English and reading
    b. Transfer/Transcribed credit for MATH 101 or MATH 104 meets the placement testing requirements for algebra
6. Testing for other schools
    a. ACCUPLACER
        i. $35 for entire test
        ii. $10 per section
    b. COMPASS
        i. $35 for entire test
        ii. $10 per section
7. Results mailed to other schools after testing for or attending MTI
    a. $5 fee
    b. Must have $0 balance with Business office

Required Immunizations

South Dakota state law (SDCL 13-49-27.1) states that immunizations are required for students entering public or private postsecondary educational institutions in South Dakota. "Public or private postsecondary institution" or "institution," is any entity permitted to offer postsecondary education credits or degrees in South Dakota. "Student" is any person born after 1956 who is registering for more than one class during an academic term such as a quarter or semester. The term includes any person who meets face-to-face at least once per week to receive instruction. The term does not include any person who receives non-credit-bearing or on-the-job training services.

Any student entering a public or private postsecondary education institution in this state for the first time after July 1, 2008, shall, within forty-five days after the start of classes, present to the appropriate institution certification from a licensed physician that the student has received or is in the process of receiving the required two doses of immunization against measles, rubella and mumps. As an alternative to the requirement for a physician's certification, the student may present certification from a licensed physician stating the physical condition of the student would be such that immunization would endanger the student's life or health; certification from a licensed physician stating the student has experienced the natural disease against which the immunization protects; confirmation from a laboratory of the presence of adequate immunity; or a written statement signed by the student that the student is an adherent to a religious doctrine whose teachings are opposed to such immunizations. If the student is under the age of 18, the written statement shall be signed by one parent or guardian.

MTI requires that the documentation from the student be submitted within 45 days after the start of classes.

A student allowed to register while completing the round of required vaccinations who fails to provide satisfactory documentation of his or her immune status or of a medical excuse shall not be permitted to attend classes after the 45th day or, in the case of classes delivered in less than 45 days, to register for or to attend classes beginning in a subsequent term. Every attempt should be made to collect this information at the time of admission. Students who are unable to ascertain their immunization status may obtain, at their own expense, the necessary tests and vaccination from their own physician.

In the event the South Dakota State Department of Health declares an epidemic of measles, mumps or rubella, MTI shall provide to the State Department of Health a list of students who have not submitted immunization documentation. Subsequent campus actions shall consider the advice and authority of the South Dakota State Department of Health. Students who have no vaccination or immunity against the required preventable infectious diseases may be dismissed from the campus.

Vaccination for hepatitis B is required for students before they can be admitted to certain health profession programs. Each institution will compile information about current program-related vaccination requirements and make this information available to students along with other curricular and registration materials. It will be the responsibility of the department of the specific health profession program to ensure that the vaccination requirement has been met.

Immunization for tetanus, diphtheria, poliomyelitis, varicella and meningitis is recommended, as is a tuberculin test. Vaccination for hepatitis B is also recommended, and an annual influenza vaccination is recommended for students living in residence halls to minimize disruption of routine activities during influenza outbreaks.

Admissions Guidelines

Admission to MTI is granted based on the preceding criteria. In cases where special consideration is needed, the ultimate decision regarding the admission of a student rests with the admissions committee consisting of Admissions personnel, the Director of Admissions, the Vice-President for Academic Affairs or designee and an instructor. The committee may consider high school GPA and class rank, a personal interview, college GPA (if applicable), GED test scores (if applicable) and entrance examination scores in determining a candidate's admission status. The goal of the Admissions Committee is to accept students who can master the training and education at MTI. Admission criteria is available in the Admissions Office.

Some programs may have added requirements. Students who do not take the ACT test may substitute the ACCUPLACER examination at MTI. ACT scores will be reviewed by the Admissions Committee and the Committee will determine if a student needs to complete the ACCUPLACER or if the ACT score will be accepted in lieu of that test.

For students taking the ACT, the college code number for Mitchell Technical Institute is 4958.

Non-High School Graduates, Including Home-Schooled Students

Students who are home-schooled may be admitted to MTI with evidence of a high-school completion certificate/diploma from an accredited agency or school or with a GED. Home-schooled students will also be required to meet minimum requirements on the ACT. The Admissions office will work with any home-schooled student to make sure that their MTI Application for Admission is complete.

Home School Entrance Requirements

Home-schooled high school students applying for admission into MTI have two options to meet the high school diploma requirement:

1) Provide a home-school high school record of completion and documentation of a completed GED and take the MTI's entrance assessment, meeting the required scores for the program

OR

2) Provide a home-school high school record of completion that has been certified by an accredited outside educational organization and take the ACT entrance assessment, meeting the required scores for the program.

Online High Schools

Students who wish to complete their high school studies online must choose a school carefully. Many online high schools on the Internet are not legitimate high schools. These schools promise that you can complete your entire high school career in as little as a few weeks for only a small fee. In addition, while they state that they are accredited high schools, their accrediting agencies consist of nothing more than a website and list no employees or contact information. These schools are obviously fraudulent and the diploma you receive is not legitimate and may in fact be illegal to use in many states.

Schools such as DIAL Virtual School in South Dakota are legitimate, recognized institutions. For students who want to complete their secondary education as quickly as possible, MTI recommends a GED. The GED is self-paced and you can complete it very quickly if you are so motivated. If you wish to continue your education at a legitimate, postsecondary institution anywhere in the nation, you must complete actual testing at an authorized GED testing center. Information about where and how to get a GED is available from the MTI Admissions office.

When to Apply

MTI academic semesters start in August and January and May. Most technical programs, however, begin with the fall semester. Application may be made at any time, but students are encouraged to apply by February for the following academic year. It is possible to take general education classes to fulfill program requirements during any academic term. Several popular programs fill early in the school year. Radiology Technology has a January application deadline so early application is encouraged. Check with the Admissions Office.

Non-Discrimination Statement

MTI does not discriminate in its employment of policies and practices, or in its educational programs on the basis of race, color, creed, religion, age, sex, disability, national origin, or ancestry.

Inquiries concerning the application of Title VI, Title IX or Section 504 may be referred to:

Vice-President for Academic Affairs, MTI
1800 E. Spruce St.
Mitchell, SD, 57301
Telephone (605) 995-3023

or to:

US Department of Education
Office for Civil Rights
10220 N. Executive Hills Blvd. 8th Floor
Kansas City, MO 64153-1367
Phone: (816) 880-4202
Fax: (816) 891-0644

Dual Enrollment

A student may be able to receive dual enrollment credit for a maximum of two classes per semester. Prior approval is required. See the Director of Secondary Pathways for details. Students planning to enroll in two or more face-to-face courses per term must follow the South Dakota state law regarding required immunizations.

International Students

To be considered for admission to Mitchell Technical Institute, international students must:

1. Rank in the upper half of their secondary school graduation class
2. Have a 3.0 (B) average if transferring from another technical school, college or university
3. Be proficient in English
4. Be financially self-sustaining.

Your application will be processed when we receive ALL of the following documents and information. Please use the following as a checklist:

1. Complete and return an application form. Files for international students must be complete by May 1 for Fall Semester and September 1 for Spring Semester.
2. Submit the $250.00 international application fee.
3. Academic credentials (translated into English)
4. TOEFL score (minimum paper-based score of 500, computer-based score of 200; score cannot be more than two years old; students whose first language is English may be exempt). The results must be sent to Mitchell Technical Institute, Attention: Director of Admissions, 1800 E. Spruce Street, Mitchell, SD, 57301.
5. Financial certification form.
6. Letter from financial sponsor (if applicable).
7. Bank/Employer/Broker financial statement.

An I-20 cannot be issued to you until your file is complete and you are admitted to Mitchell Technical Institute. The form I-20 is usually necessary for admission into the United States for post-secondary attendance. The American Consulate in your country can supply detailed information on student status and required visas. International students cannot be accepted into any online program.

Paying for School

Tuition and Fees

The tuition is set by the South Dakota Board of Education. There is no difference between resident and non-resident tuition. **For current tuition and fee information, request a copy of the current cost sheet from the Admissions office or see it on the MTI website.**

Tuition Deposit

Tuition deposits will be required once a program is full. The tuition deposit is $150 for all full programs. *This is a tuition deposit and will be applied to the student's tuition the first semester of classes.* In the event a student opts not to attend, **the tuition deposit is non-refundable.**

Additional Expenses

Students are required to purchase designated books, supplies, tools and uniforms as assigned by the instructor in each course. Most programs specify tools and/or uniforms that are characteristic of the occupation for which the student is enrolled. Many of these materials can be purchased at the MTI Bookstore. In some cases, students will be advised to purchase tools at MTI-sponsored tool fairs. Refer to the MTI Estimated Costs brochure for more detailed information.

Students who enroll need to prepare for some initial expenses at the start of the term. Books, supplies and tools will be required for all classes. MTI and the MTI Bookstore do not allow advances or charging of items from the Bookstore (except with a credit card), or with approval of special circumstances from the Vice-President for Administrative Services located in the Business office. Please budget accordingly when making your school plans.

Laptop Expense

Some MTI programs require a laptop computer so that students can effectively integrate computing skills with their technical education. Many resources that instructors assign are online or require specialty software. To address these needs, MTI requires students entering a laptop program to purchase their laptops from MTI. The cost for an MTI laptop averages about $1000 including tax. Please note that our machines come fully loaded with the required software.

Whether it's Microsoft Office, or a specialty software for a technical program, a student's needs will be met by an MTI laptop. And MTI laptops are serviced for ***free*** by our Technology office.

Laptop Return Policy

Laptops purchased from Mitchell Technical Institute may not be returned unless the student drops from a program within the first ten days of enrollment. Students who drop within the first ten days (official drop/add period) may return the laptop for a full refund. No refunds on laptops will be made after that date. No laptop will be accepted for return until its condition is approved by the MTI Technology office.

Tuition & Fee Payment Due Dates

The tuition and fee payment due date is the first business day following the end of the drop period, with the disbursement of excess financial aid loans and grants after that date. The actual fee payment day will be posted on MyMTI, and in the Business Office.

It is the student's responsibility to be aware of all policies and regulations regarding registration and cancellation as stated in the catalog. By registering for classes, students are entering into a legal agreement to pay all tuition and fees, including any nonrefundable fees. Students are acknowledging that failure to make the required payment by the due date may result in additional late and installment fees, inability to register for classes, and withholding of transcripts and/or diploma.

Tuition and fees are due in the Business Office each semester by the end of the first business day following the official drop period. Adjustments to student accounts are recorded as necessary, due to schedule changes that result from the course add and drop process. At the beginning of each semester the Business office will email students regarding the availability of student statements. Student account information is available online in their MyMTI account. Statements can be viewed and printed in MyMTI. It is the student's responsibility to check email and MyMTI on a regular basis.

Tuition and Fees Refunds/ Excess Financial Aid

Most grants, scholarships and loans are applied directly to student accounts. If financial aid proceeds have not been applied to an account or the amount does not cover 100% of tuition and fees due, the student is responsible to pay the remaining balance.

A credit balance on a student account is created when excess financial aid remains after all eligible charges on a student's account are paid in full, or schedule changes result in a change in tuition and fees due, or when an excess payment is made on the account. Refund checks will be issued to students after the payment due date. Students will be notified via email or MyMTI if they have a refund check. Students must present a school or state issued form of identification that includes a photograph, prior to receiving their refund check.

Forms of Payment

The Business Office accepts cash, Visa/Mastercard/ Discover credit cards and personal checks for payments on student accounts. MTI reserves the right to refuse checks from individuals who have written a non-sufficient funds check to the Institute.

See third party authorizations below for information about having balances paid by an approved federal or state agency. Employer reimbursements are covered in the third party account section below.

Returned Checks

A $30 processing fee will be charged for checks returned by the bank for non-sufficient funds (NSF checks). Any penalties assessed on a student's returned check will be charged directly to the student's account. When a check is returned for non-sufficient funds, the Business office reserves the right to require payment by cash, credit card or certified funds. Unpaid NSF checks are forwarded to collections if not paid within 30 days.

Payment Plan Information

Payment plans are available on a case-by-case basis as determined by the Vice-President for Administrative Services. A $25 fee is assessed each term for payment plan arrangements. A payment plan arrangement will allow students to pay balances over a two or three month period, depending on how early students decide to set up the agreement. Students with a current payment plan, meaning that payments have been received according to the plan agreement, will be allowed to register for future terms.

NOTE: Students failing to make remaining payment plan payments in the current term will be administratively withdrawn from future terms after registering for the next term. Students will be notified in writing of withdrawal due to failure to pay balances due.

Past Due Accounts

Students are responsible for reviewing account balances and paying balances that are due. It is the student's responsibility to maintain an accurate billing address with the Student Services office. Once an account is past due and placed on hold, if an address is incomplete or inaccurate, the student may not receive an account statement and will pay additional late fees and interest if the account is forwarded to collections.

Prompt filing of financial aid documents is the student's responsibility. Students who do not file promissory notes and qualifying information will not receive financial aid funds in time to pay account balances. Those students will be subject to late fees and interest until loan proceeds are received. Late fees and interest will not be waived for late filings.

Any account that is past due is considered to be in a "Hold" status. Business office holds will not allow students to receive transcripts, grades or registration material. Students should not ignore financial responsibility. Students unable to pay balances should discuss the reasons with the Financial Aid office or the Business office.

Third Party Account Payments

Organizations that agree to pay any part, or all of a student's account balance, are considered a Third Party payor on the account. The financial obligation to pay an account remains with the student. Students are responsible for filing the proper paperwork with the Business Office to allow MTI to bill the Third Party payor, on their behalf. Students are also responsible for knowing the terms of their program and any unpaid balance that may remain. The portion of the balance not covered by the Third Party payor is due at the time of the Tuition and Fee Payment due date.

As long as the proper paperwork has been filed, and the student has paid any remaining portion of the balance that is not to be paid by the Third Party payor, no additional late fees or interest will accrue on the account. If the Third Party payor denies payment on the account for any reason, the student is financially responsible for the balance and all fees and interest that accrue.

Employee tuition reimbursement plans, where the employer reimburses the student based upon their account billing or grades are not subject to Third Party payor status. The student will need to make arrangements to pay the entire balance by the due date and seek reimbursement according to their employer's policy.

Student Account Holds

Account balances that remain after the Tuition and Fee Payment due date are considered past due and will be placed in a "Hold" status. Business office holds will not allow students to receive transcripts, grade reports or registration material. Students should not ignore financial responsibility. If students are unable to pay account balances, discuss the reasons with the Financial Aid Office or the Business Office.

Administrative Withdrawal From Future Terms

Students who register for future terms may be administratively withdrawn from a future term if student account balances remain past due at the mid-term point of the current term. Students will be notified in writing of their withdrawal and will have the ability to re-register once their account balance is paid in full.

Applying for Financial Aid

As soon as a student (and their parents based on federal guidelines to determine dependent status) has completed a tax return(s) for the most recent year, a Free Application for Federal Student Aid (FAFSA) can be completed at www.fafsa.ed.gov.

After submitting the FAFSA electronically, the processing center will send a student aid report (SAR). It is used to determine a student's eligibility for need-based financial aid: the Federal Pell Grant, Federal Supplemental Educational Opportunity Grant (SEOG), the Federal Work Study Program, Federal Perkins Loan and the Federal Direct Subsidized Student Loan. When the student receives the electronic copy of the Student Aid Report, s/he should check the report for accuracy. If any information is incorrect, the student must make corrections at www.fafsa.ed.gov.

Upon acceptance to MTI, the Financial Aid Office will send an award letter indicating the amount of financial aid for which the student qualifies and from which specific sources funding will be granted. All students who are the recipient of a Title IV federal student loan for the first time must complete entrance counseling and a Master Promissory Note at www.studentloans.gov before they can receive any proceeds from that loan.

Financial aid awards are available to students fourteen days after the first day of classes. To contact the Financial Aid office at MTI, call (605) 995-3052 or (800) 684-1969 toll-free.

Satisfactory Academic Progress Requirements

Students must show satisfactory academic progress to remain enrolled and to continue receiving financial aid. See Academic Information for details. Certain students funded by outside agencies (eg. Veteran's Affairs, BIA, etc.) will have their attendance monitored to assure compliance with that agency's funding regulations.

Student Enrollment Status

A full-time student is one who is enrolled in 12 or more credit hours during a semester.

A three-fourths time student is one who is enrolled in 9-11 credit hours during a semester.

A half-time student is one who is enrolled in 6-8 credit hours during a semester.

A part-time student is one who is enrolled in 5 or fewer credit hours during a semester.

Financial aid calculations are determined by enrollment status. Financial aid is pro-rated for students enrolled in fewer than 12 credits in a semester. Courses other than degree- or diploma-fulfillment courses cannot be used in determining the amount of financial aid awarded. See the Financial Aid office for details.

Return of Title IV Funds Policy

Students attending Mitchell Technical Institute who withdraw from all classes before 60% of a semester or term has lapsed are required to have a portion of their institutional costs returned to the federal financial aid program that provided the funds.

Financial aid disbursed is earned according to what percentage of a semester the student has attended. The student's last date of attendance is the critical factor in determining what portion of aid must be returned. See the MTI Student Handbook for more information.

Financial Aid Available

Grants

The Federal Pell Grant Program is a grant program funded by the federal government. The Student Aid Reports (SARs) from the processing center tell the MTI Financial Aid Office whether or not you qualify for this grant and, if so, for how much. Award amounts are prorated based upon need calculation from the FAFSA information and enrollment status.

The Federal Supplemental Educational Opportunity Grant Program

This is also a grant program funded by the federal government. Students who receive Pell Grants have priority for receiving this grant. Funding for this program is limited. Please apply early.

Work Opportunities

The federal government funds the Federal Work Study Program. The Financial Aid Office determines eligibility. If you qualify and funds are available, you are allotted an amount of money that you can earn during the academic year. Limited summer jobs during non-enrollment periods are also available. Contact the Financial Aid Office for details. Off-campus employment opportunities are also available. See the Career Services Office or the South Dakota Department of Labor for listings.

Loans

Student loans are financial aid that must be repaid in the future. All types of loans are disbursed by the semester.

The Federal Perkins Student Loan

This is a campus-based loan that is federally funded with eligibility determined by the Financial Aid office. You must have exceptional need to qualify for this loan. Repayments begin nine months after you leave MTI.

The Federal Direct Student Loan Program

This low-interest loan program allows dependent students to borrow up to $5500 for their first year and $6500 for their second year. Independent students may borrow up to $9500 for their first year and $10,500 for their second year. This program is either subsidized or unsubsidized. If the loan is subsidized, the interest does not accrue while the student is attending MTI. If the loan is unsubsidized, interest is charged from the time the loan is disbursed. Your award letter will indicate the type of loan for which you qualify.

Federal Direct Parent Loans (PLUS)

This program provides an opportunity for parents of dependent students to borrow funds for their student's educational costs. The Financial Aid office processes applications. The funds come from the U.S. Department of Education. Loan amounts may not exceed educational costs minus other financial aid.

Other Off-Campus Agency and Financial Aid Sources

Temporary Assistance for Needy Families (TANF)

If you are in this program, check with your TANF coordinator to see what assistance you may receive to attend MTI.

Bureau of Indian Affairs (BIA)

If you qualify for BIA funds, you should start by contacting your local BIA Agency. Paperwork completed early will ensure timely arrival of your funding.

Vocational Rehabilitation

Financial aid is available for mentally or physically disabled persons. Contact your local vocational-rehabilitation office.

Veteran's Benefits

Contact the Veteran's Center at (888) 442-4551 or the Financial Aid office at MTI to request information about the programs for which you may qualify. Veteran's Administration website: www.benefits.va.gov/gibill.

National Guard Benefits

Members of the National Guard may qualify for 100% tuition benefits and monthly stipends under the Chapter 1606 program. Contact your commanding officer.

Workforce Investment Act (WIA)

A program funded by the South Dakota Department of Labor. Economically disadvantaged students may qualify for grants in certain educational programs. Contact your local Job Service office for details.

Scholarships

The MTI Foundation offers a variety of scholarships to students who meet qualifications. Information regarding application deadlines is published periodically and distributed to students. See the Financial Aid office or the MTI Foundation office for more details. MTI also accepts any scholarships from outside sources. If receiving any scholarships from outside sources, you must notify the Financial Aid office.

Student Services

Housing

Although MTI does not own any student housing, the Campus Tech apartments, adjacent to the MTI Technology Center on the campus, are available to MTI students. The Student Services office also maintains a list of available housing in the Mitchell area. Students are urged to be aware of their tenant rights and responsibilities.

Food Service

Meals are served for a charge during the hours students are in attendance. MTI has implemented a payment system where you can "charge" your account with a cash deposit and use your student ID card to make food purchases. More information is available from the Business office.

Insurance

Mitchell Technical Institute DOES NOT carry insurance on students. Health insurance is the responsibility of each student and MTI urges each student to carry some type of health insurance. Injuries sustained while in class or lab are the responsibility of the student.

Students have the responsibility to communicate with their individual health insurance providers to make sure that coverage requirements are met. Dropping classes or withdrawing from school may have an impact on insurance coverage. Students and their parents should be aware of these issues.

Bookstore

Students may purchase required books and supplies in the MTI Bookstore located in the Campus Center. School theme items are also available. The Bookstore is open each class day and during the summer. Hours are posted. Cash, check, or credit card can be used for purchases at the MTI Bookstore.

In order to comply with Section 133 of the Higher Education Opportunity Act (PL110-315), Mitchell Technical Institute has compiled course and course material information and posted them together on the institute's website, www.mitchelltech.edu.

There students will find a list of texts required for their programs. They may purchase the books from the MTI Bookstore, or they may shop online from vendors like textbooks.com.

If the student is required to purchase course materials online or would prefer that option but does not have a credit card, a pre-paid credit card may be purchased through a bank or department store for a nominal one-time fee.

If the student participates in any program (Workforce Investment Act [WIA], Bureau of Indian Affairs [BIA], Vocational Rehabilitation, GI Bill, etc.) that includes the cost of course materials, the student should speak with the Bookstore manager about acquiring the necessary course materials. (Note: Students enrolled in online courses may incur additional expenses for access to specific online materials.)

Student Computer Use

Student access to computers is available in the Instructional Services Center (ISC) and at various times in other computer laboratories. All enrolled students must follow the computer and email usage policies published in the MTI Student Handbook. Violation of those policies will result in disciplinary action.

Tutoring

Tutoring in various areas and subjects is available at no cost to MTI students in the ISC. Regular tutoring sessions are held throughout the week for general education classes, such as math, English and computer applications. Additionally, tutors may be available for all technical courses. These content area tutors will arrange to meet with students on a one-to-one basis as need arises.

Please contact the ISC Coordinator or the Learning Services Coordinator, to learn more about tutoring services.

Student Activities

MTI offers a wide variety of organized student activities including intercollegiate-sanctioned college rodeo and college archery. Other on-campus activities are sponsored by the Student Rep Board in cooperation with the Student Services office. Activities include intramural sports, social events, picnics, musical events, entertainment, etc. Additionally, each MTI student has access to the Mitchell Recreation Center.

Student Laptop Computers

Required by program
Students who purchase computers from MTI for use in their programs will have full use of the campus network services. The laptops are distributed and supported by the MTI Information Technology Office. The following programs require laptops: Accounting/Business Management; Agricultural Technology; Architectural Design and Building Construction; Automation Controls/SCADA; Culinary Academy of South Dakota; Electrical Construction & Maintenance; Heating & Cooling Technology; Information Systems Technology; Medical Office Professional; Precision Technology Specialist; Propane & Natural Gas Technologies; Satellite Communications; Telecommunications; Utilities Technology-Heating & Cooling; Utilities Technology-Power Line; Utilities Technology-Propane & Natural Gas; Wind Turbine Technology; and Welding & Manufacturing Technology.

BYOD programs
Students enrolled in the following programs are required to bring their own device (laptop) at their own expense: Electrical Utilities & Substation Technology; Farm Power Technology; General Education; Human Services; Medical Assistant; Medical Laboratory Technology; Online Administrative Office Specialist; Online Industrial Controls; Online Medical Office Professional; Online Office Technology Specialist; Online Small Business Management; Online Speech-Language Pathology Assistant (TED); Power Line Construction & Maintenance; Power Sports Technology; Radiation Therapy; Radiologic Technology; South Dakota Center for Farm/Ranch Management; and Speech-Language Pathology Assistant. In addition, students in Speech-Language Pathology Assistant are required to purchase an Apple iPad. Students enrolled in ButlerEDGE will be issued a laptop by the ButlerEDGE program.

Student Technical Support
Students who purchase laptops as a program requirement may contact the IT department for technical support. The IT department is located in the Technology Center.

The campus IT department will not provide technical support to students using laptops/tablets not purchased and managed through MTI beyond network connectivity to our Wi-Fi network. Students must seek support through their vendor or a commercial computer support service.

Instructional Services Center

The Instructional Services Center (ISC), located in the Campus Center, is a one-stop source for print and electronic media, copies, computers, or a quiet place to study or relax with a favorite newspaper or magazine. More a resource room than a traditional library, the ISC is well-equipped to serve students. Computers are available at the ISC, allowing student access to the Internet, email and application software. Students are also able to use printers and scanners. The ISC also offers regular tutoring in general education courses and will provide tutoring in specific content areas as requests are received.

The ISC is staffed by a full-time coordinator and students participating in the federal work-study program are employed part-time. In addition, students are able to access research databases and the MTI library card catalog through the Internet and thus many of our resources are available to students after hours.

Research
Students at MTI need current information in all academic and technical disciplines. In today's rapidly changing information-based society, MTI has found that a traditional "library" is not the best use of our resources. Instead, we have focused on providing electronic access to information. All students have Internet access in the ISC. There are traditional print materials as well, but most students choose to conduct their research electronically.

The ISC is equipped with computers, high-speed Internet and standard software; journal and magazine subscriptions; a variety of books with a web-based searchable card catalog; state and regional daily newspapers; and South Dakota's Internet-based library resources providing access to academic research databases.

For additional library resources, there is a formal agreement between MTI and the Mitchell Public and Dakota Wesleyan University libraries for student access to these facilities. A student must show a student ID card and proof of residency to be eligible for public library and DWU library privileges. In addition, the ISC will also order materials from libraries statewide through the state's interlibrary loan system at no charge to students.

Nontraditional Student Services

Mitchell Technical Institute provides assistance to prospective and enrolled nontraditional MTI students, particularly single parents and displaced homemakers. These services include:

- Career assessment
- Admissions process assistance
- Childcare providers listing
- Social service assistance
- Community resources information and referrals
- Commuters network
- Support groups

Career Services

MTI's Career Services Coordinator offers assistance to students by providing employment leads and, in some instances, bringing employment interviewers to campus. Several workshops and job seeking-related activities are sponsored each year.

The Career Services office maintains a comprehensive website for students to post resumes and for employers to post job openings. For more information or job search assistance, contact the Career Services office located in the Campus Center.

Counseling Services

Qualified counseling staff for students seeking personal counseling or career counseling are available during school hours or by appointment.

Academic Information

Academic Advising

Academic advising helps students choose courses and fulfill graduation requirements. Academic Advisors are assigned to each student. Advising dates are scheduled each semester.

Registration

Students accepted to a program must be officially registered for classes including filing a registration form and making financial arrangements with the Business office. Students who do not complete the registration process will not receive credit for courses. New students to MTI will be notified of the process and timeline of registering for classes by their Admissions representatives. Returning students will be notified of the registration process by the Registrar's office and by academic advisors.

Preparatory Courses

090-level preparatory, review courses will be offered for pass/no credit ("P"/"N"). Preparatory credits count toward course load, but are not figured in grade point averages.

Independent Study

The program of independent study must be approved, in writing, by the instructor overseeing the project. A detailed outline of the study project, including material to be covered, written work to be submitted, etc., must be developed. The plan must be submitted to the Registrar's office for approval by the Vice-President for Academic Affairs. In general, students may not take required courses by independent study. In cases of special circumstances, a student may request to take independent study in place of a normally offered course. Students should be aware that MTI tries to avoid such arrangements so that as many students as possible benefit from classroom and lab instruction.

Cancellation of Courses

MTI reserves the right to cancel a course or combine class sections due to insufficient enrollment or other related factors. Students will be notified and the Registrar's office will work with the students to assist with re-scheduling.

Course Numbering System

The following numbering system is used for all courses:

1. The two- to four-letter prefix designates the department or program area. A department may use more than one prefix.
2. The three-digit course number generally indicates the level of instruction. Courses numbered 090-099 are developmental and do not fulfill any requirements for any degrees or diplomas offered.

090-099	Preparatory/Review Level
100-199	First Year
200-299	Second Year

Course Sequence

Unless otherwise noted, courses in this catalog must be completed in the sequence listed.

Credit Hour System

The credit hour is the academic unit used at Mitchell Technical Institute. MTI defines a traditional credit hour over a 15-week semester to be one 50-minute period per week for a lecture credit and a minimum of two 50-minute periods per week for a lab credit hour, with the expectation of two to three hours of outside work performed by the student for each credit hour. MTI defines the expected student learning outcomes for each course through its course syllabi. Achievement of these learning outcomes is verified through various assessments—tests, quizzes, portfolios, assignments, etc.

An internship or externship credit involves a minimum of 45 hours over the course of one term at an actual job location. The student will be working for an employer under the supervision of a qualified instructor.

All credits require assimilation of specified knowledge and skills comparable to and consistent with learning objectives established for similar courses and levels at other accredited institutions of higher learning.

Advances in communication technologies have affected how colleges award credit. Distance education courses, such as those offered online, stress knowledge and skills more than time spent in a classroom. Students taking such courses are expected to acquire equivalent knowledge and skills by devoting more time to independent activities designed and directed by qualified faculty than they would for an equivalent course on campus with an instructor.

Grading Scale

MTI uses the four-point grading system. Final letter grades are assigned to represent levels of accomplishment.

A	Excellent	4.0
B	Above Average	3.0
C	Average	2.0
D	Below Average	1.0
F	Unsatisfactory	None
I	Incomplete	None
P	Pass	None
N	No Credit	None
W	Withdrawal	None
CR	Credit	None

Full-Time Student

A full-time student is one who is enrolled in twelve or more credit hours during a semester. Courses other than degree-fulfillment courses cannot be used in financial aid full-time status calculations. See the Financial Aid office for details.

Part-Time Student

A part-time student is one who is enrolled in less than 12 credits per semester. Part-time students wishing to attend courses, but not seeking a diploma or degree, must complete a Limited Enrollment registration form which is available in the Admissions Office or Registrar's Office.

Student Academic Load

The maximum load to be carried during any semester by a student (including both face-to-face and online courses) is 21 credit hours or the number of hours specified in the curriculum for the particular semester, whichever is greater. A student who has attained a grade-point average of 2.5 on a load of at least 15 credit hours for the preceding semester may be permitted by the Vice-President for Academic Affairs to carry extra credit hours.

Internships

Internships are educational programs that allow students to receive practical work experience and academic credit while working in governmental, community service, or business settings. Internships are a requirement for graduation at MTI in several programs. They generally occur at the completion of all required classroom courses, near the end of a semester or during the summer. Students must maintain a minimum cumulative GPA of 2.0, must complete two semesters of coursework in their program of study and any specific program requirements to be eligible to complete an internship. Internships at MTI are designed with intentional learning goals to assure that the experience will promote the academic, personal and career development of students. MTI will work with the site sponsor to support the success of the internship experience. ***Students share the responsibility in locating potential internship opportunities.*** No commitments should be made, however, until the internship has been approved by the program internship coordinator. After approval of an internship site is granted by a program's internship coordinator, the student must register for the internship course with the Registrar. All tuition and fees apply.

Additional information regarding internships at MTI may be obtained in the MTI Internship Guide or by speaking with a program's internship coordinator.

Terms of Payment

The registration process is not complete until all costs are either paid or arrangements are made. The conferring of degrees and diplomas is contingent upon the full payment of all tuition, fees and educational costs due MTI.

All registration costs must be paid by the first business day following the end of the drop period. Students who fail to make full payment within the time limit may be subject to immediate termination of their enrollment at MTI. Re-admission will be contingent upon payment in full.

****A late fee may be assessed to delinquent accounts.**

Course Schedule Changes Adds/Drops/Withdrawals

Course Add/Drop Period
Any changes in a student's registration (including adding or dropping a course) must be completed on a Course Change Form. (A course is not dropped by simply discontinuing attendance.) Semester courses may be added through the 5th day of a semester or with the approval of the course instructor. Courses may be dropped through the 10th day of classes each semester. Courses scheduled in shorter modules may be added or dropped through the 3rd day of such classes. Students will not be charged for courses dropped within the first ten days of the semester. Courses dropped during the first ten days of the semester will not be recorded on a student's transcript.

Adding and/or dropping a course after the 10th day requires approval signatures of the student and the course instructor. If the proper drop/add procedure is not followed, the student will fail the course. Courses dropped after the semester's drop period has expired are NOT eligible for a refund unless the student is withdrawing from school entirely. (Refer to Tuition Refunds section.)

Withdrawing From a Course
A student may withdraw from a course after the 10th day and through the 48th day of the semester. A student who withdraws from a course before the 49th day will be issued a grade of "W" to indicate official withdrawal from the course. (A "W" grade is not computed in the student's grade point average.) Students who stop attending a class are not automatically withdrawn from the course. Students who quit attending class and have not completed the official withdrawal process will receive a failing grade. Students will not be allowed to withdraw from courses after the 48th day except under unusual circumstances and with the approval of the Vice-President for Academic Affairs.

No registration change is official until the properly approved form is filed with the Registrar's office; the official date of the withdrawal is the date the form is filed in the Registrar's office. No refunds are issued to students who withdraw from a course.

Withdrawing From School Entirely

Students planning to withdraw from school entirely are required to complete a "Withdrawal Form" available in the Registrar's office. On rare occasions, when completing the form is not possible for the student, then a formal notification to the Registrar's office or to the Student Success Coach must be made either by phone call or MTI-issued email account. A student is not officially withdrawn from the institute until the proper withdrawal form is filed with the Registrar's office.

The process for officially withdrawing from school is:

1. Complete a withdraw form available in the Registrar's office.
2. Complete an exit interview with the Student Success Coach, Learning Services Coordinator, or the Registrar.
3. Complete an exit interview with the Financial Aid Office.

Refunds for Official Withdrawals, if any, are calculated by the student's last date of attendance. A Return of Title IV funds will be calculated and federal funds will be sent back to the Department of Education. MTI has the right and will bill the student for any federal funds that are sent back to the Department of Education. Students who officially withdraw and who receive an earned grade for *any* course during the semester are not eligible for a refund for that course. (See the Business office for a refund schedule.)

Students withdrawing entirely from school, wishing to re-enroll at a later date, are required to complete a new Application for Admission.

Unofficial Withdrawal/Inactive Students
Students who have not demonstrated academic activity are considered "Unofficial Withdrawals". Students who are considered Unofficial Withdrawals will receive all failing grades for any classes in which they are registered and their withdrawal date will be considered the midpoint of the semester (mid-term). A 50% refund for Unofficial Withdrawals will be applied. A Return of Title IV funds will be calculated and federal funds will be returned to the Department of Education. **Please note**: When an Unofficial Withdrawal is applied, MTI has the right and will bill the student for any federal funds that are returned to the Department of Education.

Academic Activity Defined
For students to receive federal financial aid, students must demonstrate academic activity. If academic activity is not confirmed in each class, federal financial aid will be cancelled or reduced based upon the classes where academic activity is confirmed.

The United States Department of Education defines Academic Activity as:

- Physical attendance where there is direct interaction between the instructor and student;
- Completion and submission of an academic assignment, quiz or exam;
- Participation in a study group as assigned by the instructor;
- Participation in an online discussion;
- Initiated contact with the instructor pertaining to an academic course.

Academic Activity is NOT:

- Logging into an online class or MyMTI
- Meeting with an academic advisor

Administrative Withdrawals for Subsequent Semesters

A student registered for a subsequent (future) semester may be administratively withdrawn from the future semester if the student has an outstanding account balance from the current semester or if the student is serving an academic suspension. A student may register after his/her account is paid in full or the suspension has expired.

Withdrawal for Military Activation

Students who are members of the National Guard or reserves who are activated and have attended classes for 75% of the semester during which they are called to active duty, will be allowed to receive the grade they have earned and given full credit for the class/course, providing it is a C or better. Students who are activated prior to 75% of a complete semester will receive a "W".

Tuition Refunds

MTI realizes that students may find it necessary to withdraw from school entirely before a semester ends. The following applies to all students who withdraw entirely from MTI. The process is effective for all terms (including summer) and applies whether a student is a full-time student or a part-time student.

Students must complete a Withdraw Form and submit it to the Registrar's office in order to terminate enrollment. The student's last day of attendance will determine the calculation for return of Title IV financial aid funds.

Students withdrawing entirely from all coursework *during* the drop/add period (first 10 days of semester) will receive a 100% refund on tuition and fees.

Students withdrawing entirely from all coursework *after* the drop/add period has expired will have refunds of tuition and fees calculated based upon the institutional refund policy. Contact the Business office for details.

Attendance

Enrollment in MTI assumes maturity, seriousness of purpose and self-discipline. Every student is expected to attend each meeting of all classes for which he/she is registered, to arrive on time and to stay for the full class period. MTI recognizes that absences occur as a result of circumstances beyond a student's control, as well as from a student's failure to accept responsibility for attending class regularly.

Attendance in all courses is considered critical at MTI. Academic success and student learning are closely related to attendance and participation.

Mandatory attendance requirements may be required in specific programs.

Each instructor will include on the course syllabus the attendance requirements for that class. Because courses differ in design, delivery, and requirements, the effect of absences on a student's grade may vary.

All rosters shall be cleared of inactive enrollment as of the 10th day of the semester. Inactive enrollment results when students do not attend the first 10 days of class.

All withdrawals shall be recorded on the student's record.

Defining Course Types

Traditional: Courses that meet face-to-face requiring student attendance on campus for the full semester.

Blended: A course that blends online and face-to-face delivery. Typically a substantial proportion of the content is delivered online, uses online discussions, and has some face-to-face meetings.

Online: No in-person class meetings are held. All of the content is delivered online. Typically there are no face-to-face meetings; however, some online courses may have a requirement of a campus-based meeting. If a student registered for a course and is unable to come to campus due to extenuating circumstances, alternative arrangements may be made.

Satisfactory Academic Progress

Students attending Mitchell Technical Institute must be making satisfactory progress toward the completion of their academic goal—to obtain a degree or a diploma. Regular and punctual attendance is necessary. Active and committed class participation is required. To maintain financial aid, a student must have satisfactory progress.
Full-time students receiving federal financial aid have a maximum of three semesters to complete two-semester programs and six semesters to complete four-semester programs. Part-time students' completion schedules will be prorated accordingly.

Students must successfully complete at least 67% of the credits attempted each semester in order to complete graduation requirements within the 150% time frame. Students who do not successfully complete 67% of 12 or more credits for two semesters may be suspended from financial aid.

Passing grades of "A," "B," and "C" are counted toward completion of courses for satisfactory progress. Students are encouraged to repeat program courses when they earn a "D" and must repeat all program courses that they fail. Some programs have higher minimum grade requirements. See program descriptions for details.

Repeated courses are considered as normal credit hours and count towards the maximum time and enrollment status for a given semester. Students should note that financial aid will only cover the cost of one repeat of a previously passed course with a grade of A, B, C or D.

Students' academic and attendance records are available through the MyMTI web portal at any time. All students are strongly encouraged to monitor their own academic progress and ask their academic adviser any questions they may have.

President's List

A full-time student will be named to the President's List by achieving a term GPA of 3.5 or higher. The President's List is published each semester. Students receiving an incomplete grade ("I") in any class are not eligible for the President's List.

Midterm Grades

Each semester instructors submit mid-term grades. Mid-term grades are available to students through MyMTI and will be shared with Student Services staff and academic advisors to monitor the academic progress of students.

Final Grades

Final grades are due from instructors two to three business days after the final day of classes in a semester. Final grades are available to students through MyMTI within three to five business days after the final day of classes in a semester.

Incomplete Grades

Students with incomplete grades ("I") at the end of a semester should arrange for the completion of the course with the instructor. A student has 4 weeks from the end of the semester to complete an "I" grade. Failure to complete the course within the 4 weeks may result in a failing grade ("F") for the class. Incomplete forms are available from the instructor.

Grade Appeal

A student who believes that he/she received an inaccurate final grade should contact the course instructor immediately and attempt to resolve the grade dispute. If the grade is found not to be a clerical error, and the student feels the grade was awarded in a manner inconsistent with the criteria stated in the course syllabus, the student may appeal the grade by submitting a statement of reason for the appeal to the Vice-President for Academic Affairs no less than four calendar weeks into the subsequent term. The decision of the Vice President for Academic Affairs is final.

Academic Probation

Students may be placed on academic probation if they have less than a cumulative 2.00 grade point average (GPA) at the end of any semester.

Students may attend MTI for one semester on academic probation. If the student fails to achieve a cumulative 2.00 GPA during the probation semester, the student will be placed on academic suspension.

During a probation semester, students may continue to receive financial aid; however, if the minimum grade point average is not achieved by the end of that semester, all federal financial aid will be suspended.

In order to assure satisfactory progress, students on probation should carefully monitor their GPAs. Any student whose GPA drops below 2.0 should meet with an Academic Advisor, Student Success Coach, or the Learning Services Coordinator immediately to evaluate the probability of achieving the necessary GPA of 2.0 needed to graduate.

Please note: A student placed on probation will be notified in writing. A copy of that correspondence will be placed in the student's permanent file.

Suspension

There are two types of suspension: Academic and Non-Academic.

Academic Suspension
Students who fail to achieve a cumulative GPA of 1.0 during their first semester of enrollment will be suspended with no academic probation. This type of suspension MAY NOT be appealed.

Students who have been suspended must wait at least one semester of full time enrollment before applying for re-enrollment. Students who re-enroll after suspension will be automatically placed on academic probation. Students may be suspended from a program only twice. Registration will not be accepted a third time.

Students may appeal academic suspension if their cumulative GPA is 1.50 or higher. The appeal process is initiated by the student with a written request of their reasons for the appeal sent to the Vice-President of Academic Affairs by the date specified on their notification of academic suspension.

Non-Academic Suspension
Students may be suspended for other reasons including, but not limited to failed drug tests, disciplinary reasons, policy violations, etc.

Please note: A student placed on suspension will be notified in writing. A copy of that correspondence will be placed in the student's permanent file.

Repeating a Course

Students who have failed a course may need to repeat it to meet graduation requirements. Students may choose to repeat a course in an attempt to raise an undesirable grade. **Financial aid restrictions may apply.** In the event a student repeats a course, both grades are recorded on the student's Mitchell Technical Institute academic records. The higher grade of the attempts will be calculated into the student's GPA.

Change of Academic Program

Students may request a change of program within the institute by completing a Request for Change of Academic Program form. The request should be filed with the Admissions office. After a review of the admissions requirements and determination of program capacity, a change in program may be granted. After a student has been granted the change of program, earned credits will be applied to the new program. Only grades of "C" or better in comparable, required technical courses maybe transferred. Students changing programs will have the normal time frame to complete the new program. Those on academic probation will remain on probation in the new program. **Financial aid restrictions may apply.**

The student may apply for Grade Forgiveness for prior coursework that is not a requirement of the new program. See Grade Forgiveness policy.

Grade Forgiveness

Students who have transferred to a new program may apply for Grade Forgiveness. Grade forgiveness applies to previous coursework completed at MTI that is not a requirement for the new program. It is the student's responsibility to apply for grade forgiveness after successfully completing at least 12 credit hours in the new program with a minimum GPA of 2.0. The grades from the technical courses of the former program will remain on the student's transcript, but will not be used in any GPA calculation (grade forgiveness). Grade forgiveness will not be granted for transferred credit.

Readmission (Reinstatement)

Students who have left school in good standing will need to complete the application process if they wish to return. No application fee will be charged for readmission.

Previous courses must have been taken within seven years or applicants must provide evidence that their respective knowledge and skills fulfill current standards and requirements.

Students who have left school for reasons of unsatisfactory progress, nonpayment of fees, or suspension will need to do the following for re-admission into MTI:

1. Pay all past bills in full.
2. Receive approval from the Vice-President for Academic Affairs or the department head.
3. If students need financial aid, such as Veterans benefits, Pell grant, etc., they will also need approval from the Financial Aid Coordinator or the respective agency.

Students who leave the Institute on academic suspension must wait one semester before applying for readmission.

Receiving Transferred Credits

Students transferring credits to MTI from other post-secondary institutions will be individually evaluated to determine courses needed to complete a diploma or degree. A transfer student may have previous coursework accepted to fulfill MTI course and graduation requirements according to the following criteria:

1. Official transcripts must be submitted for use in assessing courses and credits for transfer from accredited institutions.
2. A grade of C or better (2.0 on a 4.0 scale) shall be required in each course accepted in transfer. Transfer credits do not count toward a cumulative GPA. Courses in the major area of study completed more than five years previously may not be accepted for transfer. The grade recorded on the student's academic record will be "CR" (credit).

3. Technical related and general education courses shall be reviewed by the appropriate department(s) and the Registrar to determine course equivalence and acceptance. Partial credit may be awarded for courses that do not meet all competencies of an MTI course. Students will be required to take the course, but at a reduced cost. Courses outside of MTI's areas of study will not be accepted for transfer.
4. Transfer students must complete a minimum of 50% of their coursework credits at MTI to earn a degree or diploma.
5. To transfer credit, an Application for Admission must be on file and a student must have accepted status before credits will be transcribed.

Transferring Credits to Other Institutions

Students who wish to transfer to another institution should contact the Admissions office at that school for an evaluation of their MTI transcript. Whether or not to accept credits is at the discretion of the receiving institution. MTI does not guarantee the transfer of its credits to other post-secondary institutions.

Transcripts

Transcripts are copies of academic records. Official transcripts will be issued on the following basis:

1. Copies of official transcripts cost $5.00 each.
2. All requests for transcripts must be made in writing. You may download a transcript request form from the MTI website.
3. Official transcripts are mailed in a sealed, labeled envelope.
4. Grade reports (unofficial transcripts), labeled as "Issued to Student," are available at no cost.

Credit for Prior Learning/ Work Experience

Students with verified work experience, including military experience and training, may request evaluation of the work experiences. Partial credit may be allowed toward a diploma or degree. Life experience and training may constitute no more than half of the credits required for an MTI diploma or degree. The evaluation requires documentation by the student or a written examination. Once approved, there is a $50 per course transcribing fee.

Test-for-Credit Process

Students may be allowed to receive credit by taking a test—"Testing Out"—for specifically identified classes. Within the first ten days of class, an instructor will notify a student if a Test Out is available for the course. A "Test for Credit Form" is available in the Registrar's office and must be filed with the instructor and a test fee paid in advance to the Business office. Credit will be transcribed to a student's academic record after the student has successfully tested out of the course.

The non-refundable testing fee is $50 (up to 3 credits) plus $10 for each additional credit. If the test includes lab exercises, there may be additional fees assessed. If the test is passed with an 80% or higher score, a grade of "CR" will be transcribed to the student's transcript. A test-for-credit may not be repeated.

Students considering test-for-credit should check with Financial Aid to determine how the test-out would affect financial aid or scholarship status.

College Level Examination Program (CLEP)

Mitchell Technical Institute does not administer the College Level Examination Program (CLEP). However, CLEP credits earned for general education courses may be accepted by MTI. The guidelines governing transfer of credits will apply. Before taking any CLEP examination, students should consult with their Advisor and the Registrar to assure transfer of the CLEP credit.

Course Audits

Courses may be audited for no credit. There is a $40 per course fee to audit a course. A Class Audit form is available in the Registrar's office. In some situations, MTI instructors and administration may require a student to audit a class the student successfully completed in the past. This generally occurs when a student had discontinued their education or is in need of a skills refresher. Financial Aid is not available for audited courses and these courses do not count toward full-time status. Audited courses do not meet graduation requirements. Students enrolled for credit have first priority for space available in any MTI course.

Individuals not accepted to a program may audit a class, but restrictions apply. Contact the Registrar's office for details.

Exceptions to Regulations

Students who request exception to academic regulations must submit a letter to the Vice-President for Academic Affairs explaining special circumstances which might permit waiver of MTI regulations. Requests will be referred to the Vice-President for Academic Affairs for review with input from the department, the Registrar, Director of Admissions, or other interested parties.

The Family Education Rights and Privacy Act of 1974

The Family Education Rights and Privacy Act of 1974 protects the privacy of students' educational records. The statute governs access to records maintained by educational institutions and the release of educational information. The Institute is in compliance with the Family Educational Rights and Privacy Act of 1974. Compliance procedures are further defined in the Student Handbook.

The statute provides students access to their permanent files and an opportunity for a hearing to challenge the records if they are inaccurate or otherwise inappropriate. Permission must be obtained from a student before releasing personally identifiable data from the records.

As of January 3, 2012, the U.S. Department of Education's FERPA regulations expand the circumstances under which your education records and personally identifiable information (PII) contained in such records — including your Social Security Number, grades, or other private information — may be accessed without your consent. First, the U.S. Comptroller General, the U.S. Attorney General, the U.S. Secretary of Education, or state and local education authorities ("Federal and State Authorities") may allow access to your records and PII without your consent to any third party designated by a Federal or State Authority to evaluate a federal- or state-supported education program. The evaluation may relate to any program that is "principally engaged in the provision of education," such as early childhood education and job training, as well as any program that is administered by an education agency or institution. Second, Federal and State Authorities may allow access to your education records and PII without your consent to researchers performing certain types of studies, in certain cases even when we object to or do not request such research. Federal and State Authorities must obtain certain use-restriction and data security promises from the entities that they authorize to receive your PII, but the Authorities need not maintain direct control over such entities. In addition, in connection with Statewide Longitudinal Data Systems, State Authorities may collect, compile, permanently retain and share without your consent PII from your education records and they may track your participation in education and other programs by linking such PII to other personal information about you that they obtain from other Federal or State data sources, including workforce development, unemployment insurance, child welfare, juvenile justice, military service and migrant student records systems.

Directory Information

The Institute discloses, without consent, "directory" information. Directory information is defined as:
Student's name, address and phone
MTI issued email address
Major field(s) of study
Dates of enrollment
Degree(s) and awards received
Participation in officially recognized activities/sports
Information which denotes accomplishments or achievements
Individual or group photographs

The Institute provides students with the opportunity to request nondisclosure of information. Students who wish to request nondisclosure of directory information must contact the Registrar's office to complete a Privacy-Nondisclosure Request Form.

Student Right to Know and Completion Rates

Federal law requires MTI to disclose information on its graduation or completion rates for students who enroll at MTI. Student Right to Know and Completion Rates are posted on the MTI website.

Student Communications

MTI's student email accounts are the "official" means of communication with students by MTI staff. Students are expected to check their official MTI email accounts each day for messages from MTI administration and faculty. Students are responsible for the information shared or requested in the email notification.

Graduation Requirements

Degree and Diploma Requirements

Mitchell Technical Institute awards one-year Diplomas, two-year Diplomas and Associate of Applied Science Degrees. Specific program requirements and course sequences are described by program. It is the responsibility of each student to monitor his or her academic progress. The student is expected to know the graduation requirements pertinent to his or her program, to be cognizant of his or her grade point average, to make appropriate elective course selections and to add/drop courses to best facilitate attainment of his or her educational goals. To assist in making these important decisions, students should consult with their academic advisors. To earn a Diploma or AAS Degree, students must:

1. Complete the requirements of each program as specified in the current MTI General Catalog.
2. Achieve a minimum cumulative grade point average of 2.00 (C).
3. Have on file an official high school transcript or high school equivalency certificate.
4. File a Request to Graduate form with the Registrar's office.
5. Complete the General Education requirements as defined by the program of study's curriculum:
   A. Diploma Requirements
      1. 3.0 credits in English
      2. 3.0 credits in computer literacy
      3. 3.0 credits in mathematics
      4. 1.0 credit in Student Success
   B. Associate of Applied Science Degree Requirements
      1. 3.0 credits in English
      2. 3.0 credits in computer literacy
      3. 3.0 credits in mathematics
      4. 3.0 credits in behavioral science
      5. 3.0 credits in social science
      6. 1.0 credit in Student Success
6. Complete at least 50% of coursework at MTI.

Students are required to fulfill all financial obligations to MTI. Diplomas and transcripts will be held until financial obligations are fulfilled.

Students are required to comply with the policies and regulations of the MTI catalog and the Student Handbook during their enrollment at MTI.

Conferring of Degrees and Diplomas

Degrees and diplomas are officially conferred at the conclusion of each semester in December, May and August. Public commencement exercises are held only in the spring.

Students who plan to receive a diploma or degree must apply for graduation by filing a Request to Graduate form with the Registrar's office. The form must be received in the Registrar's office prior to registration of the student's final spring semester. It is the student's responsibility to confirm that all graduation requirements, including required coursework, are met.

To be eligible to participate in the annual spring graduation ceremony, students must be able to complete their remaining graduation requirements by the end of the subsequent semester.

A note about posthumous awards: MTI awards posthumous degrees to deceased students who were currently enrolled at the time of death and who completed 50% of their program.

Honors Designation

A student will be granted High Honors by maintaining a 3.75 or higher cumulative grade point average.
A student will be granted Honors by maintaining a 3.50 - 3.74 cumulative grade point average.
An honors designation for the purpose of commencement is calculated using a student's cumulative GPA through the fall semester prior to graduation.

Upgrading a Diploma to an AAS Degree

MTI may grant the AAS degree to students who have received a diploma in a two-year program from MTI within the last seven years and who have subsequently completed the technical and AAS requirements in their respective field. The following guidelines will be used to determine an applicant's eligibility to receive the AAS degree:

1. Courses counted toward the degree shall have been taken within the seven years prior to granting the degree, or there is satisfactory evidence that the applicant's respective knowledge and skills fulfill current standards and requirements.

2. The respective department(s) shall review an applicant's transcript and recommend approval for the AAS degree.
3. The student has met the additional general education requirements necessary to earn an AAS degree for a chosen major.
4. Students must complete a Request to Graduate form.

The student will be charged a $50 records processing fee. ***Please note: At least 75% of the general education courses required for the degree upgrade must be transcribed credit and not life experience.***

Replacement Diplomas

Copies of original diplomas are not kept on file. Replacement diplomas can be issued at a cost of $30 each. Allow two weeks for reprinting.

Mitchell Technical Institute

The best jobs start here!

Programs Offered

Program Offerings

Accounting/Business

MTI offers three options for business degrees. All two-year options lead to the completion of an Associate of Applied Science degree. In the first year, all students take a core group of courses that prepares them to make the decision to take the Accounting, Business Management or Promotions and Sales emphasis their second year.

The integration of technology allows students to take courses face-to-face, hybrid (online and face-to-face) and online. This offers a degree of flexibility that students today want. Accounting is the "language" of business. Accountants and bookkeepers continue to be in high demand; the Accounting emphasis will provide the graduate with many options. The Management emphasis offers broad training in key business areas that employers want such as sales, advertising, marketing, insurance, investments, supervisory management and human resource management. The Promotions and Sales emphasis offers students a foundation in areas like sales, advertising, public relations, social media, consumer behavior and customer service.

Note: Students are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Award: AAS Degree

Core Curriculum (All Emphases)

First Semester			Semester Credits
ACCT	110	Principles of Accounting I	4
BUS	101	Introduction to Business	3
BUS	131	Business Math	3
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
		English Elective	3
		Social Science Elective	3
			20

Second Semester			Semester Credits
ACCT	111	Principles of Accounting II	4
BUS	120	Principles of Marketing	3
BUS	122	E-Commerce	3
BUS	140	Business Law	3
MATH	101	Intermediate Algebra	3
		Behavioral Science Elective	3
			19

Accounting Emphasis

Third Semester			Semester Credits
ACCT	212	Intermediate Accounting I	4
ACCT	214	Cost Accounting I	3
ACCT	216	Governmental Reporting	2
ACCT	218	Tax Accounting I	3
BUS	216	Spreadsheet Concepts & Applications	3
ENGL	202	Business Communications	3
			18

Fourth Semester			Semester Credits
ACCT	213	Intermediate Accounting II	4
ACCT	215	Cost Accounting II	3
ACCT	217	Government & Nonprofit Accounting	3
ACCT	219	Tax Software Applications	1
ACCT	221	Accounting Software Applications	2
BUS	217	Database Concepts & Applications	3
or			
ACCT	290	Internship	3
			16

Total Credits Required to Graduate: 73

Business Management Emphasis

Third Semester			Semester Credits
BUS	210	Sales & Advertising	3
BUS	214	Principles of Insurance	2
BUS	216	Spreadsheet Concepts & Applications	3
CSS	120	Outlook Essentials	2
CSS	122	Customer Service	3
ENGL	202	Business Communications	3
BUS	212	Principles of Management	3
or			
BUS	170	Entrepreneurship & Small Bus. Mgmt	4
			19/20

Fourth Semester			Semester Credits
BUS	217	Database Concepts & Applications	3
BUS	218	Intro to Human Resource Management	3
BUS	220	Supervisory Management	3
BUS	235	Investments	3
ACCT	221	Accounting Software Applications	2
BUS	290	Internship	3
or			
BUS	295	Biz Squad	3
			17

Total Credits Required to Graduate: 75
Award: AAS Degree

Promotions & Sales Emphasis

Third Semester			Semester Credits
BUS	210	Sales & Advertising	3
BUS	216	Spreadsheet Concepts & Applications	3
BUS	240	Consumer Behavior	2
CSS	120	Outlook Essentials	2
CSS	122	Customer Service	3
CSS	170	Desktop Publishing	3
ENGL	202	Business Communications	3
			19

Fourth Semester			Semester Credits
BUS	217	Database Concepts & Applications	3
BUS	218	Intro to Human Resource Management	3
BUS	220	Supervisory Management	3
BUS	245	Public Relations Principles & Practices	3
BUS	246	Social Media	3
BUS	290	Internship	3
or			
BUS	295	Biz Squad	3
			18

Total Credits Required to Graduate: 76

Agricultural Technology

Agriculture, particularly in South Dakota, provides many employment opportunities. This two-year program includes two tracks of specialized areas of emphasis that a student may pursue: Ag Production or Ag Business.

A featured component of this program is the MTI Land Lab. The program farms 85 acres of land near Mitchell. MTI Ag students and instructors manage all aspects of crop production including government programs. The land lab is used in conjunction with many of the production and agri-business classes and gives students exposure to precision technologies including auto-steer, geo-referenced data management and variable rate technologies. Students gain experience in all areas of the operation: budgeting, planning, planting, spraying, fertilizing, harvesting and marketing.

Another feature is an animal lab available to students. This working beef production facility allows students access to cattle from birth to sale and helps students learn not only the hands-on labor needed to maintain a beef herd, but also the marketing process for making a profit.

Graduates will find work in all areas of agriculture from production to sales and service to business management and commodity marketing.

Award: AAS Degree

First Semester			Semester Credits
AGT	101	Animal Science I	3
AGT	102	Weeds & Herbicides	3
AGT	103	Machinery Management	2
AGT	104	Ag Chemicals	2
AGT	120	Soil Science I	3
PTS	102	Principles of GPS/GIS	2
TRAN	100	Industrial Transportation/CDL	1
SSS	100	Student Success	1
		Math Elective	3
			20

Second Semester			Semester Credits
AGT	110	Crop Science I	3
AGT	112	Fertilizers	3
AGT	130	Livestock Selection	2
AGT	160	Commodity Marketing	3
OPRV	120	Basic Engine Theory & Operation	2
OPRV	121	Basic Engine Lab	2
CPR	100	First Aid, CPR & AED	0.5
ENGL	201	Technical Writing	3
Elective			
AGT	295	Animal Science Lab I	1
Choose one 6-credits option:			
AGT	180	Ag Production Lab	2
AGT	213	Welding	2
AGT	223	Basic Building Principles/Electrical	2
or			
AGT	190	Internship I	6
			24.5/25.5

SECOND YEAR: Students Choose a Track

Ag Production

Third Semester			Semester Credits
AGT	211	Farm Accounting	3
AGT	212	Ag Chemical Equipment	2
CIS	105	Complete Computer Concepts	3
		Behavioral Science Elective	3
AGT	291	Land Lab I	1
or			
AGT	295	Animal Science Lab I	1
Electives (Choose 7-11 credits)			
AGT	220	Soil Science II	2
AGT	240	Reproductive Physiology	3
AGT	242	Livestock Diseases	3
AGT	245	Animal Nutrition	2
AGT	261	Ag Sales & Service	3
			19/23

Fourth Semester			Semester Credits
AGT	214	Ag Law	3
AGT	215	Ag Finances	3
		Social Science Elective	3
Electives (Choose 3-5 credits)			
AGT	210	Crop Science II	3
AGT	241	Feed Utilization	2
AGT	263	Fundamentals of Insurance	2
Choose one 6-credits option:			
AGT	290	Internship II	6
or			
AGT	180	Ag Production Lab	2
AGT	213	Welding	2
AGT	223	Basic Building Principles/Electrical	2
			18/21

Total Credits Required to Graduate: 81.5

Ag Business

Third Semester			Semester Credits
AGT	211	Farm Accounting	3
AGT	212	Ag Chemical Equipment	2
CIS	105	Complete Computer Concepts	3
		Behavioral Science Elective	3
Electives (Choose 6-9 credits)			
AGT	220	Soil Science II	2
AGT	240	Reproductive Physiology	3
AGT	242	Livestock Diseases	3
AGT	245	Animal Nutrition	2
AGT	261	Ag Sales & Service	3
AGT	291	Land Lab I	1
or			
AGT	296	Animal Science Lab II	1
			17/20

Fourth Semester			Semester Credits
AGT	214	Ag Law	3
AGT	215	Ag Finances	3
AGT	263	Fundamentals of Insurance	2
		Social Science Elective	3
Elective			
AGT	210	Crop Science II	3
Choose one 6-credits option:			
AGT	290	Internship II	6
or			
AGT	180	Ag Production Lab	2
AGT	213	Welding	2
AGT	223	Basic Building Principles/Electrical	2
			17/20

Total Credits Required to Graduate: 78.5

Students are expected to conform to MTI's Drug Testing Policy while enrolled in the Commercial Driving course. See the Student Handbook for details. Any student who enrolls in Commercial Driver training must obtain a South Dakota driver's license in order to cox2mplete the CDL training course. A Class A CDL is a graduation requirement for this program. See the Course Description for TRAN 100 for a full explanation.

MTI recommends that applicants to the Agricultural Technology program obtain a physical examination for their safety and protection.

Please Note:

- ***Students enrolled must possess a Class A CDL license before the end of the 10th day of their first semester of enrollment or be registered for TRAN 100 during their first semester.***
- ***Students must pass the Commercial Applicator's License exam in order to graduate.***
- ***Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.***
- ***Students are required to achieve a grade of 2.0 (C) in technical courses in order to satisfy graduation requirements.***
- ***Students are required to complete one internship to satisfy graduation requirements.***

Architectural Design & Building Construction

Beginning with a firm foundation in drafting with instruments and followed with an introduction to computer-aided design (CAD), students learn to conceptualize the building process. Using the latest construction methods and under close supervision, they construct a residence inside the MTI building lab where the weather is always nice.

In the second year of the program, students working in construction units build a student-designed house in the Mitchell community. Students learn about concrete work as they construct the foundation, rough-finish a basement and finish a three-bedroom home.

Additionally, students will be exposed to many techniques and skills required in the area of commercial construction: steel, welding, commercial construction equipment operation and more. Valuable experience will be gained during a commercial construction internship.

What makes this program special?

- Our instructors are Certified Green Professionals and Home Energy Raters
- We build to Energy Star specifications
- All of our houses are built and rated by the Residential Energy Services Network & Home Energy Rating Standards of Practice (RESNET HERs)
- We focus on energy efficient building practices
- Our students are involved with the NAHB (student chapter)
- South Dakota's only commercial construction program
- Bottom line - we are teaching students how to build the homes of the future!

Graduates from this program find employment with lumberyards, building contractors, architectural firms and commercial construction companies. Their skills in CAD, carpentry, surveying, estimating, cabinetry, commercial construction and green building technologies make the students who graduate from this program valuable employees in the building trades industry.

CERTIFIED GREEN PROFESSIONAL™

RESNET®
Residential Energy Services Network

Program Requirement: Successful completion of all 100 level technical courses is required to continue into advanced 200 level courses.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Award: AAS Degree

First Semester			Semester Credits
AD	101	Principles of Drafting I	2
AD	151	Architectural Drafting Lab I	4
BC	121	Principles of Building Construction I	4
BC	151	Building Construction Lab I	4
		Math Elective	3
SSS	100	Student Success	1
			18

Second Semester			Semester Credits
AD	102	Principles of Drafting II/CAD	2
AD	152	Architectural Drafting Lab II/CAD	3
BC	124	Principles of Green Building	2
BC	130	Cabinetry	2
BC	152	Building Construction Lab II	3
BC	162	Post-Frame Structures	2
CPR	100	First Aid, CPR & AED	0.5
OSHA	100	OSHA 10 Training	1
CIS	105	Complete Computer Concepts	3
			18.5

Third Semester (Summer)			Semester Credits
BC	190	Commercial Construction Internship	6

Fourth Semester (Fall)			Semester Credits
AD	221	Adv. Building Principles	2
BC	222	Construction Equipment	1
BC	251	Building Construction Lab III	7
BC	270	Principles of Contracting	3
		English Elective	3
		Social Science Elective	3
			19

Fifth Semester (Spring)			Semester Credits
AD	242	Principles of Commercial Design	2
AD	272	Commercial Construction Documents	1
BC	252	Building Construction Lab IV	5
BC	261	Commercial Construction Lab	3
BC	282	Welding	2
		Behavioral Science Elective	3
			16

Total Credits Required to Graduate: 77.5

Automation Controls/SCADA

Supervisory Control & Data Acquisition, known in the industry as SCADA, is emerging as one of the fastest expanding areas of industry today. This program teaches students to use computers to collect management data and to design, build and repair automated systems. Industries are placing greater emphasis on remotely controlling switching devices, gathering accurate inventory data, managing the operation of electrical devices, measuring and metering electrical systems and automating routine tasks.

The successful student in this program will demonstrate a variety of skills and abilities including reasoning, both inductive and deductive; research skills; visual color discrimination; communication through various means like telephone, written documents, email, in person; repair and maintain electronic equipment; and keep up to date with new knowledge.

SCADA technicians will find employment in electric power utilities, gas companies, water systems, security systems and in industrial applications. Graduates will install and maintain remote switches and communication devices, or operate computer networks to control remote switches.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Award: AAS Degree

First Semester (Fall)			Semester Credits
EC	121	DC/AC Circuit	3
EC	161	Electronics Math	2
EC	167	IT Essentials	3
SD	112	Electronics Theory	4
SD	151	Electronics Laboratory I	5
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
			21

Second Semester (Spring)			Semester Credits
EC	110	Intro to Telephony/VoIP	2
EC	138	CCNAI: Introduction to Networking	3
EC	140	Digital Fundamentals	2
EC	142	Industrial Power Electronics	2
SD	136	Programming for SCADA	1
SD	157	SCADA Electronics Lab	5
		English Elective	3
			18

Third Semester (Summer)			Semester Credits
SD	120	Intro to Industrial Motor Controls	3
SD	159	Programmable Logic Controllers	3
SD	160	Industrial Wiring	3
OSHA	100	OSHA 10 Training	1
		Math Elective	3
			13

Fourth Semester (Fall)			Semester Credits
SD	229	Networking Concepts I	4
SD	225	Intro to SCADA Software	4
SD	230	Intro to Visual Basic	3
SD	255	Special Topics	1
		Behavioral Science Elective	3
			15

Fifth Semester (Spring)			Semester Credits
SD	205	Process Controls	3
SD	239	Networking Concepts II	3
SD	270	SCADA Testing & Control Lab	7
		Social Science Elective	3
			16

Total Credits Required to Graduate: 83

The best Jobs start here!

ButlerEDGE

Students will get a head start in a career as a Service Technician through the ButlerEdge Ag Technician program. Students will receive state-of-the-art training on various equipment and systems while earning an Associate of Applied Science degree.

ButlerEdge, the AGCO Dealer Service Technology Program, is designed to develop technically competent entry-level Service Technicians. Students receive up-to-date technical training on AGCO equipment and systems through a combination of classroom instruction, hands-on laboratory instruction and an internship at Butler Machinery. Work experience at the dealership is structured to relate to the most recent classroom/lab subjects covered at school. Upon completion of the program, graduates earn an Associate of Applied Science (AAS) degree and a full time job is reserved for them upon graduation.

ButlerEdge is divided into nine terms, each approximately eight weeks in length. Students complete the 1st, 3rd, 5th, 7th and 9th terms on campus at MTI. They complete the 2nd, 4th, 6th and 8th terms interning at a Butler Machinery location. During these paid internships, students will earn over $17.00 per hour with a mandatory minimum of 1,280 internship hours. Students are responsible for paying the costs of tuition, housing, and tools.

Butler Machinery hires many graduates of technical schools to begin working in service departments across the upper midwest. Most of the company's 400+ service technicians began employment after completing their education at a tech school. In many situations, Butler Machinery promotes from within the company.

Note: Several criteria apply to students in this program including screening and acceptance by Butler Machinery. Applicants must complete the ACT test and pass a pre-employment drug screen. See the Admissions office for more details.

Award: AAS Degree

First Semester (Fall)			Semester Credits
BEP	105	AGCO Service Center Fundamentals	3
BEP	120	Diesel Engine & Control Systems	3
BEP	130	Electrical/Electronic Systems	2
OPRV	120	Basic Engine Theory & Operation	2
OPRV	121	Basic Engine Lab	2
SSS	100	Student Success	1
		English Elective	3
		Math Elective	3
			19

Second Semester (Spring)			Semester Credits
BEP	107	Fundamentals of Hydraulics	2
BEP	121	AGCO/SISU Diesel Engines & Control Sys.	3
BEP	161	Air Conditioning Service Fundamentals	2
CPR	100	First Aid, CPR & AED	0.5
HAZ	100	Hazardous Materials Safety	0.5
CIS	105	Complete Computer Concepts	3
		Behavioral Science Elective	3
			14

Third Semester (Summer)			Semester Credits
BEP	102	Principles of GPS/GIS	1
BEP	150	Internship I	4
BEP	200	Powertrain & Drive Systems	3
BEP	212	Fund. of AGCO Application Equipment	3
BEP	240	AGCO Harvesting Equipment Fund.	3
			14

Fourth Semester (Fall)			Semester Credits
BEP	151	Internship II	4
BEP	201	Guidance, Steering & Variable Rate Oper.	2
BEP	210	AGCO Adv. Fluid Power Dynamics	2
BEP	221	AGCO Equipment Diagnostics	3
BEP	243	AGCO Seeding Equipment Fundamentals	3
		Social Science Elective	3
			17

Fifth Semester (Spring)			Semester Credits
BEP	206	TOP TECH Certification/AED Certification	1
BEP	213	Welding & Metallurgy	2
BEP	231	AGCO Adv. Electrical/Electronic Diagnostics	3
BEP	241	Tractor Performance, Tire & Track Systems	3
BEP	245	AGCO Hay Equipment Fundamentals	3
BEP	250	Internship III	4
			16

Sixth Semester (Summer)			Semester Credits
BEP	251	Internship IV	4

Total Credits Required to Graduate: 84

thebestjobs start here!

Culinary Academy

The Culinary Academy of South Dakota has a long and honored tradition in the upper Midwest. Placement opportunities for graduates have been excellent. This program combines traditional campus instruction with apprenticeship training in other South Dakota communities including major convention centers and hotels.

Learning to cook in the MTI kitchens, students master the techniques of food preparation, sanitation and service in a large operation. Fulfilling all the positions in a modern food service operation, students move easily from cook to waiter, learning as they work. The program provides daily food service to MTI students, staff and guests, short order service and elegant Oak Room dining in MTI's prestigious on-campus restaurant.

After two semesters on campus, students are prepared to enter the food service industry with a one-year diploma. Students also have the option of enrolling in a second year and completing an Associate of Applied Science (AAS) degree. The two-year option will conclude with an internship experience. AAS graduates have experience in cooking, but equally important, are prepared for management positions in the food service industry.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Please Note: This program requires students to be able to perform several physical tasks including lifting 50 pounds; standing for a minimum of 90 minutes at a time; ability to stoop, bend and stretch; to read small print on order tickets, recipes and labels; and to withstand very hot and cold working conditions.

Program Requirements: Students must attain a minimum 2.5 cumulative GPA in all first-year technical classes before advancing to the second year curriculum. In addition, students will be evaluated for second-year advancement on several factors including interpersonal, work ethic and teamwork skills.

Award: One-year Diploma or AAS Degree

First Semester			Semester Credits
CA	107	Customer Service	2
CA	162	Sanitation and Safety Lab	2
CA	163	Food Service Math	3
CA	170	Food Theory I	3
CA	171	Food Production Lab I	6
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
			20

Second Semester			Semester Credits
CA	103	Controlling Restaurant Cost	3
CA	180	Food Theory II	3
CA	181	Food Production Lab II	6
CA	208	Hospitality & Management	3
CPR	100	First Aid, CPR & AED	0.5
		English Elective	3
		Math Elective	3
			21.5

AAS Degree ONLY

Third Semester			Semester Credits
CA	200	Nutrition	3
CA	201	Advanced Foods & Supervision I	6
CA	210	Accounting for Hospitality	3
BUS	101	Intro to Business	3
		Behavioral Science Elective	3
			18

AAS Degree ONLY

Fourth Semester			Semester Credits
CA	204	Advanced Foods & Supervision II	6
CA	230	Culinary Exploration Lab	3
BUS	120	Principles of Marketing	3
		Social Science Elective	3
			15

AAS Degree ONLY

Fifth Semester (Summer)			Semester Credits
CA	280	Internship	6

Total Credits Required to Graduate: 41.5 (Diploma)
Total Credits Required to Graduate: 80.5 (AAS)

The MTI Culinary Academy is accredited by the American Culinary Federation, Educational Foundation, Accreditation Commission (ACFEFAC):

American Culinary Federation
180 Center Place Way
St. Augustine, FL 32095
(800) 624-9458
www.acfchefs.org

American Culinary Federation Education Foundation

The best jobs start here!

Electrical Construction & Maintenance

The Electrical Construction and Maintenance program is a sequence of courses designed to provide basic training in maintenance and new construction wiring—in both residential and commercial buildings. The program emphasizes a combination of theory and practical application necessary for successful employment. Additional coursework includes fiber optic and data cabling as well as programmable logic controls.

The program begins with a review of basic math as it relates to the electrical trade and an introduction to hand tools, materials, basic electrical resistive theory, wire sizing, circuit construction and troubleshooting. The program continues with basic through advanced motor controls, motor theory and maintenance, installation and maintenance of equipment, blueprint reading, estimating, electrical codes and instruction in job-seeking skills.

The successful student in this program will demonstrate a variety of skills and abilities including manual dexterity, arm-hand steadiness and multi-limb coordination; visual color discrimination and near vision; reasoning, information ordering and problem-solving; and communication with supervisors, peers and subordinates. In addition, students must be able to perform general physical activities like climbing, lifting, walking, stooping and handling materials and must be able to climb a 6-foot ladder.

Apprentice electrical jobs in residential, commercial and industrial areas are open to MTI graduates. Positions are available with electrical contractors and maintenance companies and with regional substations and utility companies. Incoming students are licensed as apprentice electricians in South Dakota. Upon completion of the Electrical Construction and Maintenance program, an MTI graduate receives 2000 hours towards certification as a journeyman with a South Dakota electrician's license.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Award: Two-Year Diploma or AAS Degree

First Semester			Semester Credits
ECM	101	Electrical Fundamentals	4
ECM	121	Electrical Drawing	4
ECM	151	Basic Electrical Lab	5
SSS	100	Student Success	1
		Math Elective	3
		Social Science Elective (AAS)	3
			Diploma 17
			AAS 20

Second Semester			Semester Credits
ECM	103	Designing Electrical Systems	3
ECM	122	Residential Blueprint & Code	3
ECM	149	Basic Conduit Bending	2
ECM	157	Wiring Lab	4
CIS	105	Complete Computer Concepts	3
		Behavioral Science Elective (AAS)	3
			Diploma 15
			AAS 18

Third Semester			Semester Credits
ECM	211	Power Distribution	1.5
ECM	231	Electronic Circuits	2
ECM	251	Commercial and Industrial Wiring Lab	4
ECM	252	Industrial Controls	3
ECM	255	Control Lab I	1.5
ECM	259	Programmable Logic Controls	3
		English Elective	3
			18

Fourth Semester			Semester Credits
ECM	202	Motor Theory & Maintenance	2
ECM	221	Commercial Blueprint Reading	2.5
ECM	241	Fiber Optics	1
ECM	253	Advanced Control Systems	2.5
ECM	257	Advanced Control Lab II	2
ECM	260	Data Cabling	3
ECM	261	Adv. Programmable Logic Controls	3.5
ECM	244	VFD/Motor Drives	1
CPR	100	First Aid, CPR & AED	0.5
OSHA	100	OSHA 10 Training	1
			19

Total Credits Required to Graduate: 69 (Diploma)
Total Credits Required to Graduate: 75 (AAS)

THIRD YEAR SCADA OPTION

Students who have completed a two-year curriculum in Electrical Construction & Maintenance with a minimum GPA of 2.75 may be accepted into the Automation Controls/SCADA program. They may enroll in the second year curriculum and complete a second AAS degree with one additional year of classes. See the Admissions office for details.

Students who plan to enroll in the third-year SCADA option must complete the following:

SD	140	Intro to SCADA I	3
SD	141	Intro to SCADA II	4
EC	110	Intro to Telephony/VoIP	2
EC	139	Cisco Discovery I	3
EC	167	IT Essentials	3

Upon successful completion of these courses, students will enroll in semesters four and five of the Automation Controls/SCADA curriculum. See page 30 for more information.

The best jobs start here!

Electrical Utilities & Substation Technology

The goal of the Electrical Utilities & Substation Technology program is to provide students with an extensive hands-on experience that integrates the knowledge, skills and competencies that the electrical power utility industry needs to ensure that customers have access to power. Graduates will learn to install, inspect, test, repair and maintain electrical equipment in substations and other smart grid equipment on the power grid.

Substation technicians are individuals who work with electrical engineers to design, construct and maintain a substation, the facility which collects power at the generation site, connects to a transmission grid and downloads energy to a distribution network where the power is delivered to the consumer. Graduates will find employment working outdoors at a substation or performing maintenance on the grid system housed inside a utilities service facility.

Admissions Requirements: Applicants to the program must be a two-year apprentice lineman or a graduate of an accredited power line or electrical program. Students applying from an accredited program must have a minimum cumulative GPA of 2.75.

Note: Students are required to use a laptop or notebook computer for this program. Students must bring their own device, which must meet MTI specifications, or may purchase one from MTI.

Award: AAS Degree

First Semester			Semester Credits
EUST	107	Basic Hydraulics	2
EUST	110	Intro to Basic Motor Controls	2
EUST	114	Substation Operations Lab	4
EUST	120	Substation Operations I	2
EUST	150	Substation Safety I	1
EC	130	Networking Essentials	2
SD	140	Intro to SCADA I	3
		Behavioral Science Elective	3
			19

Second Semester			Semester Credits
EUST	115	Substation Controls & Testing Lab	4
EUST	121	Substation Operations II	2
EUST	130	Intro to Smart Metering & Grid	2
EUST	131	Fiber Optics for Substations	1
EUST	132	Schematic Reading	2
EUST	151	Substation Safety II	1
		Social Science Elective	3
			15

Total Credits Required to Graduate: 44 (AAS)

The student seeking an AAS degree must complete:

CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
		English Elective	3
		Math Elective	3
		Behavioral Science Elective	3
		Social Science Elective	3
			16

The best Jobs start here!

Farm Power Technology

Farm Power Technology: a great way to get your hands on some of today's biggest, most automated machinery used in the agriculture industry! Students will take classes in electronic controls, GPS, introductory diesel, drive trains, hydraulics, electrical systems, air conditioning systems, harvesting equipment, service management and more to learn how to help farmers increase productivity and be more profitable.

Manufacturers are incorporating more and more technology into their new products. At the local dealer level, where equipment is sold and serviced, the demand for technicians who understand this new technology and have the ability to repair it in a cost-effective timely manner, is at an all-time high. This program will produce technicians who can diagnose mechanical and electronic problems or hydraulic failures in the complex modern equipment used on farms and in fields.

Students receive hands-on training and learn applied skills such as repair, diagnostic and troubleshooting skills that are critical for this industry. As part of the program, students will also complete an internship at an ag power dealership or job site related to the program.

Career opportunities include positions like service technician, parts person, parts manager, service/warranty writer, or customer service/sales representative at an agriculture power equipment dealership.

Note: Students are required to use a laptop or notebook computer for this program. Students must bring their own device, which must meet MTI specifications, or may purchase one from MTI.

Award: AAS Degree

First Semester			Semester Credits
OPRV	105	Service Center Fundamentals	3
OPRV	120	Basic Engine Theory & Operation	2
OPRV	121	Basic Engine Lab	2
OPRV	130	Electrical/Electronic Systems	2
FPWR	120	Diesel Engine & Control Systems	3
SSS	100	Student Success	1
		English Elective	3
		Math Elective	3
			19

Second Semester			Semester Credits
OPRV	106	Adv. Service Center Fundamentals	3
OPRV	107	Service Fundamentals Lab	2
OPRV	280	Successful Service Management	3
AGT	103	Machinery Management	2
FPWR	107	Intro to Hydraulics	2
FPWR	121	Adv. Diesel Engine & Control Systems	3
FPWR	161	Air Conditioning Service Fundamentals	2
CIS	105	Complete Computer Concepts	3
			20

Third Semester (Summer)			Semester Credits
FPWR	290	Internship	4

Fourth Semester (Fall)			Semester Credits
FPWR	200	Powertrain & Drive Systems	3
PTS	102	Principles of GPS/GIS	2
AGT	212	Ag Chemical Equipment	2
		Behavioral Science Elective	3
		Social Science Elective	3
Electives (Choose two or three*)			
FPWR	240	Harvesting Equipment Basics	3
FPWR	241	Tractor Performance & Setup	2
FPWR	242	Sales & Marketing: Parts & Aftermarket	2
			17-20

Fifth Semester (Spring)			Semester Credits
FPWR	201	Guidance, Steering & Variable Rate Oper.	3
FPWR	210	Adv. Fluid Power Dynamics & Diagnostics	3
FPWR	221	Ag Equipment Diagnostics	3
FPWR	231	Adv. Electrical/Electronics Diagnostics	3
AGT	213	Welding	2
Electives (Choose two or three*)			
FPWR	243	Seeding Equipment Fundamentals	3
FPWR	244	Tillage Equipment Basics	2
FPWR	245	Hay Equipment Fundamentals	3
			19-22

***Students are required to choose a combination of electives to total 8 credits. Students may opt to enroll in all electives if their schedule allows.**

Total Credits Required to Graduate: 79

The best jobs start here!

Heating and Cooling Technology

The Heating and Cooling Technology program provides students with skills and knowledge in mechanics, electricity and sheet metal. Students also receive extensive training in energy management and environmental controls technology to include renewable energy resources such as geothermal and solar technology. Laboratory time is spent installing and servicing heating and cooling systems, as well as designing and forming sheet metal patterns for ductwork.

Graduates are prepared for an expanding field that includes jobs in sales, service, installation and industrial maintenance for a company or as a self-employed contractor. Some typical jobs include service or installation technician, sales, service trainer, industrial maintenance, supervisor, manufacturer's representative or business owner.

Students may complete the first year of the curriculum and earn a one-year diploma.

Note: A combination degree requiring completion of selected courses in the Heating and Cooling Technology program and courses in the Propane & Natural Gas Technology program is available. Check with the Admissions office for details.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Award: One-Year Diploma or AAS Degree

First Semester			Semester Credits
HV	101	Electrical Fundamentals	3
HV	111	Heating Fundamentals	3
HV	121	AC and Refrigeration Fundamentals	4
HV	151	AC/Heating/Refrigeration Lab I	5
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
		English Elective	3
			22

Second Semester			Semester Credits
HV	122	Sheet Metal Technology and Lab	3
HV	132	Heating & Refrigeration Theory	4
HV	142	HV Controls & Heat Pumps	3
HV	152	AC/Heating/Refrigeration Lab II	4
HV	160	Planning & Estimating	3
		Math Elective	3
			20

AAS Degree ONLY

Third Semester			Semester Credits
HV	211	Domestic Heating and Cooling	3
HV	231	Heat Pumps/Solar Heating Theory	3
HV	232	Commercial Air Conditioning	3
HV	251	AC/Heating/Refrigeration Lab III	4
		Social Science Elective	3
		Behavioral Science Elective	3
			19

AAS Degree ONLY

Fourth Semester			Semester Credits
HV	202	Commercial Refrigeration	4
HV	252	AC/Heating/Refrigeration Lab IV	5
HV	259	DDC Temperature Control	3
HV	290	Internship	5
OSHA	100	OSHA 10 Training	1
			18

Total Credits Required to Graduate: 42 (Diploma)
Total Credits Required to Graduate: 79 (AAS)

The Heating and Cooling Technology program is accredited by:

HVAC Excellence
PO Box 491
Mt. Prospect, IL 60056
800.394.5268
www.hvacexcellence.org

The best Jobs start here!

Utilities Technology/Heating & Cooling

This regionally unique program is a combination of Propane and Natural Gas Technology and Heating and Cooling Technology. Students receive hands on experience in residential, commercial and cooling labs as well as sheet metal and duct fabrication work. They also learn how to install, maintain, operate and repair gas distribution systems.

This industry holds an excellent reputation with both great job opportunities and high starting salaries. Employment is available in construction or gas companies as a service or installation technician.

Students are expected to conform to MTI's Drug Testing Policy while enrolled in the Commercial Driving course. See the Student Handbook for details. Any student who enrolls in Commercial Driver training must obtain a South Dakota driver's license in order to complete the CDL training course. A Class A CDL is a graduation requirement for this program. See the Course Description for TRAN 100 for a full explanation.

Enrollment Requirement: Students must be a graduate of their first program before enrolling in the second program.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Award: AAS Degree

Note: These programs can be taken in either sequence: HCT followed by NG or NG followed by HCT.

HCT Curriculum

First/Third Semester			Semester Credits
HV	101	Electrical Fundamentals	3
HV	111	Heating Fundamentals	3
HV	121	AC and Refrigeration Fundamentals	4
HV	151	AC/Heating/Refrigeration Laboratory I	5

Second/Fourth Semester			Semester Credits
HV	122	Sheet Metal Technology and Lab	3
HV	132	Heating & Refrigeration Theory	4
HV	142	HV Controls & Heat Pumps	3
HV	152	AC/Heating/Refrigeration Laboratory II	4
HV	160	Planning & Estimating	3

PNG Curriculum

First/Third Semester			Semester Credits
NG	100	Electrical Circuits & Testing	2
NG	102	Gas Operations & Maintenance	5
NG	110	Gas Operations & Maintenance Lab	4
PTS	100	Intro to GIS Technologies	2
TRAN	100	Industrial Transportation/CDL	1

Second/Fourth Semester			Semester Credits
NG	101	Gas Appliance Service and Controls	3
NG	103	Gas Installation Lab	5
NG	105	Measurement and Control	5
CPR	100	First Aid, CPR & AED	0.5
OSHA	100	OSHA 10 Training	1

In addition to the technical courses required in each program, the student seeking an AAS degree must also complete:

ENGL	201	Technical Writing	3
SOC	110	Industrial Relations	3
CIS	105	Complete Computer Concepts	3
MATH	104	Technical Math	3
PSYC	101	General Psychology	3
SSS	100	Student Success	1

Total Credits Required for the AAS: 76.5

Hottest Jobs start here!

Human Services Technician

The Human Services Technician program is designed to prepare students for entry-level positions in a variety of agencies and organizations that provide human and social services to all ages, from children to seniors. Students will learn to adapt to many different types of situations through classroom activities and fieldwork experiences under the supervision of experienced instructors and working professionals.

When you enroll in the HST program at MTI, you will spend two years (four semesters) preparing to work in a fast-growing occupation, well versed in the skills needed to provide vital information, advocacy, care and support to people of diverse cultural, racial and ethnic backgrounds. The Associate degree will prepare students for work in residential facilities for youth or adults, case management, retirement communities, substance abuse facilities, nursing homes, assisted living and agencies that deal with juvenile and criminal justice.

Admission Requirement: All students accepted to the program must submit to a criminal background check at the student's expense. Details are available from the Admissions office.

Program immunization requirements have to be met before entrance to fieldwork sites. See instructor for details.

Program Graduation Requirement: Students must earn a grade of C (2.0) or higher in all technical courses as a prerequisite to HST 290. Students must earn a grade of C (2.0) or higher in their fieldwork in order to graduate.

Note: Students are required to use a laptop or notebook computer for this program. Students must bring their own device, which must meet MTI specifications, or may purchase one from MTI.

Award: AAS Degree

First Semester			Semester Credits
HST	101	Intro to Human Services	3
HST	104	Community Resources	3
HST	106	Human Services Populations	3
HST	112	Disabilities	2
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
			15

Second Semester			Semester Credits
HST	122	Abuse and Neglect	3
HST	124	Assessment and Documentation	3
HST	126	Group Practice	3
PSYC	130	Human Development	3
ENGL	101	English Composition	3
			15

Third Semester			Semester Credits
HST	210	Social Work and the Law	3
HST	212	Chemical and Substance Abuse	4
HST	220	Workplace Ethics	2
HST	230	Fieldwork Survey	2
		Math Elective	3
		Social Science Elective	3
			17

Fourth Semester			Semester Credits
HST	240	Crisis Intervention	2
HST	242	Intro to Gerontology	2
HST	244	Intro to Corrections	2
HST	246	Intro to Youth Services	2
HST	290	Fieldwork	6
MA	100	Basic Life Support for Healthcare	0.5
			14.5

Total Credits Required to Graduate: 61.5

The best jobs start here!

Industrial Maintenance Technology

Today's complex and sophisticated buildings, plants and factories require a highly-trained technical workforce to service and maintain facilities and equipment, control energy costs, and ensure facility quality for owners and clients.

Industrial Maintenance Technology involves keeping industrial systems working properly. Technicians working in industry are those who work directly with machines: troubleshooting, calibrating, repairing, re-programming, and maintaining them. They are involved with installing machines, making them work, taking care of them so that they do not break down (maintenance), re-programming and rebuilding them to do different tasks, and troubleshooting and repairing them when they fail.

Graduates of this program will find opportunities in many areas like hospitals, schools, manufacturing, and distribution centers. Organizations which have relatively large facilities using complex HVAC, control or electrical systems either as a part of the facilities or as production equipment will benefit from the addition of an Industrial Maintenance technician to their staff.

Note: This program is delivered in Yankton, South Dakota, through a partnership with RTEC.

Award: One-Year Diploma

First Semester			Semester Credits
IMT	101	Electrical Fundamentals & Lab	6
IMT	102	Basic Mechanical Drives	3
IMT	103	Basic Hydraulics	3
IMT	104	Welding & Metal Work	1.5
SSS	100	Student Success	1
		Math Elective	3
			17.5

Second Semester			Semester Credits
IMT	105	Intro to Industrial Motor Controls	3
IMT	106	Programmable Logic Controls	3
IMT	107	Heating & Cooling Concepts & Lab	3
IMT	108	Facilities Operation & Maintenance	3
CIS	105	Complete Computer Concepts	3
OSHA	100	OSHA 10 Training	1
		English Elective	3
			19

Total Credits Required to Graduate: 36.5

The best Ijobs start here!

Information Systems Technology

IT specialists are needed in every kind of business, no matter the size, to install, troubleshoot and support computer network systems. MTI offers three options for students interested in an IT career: Network Administration, System Administration and Computer Support Specialist.

According to the Bureau of Labor Statistics, "The growing use of sophisticated computer networks and Internet and intranet sites and the need for faster, more efficient networking products will result in a higher than average job growth in this area."

Network Administrators are responsible for the computer network infrastructure, ensuring connectivity for users. They maintain connectivity and security of the routers, switches and wireless equipment that modern networks depend on.

System Administrators are skilled information technology professionals who are responsible for installing, supporting and maintaining servers and utilizing networking applications.

Computer Support Specialists install, modify and make minor repairs to microcomputer hardware and software systems, as well as provide technical assistance and training to system users. They also install or assist service personnel in installation of hardware and peripheral components, answer client inquiries in person and via telephone, diagnose system hardware, software and operator problems; and recommend or perform minor remedial actions to correct problems.

Please Note: Students in this program may be required to lift 50 lbs. and to demonstrate visual color discrimination.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Entrance Requirement: All IST applicants must complete the ACT or ACCUPLACER exam. Students not meeting the minimum math entrance score will be advised to meet with an IST faculty member to develop an academic plan of study that will ensure successful completion of the program.

Award: One-Year Diploma or AAS Degree

First Year (Core)/One-Year Diploma: Information Systems Technology

First Semester			Semester Credits
IST	110	Network Media	2
IST	120	A+ Hardware/Operating Systems	6
IST	140	Cisco CCNA I	6
IST	159	LINUX Systems	2
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
			20

Second Semester			Semester Credits
IST	105	SQL Database Management	2
IST	112	MS Server Administration	5
IST	125	A+ Certification Prep	1
IST	141	Cisco CCNA II	5
		Math Elective	3
		English Elective	3
			19

Total Credits Required to Graduate: 39 (Diploma)

Second Year (Network Administration)

Third Semester (Summer)			Semester Credits
IST	286	Internship	6

Fourth Semester			Semester Credits
IST	222	Information Security I	2
IST	243	Cisco CCNA III	5
IST	264	MS Active Directory	4
IST	265	Network Monitoring & Management	2
EC	110	Intro to Telephony/VoIP	2
		Behavioral Science Elective	3
			18

Fifth Semester			Semester Credits
IST	208	Computer Forensics	3
IST	244	Cisco CCNA IV	5
IST	256	Information Security II	3
		Social Science Elective	3
			14

Total Credits Required to Graduate: 77

Second Year (System Administration)

Third Semester (Summer)			Semester Credits
IST	286	Internship	6

Fourth Semester			Semester Credits
IST	222	Information Security I	2
IST	243	Cisco CCNA III	5
IST	264	MS Active Directory	4
IST	265	Network Monitoring & Management	2
EC	110	Intro to Telephony/VoIP	2
		Behavioral Science Elective	3
			18

Fifth Semester			Semester Credits
IST	207	Datacenter Logistics	2
IST	208	Computer Forensics	3
IST	259	LINUX Server Administration	3
IST	268	MS Exchange Server	4
		Social Science Elective	3
			15

Total Credits Required to Graduate: 78

Second Year (Computer Support Specialist)
ONLINE CURRICULUM ONLY

Third Semester (Fall)			Semester Credits
CSS	120	Outlook Essentials	2
CSS	143	Document Production	3
BUS	110	Accounting for Business I	4
BUS	216	Spreadsheet Concepts and Applications	3
SSS	101	Online Seminar I	1
			13

Fourth Semester (Spring)			Semester Credits
CSS	122	Customer Service	3
CSS	170	Desktop Publishing	3
CSS	171	Multimedia Concepts	3
SSS	102	Online Seminar II	1
BUS	111	Accounting for Business II (Elective)	4
			10/14

Fifth Semester (Summer)			Semester Credits
BUS	217	Database Concepts and Applications	3
CSS	203	Web Design	3
		English Elective	3
		Mathematics Elective	3
			12

Total Credits Required to Graduate: 74

Medical Assistant

The Medical Assistant is a professional, multi-skilled person who assists in all aspects of medical practice. Medical Assistants help physicians examine and treat patients and perform routine tasks to keep offices running smoothly.

Medical assistants perform clerical duties such as answering telephones, greeting patients, updating and filing patient medical records, completion of insurance forms, handling correspondence and arranging for hospital admission and laboratory services. Clinical duties include taking and recording vital signs, explaining treatment procedures, preparing patients for examination, collecting laboratory specimens, administering medication (excluding intravenous), authorizing prescription telephone orders and preparing patients for X-rays. Opportunities exist in clinics, hospitals, nursing homes and insurance companies.

Admission Requirement: All students accepted to the program must submit to a criminal background check at the student's expense. Details are available from the Admissions office.

Some immunization requirements may have to be met before entrance to certain clinical sites. See the Instructor for details.

Note: Students are required to use a laptop or notebook computer for this program. Students must bring their own device, which must meet MTI specifications, or may purchase one from MTI.

Program Graduation Requirements: It is the goal of this program to prepare competent entry-level medical assistants in the cognitive (knowledge), psychomotor (skills) and affective (behavior) learning domains. To achieve that goal, students must earn a grade of C (2.0) or higher in all technical courses as a prerequisite to MA 250 Clinical Externship. Students must earn a grade of C (2.0) or higher in their clinical externship in order to graduate.

Award: AAS Degree

First Semester			Semester Credits
MA	101	Medical Terminology	3
MA	103	Anatomy/Physiology	4
MA	106	Medical Laboratory Fundamentals	4
MA	111	Medical Office Procedures	3
SSS	100	Student Success	1
MATH	101	Intermediate Algebra	3
			18

Second Semester			Semester Credits
MA	112	Laboratory Procedures I	4
MA	123	Pathophysiology	3
MA	162	Medical Law & Ethics	2
MOP	160	CPT/ICD-10/CM Coding	3
CIS	105	Complete Computer Concepts	3
		Behavioral Science Elective	3
			18

Third Semester			Semester Credits
MA	113	Laboratory Procedures II	4
MA	210	Pharmacology & Admin. of Medicines	3
MA	220	Examination Room Techniques I	4
MOP	210	Medical Insurance & Billing	3
		English Elective	3
		Social Science Elective	3
			20

Fourth Semester			Semester Credits
MA	100	Basic Life Support for Health Care	0.5
MA	221	Examination Room Techniques II	3
MA	240	Cardiac Monitoring and Dx Procedures	2
MA	250	Clinical Externship	6
MA	281	Medical Transcription	3
			14.5

Total Credits Required to Graduate: 70.5

The MTI Medical Assistant program, offered for the AAS degree, is accredited by The Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of the Medical Assisting Education Review Board (MAERB).

Commission on Accreditation of Allied Health Education Programs
1361 Park Street
Clearwater, FL 33756
(727) 210-2350
www.caahep.org

The best jobs start here!

Medical Laboratory Technology

This program will prepare students for employment as medical laboratory technicians responsible for performing laboratory analysis. The program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). A student spends the first three semesters of the program in the classroom and lab at MTI. The remainder of the program assigns students to an affiliated hospital/clinic lab for a clinical practicum externship. During this time the student will work under the supervision of the lab personnel performing tests and other lab work as well as completing class assignments.

Graduates may test to become certified as Medical Laboratory Technicians by the Board of Certification.

Note: It is required that applicants to the program have successfully completed high school algebra, chemistry and biology with a C (2.0) or better to demonstrate proficiency in math and science. In addition, an applicant must have a cumulative high school GPA of 2.5 or higher. Some special requirements may have to be met before entrance to the program or to certain clinical sites. See the Program Director or the MLT Student Handbook for details.

Admission Requirement: All students accepted to the program must submit to a criminal background check at the student's expense. Details are available from the Admissions office.

Some immunization requirements may have to be met before entrance to certain clinical sites. See the Instructor for details.

Note: Students are required to use a laptop or notebook computer for this program. Students must bring their own device, which must meet MTI specifications, or may purchase one from MTI.

Program Graduation Requirement: Students must earn a grade of C (2.0) or higher in all technical courses and MA 101 and MA 103 including the clinical practicum in order to graduate.

Award: AAS Degree

First Semester			Semester Credits
ML	104	Medical Laboratory Fundamentals	3
ML	105	Instrumentation	2
MA	101	Medical Terminology	3
MA	103	Anatomy/Physiology	4
CIS	105	Complete Computer Concepts	3
MATH	101	Intermediate Algebra	3
SSS	100	Student Success	1
			19

Second Semester			Semester Credits
ML	111	Hemostasis	2
ML	112	Hematology	6
ML	121	Urinalysis/Body Fluids	3
ML	144	Intro to Laboratory Chemistry	3
ML	171	Immunology/Serology	3
ENGL	101	English Composition	3
			20

Third Semester			Semester Credits
ML	230	Clinical Chemistry	4
ML	240	Microbiology	6
ML	272	Immunohematology/Blood Banking	3
MA	100	Basic Life Support for Health Care	0.5
		Behavioral Science Elective	3
		Social Science Elective	3
			19.5

Fourth Semester			Semester Credits
Clinical Practicum			
ML	214	Practical Clinical Hematology*	4
ML	224	Practical Clinical Urinalysis/Body Fluids*	3
ML	244	Practical Clinical Microbiology/Serology*	5
ML	274	Practical Clinical Immunohematology*	4
			16

Fifth Semester			Semester Credits
Clinical Practicum			
ML	234	Practical Clinical Chemistry/Immunoassay*	6

*Prerequisite: Students must have earned a grade of C or better in all previous technical courses before enrolling in clinical courses.

Total Credits Required to Graduate: 80.5

The MTI Medical Laboratory Technology program, offered for the AAS degree, is accredited by:

The National Accrediting Agency for Clinical Laboratory Sciences
8410 West Bryn Mawr Avenue Suite 670
Chicago, IL 60631
(773) 714-8880
www.naacls.org

The best jobs start here!

Medical Office Professional

A skilled Medical Office Professional is an invaluable asset to any medical office, working effectively with medical professionals and patients while performing assorted office duties. With the number of healthcare procedures escalating every year as the population ages, there's a high demand for skilled specialists in patient information technology and medical billing and reimbursement. Medical Office Professionals (MOP) are the experts on patient data that doctors, nurses and other providers rely on to perform their jobs.

Medical records and health information technicians can expect to be in high demand in the health sector during the next 20 to 30 years. In fact, the Bureau of Labor Statistics projects health information technology will be one of the 20 fastest growing occupations in the U.S.

Career opportunities in these areas include Medical Receptionist, Medical Records Clerk, Medical Information Management Clerk, Health Information Management, Medical Claims Clerk, Medical Claims Processor, Medical Claims Analyst or more.

Admission Requirement: All students accepted to the program must submit to a criminal background check at the student's expense. Details are available from the Admissions office.

Program Graduation Requirement: Students must earn a grade of C (2.0) or higher in all technical courses as a prerequisite to MOP 290. Students must earn a grade of C (2.0) or higher in their clinical internship in order to graduate.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Award: AAS Degree

First Semester			Semester Credits
MA	101	Medical Terminology	3
MA	103	Anatomy/Physiology	4
CIS	105	Complete Computer Concepts	3
BUS	110	Accounting for Business I	4
SSS	100	Student Success	1
		English Elective	3
			18

Second Semester			Semester Credits
MOP	130	Computers in the Medical Office	3
MOP	140	Pharmacology Basics	2
MOP	160	CPT/ICD-10/CM Coding	3
BUS	111	Accounting for Business II	4
MA	123	Pathophysiology	3
		Math Elective	3
			18

Third Semester			Semester Credits
MOP	206	Transcription I	4
MOP	210	Medical Insurance & Billing	3
MOP	230	Medical Office Administration	3
MOP	260	Advanced Coding I	4
		Social Science Elective	3
		Behavioral Science Elective	3
			20

Fourth Semester			Semester Credits
MOP	208	Transcription II	4
or			
MOP	262	Case Study Coding	3
MOP	212	Electronic Medical Records	3
MOP	290	Clinical Internship	8
MA	100	Basic Life Support for Health Care	0.5
MA	162	Medical Law & Ethics	2
			16.5/17.5

Total Credits Required to Graduate: 72.5

The best jobs start here!

Power Line Construction & Maintenance

Mitchell Technical Institute offers the only Power Line program in South Dakota. Employment opportunities are available with rural electric cooperatives, municipal and private utility companies, the Bureau of Reclamation, private contractors and many others. Course material and lab are based around the application and theory of distribution and transmission of electrical power. Fieldwork includes operating a digger derrick truck, setting poles, climbing poles, installing anchors and stringing conductors. Outside lab also involves installation of transformers, metering for overhead and underground distribution systems.

Physical fitness is an important part of the job of an electrical line worker. A careful, detail-oriented personality is also a good quality to possess since individuals will be working with high voltage, often in dangerous situations and bad weather conditions; safety is a major element of line worker training. Line work is extremely challenging as the type of projects, conditions and work locations change frequently. Lineworkers perform tasks in an outdoor environment subjected to various weather conditions such as extreme heat or in freezing temperatures in the rain, sleet, wind and snow. The work is done in both overhead and underground lines with the overhead work typically done at heights more than 25 feet above the ground. Lineworkers are often on call at any hour to restore power.

Students who wish to obtain an AAS degree in Utilities Technology may complete this curriculum, the Propane and Natural Gas Technologies curriculum and an additional three credits of general education.

Students are expected to conform to MTI's Drug Testing Policy while enrolled in the Commercial Driving course. See the Student Handbook for details. Any student who enrolls in Commercial Driver training must obtain a South Dakota driver's license in order to complete the CDL training course. A Class A CDL is a graduation requirement for this program. See the Course Description for TRAN 100 for a full explanation.

Please Note: Students planning to obtain an AAS degree in Utilities Technology MUST complete the CDL requirement during their first year of enrollment.

Note: Students are required to use a laptop or notebook computer for this program. Students must bring their own device, which must meet MTI specifications, or may purchase one from MTI.

Note: MTI recommends that applicants in the Power Line Construction & Maintenance program obtain a physical examination for their safety and protection. Applicants to this program need to be able to perform physical activities that require considerable use of arms and legs and moving the whole body, such as climbing, lifting, balancing, walking, stooping and handling of heavy materials.

Award: One-Year Diploma

First Semester			Semester Credits
PL	111	Characteristics of DC/AC	3
PL	141	Power Grid Design	3
PL	150	Field Training I	2
PL	151	Construction of Underground Lines	2
PL	152	Construction of Overhead Lines	2
PL	171	Utility Safety I	2
CPR	100	First Aid, CPR & AED	0.5
OSHA	100	OSHA 10 Training	1
SSS	100	Student Success	1
		English Elective	3
			19.5

Second Semester			Semester Credits
PL	112	Electrical Circuits/Metering	3
PL	143	Power Grid Design II	3
PL	154	Maintenance of Underground Lines	2
PL	155	Maintenance of Overhead Lines	2
PL	156	Field Training II	2
PL	172	Utility Safety II	2
TRAN	100	Industrial Transportation/CDL	1
CIS	105	Complete Computer Concepts	3
		Math Elective	3
			21

Total Credits Required to Graduate: 40.5

The best jobs start here!

Power Sports Technology

Technicians in the fast-growing occupation of outdoor power sports are in demand all across the country. The last two decades have seen an increase in the number of recreational vehicles in households and businesses: motorcycles, scooters, snowmobiles, ATVs, four-wheelers and more.

Students will get experience learning service and repair of these high-powered machines in MTI's state-of-the-art laboratories.

An optional second year is offered. Students who complete the second year will earn an AAS degree and will receive enhanced training in areas like marine engines, jet skis and other personal watercraft, metal fabrication, paint and detailing, supervision and management and more. With two years of training, students will have even more opportunities in this exciting field.

Many dealerships in the region will offer supervised job shadowing and internship experiences. Employment opportunities can be found in many areas including dealership sales and service, cycle builders and manufacturers, ag maintenance shops and various other locations.

Note: Students are required to use a laptop or notebook computer for this program. Students must bring their own device, which must meet MTI specifications, or may purchase one from MTI.

Award: One-Year Diploma or AAS Degree

First Semester			Semester Credits
OPRV	105	Service Center Fundamentals	3
OPRV	120	Basic Engine Theory & Operation	2
OPRV	121	Basic Engine Lab	2
OPRV	130	Electrical/Electronic Systems	2
OPRV	140	Multi-Cylinder 2 & 4 Cycle Engines	2
OPRV	141	Multi-Cylinder Engine Lab	2
		English Elective	3
		Math Elective	3
SSS	100	Student Success	1
			20

Second Semester			Semester Credits
OPRV	124	ATV & Snowmobile Systems	2
OPRV	125	ATV & Snowmobile Lab	3
OPRV	142	Adv. Multi-Cylinder 2 & 4 Cycle Engines	2
OPRV	143	Adv. Multi-Cylinder Engine Lab	4
OPRV	260	Marine Technology	3
OPRV	261	Marine Technology Lab	3
CIS	105	Complete Computer Concepts	3
			20

Third Semester (Summer)			Semester Credits
OPRV	185	Internship	4

Total Credits Required to Graduate: 44 (Diploma)

Fourth Semester (Fall)			Semester Credits
OPRV	208	Intro to Fabrication & Custom Finishes	3
OPRV	235	Intro to Fuel Injection & Electronic Control Systems	3
OPRV	262	Adv. Marine Technology & Diagnostics	3
OPRV	263	Adv. Marine Tech. & Diagnostics Lab	3
AGT	213	Welding	2
BUS	101	Intro to Business	3
		Behavioral Science Elective	3
			20

Fifth Semester (Spring)			Semester Credits
OPRV	106	Adv. Service Center Fundamentals	3
OPRV	107	Service Fundamentals Lab	2
OPRV	209	Adv. Fabrication & Custom Finishes	4
OPRV	236	Adv. Fuel Injection & Electronic Control Systems	3
OPRV	237	Intro to Fiberglass & Composites	2
OPRV	280	Successful Service Management	3
		Social Science Elective	3
			20

Total Credits Required to Graduate: 84 (AAS)

The best jobs start here!

Precision Technology Specialist

The demand for new employees in geospatial data processing and equipment installation is expanding in many industries.

A skilled workforce to support the growing industry of precision technology is needed. This two-year program includes courses in computers, GPS (Global Positioning Systems), data collection, agronomy and ag economics. A strong background in math and science is recommended for this program. Combining aspects of engineering, business, agriculture, energy and technology, this program will meet current and future industry needs.

Career opportunities include positions like GPS technician, custom applicator, GIS specialist, GIS coordinator, precision technician and more. Knowledge of this equipment and data is vital to people in equipment sales and service, dealerships, applicators, crop consultants, agronomists and personnel who work with data transfer and map production.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Award: AAS Degree

First Semester			Semester Credits
PTS	102	Principles of GPS/GIS	2
PTS	105	Intro to Data Collection	3
PTS	107	Basic Hydraulics	2
PTS	112	Electronics for Precision	3.5
PTS	151	Electronics Lab I	4
SSS	100	Student Success	1
			15.5

Second Semester			Semester Credits
PTS	120	Wireless Communications	2
PTS	201	Intro to Guidance Systems	3
PTS	203	Precision Lab I	4
AGT	110	Crop Science I	3
EC	167	IT Essentials	3
CIS	105	Complete Computer Concepts	3
			18

Third Semester (Summer)			Semester Credits
PTS	290	Internship	6

Fourth Semester (Fall)			Semester Credits
PTS	103	Intro to Variable Rate Systems	3
PTS	108	Intermediate Hydraulics	3
AGT	120	Soil Science I	3
AGT	261	Ag Sales & Service	3
MATH	101	Intermediate Algebra	3
		Social Science Elective	3
			18

Fifth Semester (Spring)			Semester Credits
PTS	202	GIS Applications	4
PTS	206	Precision Lab II	4
AGT	216	Ag Business Management	3
CPR	100	First Aid, CPR & AED	0.5
		Behavioral Science Elective	3
		English Elective	3
			17.5

Total Credits Required to Graduate: 75

The best jobs start here!

Propane & Natural Gas Technologies

The Propane & Natural Gas Technologies program emphasizes skills needed to install, maintain, operate and repair gas distribution systems and equipment for residential, commercial and industrial customers. Students also learn to maintain and repair appliances used by residential and commercial customers.

In the propane industry there is an abundance of opportunities in both managerial and service divisions. Graduates may also be employed in the construction industry, which contracts with public utilities and/or municipalities to install and maintain gas service.

Students who wish to obtain an AAS degree in Utilities Technology may complete this curriculum, the Power Line Construction and Maintenance curriculum and an additional three credits of general education.

Students who wish to obtain a specialized combination degree may complete courses in the Propane & Natural Gas Technology program and selected courses in the Heating and Cooling Technology program. Check with the Admissions office for details.

Students are expected to conform to MTI's Drug Testing Policy while enrolled in the Commercial Driving course. See the Student Handbook for details. Any student who enrolls in Commercial Driver training must obtain a South Dakota driver's license in order to complete the CDL training course. A Class A CDL is a graduation requirement for this program. See the Course Description for TRAN 100 for a full explanation.

Please Note: Students planning to obtain an AAS degree in Utilities Technology MUST complete the CDL requirement during their **first** year of enrollment.

Note: MTI recommends that applicants in the Propane & Natural Gas Technologies program obtain a physical examination for their safety and protection.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Award: One-Year Diploma

First Semester			Semester Credits
NG	100	Electrical Circuits & Testing	2
NG	102	Gas Operations & Maintenance	5
NG	110	Gas Operations & Maintenance Lab	4
PTS	100	Intro to GIS Technologies	2
TRAN	100	Industrial Transportation/CDL	1
CIS	105	Complete Computer Concepts	3
SOC	110	Industrial Relations	3
SSS	100	Student Success	1
			21

Second Semester			Semester Credits
NG	101	Gas Appliance Service and Controls	3
NG	103	Gas Installation Lab	5
NG	105	Measurement and Control	5
CPR	100	First Aid, CPR & AED	0.5
OSHA	100	OSHA 10 Training	1
		English Elective	3
		Math Elective	3
			20.5

Total Credits Required to Graduate: 41.5

The best Jobs start here!

Radiation Therapy

The Radiation Therapy program utilizes didactic, laboratory and clinical education to prepare students to work as Radiation Therapists in cancer treatment centers and hospitals. Radiation Therapists work under the direction of a radiation oncologist to treat patients with malignant diseases using ionizing radiation. Radiation therapists practice appropriate patient care, apply problem-solving and critical thinking skills, administer treatment protocols and maintain patient records. The program uses a combination of technical and general education courses to emphasize decision-making and critical thinking skills based upon a solid clinical foundation. Students will spend two semesters in a radiation therapy facility completing their clinical experience. This requires students to relocate at their own expense to the community where the assigned facility is located.

The program consists of three consecutive semesters (46.5 credit hours). Students are also required to meet MTI's general education requirements (16 credit hours in mathematics, social science, behavioral science, English, computer applications and student success), as well as prerequisite courses such as physiology, anatomy, physics and college algebra.

In addition to the prerequisite courses, *the only students accepted into the program are ARRT registered or registry-eligible radiographers.* MTI's registrar works with the admissions counselor and the program director to evaluate transcripts to assure that enrolling students meet the prerequisite requirements. **Deadline for application: Contact the Admissions Office for information about the annual application deadline.**

Admissions Requirements: All students accepted to the program must submit to a criminal background check and drug screen at the student's expense. Details are available from the Admissions office.

Academic Standards: Students must complete all technical courses with a minimum grade of C (2.0) in order to graduate. Students who do not achieve a C (2.0) grade will be prevented from enrolling in the subsequent semester due to prerequisite requirements.

Some additional requirements (including, but not limited to, drug screening and immunizations) may have to be met before entrance to certain clinical sites. Students must meet all of MTI's general education requirements in order to receive an AAS degree. See the Program Director or Registrar for a transcript evaluation.

Note: Students are required to use a laptop or notebook computer for this program. Students must bring their own device, which must meet MTI specifications, or may purchase one from MTI.

Award: AAS Degree

First Semester (Fall)			Semester Credits
RTH	200	Introduction to Radiation Therapy	2
RTH	201	Nursing & Patient Care Issues	2
RTH	202	Radiation Therapy Physics I	3
RTH	203	Radiation Therapy Physics II	3
RTH	205	Clinical Radiation Oncology	4
RTH	206	Simulation & Medical Imaging	3
RTH	207	Radiation Biology (Online)	1
MA	100	Basic Life Support for Health Care	0.5
			18.5

Second Semester (Spring)			Semester Credits
RTH	209	Radiation Therapy Topics	2
RTH	210	Clinical Practicum I	10
RTH	212	Registry Review I	1
			13

Third Semester (Summer)			Semester Credits
RTH	211	Modern Radiation Therapy Research	3
RTH	213	Clinical Practicum II	8
RTH	214	Registry Review II	1
RAD	137	Sectional Anatomy	3
			15

Total Credits Required to Graduate: 62.5

In addition to the technical courses required in each program, the student seeking an AAS degree must also complete:

		English Elective	3
		Behavioral Science Elective	3
		Social Science Elective	3
CIS	105	Complete Computer Concepts	3
MATH	101	Intermediate Algebra	3
SSS	100	Student Success	1

The MTI Radiation Therapy program, offered for the AAS degree, is in the process of applying for initial accreditation with The Joint Review Committee on Education in Radiologic Technology. The program is committed to complying with the JRCERT's Standards for an Accredited Educational Program in Radiation Therapy.

the best jobs start here!

Radiologic Technology

This program creates a unique clinical and didactic challenge to students, including a combination of classroom study and clinical rotation for practical application. The classroom portion teaches the student the fundamental principles of x-ray production, whereas the clinical portion allows students practical experience in real life situations. Graduates of the program will pursue employment opportunities in radiology or diagnostic imaging departments.

Admission Requirement:

- ***Contact the MTI Admissions office for an application packet. Application requirements include visitation of a radiology department; submission of a written essay describing and analyzing the visit; and resume and references. Deadline for application: January 15.***
- ***All students accepted to the program must submit to a criminal background check at the student's expense. Details are available from the Admissions office.***

Academic Standards: Students must complete all technical courses and MA 101 and MA 103 with a minimum grade of C (2.0) in order to graduate. Students who do not achieve a C (2.0) grade will be prevented from enrolling in the subsequent semester due to prerequisite requirements.

Program immunization requirements have to be met before entrance to clinical sites. See an instructor for details.

Note: Students are required to use a laptop or notebook computer for this program. Students must bring their own device, which must meet MTI specifications, or may purchase one from MTI.

Award: AAS Degree

First Semester (Fall)			Semester Credits
RAD	111	Introduction to Rad Tech and Ethics	3
RAD	112	Radiation Physics I	2
RAD	113	Radiographic Exposure & Technique	4
RAD	114	Radiographic Procedures I	4
MA	100	Basic Life Support for Healthcare	0.5
MA	101	Medical Terminology	3
MA	103	Anatomy / Physiology	4
SSS	100	Student Success	1
			21.5

Second Semester (Spring)			Semester Credits
RAD	121	Imaging Equipment	2
RAD	122	Radiation Physics II	2
RAD	123	Radiation Biology and Protection	3
RAD	124	Radiographic Procedures II	4
RAD	125	Image Critique I	2
CIS	105	Complete Computer Concepts	3
MATH	101	Intermediate Algebra	3
			19

Third Semester (Summer)			Semester Credits
RAD	131	Intro to Clinical Radiology	3
RAD	132	Topics in Radiology	1
RAD	133	Digital Imaging	2
RAD	134	Radiographic Procedures III	4
RAD	135	Image Critique II	2
RAD	136	Radiographic Pathology	3
RAD	137	Sectional Anatomy	3
			18

Fourth Semester (Fall)			Semester Credits
RAD	211	Clinical Radiology I	11
RAD	212	Registry Review I	1
		Behavioral Science Elective (Online)	3
			15

Fifth Semester (Spring)			Semester Credits
RAD	221	Clinical Radiology II	11
RAD	222	Registry Review II	1
		Social Science Elective (Online)	3
			15

Sixth Semester (Summer)			Semester Credits
RAD	231	Clinical Radiology III	11
RAD	232	Registry Review III	1
ENGL	101	English Composition I (Online)	3
			15

Total Credits Required to Graduate: 103.5

The MTI Radiologic Technology program, offered for the AAS degree, is accredited by:

The Joint Review Committee on Education in Radiologic Technology
20 North Wacker Drive, Suite 2850
Chicago, IL 60606-3182
(312) 704-5300; Fax: (312) 704-5304
mail@jrcert.org
www.jrcert.org

Healthcare jobs start here!

Satellite Communications

MTI is the only school in the nation to offer a two-year Associate degree Satellite Communications training program. This program provides training in installation, operation, maintenance and management of satellite communication systems. This includes working with transmission of broadcasts, uplinks and downlinks, between satellites and remote or in-house studios. The career of satellite communications technician offers opportunities all over the world working for television networks, satellite companies or local TV stations.

Students may elect to enroll in a third-year Telecommunications option and earn a second AAS degree with one additional year of coursework.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Program Requirements: Students must pass all first year technical classes before advancing to second year curriculum. Students must earn a grade of C or higher in all 200 level technical courses and during internship in order to graduate.

Award: AAS Degree

First Semester			Semester Credits
EC	112	Electronics Theory	3
EC	121	DC/AC Circuit	3
EC	151	Electronics Laboratory I	3
EC	162	Electronics Math/Digital	2
EC	167	IT Essentials	3
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
			18

Second Semester			Semester Credits
EC	100	Basic Telephony	3
EC	105	Transmission Media	3
EC	120	Television/Head-End Technology	2
EC	157	Electronics Laboratory II	3
EC	138	CCNA I: Intro to Networking	3
		English Elective	3
			17

Third Semester			Semester Credits
EC	210	Intro to VoIP	3
SC	264	Prin. of Satellite & Wireless Communications	4
SC	265	Satellite Communications Lab I	5
SC	266	Earth Station Receiver Systems (RX)	4
		Behavioral Science Elective	3
			19

Fourth Semester			Semester Credits
SC	274	Earth Station Transmitter Systems (TX)	4
SC	275	Satellite Communications Lab II	5
SC	276	Teleport Regulations	3
EC	238	CCNA II: Routing & Switching Essentials	3
		Math Elective	3
		Social Science Elective	3
			21

Fifth Semester (Summer)			Semester Credits
SC	290	Internship	6

Total Credits Required to Graduate: 81

The best Jobs start here!

Speech-Language Pathology Assistant

One in six Americans has a speech, hearing or language disorder. These disorders affect infants, children, adults and the elderly. A communication disorder may affect a person's ability to pronounce sounds intelligibly, to understand what is being said, to process and remember spoken information, to use appropriate vocabulary and grammar, to speak fluently without stuttering, or to use his or her voice appropriately. Accidents, illnesses, birth defects and substance abuse can all contribute to communication disorders. These disorders isolate people from their friends, family and the community and limit job and educational opportunities. Speech-Language Pathology Assistants help these individuals to recover their ability to speak, understand and interact with others.

Graduates of the SLPA program will serve as support personnel to perform tasks prescribed, directed and supervised by certified speech-language pathologists.

Admission Requirements: All students accepted to the program must complete a criminal background check at the student's expense. Details are available from the Admissions office. Students are required to have good reading, writing, hearing and communication (verbal, written and articulation) skills in order to competently perform the job of a speech-language pathology assistant and to gain successful employment. Students must possess the motor skills necessary to manage clients and manipulate therapy materials in home and school environments. Applicants must have minimum scores on the English and Reading portions of the ACT or AccuPlacer.

Additional requirements may have to be met before entrance to fieldwork sites. See the Instructor for details.

Program Graduation Requirement: It is the goal of this program to prepare competent entry-level speech-language pathology assistants. To achieve that goal, students must earn a grade of C (2.0) or higher in all technical courses as a prerequisite to SLPA 240 Clinical Fieldwork. Students must earn a grade of C (2.0) or higher in their clinical fieldwork in order to graduate.

Note: Students in this program are required to use an iPad and a laptop. The student must purchase the iPad at his/her own expense and bring to use in classes. Specific software apps will also be required. Information about required apps will be provided as part of each course syllabus. Students must also bring their own laptop, which must meet MTI specifications, or may purchase one from MTI.

Award: AAS Degree

First Semester			Semester Credits
SLPA	101	Intro to Speech-Language Pathology Assistant	3
SLPA	104	Anatomy & Physiology of Speech & Hearing	3
SLPA	105	Speech and Language Development	3
SLPA	106	Introduction to Phonetics	3
SPCM	101	Fundamentals of Speech	3
SSS	100	Student Success	1
		Behavioral Science Elective	3
			19

Second Semester			Semester Credits
SLPA	102	Clinical Observation I	1
SLPA	103	Career Seminar	1
SLPA	111	Intro to Communication Disorders & Treatment	3
SLPA	112	Child Growth and Development	3
SLPA	120	Voice and Articulation for Effective Communication	3
CIS	105	Complete Computer Concepts	3
ENGL	101	English Composition	3
			17

Third Semester			Semester Credits
SLPA	200	Intro to Audiology and Aural Rehabilitation	2
SLPA	202	Clinical Observation II	2
SLPA	220	Speech Disorders and Intervention	3
SLPA	230	Language Disorders and Intervention	3
MA	100	Basic Life Support for Health Care	0.5
MATH	101	Intermediate Algebra	3
		Social Science Elective	3
			16.5

Fourth Semester			Semester Credits
SLPA	210	Alternative and Augmentative Communication	2
SLPA	211	Screening Processes	2
SLPA	235	Clinical Management and Procedures	4
SLPA	240	Clinical Fieldwork	6
			14

Total Credits Required to Graduate: 66.5

The best jobs start here!

Telecommunications

The art and science of getting information from Point A to Point B, regardless of whether the information is voice, video or data, is known as Telecommunications. This program is designed to prepare students for the communications industry by teaching installation, operation and maintenance of communication systems using a full range of communication transport systems.

The program provides a thorough examination of state-of-the-art telecommunications technology, as well as a solid foundation in math, electronics and general education. The successful student in this program will demonstrate a variety of skills and abilities including visual color discrimination; finger and manual dexterity; customer and personal service skills; ability to install, operate, repair and maintain electronic equipment; documentation and recording of information; and communication with supervisors, peers and subordinates.

Students apply their basic knowledge of electronics, science and math by performing tests and troubleshooting equipment, working in field service or maintaining sophisticated electronic systems; T1 and DSL equipment; and residential connectivity and commercial telephone networking equipment. Graduates will find employment opportunities all over the world.

Preparing a workforce to compete in this global marketplace is the exciting challenge for the telecommunications industry. This program will give students the education and skills necessary to succeed in the high-tech world of telecom.

Students may elect to enroll in a third-year Satellite Communications option and earn a second AAS degree with one additional year of coursework.

Note: Students are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Graduation Requirement: Students must complete their internship experience before earning their degree.

Award: AAS Degree

First Semester			Semester Credits
EC	112	Electronics Theory	3
EC	121	DC/AC Circuit	3
EC	151	Electronics Laboratory I	3
EC	162	Electronics Math/Digital	2
EC	167	IT Essentials	3
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
			18

Second Semester			Semester Credits
EC	100	Basic Telephony	3
EC	105	Transmission Media	3
EC	120	Television/Head-End Technology	2
EC	138	CCNA I: Intro to Networking	3
EC	157	Electronics Laboratory II	3
		English Elective	3
			17

Third Semester (Summer)			Semester Credits
EC	290	Internship	6

Fourth Semester			Semester Credits
EC	210	Introduction to VoIP	3
EC	211	Wireless Communications	3
EC	238	CCNA II: Routing & Switching Essentials	3
EC	249	Advanced OSP	3
EC	251	Electronics Lab III	4
		Behavioral Science Elective	3
			19

Fifth Semester			Semester Credits
EC	246	Central Office Transport	3
EC	257	Electronics Lab IV	5
PTS	100	Intro to GIS	2
		Math Elective	3
		Social Science Elective	3
			16

Total Credits Required to Graduate: 76

The best jobs start here!

Utilities Technology

The utilities industry is one of the most technologically intensive segments of today's economy. The utility worker who is well rounded with knowledge of different types of utilities will find success in many areas. MTI is addressing this industry need by combining the curricula of two existing programs to offer an AAS degree in Utilities Technology.

Students who complete a combination of two programs, Power Line Construction and Maintenance and Propane and Natural Gas Technologies, with the addition of a behavioral science elective (3 hours) will be awarded an AAS degree. **A student may choose which program to complete first.** Graduates of this program will find many employment opportunities as combination technicians for utility providers.

Students are expected to conform to MTI's Drug Testing Policy while enrolled in the Commercial Driving course. See the Student Handbook for details. Any student who enrolls in Commercial Driver training must obtain a South Dakota driver's license in order to complete the CDL training course. A Class A CDL is a graduation requirement for this program. See the Course Description for TRAN 100 for a full explanation.

Please Note: Students planning to obtain an AAS degree in Utilities Technology MUST complete the CDL requirement during their **first** year of enrollment.

Enrollment Requirement: A student must be a graduate of their first program before enrolling in the second program.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Note: MTI recommends that applicants to this program obtain a physical examination for their safety and protection. Applicants to this program need to be able to perform physical activities that require considerable use of arms and legs and moving the whole body, such as climbing, lifting, balancing, walking, stooping and handling of heavy materials.

Award: AAS Degree

Note: These programs can be taken in either sequence: PL followed by NG or NG followed by PL.

PL Curriculum

First Semester			Semester Credits
PL	111	Characteristics of DC/AC	3
PL	141	Power Grid Design	3
PL	150	Field Training I	2
PL	151	Construction of Underground Lines	2
PL	152	Construction of Overhead Lines	2
PL	171	Utility Safety I	2

Second Semester			Semester Credits
PL	112	Electrical Circuits/Metering	3
PL	143	Power Grid Design II	3
PL	154	Maintenance of Underground Lines	2
PL	155	Maintenance of Overhead Lines	2
PL	156	Field Training II	2
PL	172	Utility Safety II	2

PNG Curriculum

First Semester			Semester Credits
NG	100	Electrical Circuits & Testing	2
NG	102	Gas Operations & Maintenance	5
NG	110	Gas Operations & Maintenance Lab	4
PTS	100	Intro to GIS Technologies	2

Second Semester			Semester Credits
NG	101	Gas Appliance Service and Controls	3
NG	103	Gas Installation Lab	5
NG	105	Measurement and Control	5

In addition to the technical courses required in each program, the student seeking an AAS degree must also complete:

TRAN	100	Industrial Transportation/CDL	1
OSHA	100	OSHA 10 Training	1
CPR	100	First Aid, CPR & AED	0.5
SOC	110	Industrial Relations	3
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
		English Elective	3
		Math Elective	3
		Behavioral Science Elective	3

Total Credits Required to Graduate: 72.5

The best Jobs start here!

Welding & Manufacturing Technology

The Welding & Manufacturing Technology program is industry-driven to educate students who want to pursue a career in the manufacturing industry. The program provides the proper skills for graduates to excel in welding, machining and lean manufacturing techniques.

Instruction is AWS code-based so that students may sit for welding certification testing, assuring future employer requirements.

Designed for student success, graduates will have many employment opportunities in the manufacturing sector. Labs include up-to-date technology in areas like gas metal arc welding of steel and aluminum, gas tungsten arc welding of steel and aluminum, shielded metal arc welding, robotic welding, operation of machining stations, metal forming, laser cutting and plasma cutting.

The program provides a path to industry leadership. With the knowledge and abilities gained, graduates will be able to become certified and help fill the demand in today's highly technical manufacturing environment.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Award: One-Year Diploma or AAS Degree

First Semester (Fall)			Semester Credits
WMT	112	AWS Safety	1
WMT	132	Metallurgy	2
WMT	149	Basic Welding Lab	2
WMT	150	Welding Lab I	4
OSHA	100	OSHA 10 Training	1
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
		Math Elective	3
			17

Second Semester (Spring)			Semester Credits
WMT	120	Manufacturing Symbols & Measuring	1
WMT	121	Blueprint Reading	1
WMT	142	Welding Economics	3
WMT	151	Welding Lab II	7
		English Elective	3
			15

AAS Degree ONLY

Third Semester (Summer)			Semester Credits
WMT	281	Internship	6
			6

Fourth Semester (Fall)			Semester Credits
WMT	201	Quality & Productivity Improvement	2
WMT	230	Welding Robotic Lab	3
WMT	231	Manual Machining Lab	3
WMT	240	Manufacturing Programming	3
		Social Science Elective	3
			14

Fifth Semester (Spring)			Semester Credits
WMT	250	Laser Cutting Technology	3
WMT	251	CNC Machining Station Lab	3
WMT	252	Mechanical Workmanship Lab	4
		Behavioral Science Elective	3
			13

Total Credits Required to Graduate (One-Year Diploma): 32
Total Credits Required to Graduate (AAS): 65

The best jobs start here!

Wind Turbine Technology

The power of the wind to generate electricity for today's consumer is only as reliable as the technicians who install and service the giant turbines. Today, wind is one of the fastest growing energy technologies. Wind turbine technicians and windsmiths are needed around the world to support the demand for clean, efficient energy.

This two-year program will allow students to learn about the basics of turbines, mechanics, hydraulics, electronics and the computer networks that allow the system to communicate. Unique hands-on experience will be available to students as they climb MTI's wind turbine located at the Crow Lake Wind Farm near White Lake, SD. MTI is one of only five schools nationwide to have an operational 1.5 MW wind turbine.

The second year of the program will give graduates experience in PLCs, fiber optics, SCADA, advanced electronics and more.

A graduate of the program will find employment opportunities in turbine construction, maintenance and troubleshooting, power distribution, controls and other areas that move the power through the grid.

Students are expected to conform to MTI's Drug Testing Policy while enrolled. See the Student Handbook for details.

Program Requirement: Students must complete all technical courses with a minimum grade of C. Students who do not achieve a C grade will be prevented from enrolling in the subsequent semester due to prerequisite requirements.

Note: Students in this program are required to purchase a laptop computer from MTI. The laptop will have the necessary software installed and will be serviced free of charge while the student is attending MTI.

Award: AAS Degree

First Semester (Fall)			Semester Credits
WTT	100	Turbine Safety/First Aid	1
WTT	101	Intro to Wind Technology	2
WTT	102	Basic Turbine Mechanics	4
WTT	105	DC/AC Turbine Circuits	4
WTT	107	Pitch Systems (Hydraulics)	2
WTT	130	Field Training I	0.5
SSS	100	Student Success	1
MATH	101	Intermediate Algebra	3
			17.5

Second Semester (Spring)			Semester Credits
WTT	108	Intermediate Hydraulics	2
WTT	112	Electronics Theory I	4
WTT	120	Industrial Motor Controls	4
WTT	131	Field Training II	0.5
CSS	210	Introduction to Networking	3
CIS	105	Complete Computer Concepts	3
			16.5

Third Semester (Fall)			Semester Credits
WTT	213	Electronics Theory II	4
WTT	215	Advanced Motor Controls	4
WTT	225	Utility Safety	2
WTT	230	Field Training III	0.5
		English Elective	3
		Social Science Elective	3
			16.5

Fourth Semester (Spring)			Semester Credits
WTT	214	Theory of Power Generation	4
WTT	220	Composites	4
WTT	231	Field Training IV	0.5
WTT	240	SCADA Concepts	3
BUS	216	Spreadsheet Concepts & Applications	3
		Behavioral Science Elective	3
			17.5

Total Credits Required to Graduate (Two-Year AAS): 68

The best jobs start here!

Mitchell Technical Institute

The best jobs start here!

Online Programs Offered

Online Courses

At Mitchell Technical Institute, we understand the challenges faced by many students. Whether it's juggling a job, a family, or a life that is full of various demands, reaching your educational goals may have had to take a back seat. MTI is committed to helping you reach your goals by offering a suite of online programs to fit your needs.

The following pages outline our Online Certificate, Diploma and Associate Degree programs. All of our programs can be taken *completely* online within the typical one to two-year time frame, or you can create an individualized learning plan to best fit your needs. (Programs including an internship, clinical or fieldwork experience will require you to travel to the employment site to complete the course.)

As an online student, you can study from home, the office, or an Internet café — anywhere you can find a connection to the Internet. Through MTI online programs, you can work towards earning a degree while living your life. Our online options have been designed for flexibility, so you can schedule classes to fit your life. We've built an online college with the support and resources students need to be successful.

What distinguishes our online learning option is that the quality of our online education is the same as the one you'd receive in class on our campus. We recognize the challenges that you face as an online learner and it is our goal to provide you with the same opportunities to learn and connect with your instructor and fellow students outside of a traditional classroom.

Each instructor designs his course around a standard format so if you take multiple courses with different instructors, you will be familiar with basic course expectations. However, each instructor also adds his personality to the course so you will see different things from different instructors. You can expect the following from every online course you take at MTI:

1. Syllabus: A complete syllabus posted online and in a downloadable format.
2. Handouts: Study guides, helpful pages, lecture notes- each class has a place for these types of communication and educational aids.
3. Powerpoints: Each lecture is captured in a Powerpoint for you to view. Some instructors will add voice threads to the slideshow.
4. Coursework: All assignments can be completed online. All assignments are located on one page so you can easily see what is due as well as what is coming up.
5. Gradebook: All grades are entered in the online gradebook so with a simple mouse-click, you know where you stand in the class.

Unlike a traditional course where you see the students and instructors several times a week, an online college degree course is totally self-directed. That means that you complete assignments on your schedule throughout the week. Taking an online course is "working-on-your-own-time," not "working-at-your-own-pace." Students must meet deadlines and move through the course at the pace the instructor establishes. It is up to you to keep up with the coursework and get assignments turned in on time.

Students in online programs will be required to enroll in a one-credit online seminar each semester. This seminar formalizes your contact with your instructor and peer group. It's a way for you to keep on track and in touch, regardless of distance.

If you are looking for an online program, look for this symbol.

Please note: There are certain technology requirements for online programs including, but not limited to:

- A desktop or laptop computer with an Intel Core 2 Duo processor or better
- A hard drive with 320 GB 5400 rpm
- An integrated camera
- An Internet connection advertised as high speed (cable, DSL, etc.)
- Microsoft Office 2013 Professional Edition Suite (available at a reduced cost in the MTI Bookstore)

Administrative Office Specialist

The Administrative Office Specialist program prepares students to perform general duties in an executive or professional office setting. This set of important office skills may be applied to many types of businesses, ranging from small, owner-operated businesses up to major corporations.

Duties may include preparing reports and other documents using word processing, spreadsheet, database or presentation software; assisting with marketing duties; researching and preparing reports; coordinating and assisting with general office duties; interacting with customers; and general bookkeeping support. Combining computer software support skills needed in any office setting with a sampling of business classes, this program will help students find employment in almost any office support environment.

Prerequisite: To enroll in this program, the student must be a graduate of either the Office Technology Specialist or Small Business Management programs offered by MTI.

Award: AAS Degree

First Semester			Semester Credits
BUS	101	Intro to Business	3
BUS	120	Principles of Marketing	3
BUS	214	Principles of Insurance	3
Electives (choose one)			
BUS	170	Entrepreneurship & Small Business Management	4
BUS	210	Sales & Advertising	3
			12/13

Second Semester			Semester Credits
BUS	100	Personal Finance	3
BUS	140	Business Law	3
BUS	212	Principles of Management	3
ACCT	221	Accounting Software Applications	2
			11

Third Semester			Semester Credits
BUS	122	E-Commerce	3
ENGL	202	Business Communications	3
		Behavioral Science Elective	3
		Social Science Elective	3
			12

Total Credits Required to Graduate: 74

The best jobs start here!

Advanced Medical Imaging

The Advanced Medical Imaging program delivers online coursework and provides a framework for clinical experience in magnetic resonance imaging and computed tomography to prepare students to become certified technologists in these advanced imaging modalities.

Magnetic Resonance Imaging (MRI) technologists operate MRI scanners, which use radio frequencies and strong magnetic fields to create a cross-sectional image of a patient's body, which are then used by a radiologist to aid in making an accurate diagnosis. Computed tomography (CT) is an advanced form of diagnostic imaging where technologists use x-rays and computers to produce cross-sectional anatomical images of the human body for diagnostic testing, radiation therapy treatment planning, and nuclear medicine PET scanning.

Award: AAS, Advanced Certificate, Certificate

First Semester			Semester Credits
AMI	100	Foundations in Medical Imaging	1
AMI	110	Cross-Sectional Anatomy	3
AMI	120	Cross-Sectional Pathology	3
AMI	220	CT Physics	3
AMI	222	CT Imaging Concepts	3
AMI	224	CT Imaging Procedures	3

Second Semester			Semester Credits
AMI	298	CT Clinical Experience	8

Third Semester			Semester Credits
AMI	230	MR Physics	4
AMI	232	MR Imaging Concepts	4
AMI	234	MR Imaging Procedures	4

Fourth Semester			Semester Credits
AMI	299	MR Clinical Experience	8

Total Credits Required for Certificate: 16/19
Total Credits Required for Advanced Certificate: 24/27
Total Credits Required for AAS: 60

All didactic courses will be offered online. Students will also be required to complete clinical activities, with the assistance of MTI or their employers, to demonstrate competence in advanced imaging procedures. The clinical component is designed to meet the clinical competency requirements of the American Registry of Radiologic Technologists (ARRT).

Graduates of the program will be qualified to apply for either the ARRT Advanced Registry in Magnetic Resonance Imaging or the ARRT Advanced Registry in Computed Tomography or both.

Please note: The program is open to ARRT-registered technologists in Radiography, Nuclear Medicine Technology or Radiation Therapy or those who are registry eligible.

Enrollment note: Students enrolling in the Certificate or Advanced Certificate option may take either program first (CT or MR). All newly accepted students will work out an individualized learning plan with an advisor.

In addition to the technical classes listed above, students seeking the AAS degree must complete the general education requirements. These courses, with a grade of C or higher, may be transferred in if the student completed them earlier, or taken from MTI or another accredited college, university or technical institute.

In addition to the technical courses required in the program, the student seeking an AAS degree must also complete:

CIS	105	Complete Computer Concepts	3
MATH	101	Intermediate Algebra	3
ENGL	101	English Composition	3
		Social Science Elective	3
		Behavioral Science Elective	3
SSS	100	Student Success	1
			16

The best jobs start here!

Industrial Controls

Controls are at the heart of regulating any electronic or electrical system. This program will build upon your knowledge base of electrical fundamentals and teach you specialty skills like process controls, automation and the electronic management of routine electrical tasks. MTI's outstanding reputation in teaching automation and controls forms a basis of this online program.

This program is for experienced electricians, heating and cooling technicians, commercial and industrial maintenance personnel, or anyone with experience working with electricity. A Journeyworker or other professional license is recommended. Applicants to the program will have their experience evaluated to assure that they have the skills necessary to enter the program. A solid foundation in math skills is also desired.

Award: Certificate

First Semester			Semester Credits
IC	101	Electrical Theory	2
IC	102	Electronics Theory	2
IC	103	Digital Fundamentals	1
IC	104	Industrial Wiring	2
SSS	101	Online Seminar I	1
			8

Second Semester			Semester Credits
IC	105	Basics of Motor Theory	2
IC	106	Motor Controls	3
IC	110	Capstone Exercise I	1
			6

Third Semester			Semester Credits
IC	107	Programmable Logic Controls	3
IC	108	Intro to Control Devices	2
IC	111	Capstone Exercise II	1
			6

Total Credits Required for Certificate: 20

The best jobs start here!

Medical Office Professional

A skilled Medical Office Professional is an invaluable asset to any medical office, working effectively with medical professionals and patients while performing assorted office duties. With the number of healthcare procedures escalating every year as the population ages, there's a high demand for skilled specialists in patient information technology and medical billing and reimbursement. Medical Office Professionals (MOP) are the experts on patient data that doctors, nurses and other providers rely on to perform their jobs.

Medical records and health information technology professionals can expect to be in high demand in the health sector during the next 20 to 30 years. In fact, the Bureau of Labor Statistics projects health information technology will be one of the 20 fastest growing occupations in the U.S.

Career opportunities in these areas include Medical Receptionist, Medical Records Clerk, Medical Information Management Clerk, Health Information Management, Medical Claims Clerk, Medical Claims Processor, Medical Claims Analyst and more.

Admission Requirement: All students accepted to the program must submit to a criminal background check at the student's expense. Details are available from the Admissions office.

Program Graduation Requirement: Students must earn a grade of C or higher in all program courses as a prerequisite to MOP 290. Students must earn a grade of C (2.0) or higher in their clinical internship in order to graduate. Students must also complete a basic life support course (CPR/First Aid) and provide proof of certification in order to graduate.

Award: AAS Degree

First Semester			Semester Credits
MA	101	Medical Terminology	3
MA	103	Anatomy/Physiology	4
BUS	110	Accounting for Business I	4
SSS	101	Online Seminar I	1
			12

Second Semester			Semester Credits
MOP	130	Computers in the Medical Office	3
MOP	160	CPT/ICD-10/CM Coding	3
BUS	111	Accounting for Business II	4
CIS	105	Complete Computer Concepts	3
SSS	102	Online Seminar II	1
			14

Third Semester			Semester Credits
MOP	230	Medical Office Administration	3
MA	123	Pathophysiology	3
MA	162	Medical Law & Ethics	2
		Math Elective	3
			11

Fourth Semester			Semester Credits
MOP	206	Transcription I	4
MOP	210	Medical Insurance and Billing	3
MOP	260	Advanced Coding I	4
		English Elective	3
			14

Fifth Semester			Semester Credits
MOP	140	Pharmacology Basics	2
MOP	208	Transcription II	4
or			
MOP	262	Case Study Coding	3
		Social Science Elective	3
		Behavioral Science Elective	3
			11/12

Sixth Semester			Semester Credits
MOP	212	Electronic Medical Records	3
MOP	290	Clinical Internship	8
			11

Total Credits Required to Graduate: 73

The best Jobs start here!

Office Technology Specialist

Sometimes a student needs the flexibility of an online program. MTI offers its entire Office Technology Specialist curriculum in a convenient online version. In just three semesters, students will master the skills necessary to become an administrative assistant, computer support specialist or other critical office support position. This program is offered completely online.

If you wish to continue, you may earn an AAS degree in Administrative Office Specialist with three additional semesters of coursework.

Award: One-year Diploma

First Semester			Semester Credits
CSS	120	Outlook Essentials	2
CSS	143	Document Production	3
BUS	110	Accounting for Business I	4
BUS	216	Spreadsheet Concepts and Applications	3
SSS	101	Online Seminar I	1
			13

Second Semester			Semester Credits
CSS	122	Customer Service	3
CSS	170	Desktop Publishing	3
CSS	171	Multimedia Concepts	3
BUS	111	Accounting for Business II	4
SSS	102	Online Seminar II	1
			14

Third Semester			Semester Credits
BUS	217	Database Concepts & Applications	3
CSS	203	Web Design	3
		English Elective	3
		Mathematics Elective	3
			12

Total Credits Required to Graduate with One-Year Diploma: 39

Optional AAS Degree

Fourth Semester			Semester Credits
BUS	101	Intro to Business	3
BUS	120	Principles of Marketing	3
BUS	214	Principles of Insurance	3
Electives (choose one)			
BUS	210	Sales & Advertising	3
BUS	170	Entrepreneurship & Small Business Management	4
			12/13

Fifth Semester			Semester Credits
BUS	100	Personal Finance	3
BUS	140	Business Law	3
BUS	212	Principles of Management	3
ACCT	221	Accounting Software Applications	2
			11

Sixth Semester			Semester Credits
BUS	122	E-Commerce	3
ENGL	202	Business Communications	3
		Behavioral Science Elective	3
		Social Science Elective	3
			12

Total Credits Required to Graduate: 74

The best jobs start here!

Small Business Management

In today's fast-paced business world, the small business manager often needs specialty skills to make a business succeed. Using the flexibility of online education, the Small Business Management program will provide business owners with a set of foundational skills that will help strengthen their businesses. Courses are general and applicable to any type of small business. Take the program completely online or attend traditional courses on the MTI campus.

If you wish to continue, you may earn an AAS degree in Administrative Office Specialist with three additional semesters of coursework.

Award: One-year Diploma

First Semester			Semester Credits
BUS	110	Accounting for Business I	4
BUS	210	Sales & Advertising	3
CSS	120	Outlook Essentials	2
CIS	105	Complete Computer Concepts	3
SSS	101	Online Seminar I	1
			13

Second Semester			Semester Credits
ACCT	118	Tax Accounting for Business	1
ACCT	221	Accounting Software Applications	2
BUS	111	Accounting for Business II	4
BUS	216	Spreadsheet Concepts and Applications	3
BUS	220	Supervisory Management	3
SSS	102	Online Seminar II	1
			14

Third Semester			Semester Credits
BUS	122	E-Commerce	3
BUS	170	Entrepreneurship & Small Business Management	4
		English Elective	3
		Math Elective	3
			13

Total Credits Required to Graduate: 40

Optional AAS Degree

Fourth Semester			Semester Credits
CSS	143	Document Production	3
BUS	101	Introduction to Business	3
BUS	120	Principles of Marketing	3
BUS	214	Principles of Insurance	3
			12

Fifth Semester			Semester Credits
CSS	122	Customer Service	3
CSS	170	Desktop Publishing	3
CSS	171	Multimedia Concepts	3
BUS	140	Business Law	4
			12

Sixth Semester			Semester Credits
CSS	181	Database Concepts	3
CSS	203	Web Design	3
ENG	202	Business Communications	3
		Behavioral Science Elective	3
		Social Science Elective	3
			15

Total Credits Required to Graduate: 79

The best Jobs start here!

Speech-Language Pathology Assistant

One in six Americans has a speech, hearing or language disorder. These disorders affect infants, children, adults and the elderly. A communication disorder may affect a person's ability to pronounce sounds intelligibly, to understand what is being said, to process and remember spoken information, to use appropriate vocabulary and grammar, to speak fluently without stuttering, or to use his or her voice appropriately. Accidents, illnesses, birth defects and substance abuse can all contribute to communication disorders. These disorders isolate people from their friends, family and the community and limit job and educational opportunities. Speech-Language Pathology Assistants help these individuals to recover their ability to speak, understand and interact with others.

The online version of this program is offered for either a two-year or three-year plan, depending upon the student's needs.

Graduates of the SLPA program will serve as support personnel to perform tasks prescribed, directed and supervised by certified speech-language pathologists.

Admission Requirements: All students accepted to the program must complete a criminal background check at the student's expense. Details are available from the Admissions office. Students are required to have good reading, writing, hearing and communication (verbal, written and articulation) skills in order to competently perform the job of a speech-language pathology assistant and to gain successful employment. Students must possess the motor skills necessary to manage clients and manipulate therapy materials in home and school environments. Applicants must have minimum scores on the English and Reading portions of the ACT or AccuPlacer.

Additional requirements may have to be met before entrance to fieldwork sites. Contact the instructor for details.

Note: Students in this program are required use an iPad. The student must purchase the iPad at his/her own expense. Specific software apps will also be required. Information about required apps will be provided as part of each course syllabus.

Program Graduation Requirement: It is the goal of this program to prepare competent entry-level speech-language pathology assistants. To achieve that goal, students must earn a grade of C (2.0) or higher in all technical courses as a prerequisite to SLPA 240 Clinical Fieldwork. Students must earn a grade of C (2.0) or higher in their clinical fieldwork in order to graduate.

Award: AAS Degree

First Semester			Semester Credits
SLPA	101	Intro to Speech-Language Pathology Assistant	3
SLPA	104	Anatomy/Physiology of Speech/Hearing	3
SLPA	105	Speech and Language Development	3
SLPA	106	Introduction to Phonetics	3
SSS	101	Online Seminar I	1
			13

Second Semester			Semester Credits
SLPA	102	Clinical Observation I	1
SLPA	103	Career Seminar	1
SLPA	111	Intro to Communication Disorders and Treatment	3
SLPA	112	Child Growth and Development	3
SLPA	120	Voice and Articulation for Effective Communication	3
SSS	102	Online Seminar II	1
			12

Third Semester			Semester Credits
SLPA	200	Intro to Audiology and Aural Rehabilitation	2
SLPA	202	Clinical Observation II	2
SLPA	220	Speech Disorders and Intervention	3
SLPA	230	Language Disorders and Intervention	3
			10

Fourth Semester			Semester Credits
SLPA	210	Alternative and Augmentative Communication	2
SLPA	211	Screening Processes	2
SLPA	235	Clinical Management and Procedures	4
SLPA	240	Clinical Fieldwork	6
			14

*Please note that in addition to the technical classes listed above, all students must complete the general education requirements in order to earn the AAS degree. These courses, with a grade of C or higher, may be transferred in if the student completed them earlier, or taken during the summer months during one or two summer sessions, from MTI or another accredited college, university or technical institute.

In addition to the technical courses required in the program, the student seeking an AAS degree must also complete:

MA	100	Basic Life Support for Health Care	0.5
SPCM	101	Fundamentals of Speech	3
CIS	105	Complete Computer Concepts	3
MATH	101	Intermediate Algebra	3
ENGL	101	English Composition	3
		Social Science Elective	3
		Behavioral Science Elective	3
			18.5

Total Credits Required to Graduate: 67.5

General Education

General Education is that part of our students' education that goes beyond learning technical skills and allows students to become well-rounded, higher-functioning citizens of the world. As an institute of higher learning, we are committed to the inherent value of general education and know that critical thinking ability, communication skills, information literacy, math and problem solving skills and more, are crucial for our graduates' success in their future technical careers. We also recognize that an associate's degree or diploma at Mitchell Technical Institute must mean something more than job skills. Our students must become lifelong learners with the ability to adapt to a changing world and ever-increasing job expectations. To this end, general education learning outcomes that all MTI graduates should possess have been identified as follows:

MTI General Education Learning Outcomes

Math
Students will understand and apply essential mathematical processes and analysis.
- Perform computations using appropriate methods and/or technologies
- Demonstrate knowledge and application of measurement
- Demonstrate knowledge and application of formulas
- Use math processes to solve problems
- Apply problem-solving steps

Human Relations
Students will apply human relationship skills to work successfully in a diverse society.
- Demonstrate awareness and respect for people and their differences
- Ask for and listen to others' opinions and solutions
- Identify individual strengths and challenges in occupational relationships
- Apply team skills to group projects
- Demonstrate conflict resolution techniques
- Understand the benefits of community involvement and civic responsibility

Technology
Students will use computer technology to access, organize and communicate information.
- Use word processing, e-mail and presentation software to effectively and professionally communicate information
- Create and manage workbooks using spreadsheet software
- Access and manipulate data using database software
- Use electronic resources to conduct research

English
Students will communicate effectively with others using a variety of contexts and formats.
- Use standard English spelling, mechanics, grammar and structure
- Create written communication which clearly, concisely and accurately expresses ideas and conveys needs appropriate to the audience
- Participate effectively in groups by demonstrating the ability to speak, listen, respond and interpret
- Speak effectively, both formally and informally, in a variety of contexts
- Conduct, examine, interpret and document research responsibly

Both diploma and Associate of Applied Science degree candidates at MTI are required to successfully complete general education courses as designated by the technical department. NOTE: Students should be aware that most general education courses are not transferable to South Dakota universities. Transferable courses are available through enrollment in select courses offered through an agreement with Dakota State University and will be designated on your official transcript with a "T". Please see your advisor or the registrar for more details.

Student Success Course
The Student Success Course provides a foundation for a successful transition to higher education and the world of work. This course emphasizes goal setting, critical thinking skills, learning strategies, and personal qualities essential to both academic and career success. Information about college procedures, resources and services that relate to student success are discussed. Additional topics explore life management issues such as self-esteem, motivation, goal-setting, diversity, and personal finance. ***Please note***: *Students who have served active military duty (excluding basic training and AIT) may be exempt from this Student Success Course. Student must provide a copy of DD214 or other official military documentation to the registrar for verification.*

Diploma Track
Students pursuing a diploma are required to complete a minimum of 10 credits in general education.

CIS	105	Complete Computer Concepts	3
		English Elective	3
		Math Elective	3
SSS	100	Student Success	1

Individual departments may require additional credits. See individual program descriptions for details.

AAS Degree
Students pursuing the Associate of Applied Science degree are required to complete a minimum of 16 credits in general education in six subject areas. Individual departments may require additional or specific credits. See program descriptions for options.

English (3 credits required)			
ENGL	101	English Composition	3
ENGL	201	Technical Writing	3
Math (3 credits required)			
MATH	101	Intermediate Algebra	3
MATH	104	Technical Math	3
Computer Literacy (3 credits required)			
CIS	105	Complete Computer Concepts	3
Behavioral Science (3 credits required)			
PSYC	100	Introduction to Psychology	3
PSYC	101	General Psychology	3
PSYC	130	Human Development	3
Social Science (3 credits required)			
SOC	100	Introduction to Sociology	3
SOC	110	Industrial Relations	3
HUM	299	Haitian Culture & Society Service Learning	3
Student Success (1 credit required)			
SSS	100	Student Success	1
Communications (specific to identified programs)			
ENGL	202	Business Communications	3
SPCM	101	Fundamentals of Speech	3

Preparatory Courses
Some students may be required, according to placement test scores, to complete review/preparatory courses to help strengthen their skills and prepare them for success in diploma or degree courses.

1. Students with a low placement test score in math will be required to complete:

MATH 091 Basic Algebra. . . . . (2 credits) before entering MATH 101 or MATH 104.

2. Students with low placement test scores in reading or writing will be required to complete:

ENGL 098 Basic Writing. . . . . (2 credits) before entering their ENGL 101 or ENGL 201.

South Dakota Center for Farm/Ranch Management

The South Dakota Center for Farm/Ranch Management is unique because it is individualized. Most instruction is conducted one-on-one with the instructor and the farm operator participating at the farm site or at a Farm Credit Service office in South Dakota. The participants keep records of their own business, which are later analyzed and utilized to develop a comprehensive farm business plan. Participants receive cost comparison figures from across the state, which helps in determining factors that can improve profitability.

All records are kept strictly confidential. Only during individualized instruction are business records discussed, unless otherwise volunteered.

Benefits to the participants of the program include: complete records of past years to review when making management decisions; records needed for filing yearly tax reports; development of a record management system for use with bankers and lending agencies; an increased knowledge of the strengths and weaknesses of the business; the ability to determine the business's exact financial progress in any one year; an ability to project profitability of individual enterprises; and development of a working understanding of cash flow, net worth and profit and loss statements. Each semester, students will enroll in a five-credit course which will include a specific area of study plus they will use various financial instruments to investigate ways in which both earnings and financial progress can be measured. This is a two-tiered program, Basic and Advanced, each consisting of twelve semesters of instruction.

SDCFRM is also a certified provider of the FSA Farmer Borrower Training program. Students may take FBM 100 separately or as an introductory course to the program.

To enroll in this program, contact the Farm Business Management program at (605) 995-7196 or call toll free (800) 952-0042.

Award: Certificate

Basic Program

First Semester			Semester Credits
FBM	111	Fundamentals of Farm Business Management	5
Second Semester			**Semester Credits**
FBM	121	Farm/Ranch Data Management	5
Third Semester			**Semester Credits**
FBM	131	Implementing the System Management Data	5
Fourth Semester			**Semester Credits**
FBM	141	Preparation for Farm Business Data Analysis	5
Fifth Semester			**Semester Credits**
FBM	151	Interpreting and Using System Data	5
Sixth Semester			**Semester Credits**
FBM	161	Managing & Modifying Farm System Data	5
Seventh Semester			**Semester Credits**
FBM	171	Interpreting Trends in Business Planning	5
Eighth Semester			**Semester Credits**
FBM	181	Interpreting & Evaluating Financial Data	5
Ninth Semester			**Semester Credits**
FBM	191	Integrating Information for Financial Planning	5
Tenth Semester			**Semester Credits**
FBM	201	Strategies in Farm System Data Management	5
Eleventh Semester			**Semester Credits**
FBM	211	Refining Farm System Management	5
Twelfth Semester			**Semester Credits**
FBM	221	Examination of the Context System Management	5

Advanced Program

Following the first twelve semesters of the program, instructors work with students to develop an advanced individualized curriculum according to each student's special interest or need. This portion of the program is offered for an additional twelve semesters. Course modules include:

Analysis Preparation and Interpretation Module			
FBM	254	Adv. Refining Farm System Management	5
FBM	255	Advanced Analysis Preparation and Interpretation	5
FBM	256	Adv. Interpreting Trends in Business Plg.	5
FBM	257	System Plans and Projections	5
Business Tax Planning Module			
FBM	266	Implementing Farm Tax Planning Tools	5
FBM	267	Agri-Business Math Principles	5
FBM	268	Farm Labor Economics and Management	5
FBM	269	Analysis of Farm Tax Planning Data	5
Estate Planning Module			
FBM	275	Legal Issues in Agriculture	5
FBM	276	Investment Planning	5
FBM	277	Evaluating Farm Estate Planning Mechanism	5
FBM	278	Preparation for Farm Transition	5
Risk Management Through Marketing Module			
FBM	286	Intro to Farm Commodity Marketing	5
FBM	287	Applying Commodity Marketing Fundamentals	5
FBM	288	Evaluating Farm Commodity Marketing Tools	5
FBM	289	Monitoring Farm Commodity Marketing Plans	5
Computer Applications in Farming Module			
FBM	295	Intro to Computer Applications in Farm Management	5
FBM	296	Using Computer Apps in Farm System Data Mgmt	5
FBM	298	Evaluating Enterprise Records Through Computer Apps	5
FBM	299	Advanced Analysis Through Computer Applications	5

MTI Corporate Education

Your "First Choice" Provider for Training

Corporate Education encompasses a wide range of training and re-training needs. Employers will find that MTI can help them with many of their needs:

- New employees for new or existing companies
- Training to upgrade existing employee skills
- Training required for certification or licensure
- Labor pool development

MTI Corporate Education offers a full-line of training for the utility industry. Training available includes Propane and Natural Gas, underground and overhead high-voltage training. Operator qualification training and testing for both natural gas and electric workers is available through our education partnership with the Midwest Energy Association.
In addition, our qualified personnel can provide pole-climbing, pole-top rescue, bucket truck safety and CDL training. MTI's on-site Energy Training field allows for any aspect of Safety Training for energy industries.

The Corporate Education Division has a full-time authorized trainer for OSHA Safety. OSHA 10 or 30 for either General Industry or the Construction Industry are available. Additional safety training is available for Arc Flash, Lockout-Tagout and Qualified Forklift Operator.

Mitchell Technical Institute is an Accredited Training Facility (ATF) for the American Welding Society (AWS). As one of only 80 sites in the country, our Certified Welding Inspector (CWI) can develop, proctor and test a wide range of Welder Certifications and Qualifications. In addition to welder certification we offer a wide range of advanced manufacturing training including: solid works, CNC coding and machine training, robotic welding, programing, maintenance and service.

If your staff needs to adapt to changes as computer technologies change or as software packages improve, we train on the latest MS-Office suite and other applications. Through the MTI Corporate Education program, your employees can be trained on your choice of software using up-to-date computer technology at your site or in our training labs.

Best of all, you'll see immediate results from training. Techniques learned in the classroom can be immediately put to use on the job. Our instructors stress the importance of hands-on, practical applications throughout the training process and concentrate on realistic use of the materials. Your site or ours, your instructor or one we provide for you, by the class or by the year, we are flexible and adaptable to your needs.

Examples of industry based certification training that have been done:

- EPA-approved Refrigerant Transition and Recovery training, testing and certification
- Food Service Sanitation and Safety training, ServSafe testing and certification
- Electric Code Class for license renewal
- Computer workshops
- AWS welding certification for steel and pipe

Examples of short-term industry-based training
- Pole Climbing and Pole-Top Rescue
- Basic Electricity for Facility Maintenance
- Boiler Operation and Maintenance
- Furnace Troubleshooting and Maintenance
- Air Conditioning and Heat Pump Maintenance
- Refrigeration Maintenance
- Computer Maintenance and Troubleshooting
- Supervisory/Management training
- Welding training for beginners or specialty welding

We also offer applicant-based classes which are developed based on public demand and are marketed at large for open enrollment. Following are classes that have been offered:

- Computer Operation & Software
- Web Design
- Digital Cameras and Scanners
- Photography
- Customer Service
- Spanish

If you don't find what you are looking for, then maybe an online course will meet your needs, MTI Corporate Education offers Ed2Go, with over 700 different courses to choose from. Courses are six weeks in length with two sessions every week. Courses have quizzes and final exams. You will be in contact with the instructor and other students. Once the course begins you can access your lessons anytime, 24-7.

The Corporate Education office at MTI will consider offering any course for which there is a demand. For assistance, a course proposal, or a list of course offerings, contact the Corporate Education office in the MTI Campus Center, call 995-3056, (800) 952-0042, send an email to training@mitchelltech.edu or visit the Corporate Education link at www.mitchelltech.edu.

Mitchell Technical Institute

The best jobs start here!

Course Descriptions

Course Descriptions

ACCT 110
PRINCIPLES OF ACCOUNTING I (4 credits)
Provides knowledge of fundamental accounting standards, concepts and practices utilized in the preparation and analysis of financial reports for non-corporate and corporate business entities. Topics include business transactions and accounting records, the accounting cycle, financial statements, internal controls, current assets and liabilities, fixed assets and depreciation.

ACCT 111
PRINCIPLES OF ACCOUNTING II (4 credits)
Continuation of ACCT 110. Topics include payroll, partnership and corporate accounting, investments, long-term debt, statement of cash flows, financial analysis and departmental accounting. Prerequisite: ACCT 110 with a grade of C or higher.

ACCT 118
TAX ACCOUNTING FOR BUSINESS (1 credit)
Introduction to state and federal reports filed by businesses. Emphasis is on payroll, sales and excise tax reports. Computer application software is utilized. Overview of federal income tax law. Topics include types of business structures for tax purposes.

ACCT 212
INTERMEDIATE ACCOUNTING I (4 credits)
Review of basic accounting concepts and principles, financial statements, the accounting process, cash and temporary investments, receivables, inventories and cost procedures. Statement of cash flows, the time-value-of-money inventory cost allocations, valuation procedures and estimation are discussed. Computer problems are solved using Lotus 1-2-3 or Excel spreadsheet programs. Prerequisite: ACCT 111 with a grade of C or higher.

ACCT 213
INTERMEDIATE ACCOUNTING II (4 credits)
Comprehensive overview of liability relationships and owner's equity. Accounting for corporations is discussed. The importance of accounting for long-term bonds and investments, leases, retained earnings and their distribution is presented. Accounting for pensions, revenue recognition and financial reporting are covered. The acquisition, utilization and retirement of operating assets is covered. Lotus 1-2-3 or Excel spreadsheet programs are utilized. Prerequisite: ACCT 212.

ACCT 214
COST ACCOUNTING I (3 credits)
Accounting concepts, procedures and systems used in planning and controlling manufacturing business operations. Emphasis is placed on sources of cost information, maintenance of cost accounting records and cost accounting reports. Topics include accounting for materials, labor and factory overhead, job order costing and process costing systems. Prerequisite: ACCT 111 with a grade of C or higher.

ACCT 215
COST ACCOUNTING II (3 credits)
Continuation of ACCT 214 with emphasis placed on the budgeting process and methods of analyzing cost accounting data for managerial planning and control purposes. Topics include process costing systems, budgeting, standard costing, direct costing and decision analysis techniques. Textbook problems and computer problems are used. Prerequisite: ACCT 214.

ACCT 216
GOVERNMENTAL REPORTING (2 credits)
Examination of state and federal reports filed by business and non-profit entities. Emphasis is on payroll, sales and excise tax reports. Computer application software is utilized.

ACCT 217
GOVERNMENT AND NONPROFIT ACCOUNTING (3 credits)
Introduction to concepts and practices of fund accounting for local governmental units and nonprofit organizations. Emphasis on fund structures, analysis and recording of transactions, preparation of financial reports is covered.
Topics include local governmental unit funds, proprietary funds, fiduciary funds, account groups, hospitals and voluntary health and welfare organizations.

ACCT 218
TAX ACCOUNTING I (3 credits)
Comprehensive study of federal income tax law. Major emphasis is on structure and administration of federal income tax law, preparation of individual income tax returns, supporting schedules and income tax planning procedures. Topics include gross income inclusions and exclusions, business and personal deductions, tax credits and property transactions. Prerequisite: ACCT 111 with a grade of C or higher.

ACCT 219
TAX SOFTWARE APPLICATIONS (1 credit)
Various software packages are used in tax preparation exercises.

ACCT 221
ACCOUNTING SOFTWARE APPLICATIONS (2 credits)
Computer programs used to produce reprints and solve problems. Peachtree and Quickbooks accounting software are emphasized. Prerequisite: ACCT 111 with a grade of C or higher.

ACCT 290
INTERNSHIP (3 credits)
Supervised internship performed off-campus in an accounting/ finance setting.

AD 101
PRINCIPLES OF DRAFTING I (2 credits)
Drawing methods in architectural drafting. Site planning and plot plans drawing are presented. Computer Aided Design (CAD) is introduced.

AD 102
PRINCIPLES OF DRAFTING II/CAD (2 credits)
Continuation of AD 101. Coordinates design including electrical layout and mechanical planning. Emphasis is placed on zoning and traffic flow. Computer Aided Design (CAD) software is utilized.

AD 151
ARCHITECTURAL DRAFTING LAB I (4 credits)
Use and care of drawing instruments, application of skills to basic engineering drawing of orthographic projection, sections, dimension techniques, pictorial drawings and plot plans.

AD 152
ARCHITECTURAL DRAFTING LAB II/CAD (3 credits)
Drawing components of residential structures. Efforts directed towards precisely correlating the drawings completed in the drafting room with the building project under construction. CAD is emphasized.

AD 221
ADVANCED BUILDING PRINCIPLES (2 credits)
Experience and instruction in concrete, advanced framing techniques and construction codes are taught. This course builds upon skills gained in introductory courses.

AD 242
PRINCIPLES OF COMMERCIAL DESIGN (2 credits)
Drawing commercial plans. Emphasis is placed on terminology, material, and typical fastening techniques.

AD 272
COMMERCIAL CONSTRUCTION DOCUMENTS (1 credit)
Working with and interpreting documents used in commercial construction. Includes commercial plans, details, and specifications.

AGT 101
ANIMAL SCIENCE I (3 credits)
Introduction to the livestock industry including organizations, product value, breeds and methods of individual and sire selection. Also includes production performances, animal environment, marketing strategies and management alternatives.

AGT 102
WEEDS & HERBICIDES (3 credits)
Weeds, their identification, classification and types are studied. Chemical, biological and mechanical controls will be discussed. This section includes an overview of herbicide, fungicide and insecticide selection, rotation and timing of applications. Topics regarding the avoidance of weed resistance issues and methods to deal with resistant weeds will be discussed.

AGT 103
MACHINERY MANAGEMENT (2 credits)
Students will learn comparison methods and machinery economics to make decisions about purchase vs. lease vs. custom hiring arrangements. Attention will be placed on determining the right size equipment for the job, efficiency of equipment, as well as calculating depreciation costs on equipment.

AGT 104
AG CHEMICALS (2 credits)
Study of agricultural chemicals, pesticides and chemical applications. Equipment for liquid and dry chemicals, as well as non-chemical alternatives are studied. Preparation for the state commercial applicator exams. A passing score of 70% on each exam is a requirement for graduation from this program.

AGT 110
CROP SCIENCE I (3 credits)
The plant development stages of corn, soybeans, small grains and alfalfa. The importance of planting dates and seeding depths along with environmental factors will be discussed.

AGT 112
FERTILIZERS (3 credits)
Study of fertilizer types and elements, soil test results, fertilizer recommendations, blending calculations and costs per acre. Students will study nutrient requirements for major crops and learn to recognize nutrient deficiency symptoms.

AGT 120
SOIL SCIENCE I (3 credits)
The importance of soil, its formation, physical properties and land classifications. Soil sampling procedures will be performed at the land lab and soil test results will be explained.

AGT 130
LIVESTOCK SELECTION (2 credits)
Study of beef, dairy, horses, sheep and swine evaluation, correlating body type to economical and efficient breeding stock production. Animal evaluation is performed on site for each species. Familiarizes students with available sources of sire information. Type, pedigree, performance, production (EPD and ratio), carcass, linear (dairy) and dollar data will be analyzed. Principles of carcass evaluation will be reviewed. Students should be able to evaluate the worth of a sire by the end of this course.

AGT 160
COMMODITY MARKETING (3 credits)
The study of the marketing of agricultural products using the CBOT/CME. Students will learn how to hedge grain and livestock using the different marketing choices associated with the cash market, futures market and options market (put and call options). Elevator contracts, as well as crop insurance, will also be studied.

AGT 180
AG PRODUCTION LAB (2 credits)
Students are given the task of assisting with the MTI Land Lab. Decisions regarding ground preparation, planting, cultivating, spraying, harvesting, crop adjusting and marketing are all incorporated into the curriculum. In addition, students will work with the daily operations of a beef herd. Students will also work with the daily operations, health care, management and equipment used in a beef herd.

AGT 190
INTERNSHIP I (6 credits)
Supervised off-campus employment experience in an agricultural business related to livestock production, feed and animal health, livestock sales, agricultural crop protection products, insecticides, diseases, fertilizers and crop scouting procedures.

AGT 210
CROP SCIENCE II (3 credits)
Continuation of AGT 110. Crop improvement practices used to fulfill the growing need of global consumption. Environmental impacts and different cropping systems are analyzed. Plant diseases and their control along with insect identification and economic thresholds are studied. Students will study the uses of cover crops and their primary role in agriculture.

AGT 211
FARM ACCOUNTING (3 credits)
Study of farm accounting procedures as it relates to agricultural operations. Cash-basis accounting is taught through an accrual-adjusted system which will provide information for measuring the profitability of the farming operation. Ag software is discussed and evaluated to determine benefits of spreadsheet programs, records management and farm accounting programs.

AGT 212
AG CHEMICAL EQUIPMENT (2 credits)
Safe handling procedures for pesticides and proper loading and mixing of crop protection products are discussed. Proper use of liquid and dry application equipment and nozzle selection will be studied.

AGT 213
WELDING (2 credits)
An introductory course providing skills for entry-level welders. Specific projects will be related to agricultural applications, both on-farm and light commercial.

AGT 214
AG LAW (3 credits)
Topics of concern to the agri-business person are emphasized. Areas of study include contracts, trespass, taxes, land use laws, bankruptcy, partnerships, corporations, environmental laws and estate planning.

AGT 215
AG FINANCE (3 credits)
Study of the principles of agricultural finance and the types and uses of credit instruments. Topics covered will include time value of money, agricultural lending and financial statement analysis. Attention will focus on planning, analyzing and controlling business performance in agriculture.

AGT 216
AG BUSINESS MANAGEMENT (3 credits)
Introduction to the responsibilities of farm business entrepreneurship. Students are exposed to the four functional areas of management: marketing, finance, supply chain and human resources. Students learn to understand the role that managers play in planning, organizing, directing and controlling as related to agri-business.

AGT 220
SOIL SCIENCE II (2 credits)
Continuation of AGT 120. Soil organic matter and its functions in the soil are discussed. Water conservation, soil management and drainage or irrigation practices are covered.

AGT 223
BASIC BUILDING PRINCIPLES/ELECTRICAL (2 credits)
Selection of building materials and construction. The design and construction concepts of livestock, storage and feed handling facilities is presented. Basic farm wiring including calculation of wattage, voltage and wiring size.

AGT 240
REPRODUCTIVE PHYSIOLOGY (3 credits)
Study of young mammal development. Microscopic cell study, fetal development, genetics, artificial insemination, pregnancy testing and performance testing are discussed. Reproductive systems of swine, sheep, equine and cattle. Artificial insemination of livestock including pregnancy checking in cows. Students will get hands-on experience with ultrasound technology.

AGT 241
FEED UTILIZATION (2 credits)
Advanced study of feed stuffs and their value and use in rations, feed processing practices and poisons found in feed stuffs. Prerequisite: AGT 245.

AGT 242
LIVESTOCK DISEASES (3 credits)
Detailed study of livestock diseases, terms, symptoms, treatment and prevention of disease.

AGT 245
ANIMAL NUTRITION (2 credits)
Basic animal nutritional requirements and how various food stuffs can be used to meet those demands. Computation of rations for various species.

AGT 261
AG SALES & SERVICE (3 credits)
Development of skills needed by an agricultural salesperson including prospecting, territory management, customer service and communication. An investigation of the agricultural sales process, marketing and advertising methods are studied.

AGT 263
FUNDAMENTALS OF INSURANCE (2 credits)
Course will focus on various types of insurance including life, health, homeowners, auto, property, casualty, liability, crop and livestock insurances.

AGT 290
INTERNSHIP II (6 credits)
Supervised employment experience. Work in an agricultural business related to livestock production, feed and animal health sales, livestock buyers, agricultural chemical and fertilizer sales and applications.

AGT 291
LAND LAB I (1 credit)
Students are given the task of managing the 80-acre MTI land lab. Decisions regarding ground preparation, planting, cultivating, spraying, harvesting and marketing are all incorporated into the curriculum.

AGT 292
LAND LAB II (1 credit)
A continuation of AGT 291.

AGT 295
ANIMAL SCIENCE LAB I (1 credit)
Prepares students for livestock ranching and ranch management. Begins with the basics of animal husbandry working with the daily operations of a beef herd. Daily decisions involving rations, selection of bulls and heifers to be marketed, proper selection of vaccines.

AGT 296
ANIMAL SCIENCE LAB II (1 credit)
A continuation of AGT 295.

AMI 100
FOUNDATIONS IN MEDICAL IMAGING (1 credit)
Provides an introduction to the science and practice of medical imaging. Topics are designed to provide the student with an overview of the role of a technologist, the basic concepts of patient information management, and the ethical and legal standards of the profession. In addition, the course provides information on all aspects of patient care in the medical imaging environment including patient education and assessment, pharmacology, and IV contrast screening.

AMI 110
CROSS-SECTIONAL ANATOMY (3 credits)
Reviews gross anatomy of the entire body. Detailed study of anatomic structures will be conducted systematically for location, relationship to other structures, and function. Gross anatomic structures are located and identified in orthogonal and oblique axial (transverse), sagittal, coronal planes. Illustrations and anatomic images will be compared with CT and MR images in the same imaging planes and at the same level when applicable. The characteristic appearance of each anatomical structure as it appears on CT, MR and ultrasound images, when applicable, will be stressed.

AMI 120
CROSS-SECTIONAL PATHOLOGY (3 credits)
Content provides student with a working knowledge of anatomic structures in normal and abnormal states as they present on CT and MR images. Pathologies of the head, neck, spine, thorax, abdomen and extremities will be reviewed in terms of etiology, associated symptoms, and presentation on CT &/or MR images.

AMI 220
CT PHYSICS (3 credits)
Covers the basic principles involved in radiation physics. In addition, the history of CT scanning and a comprehensive overview of the system components involved in all aspects of CT scanning is studied. Students will learn the details of CT data acquisition, image reconstruction, and image display. The differences in serial scanning, single- detector helical scanning, and multi-detector helical scanning will be studied.

AMI 222
CT IMAGING CONCEPTS (3 credits)
Designed to develop a strong understanding of the parameters which influence CT image quality, including identification and management CT image artifacts. Students will learn radiation protection, measurement, and reporting as it applies to CT scanning. A comprehensive study of CT image display and post processing applications will be reviewed. Finally, students will study quality control tests and the basic elements of establishing a quality control program.

AMI 224
CT IMAGING PROCEDURES (3 credits)
Provides detailed coverage of routine and advanced procedures for CT imaging of body systems in adults and pediatric patients. CT procedure protocols will be studied for differentiation of specific structures, patient symptomology and pathology. CT images studied will be reviewed for image quality, anatomy and pathology.

AMI 230
MR PHYSICS (4 credits)
Information on the fundamentals of acquiring an MR signal and a comprehensive overview of the system components required to complete the necessary processes for MR image acquisition. Factors affecting image weighting and contrast in generating an MR signal are discussed. The complexities of spatial encoding are thoroughly described. The student will learn how to manage parameters to achieve optimal image quality. Finally, students will learn the elements of safety unique to an MR environment. Corequisite: AMI 100, AMI 110, AMI 120.

AMI 232
MR IMAGING CONCEPTS (4 credits)
Scanning parameters and imaging options used to build pulse sequences for routine and advanced MR imaging applications. Content covers the advantages and disadvantages of each pulse sequence and how they are combined to build optimal scanning protocols. The course provides information on identification and management of image artifacts. Students will review quality control tests and the basic elements of establishing a quality control program. Corequisite: AMI 100, AMI 110, AMI 120.

AMI 234
MR IMAGING PROCEDURES (4 credits)
Provides instruction on scan procedures related to the all body systems and regions typically evaluated with MRI. Emphasis is placed on patient set-up, scan parameters, methods of data acquisition and contrast administration. Anatomical structures and the plane that best demonstrates anatomy are discussed as well as signal characteristics of normal and abnormal structures. The variations in imaging parameters for specific body regions and the resultant effect on signal characteristics are discussed. Evaluation criteria for determining the quality of images is reviewed. Finally, students will research industry periodicals and other sources to present contemporary ideas and practices from the MRI field. Corequisite: AMI 100, AMI 110, AMI 120.

AMI 298
CT CLINICAL EXPERIENCE (8 credits)
Students are expected to complete all required competencies in this rotation. The section of clinical education is structured to offer the student a supervised clinical experience and to become eligible to sit for the registry exam in computed tomography. Prerequisite: All technical courses.

AMI 299 (8 credits)
MR CLINICAL EXPERIENCE
Students are expected to complete all required competencies in this rotation. The section of clinical education is structured to offer the student a supervised clinical experience and to become eligible to sit for the registry exam in magnetic resonance imaging. Prerequisite: All technical courses.

BC 121
PRINCIPLES OF BUILDING CONSTRUCTION I (4 credits)
Basic safety, operation and maintenance of hand tools, power tools and miscellaneous equipment. Construction of a residence is taught in shop. Included are layout and frame, finish (exterior), insulation (interior and exterior) and hanging, taping and texturing.

BC 124
PRINCIPLES OF GREEN BUILDING (2 credits)
Interior finish work of a residential house. Emphasis is on materials and processes involved with completing the interior, providing a solid background in green building methods, as well as the tools to inform consumers of the benefits of green construction.

BC 130
CABINETRY (2 credits)
Basic principles of cabinet construction. Lab projects will include construction of cabinets for the MTI shop house.

BC 151
BUILDING CONSTRUCTION LAB I (4 credits)
Basic principles of framing a residential house. Use, purchase and maintenance of hand tools and power tools are emphasized. First aid, fire equipment and scaffold safety is stressed. Interior/exterior insulation and interior dry wall taping are taught.

BC 152
BUILDING CONSTRUCTION LAB II (3 credits)
Study of the materials and processes involved interior finishing.

BC 162
POST FRAME STRUCTURES (2 credits)
Understanding the building process. Students will gain experience assembling a post frame structure.

BC 190
COMMERCIAL CONSTRUCTION INTERNSHIP (6 credits)
On-the-job work experience on a commercial construction site utilizing specialty skills in steel, masonry, concrete and other uniquely commercial techniques.

BC 222
CONSTRUCTION EQUIPMENT (1 credit)
Practical experience operating construction equipment. Topics covered include forklift, skid loader, fall protection and total station.

BC 251
BUILDING CONSTRUCTION LAB III (7 credits)
Details of foundation construction, framing and exterior finish.

BC 252
BUILDING CONSTRUCTION LAB IV (5 credits)
Provides training and experience in the completion of a residential structure with emphasis on interior finish and millwork.

BC 261
COMMERCIAL CONSTRUCTION LAB (3 credits)
Practical experience assembling a small commercial building, working with materials typically associated with commercial construction.

BC 270
PRINCIPLES OF CONTRACTING (3 credits)
The basics of owning a small business including estimating from building plans.

BC 282
WELDING (2 credits)
Practice in arc welding. Cutting and brazing are covered, including steel welding. Practical experience with welding projects unique to commercial construction. Welding safety practices are stressed.

BEP 102
PRINCIPLES OF GPS/GIS (1 credit)
Students will be introduced to basic GPS principles and how they are applied to precision agriculture and GIS applications. Different GPS corrections and constellations and primary industry uses will be introduced as well as different GPS terms and how they are used in the industry. Once an aptitude is gained for the GPS systems the course will focus on AGCO applications of hardware and software.

BEP 105
AGCO SERVICE CENTER FUNDAMENTALS (3 credits)
Introduction to the basic principles and working environment of an AGCO agricultural equipment service center. Topics to be explored include: the proper use and care of hand and basic power tools, the use of precision measuring tools, test equipment and special tools, safe and proper use of small jacks and cribbing as well as large shop tools such as hydraulic presses and overhead cranes. General shop safety, hazardous materials handling, MSDS sheets and information relating to all aspects of EPA and OSHA compliance will be discussed in detail. Students will learn the language and vocabulary related to the Agricultural Equipment service industry including work order generation, parts look-up, scheduling and billing techniques. Customer relations skills centered around both outside and inside sales and general working relationship development within an organization will be explored. The cornerstone of these soft skills will be the Butler machinery mission and company culture statements.

BEP 107
FUNDAMENTALS OF HYDRAULICS (2 credits)
Fundamental theories of fluid dynamics and basic laws of physics governing the non-compressible nature of liquids will be the foundation of this course. Pascal's law, Bernoulli's principle and fluid mechanics will be explored utilizing modern hydraulic engineering trainers allowing students to build models which demonstrate the principles and theories discussed during the lecture portion of this course. Component identification, design limits of components as well as expected performance based on load, flow and pressure will be key elements of the course. Open and closed center systems will be explored in depth.

BEP 120
DIESEL ENGINE AND CONTROL SYSTEMS (3 credits)
This course will introduce the student to the diesel engine and the mechanical control systems commonly used in their operation. Students will learn the design and operating principles which make diesels different from spark ignition engines and develop a diagnostic technique for working with them based on this knowledge. Internal components, wear tolerances, operating characteristics and fuel delivery systems for the common diesel engine brands utilized in the Ag equipment industry will be explored. Safety practices, tool selection, component identification and failure mode analysis will be fundamental topics in this course.

BEP 121 (3 credits)
AGCO/SISU DIESEL ENGINE AND CONTROL SYSTEMS
Students will be able to experience firsthand the changes that have occurred within the diesel engine industry due to the advancements in microcomputer and electronics technology. HPCR (High Pressure, Common Rail) fuel systems, HEUI injectors, as well as their respective control systems, will be discussed in detail. Fuel and engine monitoring, sensor operation, variable displacement turbochargers and other factors relevant to emissions will be focal points of this course. The student will develop basic diagnostic procedures and an entry level understanding of DTC information which is fundamental to modern diesel engine failure diagnosis. At the conclusion of this course the student will have the opportunity to complete the ASE Diesel Diagnostics Certification exam.

BEP 130
ELECTRICAL/ELECTRONIC SYSTEMS (2 credits)
Course is based around general electrical theory and the principles of DC and AC current operating in modern Agricultural Equipment. Topics to be explored include: current flow, Ohm's law, voltage, amperage, circuit types, test equipment, symbols used in electrical diagrams, and reading and understanding electrical diagrams in technical publications. Electrical and Electronic systems and controller networks and diagnostic procedures will also be discussed.

BEP 150
INTERNSHIP I (4 credits)
Supervised Internship performed off-campus in an AGCO agricultural equipment service department at a participating dealer.

BEP 151
INTERNSHIP II (4 credits)
Continued supervised Internship performed off-campus in an AGCO agricultural equipment service department at a participating dealer.

BEP 161
AIR CONDITIONING SERVICE FUNDAMENTALS (2 credits)
Students will develop the skills and techniques necessary to diagnose and repair mobile automotive-style air conditioning systems found on today's modern agricultural equipment. Theories of system operation, components, and flow patterns will be discusses. Students will have the opportunity to earn their mobile air conditioning service certification during this course.

BEP 200
POWERTRAIN AND DRIVE SYSTEMS (3 credits)
Basic information relating to traditional dry and wet clutch technologies as well as basic gear box designs and hydrostatic drive systems. Torque, axle loading, differential drive design, hydraulic controls and power transmission through torque sensing drives will be explored. An understanding of theories relevant to load bearing capacities, horsepower limitations and drive engagement will be developed. Students will be introduced to current technology being utilized by major agricultural equipment manufacturing companies in both tractor and harvesting equipment construction. Focus will be on identifiable components and systems currently utilized by AGCO lines of equipment such as the Challenger or Massey Ferguson tractors or Gleaner combines.

BEP 201
GUIDANCE, STEERING AND VARIABLE
RATE OPERATIONS (2 credits)
Expands many of the concepts, theories and practices utilized in maintaining, diagnosing and operating GPS/GIS equipment and software necessary for variable rate, site specific application of product, as well as autosteer capabilities of equipment. Mechanical/electrical diagnostic and troubleshooting practices will be developed and the repair of harnesses and components will be explored. Students will utilize mapping and data collection activities to develop prescriptions for product application. Understanding the link between software utilization and map/prescription deviation will be a fundamental element of the software/prescription diagnostics portion of this class. Students will be directly involved in seeding and fertilizer applications at the MTI Land Lab by researching, developing and implementing the variable rate prescriptions that will be used during the spring seeding operation. Fundamental setup and operation of product application equipment utilized in the AGCO RowGator and TerraGator machines will be discussed.

BEP 206
TOP TECH CERTIFICATION/AED CERTIFICATION (1 credit)
Students will access the online AGCO service technician training system and participate in various distance learning modules that will culminate in the taking of certification exams. Certification exams will test basic knowledge and skill sets that the student should be proficient in from earlier training as well as information shared in the distance learning modules. Various levels of certification can be achieved and is an ongoing process that will continue once the student returns full time to the dealership.

BEP 210
AGCO ADVANCED FLUID POWER DYNAMICS (2 credits)
Advanced hydraulics course which utilizes variable displacement, pressure compensated hydraulic pumps, PWN valves and components common to current production AGCO agricultural tractors and equipment to aid students in developing diagnostic and repair skills necessary to become proficient technicians. Students will become familiar with hydraulic pump diagnostics, priority circuit identification, flow control system diagnostics and electronic valve calibration. Component identification and inspection as well as direct system operation in the lab setting are fundamental elements of this course. Hydrostatic drives and motors and drive systems will also be explored.

BEP 212
FUNDAMENTALS OF AGCO APPLICATION EQUIPMENT (3 credits)
Introduction to the AGCO Rogator and Terragator application equipment. Basic application systems, electronics, hydraulics and hydrostatic drive system service and diagnosis will be the focus of this course.

BEP 213
WELDING AND METALLURGY (2 credits)
Introductory course focusing on the basic heating, welding and cutting skills necessary in an agricultural equipment repair shop. Basic knowledge of metallurgy, proper weld placement and heat transfer issues will be discussed.

BEP 221
AGCO EQUIPMENT DIAGNOSTICS (3 credits)
Fundamental principles of mating attachments or drawn equipment electronically and hydraulically to AGCO combines and AGCO tractors, along with correct software downloads will be the basis of this course. Concepts such as CAN bus diagnosis, ECV and ICV calibration, header compatibility and hydraulic flow requirements will be developed. Students will also be able to determine proper harness and hose configurations and basic operating characteristics for these types of equipment. Students will be taught how to utilize available technical information from both service and sales manuals, as well as compatibility guides. In-depth utilization of the EDT and other electronic resources will aid students in the lab exercises. In field diagnosis of operating problems with planting and harvest equipment and the ability to determine a course of action to remedy the situation will be the elements of this course.

BEP 231
AGCO ADVANCED ELECTRICAL/ELECTRONIC DIAGNOSTICS (3 credits)
Students will utilize "on-board" diagnostic systems as well as hand-held equipment and laptop computers programmed with EDT software to diagnose DTC information from tractors and harvesting equipment. Proficiency with technical data, DVOM operation and component location and identification will be fundamental aspects of the course. Common theories and operational principles learned in previous courses relating to electrical and electronic components, their testing and circuit diagnostics, will be revisited. Examples of these components would be potentiometers, hall-effect switches, thermistors, variable resistance sensors and relays. Students will develop their electrical/electronic diagnostic abilities by completing multiple activities designed to hone their critical thinking skills. This course is an active diagnostic lab course.

BEP 240
AGCO HARVESTING EQUIPMENT FUNDAMENTALS (3 credits)
Students will explore the fundamentals of combine harvester operation, maintenance and repair. Basic machine wear component inspection, diagnosis and repair procedures will be topics of study in this fast-paced course. Students will learn the basics of machine adjustments and header equipment compatibility, as well as field operation. Different types of threshing and separating systems will be explored, how they differ in wear, and operating characteristics. AGCO Gleaner and Axial flow machines will be the focus equipment used in this training.

BEP 241
TRACTOR PERFORMANCE, TIRE AND TRACK SYSTEMS (3 credits)
Modern agricultural tractors are precise technological pieces of equipment on today's farms and ranches. The need to properly equip and ballast these machines for peak performance in a customer's operation is paramount. Students enrolled in this course will utilize sales catalog information, test data, and practical application to ballast, set wheel spacing, adjust steering parameters, and engine and powertrain parameters on a given machine. Basic track and wheel system maintenance and adjustments will be covered in lab exercises.

BEP 243
AGCO SEEDING EQUIPMENT FUNDAMENTALS (3 credits)
Students will learn the theories and principles behind the functional elements that make a row crop planter or air seeder work. Seed placement, seed singulation, seed furrow development, closing, firming and frame system management will be explored. Seed monitoring systems and equipment for variable rate placement will also be discussed. Diagnostics of planting system operations and equipment wear recognition will be key points of focus in this course. Components from AGCO planters and seeding tools will be utilized.

BEP 245
AGCO HAY EQUIPMENT FUNDAMENTALS (3 credits)
The service and repair of modern AGCO brands of hay equipment will be the focus of this course. Students will learn the theories and practices of wear inspection, functional diagnosis, forming, wrapping and related hydraulic function issues that arise when customers operate hay harvesting equipment. Round balers, large square balers and mower/conditioners, and self-propelled windrowers will be the primary equipment utilized in this course.

BEP 250
INTERNSHIP III (4 credits)
Supervised Internship performed off-campus in an AGCO agricultural equipment service department at a participating dealer.

BEP 251
INTERNSHIP IV (4 credits)
Continued supervised Internship performed off-campus in an AGCO agricultural equipment service department at a participating dealer.

BUS 100
PERSONAL FINANCE (1, 2 or 3 credits)
This course is designed to introduce students to the principles of individual and family financial management. Strategies for the development and attainment of short-term and long-term financial goals will be examined. The class will examine personal financial management based on a life cycle approach, while addressing the need for flexibility due to changing personal, social and economic conditions.

BUS 101
INTRODUCTION TO BUSINESS (3 credits)
A comprehensive, substantial coverage of the major activities of business process. An understanding of capitalism and a free enterprise system is provided. A broad view of American business including legal, social and economic environment is presented.

BUS 110
ACCOUNTING FOR BUSINESS I (4 credits)
Fundamental accounting concepts and practices. Topics covered include business transactions and accounting records, the accounting cycle, financial statements, internal controls, current assets and liabilities, fixed assets, depreciation and payroll.

BUS 111
ACCOUNTING FOR BUSINESS II (4 credits)
Accounting principles and procedures regarding notes, inventory, long-term assets, internal control and the concept of partnerships. Textbook problems and a practice set are used to enhance learning. Prerequisite: BUS 110

BUS 116
INTRODUCTION TO QUICKBOOKS (1 credit)
An introductory course to the popular accounting software, Quickbooks. Particularly useful in small business settings, this class will be offered to students who need a general introduction to accounting software.

BUS 120
PRINCIPLES OF MARKETING (3 credits)
Introduction to marketing concepts and terminology. Establishes the origins, roles, purposes and scope of marketing as a business process and activity. Introduction to the marketing environment, as well as the different aspects of the marketing mix: products, price, promotion and distribution, is presented.

BUS 122
E-COMMERCE (3 credits)
In this course, students will study the three major driving forces behind E-Commerce, which include technology change, business development and social issues. Students will gain an understanding of the field through a conceptual framework.

BUS 131
BUSINESS MATH (3 credits)
Covers basic mathematical calculations commonly used in business settings. Course covers computing fractions and decimals, the order of operations for combined computations and solving equations and word problems. Also provides instruction on the use of a calculator for business applications.

BUS 140
BUSINESS LAW (3 credits)
Review of business law terms and concepts applied to business. A background in legal rights, social forces, administrative agencies, government regulations and consumer protection is presented. Contracts, personal property and bailments are discussed. Law terms and definitions are learned.

BUS 170
ENTREPRENEURSHIP & SMALL
BUSINESS MANAGEMENT (4 credits)
In this course, students will learn about the challenges of entrepreneurship, different options for opening a business, how to write a business plan of their own, marketing issues and how to create a successful financial plan. Students will gain the tools to launch a new venture and the knowledge for entrepreneurial success.

BUS 210
SALES & ADVERTISING (3 credits)
Sales emphasize the importance of establishing good relationships and closing the sale in a business deal. Advertising helps students understand that everyone is influenced by advertising in some form or another. They will learn how advertising is actually practiced in businesses today.

BUS 212
PRINCIPLES OF MANAGEMENT (3 credits)
Managers and professionals need both interpersonal and analytical skills to meet their day-to-day responsibilities. This course will provide information about such topics as decision-making, job design, organization structure, effective inventory management and information technology.

BUS 214
PRINCIPLES OF INSURANCE (2 credits)
A basic study of insurances available in the market today. The major areas covered include the types of term and permanent policies, annuities, how much insurance is needed, policy provisions, riders and health insurance plans.

BUS 216
SPREADSHEET CONCEPTS AND APPLICATIONS (3 credits)
Spreadsheet Concepts and Applications provides detailed instruction on the use of Microsoft Excel. Concepts covered include: working with formulas and functions; creating and formatting charts, graphs and pivottables/pivotcharts; sorting and filtering lists; data consolidation between multiple worksheets and workbooks; using Solver and the Scenario Manager; and importing and exporting of data. This course will help prepare the student for the Microsoft Excel certification exam.

BUS 217
DATABASE CONCEPTS AND APPLICATIONS (3 credits)
Creation and design of databases and data base view sheets. The query process and the maintenance of databases are taught. The integration of databases into spreadsheet applications is utilized.

BUS 218
INTRODUCTION TO HUMAN
RESOURCE MANAGEMENT (3 credits)
Students will learn how an organization's efficiency is impacted by the effectiveness of its human resource department. Human resource planning, recruitment, selection, development, compensation and benefits will be explored throughout the course.

BUS 220
SUPERVISORY MANAGEMENT (3 credits)
Many organizational trends today—downsizing, cost cutting, employee empowerment, flexible hours and diversity issues—are all impacting the way supervisors deal with employees in the workplace. Students will understand all of these concepts and working through people to maximize productivity while maintaining a positive work environment.

BUS 235
INVESTMENTS (3 credits)
Economic and financial aspects of investments, supply and demand for capital, classification of investments, investment banking, the investment market and analysis of securities.

BUS 240
CONSUMER BEHAVIOR (2 credits)
This course will address factors that influence what and why consumers buy. Understanding consumer behavior provides is vital to goods and services providers to learn why consumers feel a need for a particular product, search for and find the intended information about that product. Applying an understanding of consumer behavior allows customers to evaluate products as the best alternative, buy the products and remain loyal to a product.

BUS 245
PUBLIC RELATIONS: PRINCIPLES AND PRACTICES (3 credits)
This course introduces the student to the practice of public relations. The entire scope of the field will be examined with emphasis placed upon areas of specialization, media relations and simultaneous multi-public workings.

BUS 246
SOCIAL MEDIA (3 credits)
This course explores the ever-changing world of social media and its impact on the business world. Students will explore emerging social media technologies and study their application in contemporary practice. Through hands-on learning, students will design, implement and measure a digital marketing strategy for a business while participating in social networks, forums, blogs, wikis, micro-blogs and more.

BUS 290
INTERNSHIP (3 credits)
Supervised internship performed off campus in a business setting.

BUS 295
BIZ SQUAD (3 credits)
This is a service-learning internship that provides students with an opportunity to gain real-world experience by assisting area businesses with a variety of projects.

CA 103
CONTROLLING RESTAURANT COST (3 credits)
Students will experience working with inventory control, recipe adjusting, pricing and scheduling within a computerized foodservice management program. Financial reporting reflecting food costs, labor costs, sales income and profit and loss statements is reviewed. Other topics discussed include food storage techniques, inventory pricing, waste reports and controlling food cost in sales. Labor productivity including sales per person-hour is introduced. Certification by NRAEF is required for completion of this course. Prerequisite: CA 163.

CA 107
CUSTOMER SERVICE (2 credits)
Students will learn the cycle of service as it relates to the importance of the customer. This course discusses the difference between hospitality and service and outlines the four facets of high-quality customer service. Other topics covered are: service-profit chain, suggestive selling, ensuring profit and ensuring consistent service value. Certification by NRAEF is required for completion of this course.

CA 162
SANITATION AND SAFETY LAB (2 credits)
Causes and prevention of food-poisoning. Sanitation from the workers', customers' and the supervisors' points of view are discussed. Hazardous Analysis Critical Control Point (HACCP) system is utilized. Certification by NRAEF is required for completion of this course.

CA 163
FOODSERVICE MATH (3 credits)
Applied mathematical operations used to increase or decrease standard recipe yields, calculate food costs, convert recipe units of measure and calculate portion costs and menu prices.

CA 170
FOOD THEORY I (3 credits)
Combines lecture, demonstration and student participation. Establishes a foundation in the compositions of various foods and correct preparation methods. Emphasis is placed on learning to follow recommended cooking techniques to prepare different foods to their optimal taste and texture. Includes traditional, ethnic and modern preparation techniques. Purchasing quality food products, proper storage, service techniques and menu planning used throughout the food service industry are discussed. Corequisite: CA 171.

CA 171
FOOD PRODUCTION LAB I (6 credits)
Preparation of foods for cafeteria service, as well as short order preparation and service. Includes the selection and preparation of dishes from an assigned task list. Prerequisite: CA 162 with a grade of "C" or higher.

CA 180
FOOD THEORY II (3 credits)
Continuation of CA 170 Food Theory I. Prerequisite: CA 170. This course must be taken with CA 181.

CA 181
FOOD PRODUCTION LAB II (6 credits)
Continuation of CA 171 Food Production I. Prerequisite: CA 171.

CA 200
NUTRITION (3 credits)
Nutrition is the science of the nutrients in food and how they maintain the body. Students will learn the function of food ingredients and the aesthetic (flavor, texture and aroma) profiles of food to create dishes that are both creative and delicious. How people taste food and increased awareness of nutritional standards and guidelines are the basis for study of proteins, fats and other lipids, carbohydrates and vitamins, minerals and water. Certification by NRAEF is required for completion of this course.

CA 201
ADVANCED FOODS & SUPERVISION I (6 credits)
Further cooking technique with a focus on fine dining and menu planning. Students will develop management and leadership skills useful in the food service industry. Prerequisite: CA 181.

CA 204
ADVANCED FOODS & SUPERVISION II (6 credits)
Continuation of CA 201 Advanced Foods & Supervision I. Prerequisite: CA 201.

CA 208
HOSPITALITY & MANAGEMENT (3 credits)
This course is designed to prepare students for the many rewards and challenges of restaurant management including the "people side" of management. Communicating effectively, establishing a harassment-free workplace and building successful teams are three major areas of concentration. Leadership, time management, problem solving, scheduling, meeting preparedness, fair hiring practices and managing terminations are all discussed in this course. Certification by NRAEF is required for completion of this course.

CA 210
ACCOUNTING FOR HOSPITALITY (3 credits)
Involves financial practices of a food service operation. Topics include budgeting, profit and loss statements, managing accounts receivable and accounts payable, and pricing. Certification by NRAEF is required for completion of this course.

CA 230
CULINARY EXPLORATION LAB (3 credits)
Focus on classic cooking techniques involved in ethnic and international foods, ice carving, food presentation and baking concepts. Course will cover topics not included in other labs. Corequisite: CA 204. Prerequisite: CA 201.

CA 280
INTERNSHIP (6 credits)
Experience in a commercial food service operation. Work in all areas of a commercial kitchen provides knowledge and skills of each position. The experience reveals the teamwork and responsibilities in a successful operation. Participation in banquet service is expected.

CIS 105
COMPLETE COMPUTER CONCEPTS (3 credits)
Overview of computer applications with emphasis on the following: email, word processing, spreadsheets, database, presentation tools and Internet-based applications. This is a 4-module course intended to cover the Microsoft Office suite.

CPR 100
FIRST AID, CPR & AED (0.5 credit)
This course will teach students to recognize an emergency, the appropriate action to take when facing an emergency situation and how to sustain life until professional help arrives. Topics covered include basic life support and AED use; heart attacks and chest pains; serious injuries; poisoning and allergic reactions; rescuing and moving victims and more. Students will also learn techniques for preventing disease transmission.
This class is offered for credit as a Pass/No Pass course.

CSS 120
OUTLOOK ESSENTIALS (2 credits)
Covers the features available in Microsoft Outlook, which is the industry's leading e-mail and personal information management software. Topics covered will include sending, receiving and organizing e-mails; managing the calendar, tasks, contacts and distribution lists; setting rules and creating meeting requests. This course will help prepare the student for the Microsoft Outlook certification exam.

CSS 122
CUSTOMER SERVICE (3 credits)
The computer industry offers many rewarding careers, which can require a unique combination of hands-on skills, creative problem solving and an understanding of business needs. This course is a study of issues in the workplace relating to effective customer service. Students are introduced to the issues of problem solving, strategy, empowerment, communications, motivation and leadership necessary for the delivery of exceptional customer service and customer retention.

CSS 143
DOCUMENT PRODUCTION (3 credits)
This course will introduce word processing skills that can be combined with students' basic skills to create complex documents. Students will utilize Microsoft Word to create and format documents and tables; create mail merges, macros, templates and fill-in forms; set and manipulate tabs; insert charts, graphics and hyperlinks; and import and export data. Students will also look at different ways of sharing documents with others. This course will help prepare the student for the Microsoft Word certification exam.

CSS 170
DESKTOP PUBLISHING (3 credits)
In today's technological world, many businesses are doing their own "in-house" publishing. This course will give our students the background and hands-on practice to be able to utilize the following software programs: Microsoft Publisher, Adobe InDesign and Adobe Photoshop. Emphasis is placed on creation of student projects including newsletters, brochures, posters and promotional materials as well as image manipulation. Principles of layout and design will be highlighted. Prerequisite: CSS 143.

CSS 171
MULTIMEDIA CONCEPTS (3 credits)
This course provides detailed instruction on the use of a variety of software to create multimedia projects. The primary software packages to be utilized in this class include PowerPoint, Flash, Pinnacle Studio, Windows Movie Maker, PhotoStory, Audacity, Camtasia Studio, Jing and Windows Media Encoder. Prerequisite: CSS 143.

CSS 203
WEB DESIGN (3 credits)
Web Design provides detailed instruction on the development, maintenance and publication of a Web site using HTML, Microsoft Expression Web and Adobe DreamWeaver. Other software utilized in this course includes PhotoShop. Prerequisite: CSS 143. Corequisite/Prerequisite: CSS 170.

CSS 210
INTRODUCTION TO NETWORKING (3 credits)
Through extensive hands-on, this introductory course provides a solid foundation of how PC's and networks function. Students will identify the aspects of networking computer systems and peripherals. They will install, configure and troubleshoot hardware and software components to facilitate network operation.

EC 100
BASIC TELEPHONY (3 credits)
Study the history of telecommunication from 1844 to today. Explain regulatory milestones. Understand the components of the telephone and telephone line. Study the basic telephone local loop and tests that are performed. Describe types of circuits to connect phone switches. Overview of data network infrastructure. Define modulation schemes and describe analog to digital conversion. Overview of data communications basics, OSI Model. Define Telecom Network Physical Infrastructure. Explain how voice networks operate, the evolution from analog to digital, an overview of the transition from circuit to packet switching. Introduction and identification of the components of the Outside Plant.

EC 105
TRANSMISSION MEDIA (3 credits)
Covers fundamental principles for cable installation and splicing. Topics include cable construction, (Fiber, Copper, Coax) basics of transmission media, color coding, cable closures and splicing of cable. Define copper cable transmission medium. Define fiber optic transmission medium. Define wireless transmission medium.

EC 110
INTRO TO TELEPHONY/VoIP (2 credits)
This course begins with the exploration, history and basics of the telephone industry. Students will study fundamentals of telecommunications and the convergence to Internet protocol (IP), establish a knowledge base of Voice over IP (VoIP), the components, standards, jargon and buzzwords.

EC 112
ELECTRONICS THEORY (3 credits)
Introduction to the components of electronics, both passive and active are covered. Students study the fundamentals of power supply circuitry, solid state components, resistance, capacitance, inductance, AC theory, timing circuits and testing. Critical thinking skills and troubleshooting are also studied.

EC 120
TELEVISION HEAD-END TECHNOLOGY (2 credits)
Students explore the history and basics of television distribution systems known as MATV, CATV and IPTV. Students will study Internet Protocol Television and the convergence of two technological revolutions, the Internet and digitization of television. IPTV system models and Internet protocols will be studied, as well as digital rights management and IPTV standardization efforts, including DOCSIS.

EC 121
DC/AC CIRCUIT (3 credits)
Direct Current (DC) theory and the fundamentals of series and parallel DC circuits. An introduction to the concept of electricity and its behavior with respect to conductors and resistance devices. The study of Alternating Current (AC) circuits begins with the generation of a sine wave and review of trigonometric functions and continues through resonance.

EC 130
NETWORKING ESSENTIALS (3 credits)
Provides a solid understanding of how PCs and networks function. The aspects of networking computer systems and peripherals with an emphasis on serial communication will be addressed. The installation and configuration of hardware and software components to facilitate network operation and basic troubleshooting skills will be covered. Introduction to the concepts and components involved with networking computers for hardware and software sharing will be explored.

EC 138
CCNA I: INTRODUCTION TO NETWORKING (3 credits)
Introduces the architecture, structure, functions, components, and models of the Internet and computer networks. The principles of IP addressing and fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

EC 140
DIGITAL FUNDAMENTALS (2 credits)
This course covers combinational and sequential logic circuits. Topics include number systems, Boolean algebra, logic families, MSI and LSI circuits, AC/DC converters and other related topics. Upon completion, students should be able to construct, analyze, verify and troubleshoot digital circuits using appropriate techniques and test equipment.

EC 142
INDUSTRIAL POWER ELECTRONICS (2 credits)
This course will introduce JFET's and MOSFET transistor operation and circuit configurations. Students will gain practical experience working with power control devices (thyristors) and control circuits, including rectifiers, inverters and PWM.

EC 151
ELECTRONICS LAB I (3 credits)
Hands-on instruction covering hand tools, safety, component identification, color codes, Ohm's law and reading schematic diagrams will be covered. Students will construct basic circuits, predict circuit values, and measure current voltage and resistance. Knowledge in the proper operation of electronic test equipment will be stressed. This lab will supplement the student of Theory and DC/AC classes.

EC 157
ELECTRONICS LAB II (3 credits)
Continuation of EC 151. Semiconductors and integrated circuits are discussed. Emphasis is placed on troubleshooting of audio amplifiers, discrete components and operational amplifiers. Basic digital circuits including logic gates, truth tables, flip flops and counters are explored. Prerequisite: EC 151.

EC 161
ELECTRONICS MATH (2 credits)
General review of electronic mathematics. Algebra and trigonometry functions are used to solve formulas relating to the AC circuit theory. Logarithms are used to analyze decibel gains and losses relating to amplifier theory. The use of an electronic calculator and the solution of electronic problems are introduced.

EC 162
ELECTRONICS MATHEMATICS/DIGITAL (2 credits)
General review of electronic mathematics. Algebra functions are used to solve formulas, trigonometry is used in AC circuit analysis and logarithms are used to analyze decibel gain and loss. The use of an electronic calculator and the solution of electronic problems are introduced. Introduction to binary notation and numbering systems including octal and hexadecimal.

EC 167
IT ESSENTIALS: PC HARDWARE & SOFTWARE (3 credits)
Students learn the functionality of hardware and software components as well as suggested best practices in maintenance and safety issues. Students learn to assemble and configure a computer, install operating systems and software and troubleshoot hardware and software problems. This course helps students prepare for the CompTIA A+ certification.

EC 210
INTRODUCTION TO VoIP (3 credits)
Explain the fundamentals necessary to understand VoIP, understand gateways and their capabilities, describe how phone calls are made on VoIP networks. Understand components, standards and architectures. Identify and explain key components, jargon, buzzwords, plus the main standards and protocols. Compare and contrast the many flavors of VoIP, implementation and architecture choices. Understand packetized voice, how it happens. Learn about codecs and compression, know the factors affecting sound quality. Examine carrier's IP network technologies and the important topic of using MPLS to implement Differentiated Services for Quality of Service (QoS). Discover Session Initiated Protocol, what it is, how it works, how it fits in with soft-switches, call managers and trace the establishment of a IP phone call step by step. Prerequisite: EC 100, EC 105 or EC 110.

EC 211
WIRELESS COMMUNICATIONS (3 credits)
Studies the current state of advanced digital wireless technologies including cellular radio and technologies provided through the 802 Wireless Standards. Course includes an understanding of the principles of radio and multiple access technologies such as Time Division Multiple Access (TDMA) and Code Division Multiple Access (CDMA). Frequency reuse in cellular networks, cellular system architecture and operation, Third Generation (3G) and Fourth Generation (4G) cellular technologies, high-speed wireless data and Internet access, Broadband Wireless access, Fixed and Mobile Wireless Access (WiFi), WiMAX and WLANs. The students focus their studies on the Wireless Industry and how it pertains to telephony. Provides fundamental concepts from the basis of wireless communications. This course is designed to discuss and analyze the convergence of voice and data industries. Explain spectrum analysis – licensed and unlicensed use.

EC 238
CCNA II: ROUTING AND SWITCHING ESSENTIALS (3 credits)
Describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks.

EC 246
CENTRAL OFFICE TRANSPORT (3 credits)
This course will focus on the Central Office environment and transport equipment of the telecommunications industry. Three basic areas of study will be covered, but not limited to, peripheral equipment, switching equipment and Internet protocols. Upon successful completion of this class, students will be able to work professionally, safely and efficiently in a central office environment. Students will comprehend the digital hierarchy scheme as it applies to the world of telephony. Learn the public switched telephone network and its signaling structure.

EC 249
ADVANCED OSP (3 credits)
Installation and repair of outside plant technologies, copper, fiber, coax, able to analyze problems in outside plant systems and make effective repairs utilizing copper slices and fiber fusion splicers. Students understand Fiber To The Home (FTTH) concepts and terminology, comprehend terminology and acronyms. The locating of underground cable and fault location, reading staking sheets and telecommunication maps and diagrams. Identify and comprehend required steps in testing OSP. Discuss residential services, call features, customer service skills. Prerequisite: EC 100 and EC 105.

EC 251
ELECTRONICS LABORATORY III (4 credits)
Hands-on lab supports for the following classes: EC-105, EC-210, and EC-211. This lab serves as a real world environment for the students and staff to apply the theories studied. Understand proper safety techniques, comprehend FCC and industry standards. Properly identify test equipment and tools. Properly install 66 and 110 blocks, design, install, test and troubleshoot structured cabling systems. Successfully conduct fiber and copper cable splicing. Prerequisite: EC 157.

EC 257
ELECTRONICS LABORATORY IV (5 credits)
This lab serves as a real world environment for the students and staff to apply the theory studied in the previous classes. Exercise proper safety techniques. Properly identify and use test equipment in the telecom industry. Install, test and troubleshoot telecommunications systems to customer's premise and business locations. Construct a cabling system; utilize multiline services; exercise VoIP knowledge. Operate and maintain a central office with head-end video equipment. Students will install, operate and maintain the following systems: Genband C15 Softswitch; multiple fiber transport systems; Edge routers; Access Ethernet Access Switches; Voice over IP systems; Mitel 3300; Altigen; Avaya S8300 and Cisco UC520 systems.

EC 290
INTERNSHIP (6 credits)
Supervised work experience in a position related to the telecommunications industry. Required for graduation.

ECM 101
ELECTRICAL FUNDAMENTALS (4 credits)
AC/DC electricity and its characteristics. A study of the basic components used in various electrical systems.

ECM 103
DESIGNING ELECTRICAL SYSTEMS (3 credits)
Basic wiring systems used in commercial and industrial fields as well as related code construction regulations. Calculation of motor branch circuits, feeder circuits and protective devices required by the NEC. Motor overload protection and wiring methods are discussed. Equipment design and the use of electrical equipment are explored. Prerequisites: ECM 101, ECM 151.

ECM 121
ELECTRICAL DRAWING (4 credits)
Electrical blueprints. Current flow through circuits are studied using wiring diagrams and cable overlays. Work is conducted on wiring projects in student labs and project houses.

ECM 122
RESIDENTIAL BLUEPRINT AND CODE (3 credits)
Home electrical systems using state and national wiring codes and regulations. Circuit-by-circuit review of unique electrical items and wiring methods installed in a home. Prerequisite: ECM 121.

ECM 149
BASIC CONDUIT BENDING (2 credits)
Formulas used in conduit bending. Application of the formulas is used with electrical metallic tubing (EMT) hand benders. Then the different types of conduit bends are installed on practice surfaces.

ECM 151
BASIC ELECTRICAL LAB (5 credits)
Hands-on study of AC/DC electricity behavior. Study of the NEC pertaining to general and residential wiring. Perform residential wiring tasks, including wiring of lab projects and complete wiring of project homes.

ECM 157
WIRING LAB (4 credits)
Continuation of ECM 151. Basic wiring practices and methods used in residential settings are introduced. Install 100 and 200 amp breaker panels. Students work with a variety of cable wiring methods. Also studied are different electrical heating and basic control systems for motors. Safe electrical practices in the electrical industry are taught. Prerequisites: ECM 101, ECM 121, ECM 151.

ECM 202
MOTOR THEORY AND MAINTENANCE (2 credits)
A practical hands-on course using ammeters, voltmeters, wattmeters and multimeters in testing and troubleshooting electric motors, components and wiring systems. A study of single and three-phase AC motors, their construction features and operating characteristics. This lecture/lab class emphasizes electric motor terminology, identification of motor types, enclosures, mounts, motor selection, connections, maintenance, testing and troubleshooting.

ECM 211
POWER DISTRIBUTION (1.5 credits)
High voltage systems, transformers and their connections. The relationship between the primary and secondary sides of transformers are studied along with equipment selection and utilization. Generation, transportation and grounding of single-phase and three-phase power.

ECM 221
COMMERCIAL BLUEPRINT READING (2.5 credits)
Continuation of ECM 122. Commercial and industrial installations are presented along with code-related regulations. Commercial service and feeder calculations. Commercial print reading and estimating.

ECM 231
ELECTRONIC CIRCUITS (2 credits)
Electronic circuits and the operation of electronic components. Diodes, SCRs, triacs, JFETs, MOSFETs, UJTs and industrial electronic devices are studied. Electronic controls are introduced.

ECM 241
FIBER OPTICS (1 credit)
Fiber optics used in many applications. Selection of fiber optic cable, installation, splicing, termination and testing are taught.

ECM 244
VFD/MOTOR DRIVES (1 credit)
Operation of the solid state components found in electric motor drives. Students will learn the different types of electric motor drives, drive operating principles, and advantages to different types of motor drives to make the best selection. The course covers procedures for installation, basic and advanced programming, and start-up procedures for electric drives and motors. Students will learn to establish troubleshooting procedures to ensure minimal downtime.

ECM 251
COMMERCIAL AND INDUSTRIAL WIRING LAB (4 credits)
Continuation of ECM 149. Practical wiring applications of commercial and industrial are presented. All types of conduit bending are taught including hydraulic bending. An advanced level of industrial conduit bending is demonstrated.

ECM 252
INDUSTRIAL CONTROLS (3 credits)
Study of mechanical and electromagnetic starters, timers, switches and other control devices. Start/stop controls for motors and other industrial equipment. Learn control logic systems with ladder and wiring diagrams. Study connections and troubleshoot various circuits. Corequisite: ECM 255.

ECM 253
ADVANCED CONTROL SYSTEMS (2.5 credits)
Continuation of ECM 252. Applications of control devices are reviewed. Photoelectric controls, PLC logic modules, sequential motor starting, troubleshooting, reduced-voltage startup, acceleration and deceleration methods are studied. Prerequisites: ECM 252, ECM 255. Corequisite: ECM 257.

ECM 255
CONTROL LAB I (1.5 credits)
Hands-on use of apparatus studied in ECM 252 and ECM 202. Projects range from basic circuitry to advanced circuits utilizing motor starters, pilot devices and timing devices. Corequisite: ECM 252.

ECM 257
ADVANCED CONTROL LAB II (2 credits)
Continuation of ECM 255. Higher level experiments and practical applications of advanced industrial control circuitry are presented utilizing lab experiments and control equipment studied in ECM 253. Student tasks include designing, constructing, wiring and troubleshooting of the mechanical and/or PLC operated projects. Corequisite: ECM 253.

ECM 259
PROGRAMMABLE LOGIC CONTROLS (3 credits)
Programmable logic control systems for the control of electrical components and equipment. Projects using solid state devices in commercial and industrial applications are completed.

ECM 260
DATA CABLING (3 credits)
Identification of transmission media (UTP, STP, coax, fiber, etc.). Voice and data information systems are reviewed. ANSI/EIA/TIA standards; the proper terminate, splicing and testing of Category 5 and fiber optic cable are studied.

ECM 261
ADV. PROGRAMMABLE LOGIC CONTROLS (3.5 credits)
Continuation of ECM 259. More capabilities and applications of solid state control systems are integrated with text and lab projects. Logic networks solving typical industrial control problems are developed and programmed into a variety of controllers. Prerequisite: ECM 259.

EN 101
ENERGY ESSENTIALS (3 credits)
Provides an introduction to the many opportunities within the energy career field and provides a skill foundation for additional program specific training. The course will include elements from several MTI energy related programs including: Propane and Natural Gas; Power Line Construction and Maintenance; Heating and Cooling Technology; and Wind Turbine Technology.

EN 102
ELECTRICAL ESSENTIALS (3 credits)
Introductory course that provides the basic principles and theories of direct and alternating current including the study of the many basic components used in electrical systems. This course provides a foundation for further program specific electrical or electronics courses.

EN 103
COMMUNICATION/INFORMATION ESSENTIALS (3 credits)
Provides an introduction to the many opportunities within the communications and information technology career fields and provides a skill foundation for additional program specific training. The course will include elements from several MTI communications and information technology related programs including: Automation Controls/SCADA; Computer Systems Technology; Satellite Communications; and Telecommunications.

ENGL 098
BASIC WRITING (2 credits)
Review in the basics of written communications. The emphasis is on grammar, sentence clarity, and paragraph structure. This class is offered for credit as a Pass/No Pass course. Placement test scores determine assignment.

ENGL 101
ENGLISH COMPOSITION (3 credits)
Intensive academic writing practice in communication. This course is designed to help the student produce clear, effective writing. Standard English grammar, usage, and punctuation in connection with writing structure, are emphasized. Expository essays and a research paper are included as course assignments. Prerequisite: ENGL 098 or qualifying placement score.

ENGL 201
TECHNICAL WRITING (3 credits)
Introduction to professional and technical writing. This course emphasizes correct mechanics, grammar, and sentence construction. Students will be assisted with developing strategies for writing collaboratively. Skills emphasis will be placed on a variety of documents, including definition, instruction, summary, job application portfolio, and a formal research report with an accompanying oral presentation. Prerequisite: ENGL 098 or qualifying placement score.

ENGL 202
BUSINESS COMMUNICATIONS (3 credits)
Designed with the understanding that communication needs to include both oral and written practical applications. The course emphasizes preparation for effective response to business, industrial, and governmental communication needs. Prerequisite: ENGL 201.

EUST 107
BASIC HYDRAULICS (2 credits)
Industry relevant skills including how to operate, install and analyze performance of basic hydraulic systems. Fundamentals of hydraulic systems used in industrial applications are presented.

EUST 110
INTRODUCTION TO BASIC MOTOR CONTROLS (2 credits)
Presents basic AC and DC motor controls concepts and gives students an understanding of typical devices such as pushbuttons, selector switches, sensors, starters, contactors, overloads and relays.

EUST 114
SUBSTATION OPERATIONS LAB (4 credits)
This lab will supplement the topics covered in EUST 120.

EUST 115
SUBSTATION CONTROLS & TESTING LAB (4 credits)
This lab will supplement the topics covered in EUST 121.

EUST 120
SUBSTATION OPERATIONS I (2 credits)
Overview of substations and the different types. Students will learn what makes up the components of a substation such as the transformers and how they are cooled, different types of circuit breakers, methods of voltage control along with the function of smart grid metering and relaying.

EUST 121
SUBSTATION OPERATIONS II (2 credits)
A continuation of EUST 120. Students will perform hands-on testing of the components that make up a substation such as transformers, circuit breakers, regulators, capacitor banks along with replacement of smart meters and other smart grid equipment.

EUST 130
INTRODUCTION TO SMART METERING & GRID (2 credits)
Smart grid is a type of electrical grid which attempts to predict and intelligently respond to the behavior and actions of all electric power users connected to it—suppliers, consumers and those that do both—in order to efficiently deliver reliable, economic and sustainable electricity services.

EUST 131
FIBER OPTICS FOR SUBSTATIONS (1 credit)
Identification of transmission mediums (UTP, STP, COAX, FIBER, etc.). ANSI/EIA/TIA standards; the proper terminate, splicing and testing of Category 5 and fiber optic cable are studied.

EUST 132
SCHEMATIC READING (2 credits)
Designed to prepare students with the ability to read and understand electrical diagrams, recognize equipment and verify the integrity of existing schematics. Participants will be introduced to electrical symbols, one-line and three-line electrical schematics and their content, including basic layout and legends. The course includes practical exercises in schematic reading, diagram verification and the steps required for creating and maintaining accurate one-line diagrams.

EUST 150
SUBSTATION SAFETY I (1 credit)
A health and safety curriculum for secondary electrical trades. The manual used is designed to engage students in recognizing, evaluating and controlling hazards associated with electrical work in a substation environment.

EUST 151
SUBSTATION SAFETY II (1 credit)
A continuation of EUST 150.

FBM 100
BEGINNER FARMER/RANCHER FSA BORROWER (4 credits)
This course is for the Farmer/Rancher who has been farming/ranching less than 10 years and also is for FSA Borrowers who want training in the following areas: goal setting, balance sheet and financial ratios, financial trends, ag production trends, cash flow statements, record keeping systems, risk management/marketing, income tax management, estate planning and financial analysis. Current issues relating to production agricultural management are also reviewed in this course. This course meets the requirements set by FSA for direct loan borrowing.

FBM 111
FUNDAMENTALS OF FARM BUSINESS MANAGEMENT (5 credits)
Overview of the Farm Business Management program. Students will be introduced to goal setting, self- and business assessment and business projections to provide the fundamentals for personal and business management progress. Current issues affecting business management are an integral part of this course. Students will apply various financial instruments used in acquiring capital for use in business and will investigate ways in which both earnings and financial progress can be measured.

FBM 121
FARM/RANCH DATA MANAGEMENT (5 credits)
Basic farm business management concepts. Students will study the farm management planning cycle and develop an understanding of its relationship to family and farm business goal setting, cash and enterprise accounting principles and tax planning.

FBM 131
IMPLEMENTING THE SYSTEM MANAGEMENT DATA (5 credits)
Builds on the fundamentals of farm business management. The student will complete a farm business financial and enterprise analysis. Sound financial record keeping is an integral component.

FBM 141
PREPARATION FOR FARM BUSINESS DATA ANALYSIS (5 credits)
A step-by-step procedure to close out a complete year of farm business records. This course will emphasize tax planning, completing inputs to livestock and crop enterprises and emphasize cash and liabilities accuracy.

FBM 151
INTERPRETING AND USING SYSTEM DATA (5 credits)
A view of the farm business and its various components. This course introduces a number of vehicles such as balance sheets, farm personal and managerial inventories, enterprise reports and historical data.

FBM 161
MANAGING AND MODIFYING FARM SYSTEM DATA (5 credits)
Refinement of the farm business data system. This course assists students in applying year end procedures for farm business analysis. Students improve accuracy in the following: farm enterprise analysis, tax planning and filing and cash and liabilities checks.

FBM 171
INTERPRETING TRENDS IN BUSINESS PLANNING (5 credits)
Examines the whole farm, enterprise, balance sheet and inventory trends. Current analysis data is compared to historical data in making future farm business planning decisions. Financial ratios are used to indicate the farm financial structure.

FBM 181
INTERPRETING AND EVALUATING FINANCIAL DATA (5 credits)
Expands on preparation and evaluation of the farm business analysis. The course provides continued guidance and perfection of business record closeout procedures, tax implications of management decisions and continues to monitor farm business and family goals.

FBM 191
INTEGRATING INFORMATION FOR
FINANCIAL PLANNING (5 credits)
Uses farm system information to develop a farm financial plan. Interpretation and analysis of the farm system data will enhance the reliability of the farm plan. The comprehensive farm plan will integrate historical trends, farm and personal goals and financial and enterprise performance of the farm business.

FBM 201
STRATEGIES IN FARM SYSTEM DATA MANAGEMENT (5 credits)
Long-term strategies to maintain and enhance the farm business and personal future financial goals. The student will complete the year by preparing for an accurate, usable business analysis.

FBM 211
REFINING FARM SYSTEM MANAGEMENT (5 credits)
Development and implementation of a comprehensive farm business strategic plan. The student will use the components of the Farm Business Management program to develop and support a farm business strategic plan.

FBM 221
EXAMINATION OF THE CONTEXT
OF SYSTEM MANAGEMENT (5 credits)
Assists in the preparation of improved farm system management procedures. Students in the course will evaluate several years of an improved farm system analysis.

FBM 254
ADVANCED REFINING FARM SYSTEM MANAGEMENT (5 credits)
This course assists the student with a farm business analysis and the exploration of possible implications and/or solutions of these concepts. A systematic method to assess farm business strengths and weaknesses based on the analysis will be used. Production and financial goals will be reevaluated and new goals will be set.

FBM 255
ADVANCED ANALYSIS PREPARATION
& INTERPRETATION (5 credits)
This course assists the student with a farm business analysis and the exploration of possible implications and/or solutions of these concepts. A systematic method to assess farm business strengths and weaknesses based on the analysis will be used. Production and financial goals will be reevaluated and new goals will be set.

FBM 256
ADVANCED INTERPRETING TRENDS IN BUSINESS
PLANNING (5 credits)
This course is designed to teach the advanced analysis student to recognize past trends in business to draw conclusions as to future trends.

FBM 257
SYSTEM PLANS & PROJECTIONS (5 credits)
This course will enable students to identify the elements necessary to evaluate and create a strategic plan for their agribusiness systems. Determining uses for the plan today and tomorrow and developing a plan to locate those team members necessary for strategic plan creation.

FBM 266
IMPLEMENTING FARM TAX PLANNING TOOLS (5 credits)
This course will provide an introduction to the basics of tax law and tools affecting the farming operation and allow the producer to be better prepared for tax season.

FBM 267
AGRI-BUSINESS MATH PRINCIPLES (5 credits)
This course is designed to teach farm management students to use multiple math principles in their tax and business planning throughout the yearly cycle.

FBM 268
FARM LABOR ECONOMICS & MANAGEMENT (5 credits)
This course will organize skills for effective management of farm employees and agribusiness personnel through development of handbooks, compensation/incentive packages, individual expectations/evaluations and team meetings.

FBM 269
ANALYSIS OF FARM TAX PLANNING DATA (5 credits)
This course explores the implications of alternative tax management plans. The student will estimate farm business tax liability based on own records and develop a plan to make changes in final tax liability.

FBM 275
LEGAL ISSUES IN AGRICULTURE (5 credits)
This course is designed for students who want to explore the legal issues surrounding estate planning including taxation, family trusts, valuation of estate, gifting, transition, etc.

FBM 276
INVESTMENT PLANNING (5 credits)
This course is an overview of basic investment strategies and options regarding the farming operation.

FBM 277
EVALUATING FARM ESTATE PLANNING MECHANISMS (5 credits)
This course is an overview of legal issues affecting ownership, operation and transfer for business operators and managers.

FBM 278
PREPARATION FOR FARM TRANSITION (5 credits)
This course provides the opportunity for the student to study the many aspects of farm business and/or family transition which occur in the typical farm business.

FBM 286
INTRODUCTION TO FARM COMMODITY MARKETING (5 credits)
This course is designed to introduce students to the various methods and tools to market farm commodities.

FBM 287
APPLYING COMMODITY MARKETING
FUNDAMENTALS (5 credits)
This course is designed to teach students to apply the various methods and tools to market farm commodities.

FBM 288
EVALUATING FARM COMMODITY
MARKETING TOOLS (5 credits)
This course is designed to teach students to evaluate the various farm marketing tools and to select the tool appropriate to the present marketing situation.

FBM 289
MONITORING FARM COMMODITY
MARKETING PLANS (5 credits)
The course is designed to teach students to monitor and refine current farm commodity marketing plans. Emphasis will be placed on current market conditions and pricing opportunities.

FBM 295
INTRO TO COMPUTER APPLICATIONS IN
FARM MANAGEMENT (5 credits)
This course will discuss basic computer literacy, identify commonly used software and demonstrate the uses of commonly used software.

FBM 296
USING COMPUTER APPS IN FARM SYSTEM
DATA MANAGEMENT (5 credits)
This course will take what was learned in FBM 295 and apply it to all aspects of the farming business including enterprise management, tax planning, marketing, personnel management, etc.

FBM 298
EVALUATING ENTERPRISE RECORDS THROUGH
COMPUTER APPS (5 credits)
This course will deal with experiencing modern agricultural technological changes and determining if they fit into an individual's farming operation.

FBM 299
ADVANCED ANALYSIS THROUGH COMPUTER APPS (5 credits)
This course is designed to help students gain additional knowledge of technical information as it applies to farm commodity charts through the use of advanced computer applications. This knowledge will allow students to further fine tune their marketing strategies to achieve personal and farm business goals.

FPWR 107
INTRODUCTION TO HYDRAULICS (2 credits)
Fundamental theories of fluid dynamics and basic laws of physics governing the non-compressible nature of liquids will be the foundation of this course. Pascal's law, Bernoulli's principle and fluid mechanics will be explored utilizing modern hydraulic engineering trainers allowing students to build models which demonstrate the principles and theories discussed during the lecture portion of this course. Component identification, design limits of components as well as expected performance based on load, flow and pressure will be key elements of the course. Open and closed center systems will be explored in depth.

FPWR 120
DIESEL ENGINE & CONTROL SYSTEMS (3 credits)
This course will introduce the student to the diesel engine and the mechanical control systems commonly used in their operation. Students will learn the design and operating principles which make diesels different from spark ignition engines and develop a diagnostic technique for working with them based on this knowledge. Internal components, wear tolerances, operating characteristics and fuel delivery systems for the common diesel engine brands utilized in the ag equipment industry will be explored. Safety practices, tool selection, component identification and failure mode analysis will be fundamental topics in this course.

FPWR 121
ADVANCED DIESEL ENGINE & CONTROL SYSTEMS (3 credits)
Students will be able to experience firsthand the changes that have occurred within the diesel engine industry due to the advancements in microcomputer and electronics technology. HPCR (High Pressure, Common Rail) fuel systems, HEUI injectors, as well as their respective control systems, will be discussed in detail. Fuel and engine monitoring, sensor operation, variable displacement turbochargers and other factors relevant to emissions will be focal points of this course. The student will develop basic diagnostic procedures and an entry level understanding of DTC information which is fundamental to modern diesel engine failure diagnosis. At the conclusion of this course the student will have the opportunity to complete the ASE Diesel Diagnostics Certification exam.

FPWR 161
AIR CONDITIONING SERVICE FUNDAMENTALS (2 credits)
Students will develop the skills and techniques necessary to diagnose and repair mobile automotive-style air conditioning systems found on today's modern agricultural equipment. Theories of system operation, components and flow patterns will be discussed. Students will have the opportunity to earn their mobile air conditioning service certification during this course.

FPWR 200
POWERTRAIN AND DRIVE SYSTEMS (3 credits)
This theory course will cover basic information relating to traditional dry and wet clutch technologies as well as basic gear box designs and hydrostatic drive systems. Torque, axle loading, differential drive design, hydraulic controls and power transmission through torque sensing drives will be explored. An understanding of theories relevant to load bearing capacities, horsepower limitations and drive engagement will be developed. Students will be introduced to current technology being utilized by major agricultural equipment manufacturing companies in both tractor and harvesting equipment construction.

FPWR 201
GUIDANCE, STEERING AND VARIABLE
RATE OPERATIONS (3 credits)
This course expands many of the concepts, theories and practices utilized in maintaining, diagnosing and operating GPS/GIS equipment and software necessary for variable rate, site specific application of product, as well as auto steer capabilities of equipment. Mechanical/electrical diagnostic and troubleshooting practices will be developed and the repair of harnesses and components will be explored. Students will also utilize mapping and data collection activities to develop prescriptions for product application. The understanding of the link between software utilization and map/prescription deviation will be a fundamental element of the software/prescription diagnostics portion of this class. Students will be directly involved in seeding and fertilizer applications to the MTI Land Lab by researching, developing and implementing the variable rate prescriptions that will be utilized during the spring seeding operation.

FPWR 210
ADVANCED FLUID POWER DYNAMICS
AND DIAGNOSTICS (3 credits)
This advanced hydraulics course will utilize variable displacement, pressure compensated hydraulic pumps, valves and components common to current production agricultural tractors and equipment to aid students in developing diagnostic and repair skills necessary to become proficient technicians. Students will become familiar with hydraulic pump diagnostics, priority circuit identification, flow control system diagnostics and electronic valve calibration. Component identification and inspection as well as direct system operation in the lab setting are fundamental elements of this course. Hydrostatic drives and motors will also be explored.

FPWR 221
AG EQUIPMENT DIAGNOSTICS (3 credits)
The fundamental principles of mating attachments or drawn equipment electronically and hydraulically to combines and tractors will be the basis of this course. Concepts such as CAN bus diagnosis, ECV and ICV calibration, header compatibility and hydraulic flow requirements will be developed. Students will also be able to determine proper harness and hose configurations and basic operating characteristics for these types of equipment. Students will be taught how to utilize available technical information from both service and sales manuals, as well as compatibility guides. In field diagnosis of operating problems with planting and harvest equipment and the ability to determine a course of action to remedy the situation will be elements of this learning path.

FPWR 231
ADVANCED ELECTRICAL/ELECTRONIC DIAGNOSTICS (3 credits)
Students will utilize "on-board" diagnostics systems as well as hand held equipment and laptop computers to access and diagnose DTC information from tractors and harvesting equipment. Proficiency with technical data, DVOM operation and component location and identification will be fundamental aspects of this course. Common theories and operational principles learned in previous courses relating to electrical and electronic components, their testing and circuit diagnostics will be revisited. Examples of these components would be potentiometers, hall-effect switches, thermistors, variable resistance sensors and relays. Students will develop their electrical/electronic diagnostic abilities by completing multiple activities designed to hone their critical thinking skills. This course is an active diagnostic lab course.

FPWR 240
HARVESTING EQUIPMENT BASICS (3 credits)
Students will explore the fundamentals of combine harvester operation, maintenance and repair. Basic machine wear component inspection, diagnosis and repair procedures will be the topics of study. Students will learn the basics of machine adjustments and header equipment compatibility, as well as field operation. Different types of threshing and separating systems will be explored as well as how they differ in wear and operating characteristics.

FPWR 241
TRACTOR PERFORMANCE AND SET-UP (2 credits)
Modern farm tractors are precise technological pieces of equipment on today's farms and ranches. The need to properly equip and ballast these machines for peak performance in a customer's operation is paramount. Student enrolled in this course will utilize sales catalog information, test data and practical application to ballast, set wheel spacing and adjust steering, engine and power train parameters on a given machine.

FPWR 242
SALES AND MARKETING: PARTS AND AFTERMARKET PRODUCTS AND SERVICES (2 credits)
Marketing and inventory control in the parts department of any dealership has changed with the advent of technology and the global marketplace. Students who intend to be able to work in sales need to understand the basic concepts of product turnover, recovery, margins, marketing strategy and targeting customer base. This course will cover this information as well as fundamental ways that parts marketing impacts and affects the service department and the sales department of any dealership.

FPWR 243
SEEDING EQUIPMENT FUNDAMENTALS (3 credits)
Students will learn the theories and principles behind the functional elements that make a row crop planter work. Seed placement, seed singulation, seed furrow development, closing, firming and frame system management will be topics of exploration. Seed monitoring systems and equipment for variable rate placement will also be discussed. Diagnostics of planting system operations and equipment wear recognition will be key points of focus in this fast-paced course. Components from all major manufacturers will be utilized in this course of study.

FPWR 244
TILLAGE EQUIPMENT BASICS (2 credits)
With the evolution of modern conservation farming practices, the equipment utilized for tillage operations has also changed. The repair and maintenance as well as how to properly adjust this equipment in the field will be the basis of this course. Installing new disc blades, bearings, scrapers, shovels and sweeps are fundamental exercises that student will perform. Leveling of equipment and actual field demonstrations are also key elements .

FPWR 245
HAY EQUIPMENT FUNDAMENTALS (3 credits)
The service and repair of modern hay equipment will be the focus of this course. Students will learn the theories and practices of wear inspection, functional diagnosis, forming, wrapping and related hydraulic function issues that arise when customers operate hay harvesting equipment. Round balers, large square balers and mowers/conditioners will be the primary equipment utilized in this course.

FPWR 290
INTERNSHIP (4 credits)
Supervised internship performed off-campus in an agricultural mechanic or service setting.

HAZ 100
HAZARDOUS MATERIALS SAFETY (0.5 credits)
This course covers OSHA General Industry Standards and other consensus and proprietary standards that relate to the use of hazardous materials. Course topics include flammable and combustible liquids, compressed gases, LP-gases, and cryogenic liquids. Related processes such as spraying and dipping, and use of electrical equipment in hazardous locations are also discussed. Upon course completion students will have the ability to assess compliance with OSHA hazardous materials standards, determine hazardous (classified) locations, and proper moving, storing, and handling of hazardous materials.

HUM 299 (3 credits)
SERVICE LEARNING
Students participate in an organized service journey to gain a broader appreciation of various cultures, as well as an enhanced sense of personal values and civic responsibility. Students will engage in active, collaborative, and inquiry-based learning experiences that meet identified community needs. Through various social interactions, discussions, and critical reflection activities, students are challenged to consider multiple perspectives of the same issue. Travel will take place during spring break.

HST 101
INTRODUCTION TO HUMAN SERVICES (3 credits)
An interdisciplinary approach to the understanding of human services. This course introduces students to the skills necessary for entry level, professional work and allows students to explore themselves as potential human services professionals. The helping processions will be examined, including a brief history of social welfare and human service agencies.

HST 104
COMMUNITY RESOURCES (3 credits)
Community resources benefit individuals and families. Students will be exposed to a wide variety of community agencies, resources, and programs. This course will provide a broad overview of the resources and services available to a diverse population. Students examine agencies' professional practices, as well as how these individuals resources fit into the community as a whole.

HST 106
HUMAN SERVICES POPULATIONS (3 credits)
General information about human populations. Students will be introduced to a variety of people from diverse racial, ethnic, and cultural backgrounds, as well as information about the worldview or orientation that guides each culture. Discussions will involve the professional skills and awareness necessary for cultural sensitivity and bias along with age appropriate interactions.

HST 112
DISABILITIES (2 credits)
An introduction to working with people with disabilities. This course begins with brief overview of specific developmental disabilities. Included is general information regarding special education, residential services, vocational services, and other services for children and adults with disabilities. Students will explore personal beliefs and biases regarding people with disabilities.

HST 122
ABUSE AND NEGLECT (3 credits)
This course discusses the different types of abuse and neglect involving children and adults and explores the definitions, indicators and causes of abuse, neglect and domestic violence. Students will learn about mandatory reporting laws and state welfare system. Investigation, assessment, and prevention efforts are highlighted.

HST 124
ASSESSMENT AND DOCUMENTATION (3 credits)
The exchange of information between clients and the human service technician is crucial to the helping relationship. This course will introduce students to basic interviewing and recordkeeping skills as practiced in human services and community agencies. Skillful interviewing strategies will be observed and practiced through simulated activities and role playing.

HST 126
GROUP PRACTICE (3 credits)
Provides an introduction to the techniques and applications of group work. Different types of groups, the phases of group development, and common group dynamics will be introduced. Students will gain understanding of concepts and skills when working with various groups.

HST 210
SOCIAL WORK AND THE LAW (3 credits)
This course exposes students to the judicial system. Human Service Technicians are mandatory reporters and, as such, must have basic understanding of the legal system and their role in it. Topics include terminology, record keeping, testifying, and court preparation.

HST 212
CHEMICAL AND SUBSTANCE ABUSE (4 credits)
A basic course in chemical, substance abuse and dependency. Students will be given brief overview of common chemical and substance abuses. The physiological, psychological, and social aspects of chemical and substance abuse will be examined. The role of the human services professional in assessing alcohol and drug abuse and dependency will be studied.

HST 220
WORKPLACE ETHICS (2 credits)
Introduces students to ethical issues they will encounter in the workplace. The course will cover professional behavior and values including the Code of Ethics of the National Association of Social Workers. The goal of this course will be to provide students with the tools and techniques for ethical decision making.

HST 230
FIELDWORK SURVEY (2 credits)
Prepares students to enter fieldwork. Students will begin to make the transition from classroom learning to a professional setting. On-site visits to various community agencies will be made. Topics include reinforcement in: supervisory relationships, safety issues, computer applications, data collection, record keeping, professionalism, and confidentiality.

HST 240
CRISIS INTERVENTION (2 credits)
Theory of crisis intervention and stage of crisis. Presented will be human service worker's expected philosophy, knowledge, techniques and skills needed for working with people in crisis. Crisis intervention techniques will be examined, as well as models of conflict resolution.

HST 242
INTRODUCTION TO GERONTOLOGY (2 credits)
Focuses on human aging. Social, economic, and health issues related to the aging process will be discussed. Agencies, services, and programs that are available to the elderly will be explored.

HST 244
INTRODUCTION TO CORRECTIONS (2 credits)
Focuses on the corrections system in the United States. Students will learn about the correctional process of probation, institutionalization, and parole, along with human services careers within the corrections system. Services and programs available in the community and within institutions will be studied.

HST 246
INTRODUCTION TO YOUTH SERVICES (2 credits)
Focuses on individuals under the age of eighteen. Topics to be covered will include child development, parental influence, social, economic, and health issues related to youth. Students will learn about agencies, services, and programs available to youth and parents/guardians.

HST 290
FIELDWORK (6 credits)
Supervised work experience with an appropriate agency. Students will fine-tune their professional skill development through work with diverse populations in an approved setting. Students will have an opportunity to request fieldwork sites based on their interest, strengths and employment goals.

HV 101
ELECTRICAL FUNDAMENTALS (3 credits)
Basics of electricity. Direct current (DC), alternating current (AC), electrical laws and symbols, circuit fundamentals, and the use of test equipment is taught. Electrical fundamentals related to heating, ventilation, air conditioning and refrigeration systems is emphasized. Projects are assigned using computer simulation programs and laboratory trainers.

HV 111
HEATING FUNDAMENTALS (3 credits)
Basic theories of heating. Typical heating equipment and appliances are reviewed. Maintenance procedures of gas, fuel oil and electric furnaces are studied. Projects include using computer simulation programs and lab trainers.

HV 121
AIR CONDITIONING AND REFRIGERATION FUNDAMENTALS (4 credits)
Introduces the basic theories of air conditioning and refrigeration. The proper operation and function of components in a cooling system are identified. Projects use computer simulation programs and lab trainers.

HV 122
SHEET METAL TECHNOLOGY AND LAB (3 credits)
Basic sheet metal and fittings. Use of sheet metal hand tools and equipment is taught. Procedures for duct layout and sheet metal terminology is reviewed. Use, maintenance and operating adjustments of sheet metal shop equipment. Pattern layout, fabrication, use of hand tools and assembly procedures are covered.

HV 132
HEATING AND REFRIGERATION THEORY (4 credits)
Continuation of HV 121. More detailed information about heating and refrigeration cycles is taught. Also covered are controls, new refrigerants, refrigerant recovery and recycling.
A refrigerant certification test is administered.

HV 142
HV CONTROLS AND HEAT PUMPS (3 credits)
Heat pump application and theory. Controls covered include low voltage, temperature, low/high and oil.

HV 151
AIR CONDITIONING/HEATING/REFRIGERATION LAB I (5 credits)
Introduction to lab trainers and equipment including heating and cooling equipment used in residential buildings. Projects use computer simulation programs.

HV 152
AIR CONDITIONING/HEATING/REFRIGERATION LAB II (4 credits)
Maintenance, troubleshooting and installation of gas, fuel oil and electric furnaces, air conditioning and refrigeration equipment. Projects use computer simulation programs and lab trainers.

HV 160
PLANNING AND ESTIMATING (3 credits)
Calculations of heat loss and heat gain on residential/commercial buildings and on refrigeration equipment. Computer software programs are used to determine heat loss and gain. Develop blueprints, duct work layout and estimating.

HV 202
COMMERCIAL REFRIGERATION (4 credits)
Commercial refrigeration systems. Low, medium and high temperature refrigeration equipment and computerized rack systems are studied. The reading and drawing of commercial electrical schematics is introduced.

HV 211
DOMESTIC HEATING AND COOLING (3 credits)
Advanced heating theory and air conditioning systems. Gas, fuel oil and electric furnace systems are studied. Theories of residential air conditioning systems are introduced. Maintenance, installation and troubleshooting of each type of system are studied. The reading and drawing of residential electrical schematics is introduced.

HV 231
HEAT PUMPS/SOLAR HEATING THEORY (3 credits)
Application and design of heat pumps. The efficiency of heat pumps is compared to alternative systems. Maintenance, installation and troubleshooting procedures are taught. Integration of solar and photovoltaic technology is covered.

HV 232
COMMERCIAL AIR CONDITIONING (3 credits)
Operation of large, commercial air conditioning systems. Included are controls, pressure devices and safety regulations.

HV 251
AIR CONDITIONING/HEATING/REFRIGERATION LAB III (4 credits)
Maintenance, installation and troubleshooting of air conditioning, heating and refrigeration systems.

HV 252
AIR CONDITIONING/HEATING/REFRIGERATION LAB IV (5 credits)
Continuation of HV 251. Maintenance, installation and troubleshooting of heat pump, air conditioning, heating and refrigeration systems.

HV 259
DDC TEMPERATURE CONTROL (3 credits)
Application and Design of basic DDC Control Systems. Direct Digital Controls and Building Automation Systems will be introduced. Installation, programming and check out of a basic controls system will be studied.

HV 290
INTERNSHIP (5 credits)
Work in a position related to the heating and cooling industry. Prerequisite: Successful completion with a GPA of 2.0 or higher in all previous required technical courses.

IC 101
ELECTRICAL THEORY (2 credits)
Fundamentals of DC circuit and AC circuit operation including Ohm's Law, series and parallel networks, capacitive and inductive circuits will be studied. Included will be circuit analysis, power factor and testing devices related to the industrial industry.

IC 102
ELECTRONICS THEORY (2 credits)
Introduction to the components of electronics, both passive and active. Subjects studied include power supplies, solid state components including high current components, testing devices and electronic systems.

IC 103
DIGITAL FUNDAMENTALS (1 credit)
This course covers combinational and sequential logic circuits. Topics include number systems, Boolean algebra, logic families.

IC 104
INDUSTRIAL WIRING (2 credits)
This course will teach the fundamental concepts of industrial wiring with an emphasis on installation procedures. Topics include grounding, raceways, three phase systems, transformers (three-phase and single-phase), wire sizing, over current protection, NEC requirements, industrial lighting systems and switches, receptacles and cord connectors.

IC 105
BASICS OF MOTOR THEORY (2 credits)
DC motors construction, methods of controlling and regulating the speed of series and shunt type motors and reversing will be studied. AC motor construction, methods of starting and running torque of both 1-phase and 3-phase motors will be examined.

IC 106
MOTOR CONTROLS (3 credits)
Mechanical and electromagnetic control systems for both AC and DC systems will be studied. Ladder logic diagrams, starting and relay equipment used in control systems will be introduced.

IC 107
PROGRAMMABLE LOGIC CONTROLS (3 credits)
Programmable logic control systems for the control of electrical components and equipment. Projects using solid state devices in commercial and industrial applications are completed.

IC 108
INTRODUCTION TO CONTROL DEVICES (2 credits)
Detection sensors, their applications and uses, will be studied. Students will learn about the four categories of switches (pressure, level, temperature and flow); light sensors and sensor responses.

IC 110
CAPSTONE EXERCISE I (1 credit)
This course will allow a student to design a customized final project utilizing the skills mastered during previous coursework. The project may be completed either at the MTI campus, when feasible, or at the student's place of employment, if applicable, with instructor approval.

IC 111
CAPSTONE EXERCISE II (1 credit)
Completion of the project started in IC 110.

IMT 101
ELECTRICAL FUNDAMENTALS & LAB (6 credits)
AC/DC properties of electricity. A study of the basic electrical components and operations in an industrial or commercial facility.

IMT 102
BASIC MECHANICAL DRIVES (3 credits)
Fundamentals of mechanical transmission systems used in industrial applications and facilities.

IMT 103
BASIC HYDRAULICS (3 credits)
Basic principles and theories of hydraulics and electro-hydraulic controls needed to maintain and operate industrial equipment and facilities.

IMT 104
WELDING AND METAL WORK (1.5 credits)
Provides welding skills and familiarization with basic metal work needed for industrial maintenance.

IMT 105
INTRO TO INDUSTRIAL MOTOR CONTROLS (3 credits)
Mechanical and electromagnetic control systems used in an industrial facility. Both AC and DC systems will be studied.

IMT 106
PROGRAMMABLE LOGIC CONTROLS (3 credits)
Programmable logic control systems which operate electrical components and equipment. Special emphasis on PLCs in industrial settings.

IMT 107
HEATING & COOLING CONCEPTS & LAB (3 credits)
Basic theories of heating, air conditioning and refrigeration. Operation of typical equipment and appliances used in an industrial facility.

IMT 108
FACILITIES OPERATION & MAINTENANCE (3 credits)
Introduction to the operation and maintenance of commercial and industrial buildings. Emphasis on energy saving practices and general concepts of LEED.

IST 105
SQL DATABASE MANAGEMENT (2 credits)
Provides a thorough introduction to database administration principles and practices necessary to perform Microsoft SQL Server administration in an enterprise environment. In addition to explaining concepts, the course uses a variety of hands-on assignments and exercises to reinforce the material in each chapter.

IST 110
NETWORK MEDIA (2 credits)
Structured cabling including horizontal and backbone cabling following the EIA/TIA 568B Standard is covered. Practical, hands-on exercises are assigned or cabling for MTI may be done as well. The remainder of the semester is used to cover Wireless LAN. In-depth coverage of wireless networks with extensive step-by-step coverage of IEEE 802.11b/a/g/n implementation, design, security and troubleshooting. Material is reinforced with hands-on projects from two of the principal wireless LAN vendors, Cisco and Linksys.

IST 112
MS SERVER ADMINISTRATION (5 credits)
Equips the students with the skills necessary to manage a Windows Server system with a focus on installation and configuration. Through hands-on labs, extensive coverage begins with an introduction to Windows Server and continues with coverage of server management, configuration of storage, file and printer services, Active Directory, account management, Group Policy, TCP/IP, DNS, DHCP, and Hyper-V virtualization. Prerequisites: IST 130 or CSS 206.

IST 120
A+ HARDWARE/OPERATING SYSTEMS (6 credits)
Presents a comprehensive overview of computer system fundamentals and an introduction to operating systems. Students working through hands-on activities and labs gain skills in assembling components, install, configure and maintain devices, PCs and operating system software, understand the basics of networking and security, laptops, printers, and properly diagnose, and resolve common hardware and software issues while applying troubleshooting skills. Students also gain understanding of appropriate customer support; understand the basics of virtualization, desktop imaging, and deployment. CompTIA's A+ Certification is a widely accepted IT industry standard certification for PC technology for an entry-level IT professional. This course prepares students for CompTIA's A+ 220-801 and 220-802 exams.

IST 125
A+ CERTIFICATION PREP (1 credit)
A further in-depth study in preparation for becoming CompTIA A+ certified. Students will take the two required exams at the end of the semester.

IST 140
CISCO CCNA I (6 credits)
The CCNA Routing and Switching introductory courses introduce the architecture, structure, functions, components and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches and implement IP addressing schemes.

IST 141
CISCO CCNA II (5 credits)
This course describes the architecture, components and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs and inter-VLAN routing in both IPv4 and IPv6 networks. Prerequisite: IST140.

IST 159
LINUX SYSTEMS (2 credits)
Provides a basic knowledge required to competently use a desktop or mobile device using a LINUX Operating System. Through extensive hands-on labs students will understand the place of LINUX and Open Source in the context of the broader IT industry. Prerequisite: Basic keyboarding and computer skills expected.

IST 207
DATACENTER LOGISTICS (2 credits)
IT equipment rooms have become the core for any IT and telecommunications infrastructure. They have grown exponentially as IT has converged voice, video and data into one physical plant. With that growth has been the demand for IT personnel to know how to design, manage and maintain such central core business assets. Virtual technology in a cloud environment is used in hands-on labs. Datacenter logistics will teach students to evaluate best practices today and into the future and perform hands-on activities on campus in local data centers.

IST 208
COMPUTER FORENSICS (3 credits)
Introduces students to the techniques and tools of computer forensics investigations. Students will research step-by-step procedures in how to use the most popular forensic tools. Topics include coverage of computers, cell phones and flash drives. Many hands-on activities are included, which allow students to practice skills as they are learned.

IST 222
INFORMATION SECURITY I (2 credits)
The basics of security are covered. The course introduces students to computer vulnerabilities and threats and steps that can be taken to safeguard computers and networks. This course will expose the student to security planning, security technology, security organization and the legal and ethical issues associated with computer and network security.

IST 243
CISCO CCNA III (5 credits)
This course describes the architecture, components and operations of routers and switches in a larger and more complex network. Students learn how to configure routers and switches for advanced functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, STP and VTP in both IPv4 and IPv6 networks. Students will also develop the knowledge and skills needed to implement DHCP and DNS operations in a network. Prerequisite: IST140.

IST 244
CISCO CCNA IV (5 credits)
This course discusses the WAN technologies and network services required by converged applications in a complex network. The course enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Students learn how to configure and troubleshoot network devices and resolve common issues with data link protocols. Students will also develop the knowledge and skills needed to implement IPSec and virtual private network (VPN) operations in a complex network. Prerequisite: IST140, IST141, IST243.

IST 256
INFORMATION SECURITY II (3 credits)
This course will focus on the principles, theory and terminology of Information Security. Students will study the principles of vulnerabilities, risk management, countermeasures, operations security and disaster planning. The course will also introduce common threats, tools and practices used by hackers to attack an organization's information infrastructure. Special emphasis is placed on the use and understanding of scanning and exploit tools. Students will participate in exercises designed to demonstrate the development of a business continuity and disaster recovery plan. Prerequisite: IST 222.

IST 259
LINUX SERVER ADMINISTRATION (3 credits)
Sourced from an ever-growing demand for a LINUX-trained workforce to manage the cloud server, this class uses the LINUX Professional Institute certification exams 101 and 102 (LPIC-1) as a guide. This course builds from a knowledge base upon topics learned in IST 159 LINUX Systems. In-depth labs are used throughout the class to enhance student success in mastering topics such as system architecture, installation, package management, command structure, file systems, and hardware device management. Student activities include obtaining a domain name, managing a departmental website, mail server, and configuring a firewall to allow secure communications via the web all based upon LINUX servers.

IST 264
MS ACTIVE DIRECTORY (4 credits)
Gain experience in understanding, designing and working with Active Directory for Microsoft networks. Through hands-on exercises students learn how to plan for deployment, develop security strategies, work with group policies and user profiles, configure access control and resource sharing, monitor performance and administer Active Directory. Virtualization and scripting using PowerShell is utilized. Prerequisite: IST 112.

IST 265
NETWORK MONITORING & MANAGEMENT (2 credits)
Exclusive hands-on exploration of monitoring and management tools. Students will apply skills from previous networking and server courses to manage and monitor a local area network as well as the virtual components. Prerequisites: IST 112, IST 140, IST 141.

IST 268
MS EXCHANGE SERVER (4 credits)
Students in this course install, configure, administer and support the Exchange Server. The course begins by examining basic email and Active Directory concepts and administrative procedures. Subsequent chapters are devoted to the installation and management of Exchange Server, including the configuration of server roles, recipient objects, clusters, mobile technologies and security. In addition, this course examines the procedures used to backup, monitor and troubleshoot Exchange Server. Prerequisite: IST 264.

IST 286
INTERNSHIP (6 credits)
Supervised internship performed off-campus in a computer network or systems support setting.

MA 100
BASIC LIFE SUPPORT FOR HEALTH CARE (0.5 credit)
This course meets CDC, OSHA and NFPA guidelines for basic life support. It focuses on immediate life-threatening situations, demonstrates quick, effective responses and presents perspectives on how frequently these situations occur. It is ideal for professionals such as firefighters, police, paramedics, lifeguards, athletic trainers, medical assistants and other medical professionals. Topics covered include the professional rescuer's role in emergencies; victim's condition assessment; basic life support; rescue breathing; cardiac emergencies; airway obstructions; AED use; and resuscitation in special situations. This class is offered for credit as a Pass/No Pass course.

MA 101
MEDICAL TERMINOLOGY (3 credits)
Vocabulary and terms used in the medical professions. Meanings of root words, prefixes and suffixes are studied. Proficiency is gained in analyzing medical words and in understanding how the word elements relate and apply to medicine.

MA 103
ANATOMY/PHYSIOLOGY (4 credits)
Basic anatomy and physiology of the human body. Systems studied include integumentary, musculo-skeletal, nervous, circulatory, lymphatic, respiratory, urinary, digestive, endocrine and reproductive.

MA 106
MEDICAL LABORATORY FUNDAMENTALS (4 credits)
Introduction to medical laboratory work with specific reference to the role, ethics, conduct, certification, education, employment and fundamental knowledge and skills related to clinical laboratory personnel. Basic mathematics review and lab related math such as the metric system, temperature conversions, concentration units, including terms used in quality control are covered. Included in this course is laboratory safety to include physical, chemical and biological hazards, barriers and isolation techniques. Students are instructed in the collection and preparation of specimens to include venipunctures and capillary sticks, reporting of laboratory results and quality assurance methods.

MA 111
MEDICAL OFFICE PROCEDURES (3 credits)
Material, situations and work in a medical front office. Examples, explanations and illustrations from the medical office are utilized. The perspective of the medical assistant is emphasized. Communication skills, recording patient histories, office accounting, secretarial, reception and other clerical skills are stressed.

MA 112
LABORATORY PROCEDURES I (4 credits)
An emphasis is placed on the laboratory procedures that Medical Assistants perform. These include work with hematology (hemoglobin, hematocrit, white and red cell counts, indices, platelet count, erythrocite sedimentation rate) and urinalysis/ body fluids. Modern automated instrumentation is utilized. Prerequisite: "C" grade or higher in MA 106.

MA 113
LABORATORY PROCEDURES II (4 credits)
An emphasis on laboratory procedures includes chemistry, basic immunology and serology and microbiology. Automated instrumentation and POL point-of-care equipment are used.

MA 123
PATHOPHYSIOLOGY (3 credits)
Pathology of diseases. Special emphasis is placed on the etiology, signs, symptoms, diagnoses and treatment options for diseases and conditions of the human body. Prerequisite: MA 101, MA 103.

MA 162
MEDICAL LAW AND ETHICS (2 credits)
Ethical principles and legal regulations governing a medical practice.

MA 210
PHARMACOLOGY AND ADMINISTRATION OF MEDICINES (3 credits)
Identification of the classification and uses of medicines, vaccines, etc. Included are the correct procedures for administration of these materials. Prerequisites: MA 101, MA 103, MA 123.

MA 220
EXAMINATION ROOM TECHNIQUES I (4 credits)
Clinical office competencies and skills required of the medical assistant. Course work includes aseptic technology, assessment and procedures, preparation and administration of medications, vital signs assessment, recording and assisting with physical examinations, performance of disinfection and sterilization and charting techniques. Prerequisite: MA 101, MA 103, MA 123.

MA 221
EXAMINATION ROOM TECHNIQUES II (3 credits)
A continuation of clinical procedures performed in a medical office. Course work includes assisting with specific physical exams, instrument recognition, ear and eye procedures, catheterization, dressing applications, preparation of surgical trays and patient education. Prerequisite: MA 220.

MA 240
CARDIAC MONITORING AND DX PROCEDURES (2 credits)
General knowledge of electrocardiography. Special emphasis is placed on equipment used, procedures performed and education of patients. Prerequisite: MA 101, MA 103, MA 123.

MA 250
CLINICAL EXTERNSHIP (6 credits)
Experience in medical facilities and organizations. Work is performed under the direct supervision of licensed medical personnel. Prerequisite: Successful completion of 67.5 credits prior to start of externship.

MA 281
MEDICAL TRANSCRIPTION (3 credits)
Transcription of medical terms and cases. Reports are generated including the first stage of treatment through discharge. Prerequisite: MA 101 and MA 103.

MATH 091
BASIC ALGEBRA (2 credits)
Preparatory course for Intermediate Algebra and Technical Math. Students will learn about solving equations, exponents and polynomials, graphs and systems of equations, factoring and quadratic equations. This class is offered for credit as a Pass/No Pass course. Test scores determine placement.

MATH 101
INTERMEDIATE ALGEBRA (3 credits)
Preparatory course for College Algebra. This course introduces the basic properties of real numbers, polynomials and equations. Assignments will include factoring polynomials, linear and quadratic equations, exponents and radicals, functions, logarithms and rational expressions. Prerequisite: MATH 091 or qualifying test score.

MATH 104
TECHNICAL MATH (3 credits)
Designed for the student with a strong algebraic foundation. This course includes the study of geometry, trigonometry and statistics. Extensive use of problem-solving and critical thinking skills are required. Prerequisite: MATH 091 or qualifying test score.

ML 104
MEDICAL LABORATORY FUNDAMENTALS (3 credits)
Introduction to medical laboratory work with specific reference to the role, ethics, conduct, certification, education, employment and fundamental knowledge and skills related to medical laboratory personnel. Basic mathematics review and lab related math such as the metric system, temperature conversions, concentration units, dilutions, ratios and statistics used in quality control are covered. Included in this course is laboratory safety to include physical, chemical and biological hazards, laboratory safety, barriers and isolation techniques. Students are instructed in the collection and preparation of specimens to include venipunctures and capillary sticks, reporting of laboratory results and quality assurance methods.

ML 105
INSTRUMENTATION (2 credits)
Basic design of advanced laboratory automation equipment. Course materials include laboratory glassware, microscopes, centrifuges, balances and scales, pipetting, spectrophotometry, turbidometry, nephelometry, ion selective electrodes, electrophoresis, chromatography and advanced quality assurance.

ML 111
HEMOSTASIS (2 credits)
Theory and practical application of the coagulation pathway to include factors involved in coagulation tests: capillary fragility, prothrombin times, partial thromboplastin times and fibrinogen assays. Prerequisite: Grade of C or higher in ML 104 and ML 105.

ML 112
HEMATOLOGY (6 credits)
Anatomy, physiology and related pathology of the circulatory system with specific reference to the formation, function and identification of blood cells. Major emphasis is on the related theory and performance of hematological procedures such as sample identification, collection and preparation; manual and automated leukocyte and erythrocyte counts; hemoglobin and hematocrit measurements; WBC differential; leukocyte and erythrocyte morphology; RBC indices; erythrocyte sedimentation rate; platelet count; reticulocyte count; and eosinophil count. Automated hematological equipment is included. Specific methodologies in common use in medical laboratories and quality control standards are followed. Prerequisite: Grade of C or higher in ML 104 and ML 105.

ML 121
URINALYSIS/BODY FLUIDS (3 credits)
Anatomy, physiology and related to pathology of the urinary system. Major emphasis is on the related theory and performance of physical, chemical and microscopic analysis of urine as well as collection, preservation and proper reporting of analysis. Certain renal function tests and occult blood are covered. Emphasis is placed on anatomy, physiology and related pathology of body fluids to include feces, semen, seminal fluid, synovial fluid, serous fluid, spinal fluid and the collection, preparation, preservation and analysis of those fluids. An introduction to cell counts of other body fluids is covered. Prerequisite: Grade of C or higher in ML 104 and ML 105.

ML 144
INTRODUCTION TO LABORATORY CHEMISTRY (3 credits)
General and biological chemistry with applications specific to the medical laboratory. The student will become familiar with chemical terminology, the atomic structure, ionic and molecular compounds, organic chemistry and acid and base balance. The biochemistry of carbohydrates, lipids, proteins, enzymes and hormones are presented and their relationship to the medical laboratory is studied. Prerequisite: A grade of C or higher in this course is required before enrolling in ML 230.

ML 171
IMMUNOLOGY/SEROLOGY (3 credits)
Basic genetics, immunology and serology. The student will acquire an understanding of the immune system including antigen/antibody reactions, origin, stimulation, body response and rejection. A study of the immunoglobulins, complement and classifications of immunity, precipitation and agglutination reactions is included. Serological tests include the related theory and performance of procedures to include hepatitis, rubella, Epstein-Barr virus, AIDS, CRP, RA, FANA, cold agglutinins, pregnancy, streptococcal diseases and autoimmune diseases. Immunoassay principles and practical applications are covered. Prerequisite: Grade of C or higher in ML 104 and ML 105.

ML 214
PRACTICAL CLINICAL HEMATOLOGY (4 credits)
Hematology which includes hemoglobin, hematocrit, leukocyte count; WBC differential; sed rate; erythrocyte count; platelet count; reticulocyte count; eosinophil count; clotting time; bleeding time; prothrombin time; activated partial thromboplastin time; preparation of bone marrow smears. Experience is gained through obtaining blood samples to include venipuncture, capillary puncture and arterial blood gases. Additional hematological procedures may be performed at the option of the affiliated laboratory. This course is included in the clinical practicum semester.

ML 224
PRACTICAL CLINICAL URINALYSIS/BODY FLUIDS (3 credits)
Urinalysis which includes physical and chemical tests; microscopic identification of formed elements; collection and preparation of 24-hour samples for quantitative tests; pregnancy tests; renal function tests of urine, feces and spinal fluid and other body fluids. Additional urinalysis procedures may be performed at the option of the affiliated laboratory. This course is included in the clinical practicum semester.

ML 230
CLINICAL CHEMISTRY (4 credits)
Basic clinical chemistry and diagnostic analysis. Included are analytical chemical procedures such as identification, collection, handling, standardization and quality control, carbohydrate tests, renal function tests, proteins including electrophoresis, electrolytes, enzymes, liver function tests, therapeutic drug monitoring, endocrinology and toxicology. Automated instrumentation is emphasized. Prerequisite: a grade of C or higher is required in ML 104, ML 105 and ML 141.

ML 234
PRACTICAL CLINICAL CHEMISTRY/IMMUNOASSAY (6 credits)
Clinical chemistry which includes specimen procurement, quantitative measurement and clinical significance of glucose, urea, nitrogen, proteins, triglycerides, cardiac markers, toxicology, therapeutic drug monitoring, bilirubin, cholesterol, electrolytes, enzymes, creatinine, uric acid, calcium, phosphorous, thyroid function test, iron, TIBC, pH and blood gases. Additional chemical procedures may be performed at the option of the affiliated laboratory. This course is included in the clinical practicum semester.

ML 240
MICROBIOLOGY (6 credits)
Classification, identification and pathology of disease-causing organisms such as bacteria, fungus, yeasts, viruses, rickettsiae and parasites. Major emphasis is on the related theory and performance of microbiological procedures such as sterilization, collection and preparation of specimens, culturing methods, media preparation, staining techniques, antibiotic sensitivity testing and identification of commonly cultured bacteria. Prerequisite: a grade of C or higher is required in ML 104 and ML 105.

ML 244
PRACTICAL CLINICAL MICROBIOLOGY/SEROLOGY (5 credits)
Microbiology includes collecting, setting up, plating, incubating, transporting and transferring microbiological cultures; identification of organisms involving common techniques such as gram stain, special stains, biochemical tests, coagulase and catalase tests and antibiotic susceptibility tests. Serological procedures might include RPR, streptococcus antigens and antibodies, infectious mono tests, RA, pregnancy, HIV, hepatitis, FANA, RSO, influenza A and B and C-RP tests. Preparation of samples for parasitology, mycology and virology study are included at the option of the affiliated laboratory. This course is included in the clinical practicum semester.

ML 272
IMMUNOHEMATOLOGY/BLOOD BANKING (3 credits)
Basic immunohematological aspects of blood factors and their relationship to blood transfusion and disease states. Topics include the history, identification, inheritance of blood factors and antigen-antibody relationships involving detection of blood factors. Major emphasis is on the related theory and performance of immunohematological procedures such as ABO grouping, Rh typing, identification of blood factors, direct coombs, antibody screening and identification, compatibility testing, transfusion of blood and blood components, selection, collection, storage of donor blood and quality assurance. Prerequisite: A grade of C or higher in ML 171.

ML 274
PRACTICAL CLINICAL IMMUNOHEMATOLOGY (4 credits)
Immunohematology: which includes blood banking, ABO grouping, Rh typing, direct and indirect coombs testing, antibody screening and compatibility testing. Selection of blood donors, collection of blood for transfusion, storage of blood and blood components and quality control are included. Additional blood banking procedures may be included at the option of the affiliated medical laboratory. This course is included in the clinical practicum semester.

MOP 130
COMPUTERS IN THE MEDICAL OFFICE (3 credits)
Develops the ability to operate and maintain the computer efficiently. Using specialized programs, students will learn about billing office processes, handling patient records and transactions (new patients, immunizations records, insurance information, etc.), processing payments, correspondence and other computer-related tasks.

MOP 140
PHARMACOLOGY BASICS (2 credits)
Identification of the classifications of medicines.

MOP 160
CPT/ICD-10/CM CODING (3 credits)
A formal system for converting descriptions of diseases, injuries and health care procedures into numeric and alphanumeric designations. Students will learn to place code numbers and correlate to procedures performed to test or correct diagnoses. Prerequisites: MA 101, MA 103.

MOP 206
TRANSCRIPTION I (4 credits)
Transcription of medical terms and cases. Reports are generated including the first stage of treatment through discharge. Prerequisites: MA 101, MA 103, MA 123.

MOP 208
TRANSCRIPTION II (4 credits)
Continued development of medical transcription skills. Prerequisite: MOP 206.

MOP 210
MEDICAL INSURANCE & BILLING (3 credits)
An overview of processing medical insurance claims. Special topics may include Medicare, various types of insurances, refilling, resubmitting, etc. Coding skills attained in MOP 160 will be used. Prerequisite: MOP 160.

MOP 212
ELECTRONIC MEDICAL RECORDS (3 credits)
Documentation of all procedures performed on patients. The new EMR technology replaces the old patient "chart." Students will become familiar with software and its capabilities including communication with pharmacies, physicians, hospitals, other care providers and patients. Prerequisites: MA 101, MA 103.

MOP 230
MEDICAL OFFICE ADMINISTRATION (3 credits)
Explanations and illustrations of procedures, situations and tasks in a typical medical office. Units on patient health information, records management, telephone skills, communication skills and general office management are covered.

MOP 260
ADVANCED CODING I (4 credits)
Advanced level medical office coding course for CPT and ICD-10-CM coding systems. Students will apply the techniques learned to code patient services. Correct principles of coding, HIPAA tips and coding points will be covered. Prerequisite: MOP 160.

MOP 262
CASE STUDY CODING (3 credits)
Simulates on-the-job experience as a medical coder at a multi-specialty clinic. Students will be provided with the opportunity to utilize coding skills in an electronic environment. Prerequisite: MOP 260.

MOP 290
CLINICAL INTERNSHIP (8 credits)
On-the-job work experience. The student works at a medical facility off-campus. Prerequisite: The student must meet department criteria to be eligible for internship.

NG 100
ELECTRICAL CIRCUITS AND TESTING (2 credits)
Understanding of electricity and electronics. Topics include electrical terms, ohms law, AC and DC circuits, electromagnetic induction, reading circuit diagrams, electrical components, test procedures, troubleshooting and safety.

NG 101
GAS APPLIANCE SERVICE AND CONTROLS (3 credits)
Basics of gas appliance repair. Focus is on gas furnaces, water heaters and dryers in residential and commercial settings. Troubleshooting procedures are utilized to identify problems. Safety and regulations are emphasized.

NG 102
GAS OPERATIONS AND MAINTENANCE (5 credits)
Properties of propane, natural gas and butane applications. Combustion characteristics of propane, natural gas and butane are explored. Standards related to handling, transmission and storage of gases are reviewed. Certified employee training program (CETP) is incorporated.

NG 103
GAS INSTALLATION LAB (5 credits)
Appliance operation and troubleshooting. Meters and regulators are presented. Repair and installation of gas piping are discussed. Other subjects include plastic pipe fusion, carbon monoxide and gas leak investigations.

NG 105
MEASUREMENT AND CONTROL (5 credits)
Storage, delivery and metering of gas services. Topics are calculating gas flow, meter repair and testing, regulator sizing and repair, regulator and relief inspections, vault inspection and maintenance, valve inspection and maintenance, pressure instrumentation, odorization and system uprating.

NG 110
GAS OPERATIONS & MAINTENANCE LAB (4 credits)
Lab activities and applications related to NG 102.

OPRV 105
SERVICE CENTER FUNDAMENTALS (3 credits)
Introduction to the basic principles and working environment of a service center. Topics to be explored include: the proper use and care of hand and basic power tools, the use of precision measuring tools, test equipment and special tools, safe and proper use of lifting equipment and large shop tools such as hydraulic presses and tire equipment, as well as general shop safety, the language and vocabulary related to the ATV and motorcycle service industry, customer service and writing of work orders.

OPRV 106
ADVANCED SERVICE CENTER FUNDAMENTALS (3 credits)
Explore fundamentals of two-stroke technology as it applies to handheld and consumer products. Stihl bronze level training will be the branded focus of this course. Prerequisite: OPRV 105.

OPRV 107
SERVICE FUNDAMENTALS LAB (2 credits)
This lab will be based on the theories and text explored in OPRV 106. Students will learn to write work orders, evaluate flat rate pricing guides, explore warranty administration, as well as provide quality customer service and estimate service pricing. Parts look-up and a focus on Stihl handheld products will be a core element of this course.

OPRV 120
BASIC ENGINE THEORY & OPERATION (2 credits)
Introduction to the basic design and operating principles and components of the internal combustion engine. Topics to be explored include: valve train design and component identification, ignition and fuel system identification and design, similarities and differences between 2 and 4 stroke cycle engines, similarities and differences between air cooled and water cooled engines and component failure identification.

OPRV 121
BASIC ENGINE LAB (2 credits)
This lab will be based on Briggs and Stratton and Honda single cylinder overhead valve engines. Students will disassemble, measure components, grind valves and seats and in general rebuild the engine.

OPRV 124
ATV & SNOWMOBILE SYSTEMS (2 credits)
A general study of topics which make snowmobile and ATV service unique in the industry. Topics to be explored: 2 and 4 wheel drive systems, ski and track systems, air induction, cooling systems, skis and steering components.

OPRV 125
ATV & SNOWMOBILE LAB (3 credits)
Students will utilize information from lecture OPRV 124 to complete disassembly, repair and reassembly of sub-systems and components of ATVs and snowmobiles, as well as determine the root failures of components.

OPRV 130
ELECTRICAL/ELECTRONIC SYSTEMS (2 credits)
General electrical theory and the principles of DC current operating in ATVs, motorcycles, snowmobiles and outdoor power equipment. Topics to be explored include: current flow, Ohm's law, voltage, amperage, circuit types, test equipment, symbols used in electrical diagrams and reading and understanding electrical diagrams in technical publications.

OPRV 140
MULTI-CYLINDER 2 AND 4 CYCLE ENGINES (2 credits)
General theory, design and operation of multi-cylinder engines as they relate to ATV's, motorcycles and snowmobiles. Topics to include: repair and maintenance of metric engines as well as American V-twin engines, precision measuring of root components and failure analysis.

OPRV 141
MULTI-CYLINDER ENGINES LAB (2 credits)
Students will explore the physical components of multi-cylinder engines, utilizing shop equipment to perform basic repairs and rebuild of metric and American V-Twin engines. Cooling systems and fuel systems diagnosis to be discussed.

OPRV 142
ADVANCED MULTI-CYLINDER 2 & 4 CYCLE ENGINES (2 credits)
Continuation of topics covered in OPRV 140. Special attention given to precision engine building and customization. This class will be the technical basis for the OPRV 143 lab. Students will utilize printed technical data and parts manuals as well as Internet-based information to prepare for projects lab.

OPRV 143
ADVANCED MULTI-CYLINDER ENGINE LAB (4 credits)
In this project lab, students will be responsible for diagnosing failures, estimating cost of repairs, acquiring technical data and parts list for repairs, as well as performing repairs on products supplied to MTI from industry. Secondary component of this lab will involve diagnosis test out on various ATVs, motorcycles and outdoor power equipment.

OPRV 185
INTERNSHIP (4 credits)
Paid on-the-job training (OJT). Work 12 weeks in a service or shop environment.

OPRV 208
INTRO TO FABRICATION AND CUSTOM FINISHES (3 credits)
Basic fabrication and design techniques utilized in the custom motorcycle industry. Basic repair and restoration techniques of chassis elements of motorcycles and ATVs. Topics to be explored include metallurgy and principles of metalworking; gas welding and cutting; MIG and TIG welding; proper use of turning lathe, shear, English wheel, drill press and basic metal forming techniques.

OPRV 209
ADVANCED FABRICATION AND CUSTOM FINISHES (4 credits)
Students will be exposed to the theories and techniques of custom paint and finishes utilized in the high-end motorcycle and automotive industry. Water-borne and solvent-based paint systems as well as dent repair and smoothing techniques will be taught.

OPRV 235
INTRO TO FUEL INJECTION AND ELECTRONIC CONTROL SYSTEMS (3 credits)
Operating principles and characteristics of modern motorcycle fuel injection and engine control systems. Electronic diagnostic procedures and fundamental fuel system troubleshooting and fuel mapping are core elements of this class. Advanced study of open and closed loop engine control and management systems, concentrating on diagnostic testing procedures and theory of operation. Dyno testing and electronic fuel mapping will be discussed in detail. Continuation of OPRV 130 Electrical/ Electronic Systems.

OPRV 236
ADVANCED FUEL INJECTION AND ELECTRONIC CONTROL SYSTEMS (3 credits)
A continuation of techniques and principles learned in OPRV 235. Students will learn intricate details of fuel mapping and how variations in inputs determine the final performance of an engine. A detail-oriented approach to power tuning and fuel management and diagnostic procedures utilized in industry will be the focus. Extensive lab time and a firm understanding of electrical and electronic theory required.

OPRV 237
INTRODUCTION TO FIBERGLASS AND COMPOSITES TECHNOLOGY (2 credits)
Students will explore the use of fiberglass and composite materials utilized in the motorcycle and marine industry for structural elements as well as repairs and enhancements. Mixing, application and finishing will be core topics of this course. Injection molding and gel coat processes will be discussed.

OPRV 260
MARINE TECHNOLOGY (3 credits)
Introduction to all elements of the marine industry. Primary emphasis on personal watercraft and inboard/outboard technologies utilized on lakes and inland waterways. Topics covered include safety and protocol in the service environment, basic watercraft and boat design, marine electrical theory, engine and drive system design and theory.

OPRV 261
MARINE TECHNOLOGY LAB (3 credits)
Hands-on lab projects discussed in OPRV 260 Marine Technology. Safety practices in the service environment and on the water are covered in detail. Service techniques and practices, lubrication and fuel system diagnosis, electrical system diagnosis and drive system repair are explored.

OPRV 262
ADVANCED MARINE TECHNOLOGY AND DIAGNOSTICS (3 credits)
A continuation of techniques and principles learned in OPRV 260.

OPRV 263
ADVANCED MARINE TECHNOLOGY AND DIAGNOSTICS LAB (3 credits)
A continuation of practical applications of the theories and principles students have acquired throughout OPRV 260 and OPRV 261. Students will dedicate more time to diagnosing electrical and fuel system faults, complete component failure analysis exercises and documentation of actual operating fault conditions in an approved test setting. Proper documentation and job pricing strategies will be explored.

OPRV 280
SUCCESSFUL SERVICE MANAGEMENT (3 credits)
Utilization of industry software and service management practices for evaluation of lab performance. Exercises related to service information dispensed in classroom sessions will be completed.

OSHA 100
OSHA 10 TRAINING (1 credit)
An overview of OSHA (Occupational Safety and Health Administration) standards focusing on hazard recognition and injury and illness prevention. Upon successful completion the student will receive OSHA 10 certification.

PL 111
CHARACTERISTICS OF DC/AC (3 credits)
Basic electricity as it applies to high voltage lines. The student learns to apply Ohm's Law for DC circuits. The student learns basic generation and the effects of inductance and capacitance in the AC circuit.

PL 112
ELECTRICAL CIRCUITS/METERING (3 credits)
Application of electrical formulas to practical circuits. Problems such as series and parallel circuits, solving for inductive and capacitive reactance, impedance, apparent, real and reactive power and power factor are common. Transformer, regulator, capacitor and metering applications are covered in detail in this course.

PL 141
POWER GRID DESIGN (3 credits)
Fundamental theory of high voltage power grid systems. The generating systems, transmission, subtransmission, distribution and service are studied. SCADA technology will also be introduced.

PL 143
POWER GRID DESIGN II (3 credits)
Continuation of PL 141.

PL 150
FIELD TRAINING I (2 credits)
Basic theory and design for the installation and construction of a high voltage overhead system. Installation and construction of an actual overhead system will be part of a lab project.

PL 151
CONSTRUCTION OF UNDERGROUND LINES (2 credits)
Basic theory and design for the installation and construction of a high voltage underground system. Installing and constructing an actual underground system will be part of a lab project.

PL 152
CONSTRUCTION OF OVERHEAD LINES (2 credits)
Designed to create a foundation for understanding the installation and construction of a high voltage overhead system. Proper technique, tool and equipment identification will be covered in a lab setting.

PL 154
MAINTENANCE OF UNDERGROUND LINES (2 credits)
System protection, sectionalizing and grounding procedures and basic fault procedures on underground low and high voltage lines.

PL 155
MAINTENANCE OF OVERHEAD LINES (2 credits)
Designed to create a hands-on application of the fundamental use of the equipment for maintenance of overhead distribution and transmission lines. A continuation of PL 152.

PL 156
FIELD TRAINING II (2 credits)
Fundamental operation and maintenance of overhead distribution and transmission lines. Hands-on application will be utilized by operating and maintaining the lines built as part of PL 150.

PL 171
UTILITY SAFETY I (2 credits)
OSHA, APPA and NESC rules, procedures and codes applied to the design and construction of overhead and underground lines.

PL 172
UTILITY SAFETY II (2 credits)
Continuation of PL 171. Specific OSHA, APPA and NESC rules that apply to operating and maintaining overhead and underground lines. Includes hands-on procedures and pole top rescue.

PSYC 100
INTRODUCTION TO PSYCHOLOGY (3 credits)
This course is designed to give the student a basic understanding of the psychology of human behavior. The student will be given exposure to the concepts, terminology, principles and theories that comprise an introductory course in psychology. Topics covered are to synthesize the broad range of knowledge about psychology, to encourage critical thinking and to convey a multi-cultural approach that respects human diversity and individual differences.

PSYC 101
GENERAL PSYCHOLOGY (3 credits)
Designed to relate psychology to everyday life. Students will gain a basic understanding of how we develop throughout our life span and how we learn throughout our lives. Special emphasis is placed on understanding causes, symptoms and treatment of the most prevalent psychological disorders in our society. An empathetic perspective for those who suffer from these disorders and how the disorders affect their families is stressed.

PTS 100
INTRO TO GIS TECHNOLOGIES (2 credits)
Students will be introduced to basic GPS principles including GPS corrections, constellations, navigation and primary industry uses. Students will have hands on experience with different data collection techniques using Trimble GPS devices. Once an aptitude is gained for the GPS systems the course will continue onto the manipulation of the data using GIS programs.

PTS 102
PRINCIPLES OF GPS/GIS (2 credits)
Students will be introduced to basic GPS principles and how they are applied to precision agriculture and GIS applications. Different GPS corrections and constellations and primary industry uses will be introduced as well as different GPS terms and how they are used in the industry. Once an aptitude is gained for the GPS systems the course will focus on manufacturer applications and why producers use GPS/GIS to save money.

PTS 103
INTRO TO VARIABLE RATE SYSTEMS (3 credits)
Students will learn about the components of Variable Rate (VR) application systems. They will study the principles of VR application equipment and the economic and environmental impact of variable rate applications. Students will study VR sensor-based controllers for fertilizer and chemical applications and the use of soil maps, yield maps and GPS/GIS for map-based VR applications of granular and liquid fertilizers and chemicals.

PTS 105
INTRO TO DATA COLLECTION (3 credits)
Students will be introduced to various data collection tools used in the precision technology field. As a comprehensive data collection course, students will be studying yield monitor systems, crop vigor sensor systems, soil sampling and topography mapping systems, as well as a multitude of other tools used in data collection. As a part of the study of yield monitor systems, students will be involved with harvesting and data collecting at the precision technology land lab. Also included will be an introduction to the GIS software programs involved in interpreting and managing this data.

PTS 107
BASIC HYDRAULICS (2 credits)
Industry relevant skills including how to operate, install and analyze performance of basic hydraulic systems. Fundamentals of hydraulic systems used in industrial applications are presented.

PTS 108
INTERMEDIATE HYDRAULICS (3 credits)
Students will learn industry relevant skills related to accumulators, DCVs, cylinder types, check valves and remote pressure control. Operation, installation and performance analysis.

PTS 112
ELECTRONICS FOR PRECISION (3.5 credits)
Introduction to the components of electronics. Also introduced will be digital fundamentals including combinational and sequential logic circuits and an overview of electronics math.

PTS 120
WIRELESS COMMUNICATIONS (2 credits)
Focuses on the wireless industry and how it pertains to agriculture and transportation technologies. This course will provide fundamentals of wireless communications.

PTS 151
ELECTRONICS LAB I (4 credits)
Experience with soldering, hand tools, components, color code, Ohm's law, and reading circuit diagrams. Work with ohmmeters, ammeters, voltmeters, power supplies and other devices included. This lab examines AC/DC circuit characteristics, including capacitance and inductance and explores the P/N junction as it applies to diodes and bipolar junction transistors.

PTS 201
INTRO TO GUIDANCE SYSTEMS (3 credits)
Different types of guidance systems available for agricultural machinery. The course will discuss the sensors and devices involved with different types of guidance systems from different manufacturers, including the advantages, accuracy and different features of those systems. Students will install, setup and calibrate guidance systems from different suppliers. Also, they will perform situational analysis for each type of guidance system and will be trained in troubleshooting and resolving faulty installation.

PTS 202
GIS APPLICATIONS (4 credits)
This course will introduce the student to field data collection techniques using geocoded field data recorders along with GIS systems. Also included: downloading field data; using computer based GIS software for data management; and processing for agronomic-based GIS systems to include soil sample, field boundaries, field attributes, yield data, ground control points and other associated field data.

PTS 203
PRECISION LAB I (4 credits)
This lab will take students through the setup and use of a Trimble Juno hand-held computer using Terrasync TM software. Students will gather data points and bring the data into GPS PathfinderTM desktop software. Students will be expected to be able to GPS troubleshoot, diagnose and set up antennas for different applications. Students will also work with RTK and VRS networks and understand the uses and limitations and advantages of each. Also covered will be data transfer over VRS networks and what role it plays in industry and an introduction to the basics of ARC GIS.

PTS 206
PRECISION LAB II (4 credits)
A continuation of PTS 203.

PTS 290
INTERNSHIP (6 credits)
Supervised internship performed off-campus in a precision technology business setting.

RAD 111
INTRODUCTION TO RAD TECH AND ETHICS (3 credits)
This course serves as an introduction to the field of Radiologic Technology. It includes an introduction to basic nursing, terminology, radiation protection, law, ethics and imaging equipment. Special emphasis is placed on ethical codes, confidentiality, patient rights and humanistic health care.

RAD 112
RADIATION PHYSICS I (2 credits)
This course provides a description of the basic physical principles of measurement, energy, atomic structure, electricity, magnetism and their application to radiation production.

RAD 113
RADIOGRAPHIC EXPOSURE AND TECHNIQUE (4 credits)
This course is designed to create a foundation for understanding the principles of radiographic technique and quality. Included is an overview of how the X-ray machine produces x-radiation. Emphasis is on radiographic image quality through presentation of prime exposure factors, solving technical problems and making adjustments to correct those problems.

RAD 114
RADIOGRAPHIC PROCEDURES I (4 credits)
This course will provide the student with the knowledge necessary to perform radiographic procedures relative to the upper and lower extremities and chest. Emphasis will be placed on radiographic terms, detailed anatomy, positioning, manipulation of equipment and accessories and related patient care.

RAD 121
IMAGING EQUIPMENT (2 credits)
This course will provide the student with knowledge of the equipment routinely used to produce radiographic images. It includes the discussion of various imaging modalities and recording media including fixed and portable radiographic equipment. It also includes discussion of the basic physical principles of computed tomography. Prerequisites: All previous technical courses.

RAD 122
RADIATION PHYSICS II (2 credits)
This course is a follow-up to RAD 112 focusing primarily on review prior to the student's participation in the registry examination. It reinforces the basic physical principles of measurement, energy, atomic structure, electricity, magnetism and their application to radiation production. Students also study x-ray production, scatter radiation and x-ray circuitry. Prerequisites: All previous technical courses.

RAD 123
RADIATION BIOLOGY AND PROTECTION (3 credits)
This course is a study of the principles of cell radiation interaction. Students will study factors affecting cell response to acute and chronic doses of radiation. Principles of radiation protection and responsibility of the radiographer to patients, personnel and the public are presented. Maximum permissible dose and regulatory policy are also discussed. Prerequisites: MA 101, MA 103, All previous technical courses.

RAD 124
RADIOGRAPHIC PROCEDURES II (4 credits)
This course will provide the student with the knowledge necessary to perform radiographic procedures relative to the cranium, ribs & sternum, vertebral column and abdomen. Emphasis will be placed on radiographic terms, detailed anatomy, positioning, manipulation of equipment and accessories and related patient care. Prerequisites: MA 101, MA 103, All previous technical courses.

RAD 125
IMAGE CRITIQUE I (2 credits)
This course provides students with the knowledge needed to evaluate radiographic examinations and to identify and recognize diagnostic quality. Coursework will concentrate on the study of the guidelines for image analysis of the upper and lower extremities, and chest. Prerequisites: MA 101, MA 103, All previous technical courses.

RAD 131
INTRODUCTION TO CLINICAL RADIOLOGY (3 credits)
A laboratory course that will introduce the student to the clinical aspect of their training, including competencies necessary for clinical success. Students will be introduced to the clinical setting under close and direct supervision. Prerequisites: MA 101, MA 103, All previous technical courses.

RAD 132
TOPICS IN RADIOLOGY (1 credit)
This course is designed to prepare a scientific paper and oral presentation on emerging technologies in radiology. Prerequisites: CIS 105, MA 101, MA 103, All previous technical courses.

RAD 133
DIGITAL IMAGING (2 credits)
This course will introduce students to the fundamental concepts, terminology and applications of digital imaging as it relates to radiologic technology. Digital image acquisition, display and archiving are discussed. Prerequisites: All previous technical courses.

RAD 134
RADIOGRAPHIC PROCEDURES III (4 credits)
This course will provide the student with the knowledge necessary to perform radiographic procedures relative to the urinary system and digestive system. Emphasis will be placed on radiographic terms, detailed anatomy, positioning, manipulation of equipment and accessories and related patient care. Portable radiography will be introduced. Prerequisites: MA 101, MA 103, All previous technical courses.

RAD 135
IMAGE CRITIQUE II (2 credits)
This course provides students with the knowledge needed to evaluate radiographic examinations and to identify and recognize diagnostic quality. Coursework will concentrate on the study of the cranium, spine, ribs and digestive system. Prerequisites: MA 101, MA 103, All previous technical courses.

RAD 136
RADIOGRAPHIC PATHOLOGY (3 credits)
This course will provide the student with the concept of disease and its effects on the human body. The relationship of pathology and diseases to various radiographic procedures and radiographs will be discussed. Prerequisites: MA 101, MA 103, All previous technical courses.

RAD 137
SECTIONAL ANATOMY (3 credits)
This is an online course that provides students with the tools for understanding anatomy in three dimensions using a variety of current imaging modalities such as CT, MRI, PET/CT and ultrasound. Students will be able to visualize anatomical appearance and relationships in a planar section following completion of this material. Areas of study include: Chest, Abdomen, Male and Female Pelvis, Head, Neck and Spine.

RAD 211
CLINICAL RADIOLOGY I (11 credits)
(35 hours clinical experience per week for entire semester)
This is the student's first clinical experience in performing as an actual part of the health care team. The student will begin to employ techniques and skills learned in RAD 114, 124, 134. The student will be required to prove competency in prescribed examinations. Prerequisites: All technical courses.

RAD 212
REGISTRY REVIEW I (1 credit)
This course is designed to utilize a structured series of mock registry exams administered over the course of 3 semesters to assist the student in preparing for the real exam to be taken after graduation. This series of tests asks questions in a fashion similar to that of the actual registry exam. The student is able to locate areas of study that need improvement. Prerequisite: All technical courses.

RAD 221
CLINICAL RADIOLOGY II (11 credits)
(35 hours clinical experience per week for entire semester) -
This clinical course is a continuation of RAD 211. The students will refine skills learned in the previous clinical course, while expanding their expertise with additional procedures. The student will be expected to become more independent in performing imaging procedures. Additional competencies will be required in prescribed examinations. Prerequisites: All technical courses.

RAD 222
REGISTRY REVIEW II (1 credit)
This course is a continuation of RAD 212. It is designed to utilize a structured series of mock registry exams administered over the course of 3 semesters to assist the student in preparing for the real exam to be taken after graduation. This series of tests asks questions in a fashion similar to that of the actual registry exam. The student is able to locate areas of study that need improvement. Prerequisite: All technical courses.

RAD 231
CLINICAL RADIOLOGY III (11 credits)
(35 hours clinical experience per week for entire semester) This course is a continuation of RAD 221 and provides the student the opportunity to exercise independent judgment and discretion in the technical performance of medical imaging procedures. Students are expected to complete all required competencies in this rotation. The final section of clinical education ensures that the student is ready for employment. Prerequisites: All technical courses.

RAD 232
REGISTRY REVIEW III (1 credit)
This course is a continuation of RAD 222. It is designed to utilize a structured series of mock registry exams administered over the course of 3 semesters to assist the student in preparing for the real exam to be taken after graduation. This series of tests asks questions in a fashion similar to that of the actual registry exam. The student is able to locate areas of study that need improvement. Prerequisite: All technical courses.

RTH 200
INTRODUCTION TO RADIATION THERAPY (2 credits)
This course is an exploration of the foundation of radiation therapy practices and the variety of roles for the professional in the delivery of health care. Principles of practice, professional responsibilities, medical law and ethics will be addressed along with program expectations.

RTH 201
NURSING AND PATIENT CARE ISSUES (2 credits)
This course will focus on the role of the radiation therapist in overall disease management. It will prepare students to work directly with patients in a health care setting and covers assessment, examination and monitoring of patients, symptom management and the management of oncologic emergencies. Patient issues such as pain control, nutritional counseling, patient education, death and dying will be explored. Chemotherapeutic drugs will be introduced and discussed.

RTH 202
RADIATION THERAPY PHYSICS I (3 credits)
This course applies the concepts of radiation oncology physics as it is practiced in the clinic. Interactions of ionizing radiation, measurement of ionizing radiation, nuclear transformation and the quality of X-ray beams are discussed. This course provides the student with an understanding of the different types of radiation treatment units and their operating principles. This course contains a review of mathematics, basic principles of physics, atomic structure, electro-magnetic and particulate radiation.

RTH 203
RADIATION THERAPY PHYSICS II: TREATMENT PLANNING AND DOSIMETRY (3 credits)
This course will explore the concepts of radiation physics as it applies to the practice of radiation therapy. Scatter radiation analysis, isodose curves, patient contouring, dosimetric calculations, treatment planning procedures and electron beam therapy are introduced.

RTH 205
CLINICAL RADIATION ONCOLOGY (4 credits)
This course will explore cancer: its detection, diagnosis and prognosis. The management of neoplastic disease and its mechanism of spreading through a multidisciplinary approach will be discussed. Rationale for treatment techniques such as beam type, dose fractionation, volume, simulation, beam modification devices, field arrangements, dose limiting critical structures as well as surgical and chemotherapeutic considerations are presented.

RTH 206
SIMULATION AND MEDICAL IMAGING (3 credits)
This course introduces simulation equipment and techniques. Topics include patient immobilization, localization, simulation, documentation, patient positioning, treatment delivery parameters, prescriptions and patient care. Imaging techniques specific to radiation therapy will also be discussed. A lab component is included in this course.

RTH 207
RADIATION BIOLOGY (1 credit)
This is course covers the biological effects of ionizing radiation in living tissue, including specific cell and tissue radiosensitivity, radiation syndromes and related effects, as well as basic biological mechanisms that bring about somatic and genetic effects.

RTH 209
RADIATION THERAPY TOPICS (2 credits)
This course is designed to explore various radiation therapy topics such as quality control programs and protocols for the radiation therapy department, various radiation therapy operational issues and CQI project development, evaluation and assessment techniques. Infection control and pharmacology will be reviewed. Students will become HIPAA certified during this course. The course will provide the student with the basic concepts of radiation sources: detection and measurement, shielding and room design, source handling, surveys and personnel monitoring and maximum permissible dose. Prerequisite: RTH 202 and RTH 203.

RTH 210
CLINICAL PRACTICUM I (10 credits)
(35 hours clinical experience per week for entire semester) -
The clinical practicum serves as an orientation to radiation therapy where students are given an opportunity to develop technical and patient care skills and knowledge through structured rotations and assignments in the radiation therapy department. Treatment competencies and related objectives will be used to measure clinical outcomes. Prerequisite: All technical courses.

RTH 211
MODERN RADIATION THERAPY RESEARCH (3 credits)
This course is designed for the student to research and prepare a written scientific paper and oral presentation on an emerging technology in radiation therapy. Prerequisite: All technical courses.

RTH 212
REGISTRY REVIEW I (1 credit)
This course is designed to prepare students for the required national certification exam. Mock board exams will be given along with various assignments geared to reinforcement of previously discussed concepts. Prerequisite: All technical courses.

RTH 213
CLINICAL PRACTICUM II (8 credits)
(35 hours clinical experience per week for entire semester) -
A continuation of RTH 210. Students are expected to complete all required competencies in this rotation. The final section of clinical education ensures that the student is ready for employment. Prerequisite: All technical courses.

RTH 214
REGISTRY REVIEW II (1 credit)
Continuation of RTH 212. This course is designed to prepare students for the required national certification exam. Mock board exams will be given along with various assignments geared to reinforce previously discussed concepts. Prerequisite: All technical courses.

SC 264
PRINCIPLES OF SATELLITE & WIRELESS COMMUNICATIONS (4 credits)
Advanced study in the satellite field by exposing students to the developments which have occurred in the satellite industry to this point. Students will study the construction and components of a satellite, stabilization and orbits of a spacecraft, communication systems on board a spacecraft and requirements of the earth station for control of the satellite.

SC 265
SATELLITE COMMUNICATIONS LAB I (5 credits)
Experience with video and audio distribution equipment and antennae. A modern earth station is used as laboratory. All lab activities are designed to put lecture materials into practice.

SC 266
EARTH STATION RECEIVER SYSTEMS (RX) (4 credits)
Audio/visual equipment used to receive satellite signals. Systems and circuits are used to keep signals at commercial broadcast quality. Various types of reception and troubleshooting techniques are presented.

SC 274
EARTH STATION TRANSMITTER SYSTEMS (TX) (4 credits)
Audio/visual equipment used to transmit satellite signals. Signals are received from various sources, simplified to basic bandwidth and prepared for re-transmission on another medium. The use of high-powered transmitting equipment
is presented. Prerequisite: SC 264, SC 266.

SC 275
SATELLITE COMMUNICATIONS LAB II (5 credits)
Assignments as technicians for a variety of satellite transmission activities, both stationary and mobile. MTI Teleport tasks are performed. All lab activities are designed to put lecture materials into practice. Prerequisite: SC 265.

SC 276
TELEPORT REGULATIONS (3 credits)
Regulations governing satellite systems, time access, FCC rules and regulations including satellite ownership, G/T ratios, cost and availability of services, OSHA safety guidelines and FCC monitoring.

SC 290
INTERNSHIP (6 credits)
Supervised work experience in a position related to the satellite communications industry.

SD 112
ELECTRONICS THEORY (4 credits)
Introduction to the components of electronics, both passive and active are covered. Students study the fundamentals of power supplied circuitry, solid state components, resistance, capacitance, inductance, resonance, AC theory, timing circuits and testing. Critical thinking skills and troubleshooting are also studied.

SD 120
INTRO TO INDUSTRIAL MOTOR CONTROLS (3 credits)
This course introduces the fundamental concepts of electromagnetic control systems for both AC and DC. Topics include ladder diagrams, pilot devices, contactors, motor starters, motors and other control devices. Prerequisite: Successful completion of all first year EC and SD classes.

SD 136
PROGRAMMING FOR SCADA (1 credit)
An introduction to program script languages using P-Basic and Python. The use of the Microcontroller and the Raspberry Pi will give the student the basic concept of the understanding of variables, strings, lists, and other data structures. The goal is for the student to design a home automation system using the Raspberry Pi.

SD 140
INTRO TO SCADA I (3 credits)
This course is a comprehensive study of basic electronic circuits and the operation of their electronic components being used in the SCADA industry. This course provides hands-on experience with soldering, electronic components, color codes, Ohm's Law and reading circuit diagrams. The student will also learn to troubleshoot solid state devices, methods of installation, replacement, repair and diagnosis of equipment. This class consists of both lecture and hands-on learning.
Prerequisite: Successful completion of an AC/DC circuits and theory class.

SD 141
INTRO TO SCADA II (4 credits)
This course is a continuation of SD140 and is a comprehensive study of more complex circuits and the operation of their components. The student will become familiar with binary notation and numbering systems and the basic theory of FETs, MOSFETs and operational amplifiers. Prerequisite: Successful completion of Intro to SCADA I (SD140) class.

SD 151
ELECTRONICS LAB I (5 credits)
Hands-on instruction covering soldering, hand tools, safety, component identification, color codes, Ohm's law and reading schematic diagrams will be covered. Knowledge in the proper operation of electronic test equipment will be stressed. An introduction to microprocessor circuits and programming are also studied. This lab will supplement the student of Theory and DC/AC classes.

SD 157
SCADA ELECTRONICS LAB (5 credits)
Semiconductors and integrated circuit devices are discussed. Emphasis is placed on troubleshooting of more complex electronic circuits, push pull amplifiers, discrete components, operational amplifiers and basic digital circuits. An introduction to programming micro-controllers and various types of sensors is also introduced. Prerequisite: Successful completion of all first semester SCADA classes or equivalent.

SD 159
PROGRAMMABLE LOGIC CONTROLLERS (3 credits)
This course introduces students to programmable logic controllers (PLC's) using the Allen-Bradley SLC500 and RSLogix 500 programming software. Elementary ladder logic and discrete I/O instructions, counters, timers, program development techniques and troubleshooting are covered. Prerequisite: successful completion of Intro to Industrial Motor Controls (SD120) class.

SD 160
INDUSTRIAL WIRING (3 credits)
Focuses on the principles and applications of industrial wiring. Topics include electrical safety practices; basic National Electrical Code as it relates to industrial wiring; circuit design; transformers; switch gear; and generation principles. Students will also read, understand and create electrical schematics using AutoCAD electrical edition.

SD 205
PROCESS CONTROLS (3 credits)
Emphasis is placed on the study of the concepts and language of controls to guide the technician on how to analyze and design control systems. Terminology, concepts, principles, procedures and computations used in the controls field are studied, including all phases of sensors and outputs.

SD 225
INTRO TO SCADA SOFTWARE (4 credits)
Covers the basics of using a graphical software package to create a user-friendly control screen. Interfacing the HMI to Allen Bradley and Horner PLCs will be performed through OPC server software. The graphical software being used in the SCADA lab is Cscape and WonderWare.

SD 229
NETWORKING CONCEPTS I (4 credits)
A complete overview of the rapidly evolving field of wireless networks. Device level bus structures, industrial network protocols, data cabling and local area networks found in today's industrial communication networks will be examined. Students will design and construct a telemetry system using a variety of communications media such as 900Mhz, 2.4 Ghz, and 5 Ghz wireless technologies; serial communications including RS232, RS485, DH+, DH 485, Ethernet over CAT5; and DeviceNet, Data Highway, Hart, DNP3, and ASI. Students will learn to select the appropriate technologies and standards for a given application and ensure that the best practice is followed in designing, installing and commissioning the data links for fault-free operation. Methods for labeling, identifying, documenting and testing during installation of a telecommunications infrastructure will be studied. Also covered: selection of cable, splicing, termination and testing.

SD 230
INTRODUCTION TO VISUAL BASIC (3 credits)
This course introduces Graphical User Interfaces (GUIs) using Microsoft Visual Basic in the Microsoft Windows environment. Students design, code and run integrated Visual Basic applications utilizing the multiple-document interfaces, object-linking and embedding and dynamic-link library features of Microsoft Windows.

SD 239
NETWORKING CONCEPTS II (3 credits)
This course provides instruction in networking media, physical and logical topologies, common networking standards and popular networking protocols. It emphasizes the TCP/IP protocol suite and related IP addressing schemes as they relate to the SCADA industry. Prerequisites: SD 225 and SD 229.

SD 255
SPECIAL TOPICS (1 credit)
The advanced study of any particular topic that may interest the student. Time will be spent on SCADA topics of the student's choice, research into particular areas, small projects and class presentations.

SD 270
SCADA TESTING & CONTROL LAB (7 credits)
Breakthroughs in communications and microprocessor technologies have made it possible for industry to automate control systems and aid in the collection of management data. Using PLCs, students will learn what components are used and how these systems work. Laboratory work will provide the student with the experiences in the identification, selection and programming of equipment needed to make a fully operational SCADA system. Prerequisite: successful completion of all SCADA courses previously required up to this point.

SLPA 101
INTRODUCTION TO SPEECH-LANGUAGE PATHOLOGY ASSISTANT (3 credits)
This course provides an overview of the field of speech-language pathology, including professional standards, legal and ethical issues and scope of responsibilities of the speech-language pathologist and the speech-language pathology assistant in health care and educational settings.

SLPA 102
CLINICAL OBSERVATION I (1 credit)
This course covers beginning clinical observation of practices and procedures in speech-language pathology and combines on-site observations with class discussion. Eight hours of observation in educational settings is required. Prerequisites: SLPA 101, 104, 105 and 106.

SLPA 103
CAREER SEMINAR (1 credit)
This course covers the promotion of professional growth opportunities for speech language pathology assistants. Students will explore tools and concepts necessary during the job seeking process and examine professional development as a new employee.

SLPA 104
ANATOMY AND PHYSIOLOGY OF SPEECH AND HEARING (3 credits)
This course covers the fundamentals of anatomy, physiology and neurology related to speech production and hearing. Systems studied include respiration, phonation, articulation, resonation, hearing and neurological. In addition, information regarding feeding and feeding strategies will be covered.

SLPA 105
SPEECH AND LANGUAGE DEVELOPMENT (3 credits)
This course covers the study of normal speech and language development. Topics include communication development and differentiation of normal from disordered communication. Hearing development, literacy development and language diversity will also be addressed.

SLPA 106
INTRODUCTION TO PHONETICS (3 credits)
This course provides a study of the articulatory foundations of the description and classification of speech sounds. It introduces the International Phonetic Alphabet (IPA), physiological properties of the speech mechanism, methods of transcription and dialectal variations. The emphasis will be on the auditory discrimination necessary for recording normal and disordered articulatory production.

SLPA 111
INTRODUCTION TO COMMUNICATION DISORDERS AND TREATMENT (3 credits)
This course provides an overview of communication disorders, including classification, assessment and remediation of speech, language, literacy, swallowing and hearing disorders in children and adults. It addresses the role of the speech-language pathologist and audiologist in educational and medical settings and examines multicultural and multilingual diversity, developmental disabilities and collaboration with educators. Prerequisites: SLPA 101, 104, 105 and 106.

SLPA 112
CHILD GROWTH AND DEVELOPMENT (3 credits)
This course covers developmental stages of children from conception through adolescence including major theories of development and their application to parenting, teaching and other interactions with children.

SLPA 120
VOICE AND ARTICULATION FOR EFFECTIVE COMMUNICATION (3 credits)
This course covers speech and voice production with an emphasis on improving vocal skills for effective communication. Prerequisites: SLPA 101, 104, 105 and 106.

SLPA 200
INTRODUCTION TO AUDIOLOGY AND AURAL REHABILITATION (2 credits)
This course is an introduction to audiology, audiograms, hearing screening and hearing assessments. Also provided is an introduction to aural rehabilitation, hearing aids and hearing assistive technologies (HAT). Prerequisites: SLPA 102, 103, 111 and 120.

SLPA 202
CLINICAL OBSERVATION II (2 credits)
This course covers continued clinical observation of practices and procedures required in speech-language pathology in preparation for clinical fieldwork and combines on-site observations with class discussion. Seventeen hours of observation in educational settings is required. Prerequisites: SLPA 102, 103, 111 and 120.

SLPA 210
ALTERNATIVE AND AUGMENTATIVE COMMUNICATION (2 credits)
This course provides an introduction to common forms of augmentative and alternative communication, including manual communication and low- and high-tech AAC systems. Prerequisites: SLPA 200, 202, 220 and 230.

SLPA 211
SCREENING PROCESSES (2 credits)
This course covers screening tools and processes used for speech, language and hearing screening including the administration of screening and completion of protocols with clients of varied ages. Prerequisites: SLPA 200, 202, 220 and 230.

SLPA 220
SPEECH DISORDERS AND INTERVENTION (3 credits)
This course focuses on speech sound disorders and therapy techniques to implement articulation and phonological therapy. Session planning, reporting progress and organization of therapy interaction are introduced. Cueing, reinforcement, feedback and choosing materials are covered. This course also reviews therapy approaches for neuromotor speech disorders, fluency and voice disorders. Prerequisites: SLPA 102, 103, 111 and 120.

SLPA 230
LANGUAGE DISORDERS AND INTERVENTION (3 credits)
This course explores language disorders and various intervention approaches. Students are introduced to therapy techniques appropriate for treating language delays and acquired disorders with toddler, preschool and school-aged populations. The course also addresses intervention for culturally and linguistically diverse children, as well as intervention for students with learning and developmental disabilities. Prerequisites: SLPA 102, 103, 111 and 120.

SLPA 235
CLINICAL MANAGEMENT AND PROCEDURES (4 credits)
This course covers organizational and functional skills required in the speech-language pathology workplace. Topics include interdisciplinary and supervisory relationships, client and public interaction, therapy plans, lesson plans, safety issues, technical writing, data collection, record keeping, computer applications, multicultural issues and behavior management. Prerequisites: SLPA 200, 202, 220 and 230.

SLPA 240
CLINICAL FIELDWORK (6 credits)
This course is an eight-week, full- time field placement in an educational setting under the supervision of a state licensed speech-language pathologist. The field placement allows the student to practice the knowledge and skills related to speech and language interventions. Students will have an opportunity to request fieldwork site placements based on their areas of interest, strengths and goals for employment. Prerequisites: SLPA 200, 202, 220 and 230.

SOC 100
INTRODUCTION TO SOCIOLOGY (3 credits)
This course is a broad overview and introduction to the study of the science of social life. Students begin by learning about different sociological perspectives, culture, social structure and interaction and the history of sociology. Students learn what sociological research consists of and how to conduct an unbiased study with scientific processes and results. Other topics covered include deviance, global stratification, race, gender, age, politics, marriage and family, religion and the environment. This course takes a down-to-earth and applied sociological approach to each of these topics and looks at each of them through different perspectives and theories.

SOC 110
INDUSTRIAL RELATIONS (3 credits)
Development of skills for establishing working and personal relationships. Soft skills in the workplace, employability skills, communication challenges, ethics, developing a professional presence and a focus on the "real" world of work will be emphasized.

SPCM 101
FUNDAMENTALS OF SPEECH (3 credits)
Intensive practice of oral presentations. The material lays the foundation for a study of speech principles and provides exercises in guiding students through preparation and delivery. The course will include units on informative, persuasive (research), and special occasion presentations using a variety of visual aids.

SSS 100
STUDENT SUCCESS (1 credit)
Provides a foundation for gaining the knowledge, skills and attitudes necessary for college success. Students will learn to make a successful transition to higher education by setting up a pattern of success that will last the rest of their lives. Students will define goals and develop thinking skills, learning strategies and personal qualities essential to both academic and career success. *Please note: Students who have served active military duty (excluding basic training and AIT) may be exempt from the Student Success course. Student must provide a copy of DD214 or other official military documentation to the registrar for verification*.

SSS 101
ONLINE SEMINAR I (1 credit)
Online Seminar will focus on specific challenges unique to online students as well as ways to address them including tips for improving time management, presentations and test-taking skills. Student will be expected to complete surveys throughout the semester and participate in discussion groups. Instructor input will help identify what courses to take, how to register for classes and help design a graduation plan. This course will be a bi-weekly virtual meeting.

SSS 102
ONLINE SEMINAR II (1 credit)
Continuation of SSS 101.

TRAN 100
INDUSTRIAL TRANSPORTATION/CDL (1 credit)
Instruction in commercial transportation. Opportunities are provided for obtaining a Class A commercial drivers license. Arrangements are made for taking the test(s) required by the state. A Class A CDL is a requirement for graduation from several programs. Any student enrolled in this course will be subject to random drug screening as required by the US Department of Transportation. A valid South Dakota driver's license is required in order to complete the CDL training course. For students enrolling in a two-year program, this course must be completed by the end of their first year. This class is offered for credit as a Pass/No Pass course. Please note: Students are required to show proof of a valid Class A CDL by the end of the 10th day of the semester in order to drop this class.

WMT 112
AWS SAFETY (1 credit)
The AWS Safety in Welding provides a comprehensive overview of welding hazards, safety equipment, ventilation, welding in confined spaces, and safety precautions and specifications in an accessible and engaging format. At the completion of the course participants will have the opportunity to sit for a certification exam. Based on exam results, three professional development hours and an AWS Certificate of Completion would be awarded.

WMT 120
MANUFACTURING SYMBOLS AND MEASURING (1 credit)
Exercise the ability of micrometer use, reading of fraction/ metric tape measure, applying the use of a fillet weld gauge, operating dial indicators, dial calipers, identifying weld symbols, analyzing welding symbols on weld drawings and demonstrating actual welding scenarios with a comprehensive view of welding manufacturing blueprints.

WMT 121
BLUEPRINT READING (1 credit)
Interpretation of blueprints, creation of weld maps, applying weld symbols to corresponding parts, study of current manufacturing blueprints, draw fabricated parts in detail with weld symbols, formulate math problems into created drawing and research blueprints with unknowns.

WMT 132
METALLURGY (2 credits)
Introduction to metallurgy of carbon steel, aluminum and stainless steel. Set up and Illustrate proper mechanical requirements for welding steel with GMAW/GTAW/SMAW processes; create electrical diagrams for specific current needed to weld steel/aluminum; acquire proper meanings for welding terminology; exchange of carbon in steel; allotropy of iron atoms; transformation temperatures; treatment of metals with heat; adhere to the ASTM designation system; summarize the classification of carbon steels; and illustrate heat affected zone. Acquaint self with acceptable, unacceptable welds, differentiate strengths of aluminum, demonstrate the ability to select proper filler metals for aluminum, reveal alloy inputs to aluminum, recognize oxide coatings on aluminum, evaluate cathodic bombardment, monitor thermal expansion, study of heat treatable aluminum alloys, study of non-heat treatable aluminum alloys and acquaint self with the aluminum classification system.

WMT 142
WELDING ECONOMICS (3 credits)
A close look at welding manufacturing economics with specifics in welding productivity, do's goal, method for computing operation factor, putting it all together and summary of key concepts. Reduce weld metal volume, reduce arc time per weldment, reduce rejects, rework and scrap, reduce work effort, reduce motion and delay time, method for computing operating factor and understanding welding productivity.

WMT 149
BASIC WELDING LAB (2 credits)
Proper skills to operate all shop equipment and produce quality welds in order to pass specific weld position tests will be practiced. Topics covered will include lab safety, applying proper technique with GMAW processes; manipulate hand held plasma equipment in a skillful assignment; demonstrate the ability to properly operate an oxy-fuel cutting torch. Corequisite: WMT 150

WMT 150
WELDING LAB I (6 credits)
Student will gain the proper skills to operate all shop equipment and produce quality welds in order to pass specific weld position tests. Some of the assignments will include: Lab safety; working on a class room project; applying proper technique with GMAW ,GTAW , GMAW-P processes; manipulate hand held plasma equipment in a skillful assignment; use of carbon arc gouging equipment in a productive manner; demonstrate the ability to properly operate an oxy-fuel cutting torch. Corequisite: WMT 149.

WMT 151
WELDING LAB II (7 credits)
The student will gain the proper skill to operate all shop equipment and produce quality welds on aluminum and steel in order to pass specific weld position tests. Band saw operations, introduction to the basic operations of a forming Iron Worker, demonstrating proper techniques in various positions with GMAW/GTAW/SMAW/GMAW-P process, and fabrication of a classroom project.

WMT 201
QUALITY & PRODUCTIVITY IMPROVEMENT (2 credits)
Quality and productivity improvement. Will appeal to everyone concerned with enhancing productivity in the Welding workplace. Reviews management systems for welding supervisors, requirements of welds, welding instruction, application of welding standards, welding inspection, health, safety, work reports, and records.

WMT 230
WELDING ROBOTIC LAB (3 credits)
Introduction to welding robotics. Goal is to help students develop the necessary skills to thrive in an advanced manufacturing environment with the use of Weldpro Fanuc Robot. Education will assure complete part make up from drafting to weldment.

WMT 231
MANUAL MACHINING (3 credits)
Set up and operation of manual machining equipment. Birmingham Mill and Nardini Engine Lathe will be introduced as the machining stations as well as manual operation of CNC equipment. Instructions on, set up, and quality part production will be the key attributes.

WMT 240
MANUFACTURING PROGRAMMING (3 credits)
Introduction to Solidworks CAD software that helps create files that operate most automated manufacturing equipment. Students will draft and model formed parts and create cut files that will simulate a machine cutting a specified material and drawn part. Students will use these files that are drawn in the 4th semester CNC machining LAB.

WMT 250
LASER CUTTING TECHNOLOGY (3 credits)
Introduction to the basic operations of the most up to date automated laser cutting system. The learning objectives will be focused on cutting, engraving, and rastering along with recognizing the ultimate advancement in the human machine interface controller. Education will assure complete part make up from drafting to piece part.

WMT 251
CNC MACHINING STATION LAB (3 credits)
Introduction to a CNC machining lathe and mill stations. Using proprietary conversational operating systems that make modeling parts and creating part programs nearly effortless. Through an interactive graphical environment -using full-color graphics on liquid crystal displays. Operations such as tool and work offsets using the Renishaw probing system, drilling and tapping, pocket milling, engraving, facing, and boring. Education will assure complete part make up from drafting to piece part.

WMT 252
MECHANICAL WORKMANSHIP LAB (4 credits)
The first and second year students will be working together to complete a large fabrication project. Example of past years projects would include a 20-foot (16' long with 4' stationary deck) tilt utility trailer. During this lab the students will be taking all of the skills they have developed in the WMT program and applying them to fabricate the final project.

WMT 281
INTERNSHIP (6 credits)
Employer based student work experience. Student completion of a 200 hour internship. Completion of employer qualification testing if applicable.

WTT 100
TURBINE SAFETY AND FIRST AID (1 credit)
Students are introduced to the correct climbing techniques in accordance with OSHA and standard industry practices. The students will learn the definition of "100% tie off," understand tower rescue and receive their OSHA 10 hour certification and first aid/CPR certification. Note: Must earn a grade of "C" or higher in order to enroll in subsequent courses.

WTT 101
INTRO TO WIND TECHNOLOGY (2 credits)
An overview of major and minor components in the construction of a wind turbine. This includes the function of the bottom control cabinet, top control cabinet and hub control panel or hydraulic system. The different types of generators, gearboxes and gear reduction drives used in yawing the nacelle and pitching of the blades are explained. Students will also study the characteristics of different types of air foils when dealing with blade designs.

WTT 102
BASIC TURBINE MECHANICS (4 credits)
Students are given an in-depth look at the tools and the types of mechanical systems that are typically encountered on a wind turbine. Students will learn the safe usage of large tools as well as their proper use. They will gain an understanding of documenting gear, shaft and bearing failure concepts as well as what to look for when performing general inspections.

WTT 105
DC/AC TURBINE CIRCUITS (4 credits)
Students learn direct current (DC) theory and the fundamentals of series and parallel DC circuits. An introduction to the concept of electricity and its behavior with respect to conductors and resistance devices. Note: Must earn a grade of "C" or higher in order to enroll in subsequent courses.

WTT 107
PITCH SYSTEMS (HYDRAULICS) (2 credits)
Industry relevant skills including how to operate, install, analyze performance and design basic hydraulic systems. Fundamentals of hydraulic systems used in industrial and wind turbine applications are presented.

WTT 108
INTERMEDIATE HYDRAULICS (2 credits)
Students will learn industry relevant skills related to accumulators, DCVs, cylinder types, check valves and remote pressure control. Operation, installation and performance analysis. Also introduces electro-fluid concepts and applications. Prerequisite: WTT 107.

WTT 112
ELECTRONICS THEORY I (4 credits)
The study of alternating current (AC) circuits begins with the generation of a sine wave and review of trigonometric functions and continues through resonance and filter circuits. In-depth look at inductors and capacitors and how they affect an AC and DC circuit differently. Introduction to the components of electronics, both passive and active. Subjects studied include power supplies, solid state components, frequency, resistance, capacitance, modulation, wave theory, testing devices and electronic systems as they are used in the control of a wind turbine. Prerequisite: WTT 105. Must earn a grade of C or higher in order to enroll in subsequent courses.

WTT 120
INDUSTRIAL MOTOR CONTROLS (4 credits)
Fundamentals of motor controls, including start stop stations, time delay circuits, sequence starting, synchronized starting, auto starting via pressure switch, etc. are taught. Students will use the knowledge they obtain to efficiently negotiate the different control devices as well as implement the information received from schematic reading. Prerequisite: Must earn a grade of C or higher in order to enroll in subsequent courses. WTT 105.

WTT 130
FIELD TRAINING I (0.5 credits)
The student will learn to correctly identify and inspect the necessary lanyards, hardware and harnesses used in tower work and complete a job safety analysis worksheet prior to climbing. The student will then properly put on the climb safety harness and perform a safe tower climb on the ladder in the ETC lab.

WTT 131
FIELD TRAINING II (0.5 credits)
The student will learn how to properly perform a tower rescue of a mannequin who is suspended from the lab ladder with a ladsafe and harness. The student will learn how to use a tractel lifting device to safely lift the mannequin from his connection to the tower and correctly lower the mannequin to the ground. The student will also climb the 300-foot GE tower at Crow Lake and gain an understanding of the requirements of climbing to that height.

WTT 213
ELECTRONICS THEORY II (4 credits)
Students learn the theory of power supplies in this introduction to the components of electronics, both passive and active. Subjects studied include power supplies, solid state components, frequency, resistance, capacitance, modulation, wave theory, testing devices and electronic systems as they are used in the control of a wind turbine. Prerequisites: WTT 105 and WTT 112. Must earn a grade of C or higher in order to enroll in subsequent courses.

WTT 214
THEORY OF POWER GENERATION (4 credits)
The theory of generators and typical uses. Students will gain an understanding of generator construction and the operational theories which can be applied toward generator troubleshooting. Construction, function and logic of power regulators and power converters is discussed. Prerequisites: WTT 213, WTT 215.

WTT 215
ADVANCED MOTOR CONTROLS (4 credits)
Applications of control devices are reviewed. Photoelectric controls, logic modules, sequential motor starting, trouble-shooting, acceleration and deceleration methods are studied. Prerequisites: WTT 105, WTT 112, WTT 120.

WTT 220
COMPOSITES (4 credits)
Students learn about composite materials and the different manufacturing processes of composite components. Students learn the basics of the materials and resins used in the components and how they work together to make a high strength, lightweight, corrosion-resistant and durable product. Materials used in the manufacturing of wind blades will be used and students will gain an understanding of repairing a wind turbine blade. A Certified Composites Technician Certificate will be issued to those completing the course and passing the American Composites Manufacturing Association's tests with endorsements in Vacuum Infusion Process Manufacturing and Wind Blade Repair.

WTT 225
UTILITY SAFETY (2 credits)
Specific OSHA, APPA and NESC rules that apply to operating and maintaining wind turbines. Must earn a grade of C or higher.

WTT 230
FIELD TRAINING III (0.5 credits)
The student will perform climbs on the 300-foot GE tower at Crow Lake and perform a hub entry. The student will perform a mannequin rescue inside the tower and satisfactorily remove the mannequin to the area outside the tower.

WTT 231
FIELD TRAINING IV (0.5 credits)
The student will continue in climbs on the 300-foot GE tower and perform checks on the system. The student will continue to gain confidence in climbing and performing rescues.

WTT 240
SCADA CONCEPTS (3 credits)
Students are introduced to the fundamentals of supervisory controls and data acquisition (SCADA) as those concepts relate to the operation of wind turbines and the generation and transmission of power. Prerequisites: WTT 213, WTT 215.

Faculty

(Year of Appointment in Parentheses)

ALBERTZ, KELVIN (2000)
Information Systems Technology
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

APPLETOFT, DONNA (2011)
Health Sciences
A.A.S, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

BAUS, NICK (2014)
Architectural Design and Building Construction
A.A.S., Mitchell Technical Institute
Undergraduate Studies: Dakota Wesleyan University

BENJAMIN, MICHAEL (2007)
Telecommunications
B.S., University of Management and Technology

BRAUN, TODD (2010)
Electrical Construction and Maintenance
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

BRINK, BOBBI, MA, CCC-SLP (2013)
Speech-Language Pathology Assistant
M.A., University of South Dakota
B.S., South Dakota State University

BRTNA, JOE (2012)
Farm Power Technology
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

BUHLER, CAREY C., M.D. (2000)
Medical Director, Radiologic Technology
B.S., University of South Dakota
M.D., University of South Dakota
Residency, Pediatric Radiology, Boston Children's Hospital
Residency, Radiologic Pathology, Armed Forces Institute of Pathology

CLARK, KAREN (2004)
General Education (Communications)
M.A., Northern State University
M.Ed., South Dakota State University
B.A., Dakota Wesleyan University

DARCY, JOHN (2011)
Industrial Maintenance Technology
A.A.S., Northeast Community College
Undergraduate Studies: South Dakota State University

DEFRIES, DANNY (2010)
Wind Turbine Technology
M.Ed., Naval Postgraduate College
B.S., University of South Dakota-Springfield

DEGEN, CHRIS (2013)
Power Sports Technology
Diploma, Minnesota West
Undergraduate Studies: Dakota Wesleyan University

EHLKE, JERRY (2012)
Electrical Utilities and Substation Technology/
Power Line Construction and Maintenance
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

EIDEM, EVAN (2012)
Precision Technology Specialist
A.A.S., Colorado Technical Institute
Undergraduate Studies: South Dakota State University

FERGEN, DAN (2000)
Electronics/Automation Controls/SCADA
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

FENSKI, DEZARAE, RN, BSN (2014)
Medical Assistant
B.S., South Dakota State University
Graduate Studies: South Dakota State University

FLYNN, DEBORAH, MA, CCC-SLP (2010)
Speech-Language Pathology Assistant
M.A., University of South Dakota
B.S., South Dakota State University

FREEMAN, PAULA, RT (R), (T) (2005)
Radiation Therapy
Certificate, University of Minnesota School of Radiation Therapy
Certificate, Sioux Valley School of Radiologic Technology
Undergraduate Studies: South Dakota State University

FREY, SHAWN (2010)
Culinary Academy of South Dakota
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

FUERST, DOUGLAS (1998)
Electrical Construction and Maintenance
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

GARTON, DAVID JR. (1978)
Accounting/Business Management
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

GAIKOWSKI, GENE (2014)
Power Line Construction and Maintenance
Diploma, Mitchell Technical Institute
Undergraduate Studies, Dakota Wesleyan University

GIBLIN, DEBRA (2002)
Office Technology Specialist
M.A., University of South Dakota
B.S., University of South Dakota

GRABER, MICHELLE (2013)
General Education (Communications)
M.A., Minnesota State University, Mankota
B.A., University of Sioux Falls
A.A.S., Southeast Technical Institute

GRACE, JIM (1991)
Satellite Communications
A.A.S, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

GROSS, JULIE (2011)
General Education (Communications)
M.A., University of South Dakota
B.A., University of Sioux Falls

GUERICKE, JANELLE (2012)
Agricultural Technology
B.A., Dakota Wesleyan University

HAUGE, JUSTIN (2014)
Welding and Manufacturing Technology
Undergraduate Studies: Dakota Wesleyan University

HENKEL, JOHN (2013)
Electrical Construction and Maintenance
A.A.S., Mitchell Technical Institute
Undergraduate Studies: Dakota Wesleyan University

HERRMANN, LISA, M. Ed., RT (R), (T) (2006)
Radiologic Technology
M.Ed., South Dakota State University
B.H.S., Washburn University
Certificate, Sioux Valley School of Radiologic Technology

HOFER, JARED (2013)
SD Center for Farm/Ranch Business Management
M.B.A., University of South Dakota
B.A., University of South Dakota

JACOBSON, KURT (2010)
Power Sports Technology
A.A., Alexandria Technical College
Undergraduate Studies: South Dakota State University

JOHNSON, LISA, LPN (2013)
Medical Assistant
Diploma, Mitchell Technical Institute
Undergraduate Studies: Dakota Wesleyan University

JUHNKE, JASON (2010)
Heating and Cooling Technology
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

KERNS-GRAMS, CONNIE (2012)
Small Business Management
B.S., Upper Iowa University
A.A.S., Hawkeye Community College
Graduate Studies: Fort Hays State University

KOUPAL, DAVID (2010)
SD Center for Farm/Ranch Business Management
B.S., South Dakota State University
A.A.S., Mitchell Technical Institute

KRANZ, JOSH (2012)
Culinary Academy
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

KRIESE, RICK (2011)
Agricultural Technology
A.A.S., Lake Area Technical Institute
Undergraduate Studies: South Dakota State University

LORENZEN, KIM, M.D./PATHOLOGIST (1988)
Medical Director, Medical Laboratory Technology
B.S., University of South Dakota
M.D., University of South Dakota School of Medicine
Residency, Pathology, University of Nebraska
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Architectural Design and Building Construction
B.S., Dakota State University

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Farm Power Technology
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Undergraduate Studies: South Dakota State University

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Residency, General and Surgical Medicine, Iriga City, Philippines; Clinical Assistant Professor, University of South Dakota; Assistant Professor, University of St. Anthony, Iriga City, Philippines

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Commercial Driving
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MCENTEE, LINDA (1992)
General Education (Computers)
M.S., University of South Dakota
B.A., Augustana College

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Radiologic Technology
B.S., South Dakota State University
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Diploma, Methodist Hospital School of Radiology Technology

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Accounting/Business Management
M.A., University of Phoenix
B.S., Dakota State University

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Human Services Technician
M.S.W., University of Nebraska - Omaha
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MOKE, DALE (2012)
Industrial Controls
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

MUNSEN, MARK (1997)
Architectural Design and Building Construction
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

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Engineering Division (Computers)
M.S., Dakota State University
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Accounting/Business Management
M.A., Northern State University
B.A., University of South Dakota
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Outreach Trainer
A.A.S., National College of Business
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ODENS, KELLY, MS, MLT(ASCP) (2005)
Medical Laboratory Technology
M.S., Southwest State University
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OLNEY, KEMPTON (2012)
Propane and Natural Gas Technologies
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

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Power Line Construction and Maintenance
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Medical Director, Radiation Therapy
B.S., Cornell University
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Residency, Northwestern Memorial Hospital, Chicago
Radiation Oncology, University of Pennsylvania
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PETERSON, TRAVIS (2012)
Welding and Manufacturing Technology
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

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Advanced Medical Imaging
M.B.A., Colorado Technical University
B.S., Mount Marty College
Certificate, Sanford Medical Center School of Radiologic Technology

PUETZ, MICHAEL (1998)
Power Line Construction and Maintenance
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

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General Education (Mathematics)
M.A., University of South Dakota
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Advanced Medical Imaging
B.S., Florida Hospital College of Health Sciences
Certificate, Sioux Valley Hospital of Radiologic Technology

RENKEN, JOSH (2013)
Automation Controls/SCADA
A.A.S., Mitchell Technical Institute
Undergraduate Studies: Dakota Wesleyan University

REPENNING, LORI, DVM (2012)
Agricultural Technology
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B.S., University of Nebraska

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Wind Turbine Technology
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Undergraduate Studies: Dakota Wesleyan University

RUSSELL, ANNIKA (2008)
Accounting/Business Management
M.A., University of Nebraska-Lincoln
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RUSSELL, DEVON (2014)
Precision Technology Specialist
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Radiologic Technology
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Medical Office Professional
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Speech-Language Pathology Assistant
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Information Systems Technology
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Medical Laboratory Technology
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Electrical Construction and Maintenance
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General Education (Math)
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M.S., South Dakota State University
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Welding and Manufacturing Technology
A.A.S., Community College of the Air Force
Undergraduate Studies: Dakota Wesleyan University

THURY, RON (2002)
Heating and Cooling Technology
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

TILBERG, DON (2011)
Power Sports Technology
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Power Line Construction and Maintenance
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Satellite Communications/Telecommunications
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SD Center for Farm/Ranch Business Management
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