2012-2014 Catalog

Mitchell Technical Institute
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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.

Table of Contents

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. Fall 2013 will see further expansion to the South Campus location with a new Trades Center opening. The entire Institute will move to one location by the fall of 2013.

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 10% of 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.

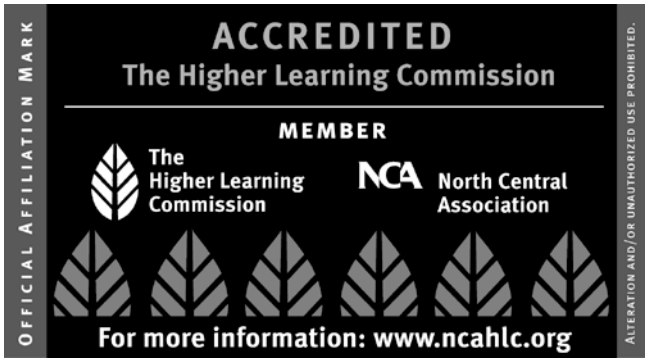
- Use word processing, e-mail and presentation software to effectively and professionally communicate information
- Create and manage workbooks using spreadsheet software
- Access and manipulate data using database software
- Use electronic resources to conduct research.

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

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 Curriculum Review Board of the American Association of Medical Assistants Endowment (AAMAE).

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

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

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

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

Where Are We Located

MTI is housed in two facilities. All administrative offices, including the president's office, Admissions office, Financial Aid office, Bookstore, Instructional Services Center, and the food service are located at the Spruce Street campus. Programs at that campus include:

Accounting
Business Management
Culinary Academy
General Education
Electrical Utilities & Substation Technology
Power Line Construction & Maintenance
Propane & Natural Gas Technologies
Utilities Technology
Wind Turbine Technology
Automation Controls/SCADA
Information Systems Technology
Office Technology Specialist
Satellite Communications
Telecommunications
Medical Assistant
Medical Laboratory Technology
Medical Office Professional
Radiation Therapy
Radiologic Technology
Speech-Language Pathology Assistant

Offices remaining at the Capital Street campus include the MTI Foundation and Corporate Education. Programs remaining at that campus include:

Agricultural Technology
Architectural Design & Building Construction
Electrical Construction & Maintenance
Farm Power Technology
Heating & Cooling Technology
Outdoor Power & Recreational Vehicle Technology
Precision Technology Specialist
Welding & Manufacturing Technology

MTI also has programs in Yankton, South Dakota through our outreach program:

Industrial Maintenance Technology
Office Technology Specialist

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 capable of benefiting from instruction 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, reading and communication skills.)

Students unable to meet program requirements may receive conditional acceptance. Students may upgrade conditional acceptance to official acceptance through a committee review, or by successfully completing coursework counting as requirements toward a program with a grade point average of at least 2.00.

Upon acceptance, students will be advised of courses and program options. Students may enroll for degree or diploma options.

If the program is fully enrolled, students will be placed on a waiting list according to their acceptance date.

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 (and college transcript if applicable). The application form is available at most high school guidance offices, at the MTI campus, and online on the MTI web site.
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 satisfactory ACT test scores. All applicants must submit ACT 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. Upon acceptance to a program:
    A. A start date will be identified.
    B. Evaluation for preparatory course work will be made.
    C. 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.**

Required Immunizations

South Dakota state law states that immunizations are required for students entering public or private postsecondary educational institutions in South Dakota. Thus, any such student entering Mitchell Technical Institute, must, within 45 days after the start of classes, present to the Office of Academic Affairs 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:

1. 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;
2. Certification from a licensed physician stating the student has experienced the natural disease against which the immunization protects;
3. Confirmation from a laboratory of the presence of adequate immunity; or
4. 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 eighteen, the written statement shall be signed by one parent or guardian.

Some programs, notably in the medical professions, may have additional immunization requirements for admission. These requirements will be included in the admissions materials provided to prospective students in these programs.

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 Dean of Enrollment, 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), ACT scores and/or COMPASS 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 COMPASS examination at MTI. ACT scores will be reviewed by the Admissions Committee and the Committee will determine if a student needs to complete the COMPASS 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 and/or COMPASS. 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 receive the minimum entrance scores on the GED exam. The student must also take the ACT or COMPASS entrance assessment and meet the required scores for the program.
2) Provide a home-school high school record of completion that has been certified by an accredited outside educational organization. The student must also take the ACT or COMPASS entrance assessment and meet 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 and Radiation Therapy has a February 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

High School Articulation

In some cases, a student may be able to transfer in credit from selected South Dakota high schools. Articulation is a cooperative effort between South Dakota's high schools and technical institutes. It links high schools with certificate, diploma and associate degree programs. It provides students with an opportunity to receive post-secondary credit at the technical institutes for skills mastered in high school. *It is the responsibility of the student to ensure that proper documentation is provided and that the articulation process is completed in order for credit to be received.* See the Dean of Enrollment or Registrar for details.

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 Outreach Coordinator for details.

International Students

In addition to completing the application procedures, all international students must provide the Admissions Office with the following:

1. A TOEFL score of 500 or above, or demonstrated competency.
2. A statement of financial support is available through the Admissions Office and must be completed.

The Admissions Office will advise international students who do not qualify under these requirements how they might remedy deficiencies.

Accessibility

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

Financial Information

Tuition and Fees

The tuition is set by the South Dakota Board of Education. Tuition and fees are payable at the time of registration. 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. 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. You will not be able to bring a laptop from home into an MTI laptop program as we cannot provide support services for every make and model of laptop. Please consider this carefully before making any laptop purchase and check with the Admissions office for more details.

Refund Policy

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 entitled to have a portion of their institutional costs returned to the federal financial aid program that provided the funds. The order in which refunds are applied to the financial aid programs is listed below.

Financial aid disbursed is earned according to what percentage of a semester the student has attended. For instance, if a student has attended only 10% of a semester and withdraws, the student has earned only that portion of financial aid and the remaining 90% must be returned to the financial aid program(s). See the MTI Student Handbook for more information.

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.

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 students 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 5 or less 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.

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 at 6.8%. 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 at 7.9%. 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.gibill.va.gov.

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 Spruce Street campus, are available exclusively 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 at both campus locations. 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 can 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 at 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.

After registering for classes, the student can visit Mitchell Tech's online Bookstore for information about the required course materials. The student will use the following process to access the information about required books for enrolled courses:

1. Go to www.mitchelltech.edu
2. Click on the "Book Store" link under "Current Students" heading.
3. Click on "MBS Bookstore" icon.
4. Click on "Order my books" icon.
5. Select the correct term.
6. Select the courses enrolled.
7. Click on "Submit Course ID Selection(s)" icon.

The student will now have a list of the course materials required for each course. At this point in time, books may be purchased. However, in many instances, the books can also be purchased through the MTI Bookstore or through a different online vendor.

When a student orders books online, shipping costs, delivery time, and buyback should be considered. MBS Bookstore has a guaranteed delivery time and guaranteed book buyback.

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 personal 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.

Student Laptop Computers on Campus

Required by program – Full access
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, Architectural Design and Building Construction, Ag Technology, Automation Controls/SCADA, Electrical Utilities & Substation Technologies, Information Systems Technology, Office Technology Specialist, Precision Technology Specialist, Medical Office Professional, Radiation Therapy, Satellite Communications, Telecommunications, Propane and Natural Gas Technologies, and Wind Turbine Technology (year two).

Not required by program – Full access
Students enrolled in programs that do not require a laptop but would like access to our network may login to our network after installing the Cisco Network Access Control (NAC) client. The client is self-service and can be installed at your leisure. Current system updates and current anti-virus definitions are required to have full network access. Systems that do not meet these requirements will not be accepted onto the network until those conditions are met.

Not required by program – Internet access
Students who wish to have Internet access on laptops, smartphones, tablets, and other devices may use our guest network. The MTI guest network can be accessed in any building through the guest portal using their MTI credentials. Our network acceptable use policy still applies to your activity on the guest network. Current system updates and current anti-virus definitions are required to join the network. Systems that do not meet these requirements will not be accepted onto the guest network until those conditions are met.

Student Technical Support
Students who purchase laptops/tablets 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 hotspots. 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 21 computers, all with high-speed Internet and standard software; 70 journal and magazine subscriptions; 3,000-plus books with a web-based searchable card catalog; eight state and regional daily newspapers; and South Dakota's Internet-based library resources providing access to academic research databases such as ProQuest, InfoTrac, EBSCO, Learning Express Library, Medline Plus, netLibrary, and World Book Advanced.

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.

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 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.

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 web site 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. At the registration session, faculty and staff will assist the student with selection of courses, completion of registration forms and answer questions the student may have about the registration process. Academic Advisors are assigned to each student. Advising dates are scheduled each semester.

Registration

Students admitted to class must be officially registered. A student must file registration forms and pay all tuition and fees, or make other financial arrangements with the Business office. Students who do not complete the registration process will not receive credit for courses.

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

With the permission of the Registrar's office, students may request to enroll in independent study projects. 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.

Canceled Courses

MTI reserves the right to cancel course sections due to low enrollment or other factors. Students will be notified and the Registrar 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 number indicates the level of instruction as follows:

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. A college credit hour is a unit of measure that is used to quantify progress in or completion of a college course, program, or degree. In higher education, one semester credit generally involves 45 hours of activity. A lecture credit generally is comprised of 15 hours of classroom instruction from a qualified instructor, and an expectation of an additional 30 hours of student supplemental study or activity outside of the classroom. A lab credit is generally comprised of 30 hours of laboratory instruction from a qualified instructor with an expectation of an additional 15 hours of supplemental study or activity by the student outside the classroom.

An internship or externship credit involves approximately 40 hours of training at an actual job location, 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.

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 can be used to determine full-time status for health insurance purposes, but cannot be used in financial aid calculations. See the Financial Aid office for details.

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 larger. 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.

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. Students must register for the internship course through the Registrar's office. All tuition and fees apply.

Additional information regarding internships at MTI may be obtained in the MTI Internship Guide or by speaking with the program instructor or the Career Services 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 end of the fourth week after the beginning of each semester or start date. Registration costs for summer courses must be paid by the end of the second week after the start date. 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.**

Class Schedule Change

Any changes in a student's registration (including adding or dropping a course) must be completed on a Course Change Form. Semester courses may be added through the 5th day of a semester or with the approval of the course instructor, or 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.

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 may fail the course.

A student may drop a course through the **48th school day** of the semester. Courses dropped during the first 10 days of the semester will not be recorded on transcripts. From days 11-48, the student who drops will be issued a grade of "W" to indicate official withdrawal. (A "W" grade is not computed in the student's grade point average.) Students will not be allowed to withdraw from specific courses after the **48th day** except under unusual circumstances and with the approval of the Vice-President for Academic Affairs. Students who stop attending classes are not automatically withdrawn. Students who quit attending classes after **48 days** and have not completed the withdrawal procedure will receive a failing grade.

A student must initiate the withdrawal process in writing. An explanation of the process is outlined in the MTI Student Handbook. Financial aid is prorated based upon the number of credits for which a student is enrolled and may be impacted by a drop or withdrawal.

No registration change is official until the properly approved form is filed with the Registrar's office; the official date of the add or drop is the date the form is filed in the Registrar's office.

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. It is with the intent of providing for orderly management that MTI has established the following rules:

1. Instructors shall establish attendance policies for each class. Students are expected to become familiar with these policies and follow them.
2. Attendance shall be taken and recorded at each regularly scheduled class meeting.
3. Tardiness and leaving class early may be treated in the same manner as absences.
4. Instructors may excuse absences when the absence results from illness, accident, death in family, religious observance, holidays and other circumstances beyond the student's control, or for participation in authorized professional or Institute activities.
5. Instructors shall determine what work should be made up.
6. Final grades may be affected by attendance to the extent that the instructor has included attendance in the "method by which the final grade is determined" and has provided this information to the students in the course syllabus.
7. 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.
8. All drops and withdrawals shall be recorded on the student's record in the same manner.

Withdrawal From School

Students withdrawing from school must:

1. Complete a withdrawal form obtained from the Registrar's office.
2. Return locker key and ID Card.
3. Complete an exit interview with the Retention Coordinator, Learning Services Coordinator, or the Registrar.
4. Confirm withdrawal status.

The date of the completed withdrawal form will determine the amount, if any, of a tuition refund to be made after Title IV funds have been returned to the federal government.

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".

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.

Fulltime 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 75% of the credits attempted each semester in order to complete graduation requirements within the maximum 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 NOT cover the cost of any course previously passed with a grade of A, B, C or D that is repeated.

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. GPA calculations are made and the President's List is published once each semester. Students receiving an incomplete grade ("I") in any class are not eligible for the President's List.

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 will result in a failing grade ("F") for the class. Incomplete forms are available from the instructor.

Grade Appeals

Students have the right to appeal a grade if they feel they have been graded unfairly. Students wishing to appeal a grade may do so by submitting a statement of their reason for appeal to the Vice-President for Academic Affairs no less than four calendar weeks into the subsequent term after the grades have been released. The request is considered by the Vice-President for Academic Affairs and the instructor.

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 their first semester and for any subsequent 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.

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, Registrar, or the Vice-President for Academic Affairs immediately to evaluate the probability of achieving the necessary GPA of 2.0 needed to graduate.

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.

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

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 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 for 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. Only the grade from the second attempt will be calculated into a GPA.

Change of Program

Students may request a change of programs within the Institute by applying for acceptance into the new program. Transfer is based on availability. No transfer is guaranteed.

When a student changes programs, credits may be applied to the new program. Only grades of "C" or better in comparable, required technical courses may be 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.

Change of Program to Improve GPA

Qualifying students may increase a poor GPA if they change to a new program and successfully complete at least 12 credit hours in the new area with a minimum GPA of 2.0. If the student successfully completes 12 or more credits in the new program with a GPA of 2.0 or higher, the poor grades from the former program will remain on the transcript, but will not be used in any GPA calculation.

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.

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 and the costs for the semester they are entering school.
2. Receive approval from the Vice-President for Academic Affairs and the respective Instructor.
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 or high schools 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. The last grade earned will be the recorded grade. 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. Courses outside of MTI's areas of study will not be accepted for transfer.
4. Transfer students must complete a minimum of 30 credits of their coursework, including their final semester of a program, at MTI to earn a degree or diploma.
5. Students who choose to transfer articulated high school courses to MTI should contact the Dean of Enrollment.
6. To transfer credit, an Application for Admission must be on file and a student must have accepted status before credits will be transcribed.
7. Non-credit courses from MTI's Corporate Education division may be considered toward meeting credit course requirements. Students requesting such credit transfers must present a certificate of completion to the Vice-President for Academic Affairs' office at MTI. The grade recorded on the student's academic record will be "CR" (credit).

Transferring Credits to Other Institutions

Mitchell Technical Institute maintains transfer agreements with many other technical institutes, colleges and universities. Whether or not to accept credits is at the discretion of the receiving institution. Students who wish to transfer should contact the school they wish to attend.

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. Some credit may be allowed towards a diploma or degree. Life experiences 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.

Advanced Standing

Prior learning/work experience may allow a student to enter a program of study without starting at the beginning. Point of entry will be determined by the Registrar and academic advisor.

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 classes, an instructor may notify a student that Test Out is available for that 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. The completed form must be in the Registrar's office before credit can be recorded on a student's academic record.

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 entered on 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 $25 per credit fee to audit a course. A Class Audit form is available in the Registrar's office. Students enrolled for credit have first priority for space available in any MTI course.

Competency Requirements

Mitchell Technical Institute uses a competency-based education curriculum in which each program has identified competencies to be mastered by students. Each program reserves the right to require and to test mastery of the competency by its graduates. Thus, in cases where program course requirements are met by transfer or nontraditional credits, the Department may still require students to complete portions of courses to master specific competencies that were not met in the students' prior coursework or experience.

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, Dean of Enrollment, and 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 as defined in the Student Handbook. However, the Institute provides students with the opportunity to request nondisclosure of information.

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. Due to the complex nature of the statistical data, an explanation is available with the information from the Vice-President for Academic Affairs for those students who request it.

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. To secure 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:
   A. Diploma Students
      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 students
      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

Students are required to fulfill all financial obligations to the school including outstanding tuition, parking fines, returned check charges, childcare bills, etc. Students shall not be permitted to receive their transcripts, diplomas, degrees and certificates until the indebtedness is settled.

Students are required to comply with the policies and regulations of the MTI catalog and the Student Handbook in the school years in which they attend.

Conferring of Degrees and Diplomas

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

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 3.5 - 3.74 cumulative grade point average.

Degree Audit

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, Mitchell Technical Institute provides each student with an Academic Advisor. The Registrar completes a degree audit for each student during the final semester of their program.

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 AAS requirements in their respective field. The following guidelines will be used to determine an applicant's eligibility to receive the AAS degree:

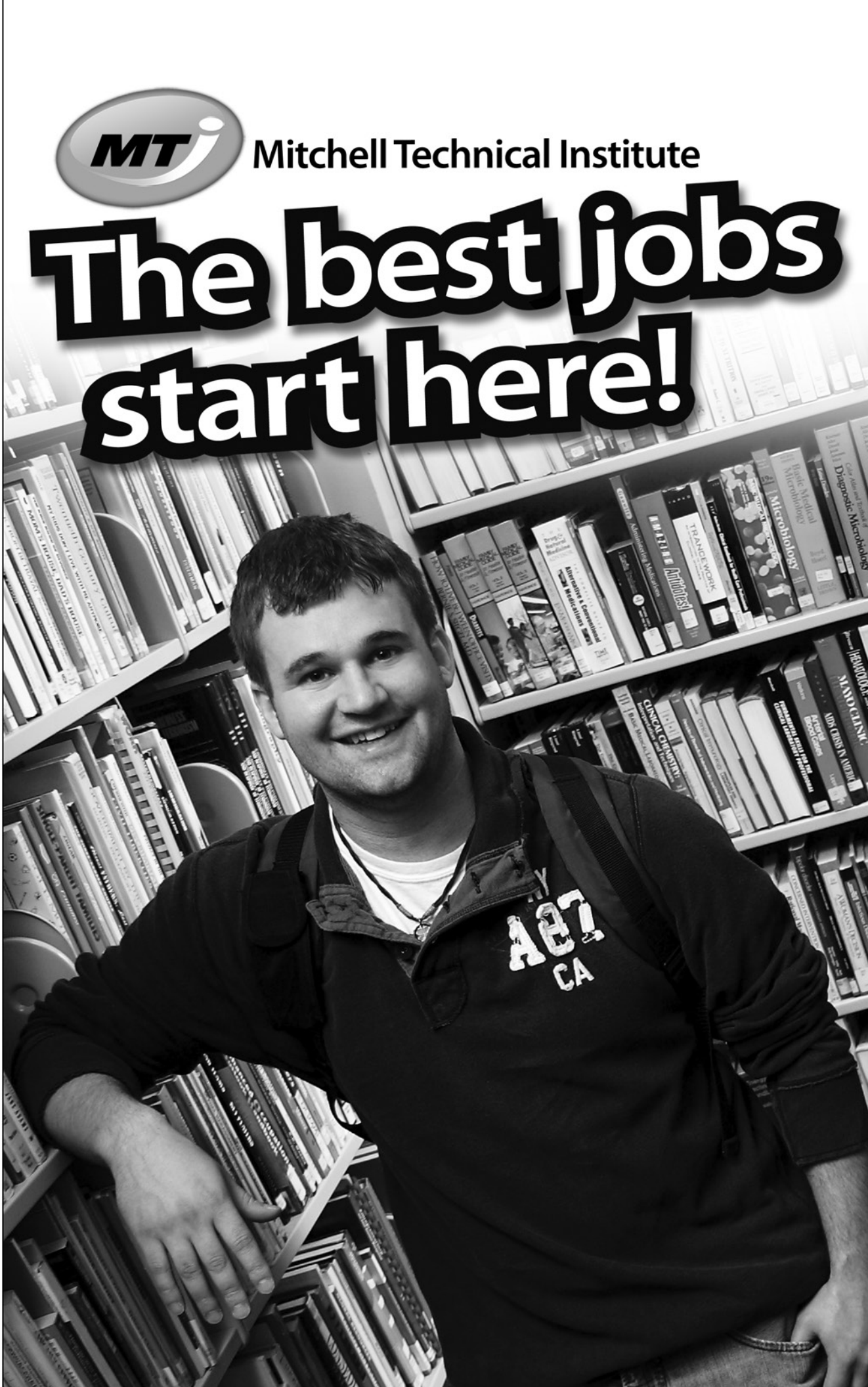
1. Courses counted toward the degree shall have been taken within the seven (7) years prior to granting the degree, or there is satisfactory evidence that the applicant's respective knowledge and skills fulfill current standards and requirements.
2. The respective department(s) shall review an applicant's transcripts record 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 after AAS degree requirements have been met.

The student will pay a $50 records processing fee and any other fees for a new diploma, transcript, etc. ***Please note: At least 75% of the general education courses required for the degree upgrade must be transcripted credit and not life experience.***

Programs Offered

Mitchell Technical Institute

The best jobs start here!



Program Offerings

Accounting/Business Management

MTI offers two options for business degrees. Both 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 emphasis or the Management emphasis their second year. Bookkeeping certification exams will also be offered.

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 and supervisory management.

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

Accounting Emphasis

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

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
ACCT	220	Computer & Accounting Applications	3
ENGL	202	Technical Communication	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 Operations	3
or			
ACCT	290	Internship	3
			16

Total Credits Required to Graduate: 73
Award: AAS Degree

Business Emphasis

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

Third Semester			Semester Credits
ACCT	214	Cost Accounting I	3
BUS	210	Sales & Advertising	3
BUS	212	Principles of Management	3
or			
BUS	170	Entrepreneurship & Small Bus. Mgmt	4
BUS	214	Principles of Insurance	3
ACCT	220	Computer & Accounting Applications	3
ENGL	202	Technical Communication	3
			18/19

Fourth Semester			Semester Credits
ACCT	221	Accounting Software Applications	2
BUS	217	Database Operations	3
BUS	218	Intro to Human Resource Management	3
BUS	220	Supervisory Management	3
BUS	235	Investments	3
Electives (Choose one)			
ACCT	118	Tax Accounting for Business	3
ACCT	215	Cost Accounting II	3
BUS	290	Internship	3
			17

Total Credits Required to Graduate: 74
Award: AAS Degree

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.

Students are expected to conform to MTI's Drug Testing Policy while enrolled in the Commercial Driving Course. See the Student Handbook 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.

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 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.***

Award: AAS Degree

First Semester			Semester Credits
AGT	101	Animal Science I	3
AGT	102	Weeds & Herbicides	3
AGT	103	Machinery Management	3
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
			21

Second Semester			Semester Credits
AGT	100	First Aid/CPR	0.5
AGT	110	Crop Science I	3
AGT	112	Fertilizers	3
AGT	130	Livestock Selection	2
AGT	160	Commodity Marketing I	3
OPRV	120	Basic Engine Theory & Operation	2
OPRV	121	Basic Engine Lab	2
ENGL	201	Technical Writing	3
AND			
AGT	180	Ag Production Lab	4
or			
AGT	190	Internship I	4
			22.5

SECOND YEAR: Students Choose a Track

Ag Production

Third Semester			Semester Credits
AGT	211	Farm Accounting	3
AGT	212	Ag Chemical Equipment	3
AGT	242	Livestock Diseases	2
CIS	105	Complete Computer Concepts	3
		Behavioral Science Elective	3
Electives (Choose two or three)			
AGT	210	Crop Science II	3
AGT	220	Soil Science II	2
AGT	240	Reproductive Physiology	3
AGT	245	Animal Nutrition	2
AND			
AGT	291	Land Lab I	1
or			
AGT	295	Animal Science Lab I	1
			19-23

Fourth Semester			Semester Credits
AGT	214	Ag Law	3
AGT	215	Ag Finances	3
SOC	110	Industrial Relations	3
Electives (Choose two or three)			
AGT	213	Welding	2
AGT	223	Building Principles/Electrical	3
AGT	241	Feed Utilization	2
AGT	244	Farm Animal Parasitology	2
FPWR	120	Diesel Engine & Control Systems	3
AND			
AGT	292	Land Lab II	1
or			
AGT	296	Animal Science Lab II	1
AND			
AGT	285	Supervised Occupational Experience	6
or			
AGT	290	Internship II	6
			20-24

Ag Business

Third Semester			Semester Credits
AGT	211	Farm Accounting	3
AGT	212	Ag Chemical Equipment	3
AGT	261	Ag Sales & Service	3
AGT	291	Land Lab I	1
CIS	105	Complete Computer Concepts	3
		Behavioral Science Elective	3
Electives (Choose two)			
AGT	210	Crop Science II	3
AGT	220	Soil Science II	2
AGT	242	Livestock Diseases	2
			20-21

Fourth Semester			Semester Credits
AGT	214	Ag Law	3
AGT	215	Ag Finances	3
AGT	216	Ag Business Management	3
AGT	262	Ag Business Accounting	2
AGT	292	Land Lab II	1
SOC	110	Industrial Relations	3
AGT	290	Internship II	6
			21

Total Credits Required to Graduate: 82.5
Award: AAS Degree

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 during the final semester of the program.

What makes this program special?

- Our instructors are Certified Green Professionals and Home Energy Raters
- We build to Energy Star specifications
- All 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)
- 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™

ENERGY STAR PARTNER

RESNET®
Residential Energy Services Network

Program Requirement: Successful completion of all 100 level technical courses is required to continue into advanced 200 level courses. Students must earn a grade of 2.0 (C) in all technical courses and during 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
AD	101	Principles of Drafting I	2
AD	111	Construction Math I	2
AD	151	Architectural Drafting Lab I	4
BC	121	Principles of Building Construction I	4
BC	151	Building Construction Lab I	4
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
			20

Second Semester			Semester Credits
AD	102	Principles of Drafting II/CAD	2
AD	112	Construction Math II	2
AD	152	Architectural Drafting Lab II/CAD	3
AD	172	First Aid/CPR	0.5
BC	122	Principles of Building Construction II	2
BC	130	Cabinetry	2
BC	152	Building Construction Lab II	3
		English Elective	3
		Behavioral Science Elective	3
			20.5

Third Semester			Semester Credits
AD	221	Adv. Building Principles	3
AD	241	Principles of Commercial Construction	4
BC	222	Construction Equipment	1
BC	251	Building Construction Lab III	5
BC	282	Welding	2
OSHA	100	OSHA 10 Training	1
		Math Elective	3
		Social Science Elective	3
			22

Fourth Semester			Semester Credits
AD	211	Estimating	3
BC	252	Building Construction Lab IV	6
BC	263	Adv. Green Building	1
BC	272	Construction Business Management	4
BC	290	Commercial Construction Internship	5
BUS	116	Quickbooks	1
			20

Total Credits Required to Graduate: 82.5

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	112	Electronics Theory	4
EC	121	DC/AC Circuit	3
EC	151	Electronics Laboratory I	5
EC	161	Electronics Math	2
EC	167	IT Essentials	3
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	140	Digital Fundamentals	2
EC	142	Industrial Power Electronics	3
SD	157	SCADA Electronics Lab	5
EC	139	Cisco Discovery I	3
		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
		Math Elective	3
			12

Fourth Semester (Fall)			Semester Credits
SD	210	Bus Structures	1
SD	220	Wireless Communications	3
SD	225	Intro to SCADA Software	4
SD	230	Intro to Visual Basic	3
SD	280	Data Cabling Lab	2
OSHA	100	OSHA 10 Training	1
		Behavioral Science Elective	3
			17

Fifth Semester (Spring)			Semester Credits
SD	170	Basic Heating & Cooling for SCADA	2
SD	205	Process Controls	3
SD	235	Visual Basic for SCADA	2
SD	239	Networking Concepts	3
SD	255	Special Topics	1
SD	270	SCADA Testing & Control Lab	7
		Social Science Elective	3
			21

Total Credits Required to Graduate: 89

The best Jobs start here!

Culinary Academy of South Dakota

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 modern food service, 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.

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 very cold working conditions.

Award: One-year Diploma or AAS Degree

First Semester			Semester Credits
CA	107	Customer Service	2
CA	130	Bakery Lab I	2
CA	162	Sanitation and Safety Lab	2
CA	163	Food Service Math	3
CA	170	Food Theory I	3
CA	171	Food Production I	2
CA	172	Service Lab I	2
CA	174	First Aid/CPR	0.5
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
			20.5

Second Semester			Semester Credits
CA	103	Controlling Restaurant Cost	3
CA	132	Bakery Lab II	2
CA	180	Food Theory II	3
CA	181	Food Production II	2
CA	182	Service Lab II	2
CA	187	Community Service	1
CA	208	Hospitality & Management	3
		English Elective	3
		Math Elective	3
			22

AAS Degree ONLY

Third Semester			Semester Credits
CA	200	Nutrition	3
CA	201	Advanced Foods & Supervision I	6
BUS	101	Intro to Business	3
BUS	110	Accounting for Business I	4
		Social Science Elective	3
			19

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
		Behavioral Science Elective	3
			15

AAS Degree ONLY (Summer)			Semester Credits
CA	280	Internship	6

Total Credits Required to Graduate: 42.5 (Diploma)
Total Credits Required to Graduate: 82.5 (AAS)

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.

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	3
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
			19

Fourth Semester			Semester Credits
ECM	172	First Aid/CPR	0.5
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
OSHA	100	OSHA 10 Training	1
			18

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 28 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 licensed Journeyworker lineman or a graduate of an accredited power line program.

Note: Students are required to purchase a laptop computer from MTI for this program. 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
EUST	107	Basic Hydraulics	1
EUST	110	Intro to Basic Motor Controls	1
EUST	114	Substation Operations Lab	3
EUST	120	Substation Operations I	3
EUST	150	Substation Safety I	1
EUST	160	NERC Compliance	1
EC	167	IT Essentials	3
SD	140	Intro to SCADA I	3
PSYC	101	General Psychology	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	1
EUST	151	Substation Safety II	1
EC	139	Cisco Discovery I	3
SOC	110	Industrial Relations	3
			17

Total Credits Required to Graduate: 36 (AAS)

Students who have previously completed a diploma in Power Line Construction and Maintenance will need to complete all of the general education requirements in order to be awarded an AAS degree.

In addition to the technical courses required by the 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

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.

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
TRAN	100	Commercial Drivers License	1
SSS	100	Student Success	1
		English Elective	3
		Math Elective	3
			20

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	3
FPWR	107	Intro to Hydraulics	1
FPWR	121	Adv. Diesel Engine & Control Systems	3
OSHA	100	OSHA 10 Training	1
CIS	105	Complete Computer Concepts	3
			19

Third Semester			Semester Credits
FPWR	200	Powertrain & Drive Systems	3
FPWR	202	GPS/GIS Lab	4
PTS	102	Principles of GPS/GIS	2
PTS	104	Intro to Yield Monitoring Systems	3
AGT	212	Ag Chemical Equipment	3
		Behavioral Science Elective	3
		Social Science Elective	3
			21

Fourth Semester			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
FPWR	290	Internship	6
AGT	213	Welding	2
			20

Total Credits Required to Graduate: 80

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.

Award: One-Year Diploma or AAS Degree

First Semester			Semester Credits
ECM	101	Electrical Fundamentals	4
HV	111	Heating Fundamentals	3
HV	121	AC and Refrigeration Fundamentals	4
HV	151	AC/Heating/Refrigeration Laboratory I	5
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
		English Elective	3
			23

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 Laboratory 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 Laboratory III	4
		Social Science Elective	3
		Behavioral Science Elective	3
			19

AAS Degree ONLY

Fourth Semester			Semester Credits
HV	170	SCADA for HCT	2
HV	202	Commercial Refrigeration	4
HV	252	AC/Heating/Refrigeration Laboratory IV	5
HV	259	DDC Temperature Control	3
HV	290	Internship	5
OSHA	100	OSHA 10 Training	1
			20

Total Credits Required to Graduate: 43 (Diploma)
Total Credits Required to Graduate: 82 (AAS)

The best jobs start here!

Utilities/Heating & Cooling Technology

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.

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
ECM	101	Electrical Fundamentals	4
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

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: 75.5

PNG Curriculum

First/Third Semester			Semester Credits
NG	100	Electrical Circuits & Testing	2
NG	102	Gas Operations & Maintenance	5
NG	106	Gas Mapping and Math	2
NG	110	Gas Operations & Maintenance Lab	4
NG	172	First Aid/CPR	0.5

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
TRAN	100	Industrial Transportation/CDL	1
OSHA	100	OSHA 10 Training	1

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.

The Industrial Maintenance Technology program begins with a solid foundation in electrical fundamentals, industrial controls, and troubleshooting, combined with hands-on training in hydraulics, welding, mechanical drives, and heating and cooling technology. This is integrated with the Green Building Council's LEED (Leadership in Energy and Environmental Design) standards for operation and maintenance of commercial buildings. This provides students with an understanding of efficient energy practices and the opportunity to test for the LEED Green Associate certification.

Graduates of this program will find opportunities in many areas large and diverse in business focus 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
MATH	104	Technical Math	3
SSS	100	Student Success	1
			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
ENGL	201	Technical Writing	3
OSHA	100	OSHA 10 Training	1
			19

Total Credits Required to Graduate: 36.5

The best jobs 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 adding users to company computer systems, establishing and editing user rights and working with 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 are 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 Compass exam. Students not meeting the miminum math entrance score will be required to enroll in a 3-year option. Students needing the 3-year option may not be able to maintain full-time enrollment status, which may, in turn, affect financial aid.*

Award: One-Year Diploma or AAS Degree

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

First Semester			Semester Credits
CST	110	Network Media	2
CST	130	A+ Core Hardware/Operating Systems	6
CST	140	Cisco CCNA I	6
CST	159	LINUX Systems	2
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
			20

Second Semester			Semester Credits
CST	105	SQL Database Management	2
CST	112	MS Server Administration	5
CST	125	A+ Certification Prep	1
CST	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			Semester Credits
CST	222	Information Security I	2
CST	243	Cisco CCNA III	5
CST	264	MS Active Directory	4
CST	265	Network Monitoring & Management	2
EC	110	Intro to Telephony/VoIP	2
		Behavioral Science Elective	3
			18

Fourth Semester			Semester Credits
CST	208	Computer Forensics	3
CST	244	Cisco CCNA IV	5
CST	256	Information Security II	3
CST	286	Internship	6
		Social Science Elective	3
			20

Total Credits Required to Graduate: 77

Second Year (System Administration)

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

Fourth Semester			Semester Credits
CST	207	Datacenter Logistics	2
CST	208	Computer Forensics	3
CST	259	LINUX Server Administration	3
CST	268	MS Exchange Server	4
CST	286	Internship	6
		Social Science Elective	3
			21

Total Credits Required to Graduate: 78

Second Year (Computer Support Specialist)

Third Semester			Semester Credits
CSS	120	Outlook Essentials	2
CSS	122	Customer Service	3
CSS	143	Document Production	3
CSS	163	Spreadsheet Concepts and Applications	3
BUS	110	Accounting for Business I	4
		Behavioral Science Elective	3
			18

Fourth Semester			Semester Credits
CSS	170	Desktop Publishing	3
CSS	171	Multimedia Concepts	3
CSS	181	Database Concepts and Applications	3
CSS	203	Web Design	3
		Social Science Elective	3
			15

Total Credits Required to Graduate: 72

The best jobs start here!

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 applying 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.

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
PSYC	101	General Psychology	3
SSS	100	Student Success	1
			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-9 Coding	3
CIS	105	Complete Computer Concepts	3
MATH	101	Intermediate Algebra	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	First Aid/CPR	0.5
MA	221	Examination Room Techniques II	3
MA	240	Cardiac Monitoring and Care	2
MA	250	Clinical Externship	6
MA	281	Medical Transcription	3
MOP	212	Electronic Medical Records	3
			17.5

Total Credits Required to Graduate: 73.5

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 Curriculum Review Board of the American Association of Medical Assistants Endowment (AAMAE).

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

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 strongly recommended that applicants have taken chemistry, biology, higher math and show an interest and aptitude in science. 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 applying 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.

Program Graduation Requirement: Students must earn a grade of C or higher in all technical courses including the clinical practicum in order to graduate.

Award: AAS Degree

First Semester			Semester Credits
ML	104	Medical Laboratory Fundamentals	4
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
			20

Second Semester			Semester Credits
ML	111	Hemostasis	2
ML	112	Hematology	6
ML	121	Urinalysis/Body Fluids	3
ML	141	Basic Chemistry	4
ML	171	Immunology/Serology	3
ENGL	101	English Composition I	3
			21

Third Semester			Semester Credits
ML	100	First Aid/CPR	0.5
ML	230	Clinical Chemistry	4
ML	240	Microbiology	6
ML	272	Immunohematology/Blood Banking	3
		Behavioral Science Elective	3
		Social Science Elective	3
			19.5

Fourth Semester Clinical Practicum			Semester Credits
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 Clinical Practicum			Semester Credits
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: 82.5

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

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.

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 or more.

Admission Requirement: All students applying 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 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
ENGL	101	English Composition I	3
SSS	100	Student Success	1
			18

Second Semester			Semester Credits
MOP	160	CPT/ICD-9 Coding	3
MOP	205	Computers in the Medical Office	3
BUS	111	Accounting for Business II	4
MA	123	Pathophysiology	3
MA	162	Medical Law & Ethics	2
		Math Elective	3
			18

Third Semester			Semester Credits
MOP	103	Medical Office Administration	3
MOP	206	Transcription I	4
MOP	210	Medical Insurance & Billing	3
MOP	260	Advanced Coding I	2
		Social Science Elective	3
		Behavioral Science Elective	3
			18

Fourth Semester			Semester Credits
MOP	208	Transcription II	4
or			
MOP	262	Advanced Coding II	3
MOP	212	Electronic Medical Records	3
MOP	220	Pharmacology Basics	2
MOP	290	Clinical Internship	8
MA	100	First Aid/CPR	0.5
			16.5/17.5

Total Credits Required to Graduate: 70.5

The best jobs start here!

Office Technology Specialist

If computers are your passion and you'd like to earn a living sharing your knowledge with others, consider a career in a computer or technology area at Mitchell Technical Institute.

Most businesses and organizations require office/computer support at all levels: word processing, web design, database management, spreadsheets, desktop publishing, bookkeeping, sales, finance, specialty software support, training, hardware and more. If you like to learn about applications, develop projects that incorporate creativity, provide customer service and work in a business environment, you'll find a fit in one of our specialty areas.

Our one-year option will allow you to earn a diploma as an Office Technology Specialist. If you return for a second year, you can specialize in business or computer support. Classes are delivered both face-to-face and online.

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

Office Technology Specialist (one-year diploma)

First Semester			Semester Credits
CSS	120	Outlook Essentials	2
CSS	122	Customer Service	3
CSS	143	Document Production	3
CSS	163	Spreadsheet Concepts and Applications	3
BUS	110	Accounting for Business I	4
SSS	100	Student Success	1
		English Elective	3
			19

Second Semester			Semester Credits
CSS	170	Desktop Publishing	3
CSS	171	Multimedia Concepts	3
CSS	181	Database Concepts and Applications	3
CSS	203	Web Design	3
CSS	206	IT Essentials	3
or			
BUS	111	Accounting for Business II	4
		Math Elective	3
			18/19

Total Credits Required to Graduate with One-Year Diploma: 37

Administrative Office Specialist (AAS Degree)

Third Semester			Semester Credits
BUS	101	Introduction to Business	3
		Communication Elective	3
		Behavioral Science Elective	3
Choose 3 Electives:			
ACCT	214	Cost Accounting I	3
BUS	131	Business Math	3
BUS	210	Sales and Advertising	3
BUS	212	Principles of Management	3
BUS	214	Principles of Insurance	3
			18

Fourth Semester			Semester Credits
		Social Science Elective	3
Choose 5 Electives:			
ACCT	215	Cost Accounting II	3
ACCT	221	Accounting Software Applications	2
BUS	100	Personal Finance	3
BUS	120	Principles of Marketing	3
BUS	122	E-Commerce	3
BUS	140	Business Law	3
BUS	218	Intro to Human Resource Management	3
BUS	220	Supervisory Management	3
BUS	235	Investments	3
BUS	290	Internship	3
			17/18

Total Credits Required to Graduate with AAS Degree: 72

Computer Support Specialist (AAS Degree)

Third Semester			Semester Credits
CST	110	Network Media	2
CST	130	A+ Core Hardware/Operating Systems	6
CST	140	Cisco CCNA I	6
CST	159	LINUX Systems	2
		Behavioral Science Elective	3
			19

Fourth Semester			Semester Credits
CST	105	SQL Database Management	2
CST	112	MS Server Administration	5
CST	141	Cisco CCNA II	5
CST	125	A+ Certification Prep	1
		Social Science Elective	3
			16

Total Credits Required to Graduate with AAS Degree: 72

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 6 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: *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
TRAN	100	Industrial Transportation/CDL	1
OSHA	100	OSHA 10 Training	1
SSS	100	Student Success	1
		English Elective	3
			20

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
PL	173	First Aid/CPR	0.5
CIS	105	Complete Computer Concepts	3
		Math Elective	3
			20.5

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.

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
CIS	105	Complete Computer Concepts	3
		English Elective	3
SSS	100	Student Success	1
			20

Second Semester			Semester Credits
OPRV	106	Adv. Service Center Fundamentals	3
OPRV	107	Service Fundamentals Lab	2
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
OSHA	100	OSHA 10 Training	1
		Math Elective	3
			20

Total Credits Required to Graduate: 40 (Diploma)

Third or Sixth Semester (Summer)			Semester Credits
OPRV	185	Internship	6

Fourth Semester (Fall)			Semester Credits
OPRV	208	Intro to Fabrication & Custom Finishes	3
OPRV	235	Intro to Fuel Injection & Electronic Control Systems	4
OPRV	260	Marine Technology	3
OPRV	261	Marine Technology Lab	3
BUS	101	Intro to Business	3
		Behavioral Science Elective	3
			19

Fifth Semester (Spring)			Semester Credits
OPRV	209	Adv. Fabrication & Custom Finishes	3
OPRV	236	Adv. Fuel Injection & Electronic Control Systems	4
OPRV	262	Adv. Marine Technology & Diagnostics	3
OPRV	263	Adv. Marine Tech. & Diagnostics Lab	3
OPRV	280	Successful Service Management	3
		Social Science Elective	3
			19

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	107	Basic Hydraulics	2
PTS	112	Electronics for Precision	3.5
EC	167	IT Essentials	3
EC	151	Electronics Lab I	5
SSS	100	Student Success	1
			16.5

Second Semester			Semester Credits
PTS	103	Intro to Variable Rate Systems	3
PTS	201	Intro to Guidance Systems	3
PTS	203	Precision Lab I	4
AGT	110	Crop Science I	3
EC	211	Wireless Communications	3
		English Elective	3
			19

Third Semester (Summer)			Semester Credits
PTS	290	Internship	6

Fourth Semester (Fall)			Semester Credits
PTS	104	Intro to Yield Monitor Systems	3
PTS	108	Intermediate Hydraulics	3
AGT	120	Soil Science I	3
AGT	261	Ag Sales & Service	3
CIS	105	Complete Computer Concepts	3
		Social Science Elective	3
			18

Fifth Semester (Spring)			Semester Credits
PTS	202	GIS Applications	4
PTS	206	Precision Lab II	4
AGT	100	First Aid/CPR	0.5
AGT	104	Ag Chemicals	2
AGT	262	Ag Business Accounting	2
MATH	101	Intermediate Algebra	3
		Behavioral Science Elective	3
			18.5

Total Credits Required to Graduate: 78

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.

Award: One-Year Diploma

First Semester			Semester Credits
NG	100	Electrical Circuits & Testing	2
NG	102	Gas Operations & Maintenance	5
NG	106	Gas Mapping and Mathematics	2
NG	110	Gas Operations & Maintenance Lab	4
NG	172	First Aid/CPR	0.5
CIS	105	Complete Computer Concepts	3
SOC	110	Industrial Relations	3
SSS	100	Student Success	1
			20.5

Second Semester			Semester Credits
NG	101	Gas Appliance Service and Controls	3
NG	103	Gas Installation Lab	5
NG	105	Measurement and Control	5
TRAN	100	Industrial Transportation/CDL	1
OSHA	100	OSHA 10 Training	1
		English Elective	3
		Math Elective	3
			21

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, hospitals, clinics, private office and research centers. 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: February 28.**

Admissions Requirements: All students applying 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 with a minimum grade of "C" in order to become registry-eligible. Students who do not achieve a "C" 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 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
RTH	100	First Aid/CPR	0.5
RTH	200	Introduction to Radiation Therapy	2
RTH	201	Nursing & Patient Care Issues	2
RTH	202	Radiation Therapy Physics I	3
RTH	203	Rad Therapy Physics II	3
RTH	205	Clinical Radiation Oncology	4
RTH	206	Simulation & Medical Imaging	3
RTH	207	Radiation Biology	1
			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

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 Alegebra	3
SSS	100	Student Success	1

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

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.

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.

Admissions Requirements: Visitation of a radiology department, submission of a written essay describing and analyzing the visit and a personal interview with the MTI Admissions Committee. **Deadline for application: January 15.**

Admission Requirement: All students applying 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 with a minimum grade of "C" in order to become registry-eligible. Students who do not achieve a "C" 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.

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
RAD	200	First Aid/CPR	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

The best 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 an optional one-year program following their Satellite Communications degree. Information Systems Technology is offered for a one-year diploma giving students more skills in information technology and data networking. They may also enroll in Telecommunications and earn a second AAS degree.

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	4
EC	121	DC/AC Circuit	3
EC	151	Electronics Laboratory I	5
EC	162	Electronics Math/Digital	2
EC	167	IT Essentials	3
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
			21

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	139	Cisco Discovery I	3
		English Elective	3
			17

Third Semester			Semester Credits
EC	210	Intro to VoIP	3
EC	234	Intro to Data Transmission	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
			22

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	239	Cisco Discovery II	3
		Math Elective	3
		Social Science Elective	3
			21

Fifth Semester (Summer)			Semester Credits
SC	290	Internship	6

Total Credits Required to Graduate: 87

Optional One-Year Diploma/Information Systems Technology

First Semester			Semester Credits
CST	110	Network Media	2
CST	130	A+ Core Hardware/Operating Systems	6
CST	140	Cisco CCNA I	6
CST	159	LINUX Systems	2
			16

Second Semester			Semester Credits
CST	105	SQL Database Management	2
CST	112	MS Server Administration	5
CST	141	Cisco CCNA II	5
CST	125	A+ Certification Prep	1
			13

Total Credits Required to Graduate: 29

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 sound 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 Requirement: All students applying 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. Applicants must have a grade of "C" or higher in required high school English courses; or minimum scores of 18 on the English and Reading portions of the ACT; or minimum scores of 71 in Writing and 78 in Reading on the Compass test.

Some immunization requirements may have to be met before entrance to certain clinical 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.

Award: AAS Degree

First Semester			Semester Credits
SLPA	101	Intro to Speech-Language Pathology Assistant	2
SLPA	105	Speech and Language Development	3
SLPA	106	Introduction to Phonetics	3
MA	103	Anatomy/Physiology	4
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 and 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 I	3
			17

Third Semester			Semester Credits
SLPA	100	First Aid/CPR	0.5
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
		Social Science Elective	3
MATH	101	Intermediate Algebra	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, physics 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; ability to install, operate, repair and maintain electronic equipment; documentation and recording of information; and communication with supervisiors, 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 to include data transport systems; radio and video systems; industrial controls; 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 an optional one-year program following their Telecommunications degree. Information Systems Technology is offered for a one-year diploma giving students more skills in information technology and data networking. They may also enroll in Satellite Communications and earn a second AAS degree.

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	4
EC	121	DC/AC Circuit	3
EC	151	Electronics Laboratory I	5
EC	162	Electronics Math/Digital	2
EC	167	IT Essentials	3
CIS	105	Complete Computer Concepts	3
SSS	100	Student Success	1
			21

Second Semester			Semester Credits
EC	100	Basic Telephony	3
EC	105	Transmission Media	3
EC	120	Television/Head-End Technology	2
EC	139	Cisco Discovery I	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	234	Intro to Data Transmission	3
EC	239	Cisco Discovery II	3
EC	249	Advanced OSP	3
EC	251	Electronics Lab III	4
		Behavioral Science Elective	3
			19

Fifth Semester			Semester Credits
EC	211	Wireless Communications	3
EC	246	Central Office Transport	3
EC	257	Electronics Lab IV	4
		Math Elective	3
		Social Science Elective	3
			16

Total Credits Required to Graduate: 79

Optional One-Year Diploma/Information Systems Technology

First Semester			Semester Credits
CST	110	Network Media	2
CST	130	A+ Core Hardware/Operating Systems	6
CST	140	Cisco CCNA I	6
CST	159	LINUX Systems	2
			16

Second Semester			Semester Credits
CST	105	SQL Database Management	2
CST	112	MS Server Administration	5
CST	141	Cisco CCNA II	5
CST	125	A+ Certification Prep	1
			13

Total Credits Required to Graduate: 29

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

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

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
		First Aid/CPR	0.5
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 to Graduate: 70.5

PNG Curriculum

First Semester			Semester Credits
NG	100	Electrical Circuits & Testing	2
NG	102	Gas Operations & Maintenance	5
NG	106	Gas Mapping and Mathematics	2
NG	110	Gas Operations & Maintenance Lab	4

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

The best Jobs are 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 optional 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.

After the completion of two semesters, a graduate may exit with a diploma. Jobs in turbine construction, maintenance and troubleshooting will be available. The optional second year of the program will give graduates experience in areas like PLCs, fiber optics, SCADA, electronics and more. A graduate of the two-year AAS option will find employment opportunities in areas like 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 are required to purchase a laptop computer from MTI for the second year of this program. 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
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)	4
SSS	100	Student Success	1
MATH	101	Intermediate Algebra	3
			19

Second Semester (Spring)			Semester Credits
WTT	108	Intermediate Hydraulics	4
WTT	112	Electronics Theory I	4
WTT	120	Industrial Motor Controls	4
CSS	210	Introduction to Networking	3
CIS	105	Complete Computer Concepts	3
		English Elective	3
			21

Third Semester (Fall)			Semester Credits
WTT	200	Turbine Economics	3
WTT	213	Electronics Theory II	4
WTT	215	Advanced Motor Controls	4
WTT	225	Utility Safety	2
		Social Science Elective	3
			16

Fourth Semester (Spring)			Semester Credits
WTT	214	Theory of Power Generation	4
WTT	220	Composites	4
WTT	240	SCADA Concepts	3
CSS	163	Spreadsheet Concepts & Applications	3
		Behavioral Science Elective	3
			17

Total Credits Required to Graduate (One-Year Diploma): 40
Total Credits Required to Graduate (Two-Year AAS): 73

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 qualification 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, 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.

Award: One-Year Diploma or AAS Degree

First Semester (Fall)			Semester Credits
WMT	110	Safety I	1
WMT	120	Mfg. Symbols & Measurements	1
WMT	130	GMAW Metallurgy Process	1
WMT	140	Welding Theory I	1
WMT	150	Steel Welding Lab	6
OSHA	100	OSHA 10 Training	1
CIS	105	Complete Computer Concepts	3
MATH	104	Technical Math	3
SSS	100	Student Success	1
			18

Second Semester (Spring)			Semester Credits
WMT	111	Safety II	1
WMT	121	Blueprint Reading	1
WMT	131	Characteristics of Aluminum	1
WMT	142	Welding Economics	3
WMT	151	Aluminum Welding Lab	6
		English Elective	3
			15

Third Semester (Fall)			Semester Credits
WMT	201	Quality & Productivity Improvement	2
WMT	210	Mfg. Equipment Installation	2
WMT	220	Mfg. Programming	1
WMT	230	Welding Robotic Lab	3
WMT	231	Manual Machining Lab	3
		Behavioral Science Elective	3
		Social Science Elective	3
			17

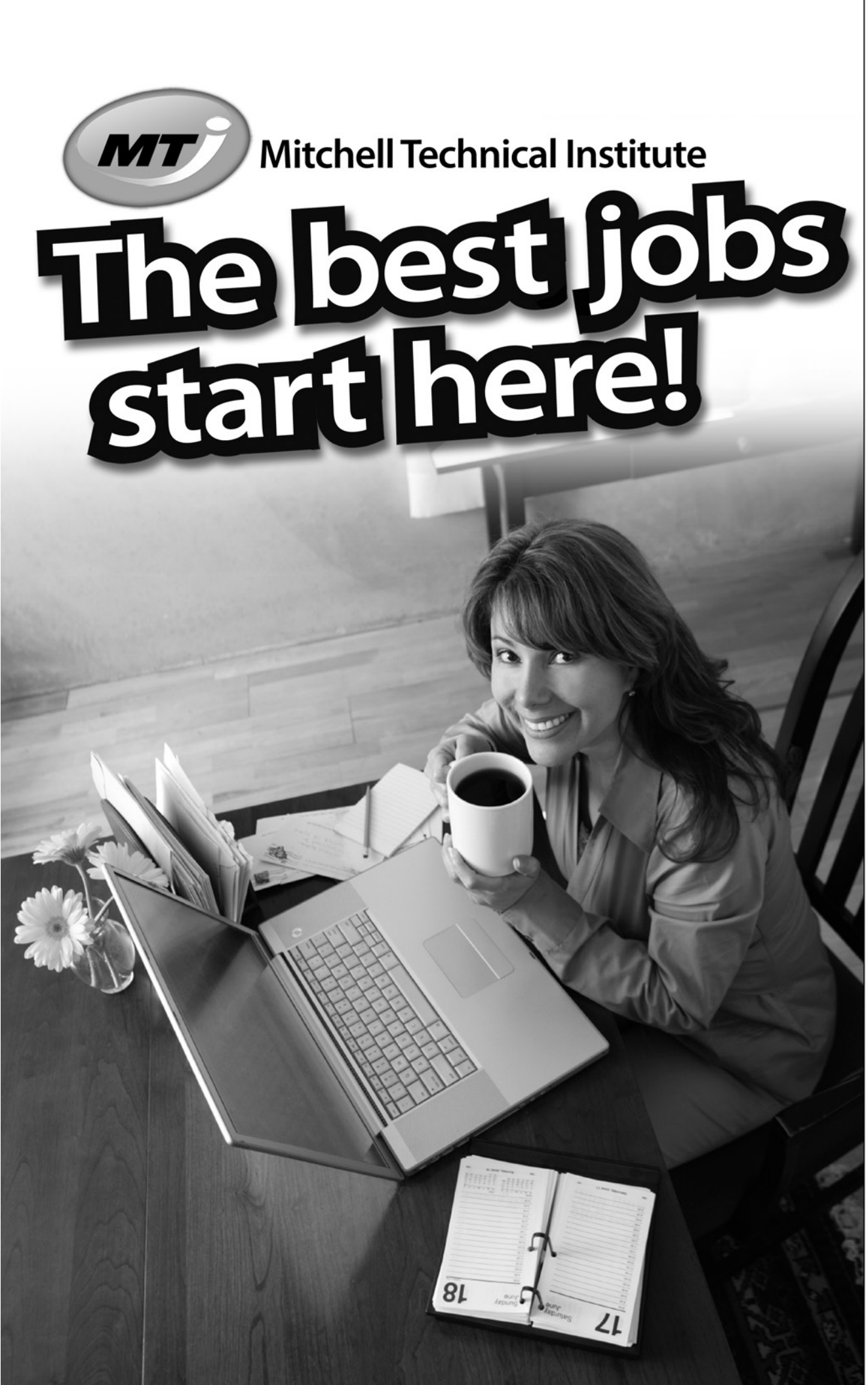
Fourth Semester (Spring)			Semester Credits
WMT	250	Laser & Plasma Lab	2
WMT	251	CNC Machining Station Lab	2
WMT	252	Forming Iron Worker Lab	1
WMT	280	Apprenticeship/Career Preparation	1
WMT	281	Internship	6
			12

Total Credits Required to Graduate (One-Year Diploma): 33
Total Credits Required to Graduate (Two-Year AAS): 62

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.

Administrative Office Specialist

The Administrative Office Specialist program prepares students to perform general duties in an executive or professional office setting. Duties may include conducting research, preparing statistical reports, handling information requests, and performing clerical functions such as preparing correspondence, receiving visitors, arranging conference calls, and scheduling meetings. Combining computer software support skills needed in any office setting with a sampling of business classes, this completely online program will help students find employment in almost any office support environment.

Award: AAS Degree

First Semester			Semester Credits
Accelerated Courses			
CSS	120	Outlook Essentials	2
CSS	143	Document Production	3
Traditional Courses			
CSS	163	Spreadsheet Concepts and Applications	3
BUS	110	Accounting for Business I	4
SSS	101	Online Seminar I	1
			13

Second Semester			Semester Credits
Accelerated Courses			
CSS	122	Customer Service	3
Traditional Courses			
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
Accelerated Courses (11 weeks)			
CSS	181	Database Concepts and Applications	3
CSS	203	Web Design	3
		English Elective	3
		Mathematics Elective	3
SSS	103	Online Seminar III	1
			13

Fourth Semester			Semester Credits
BUS	101	Intro to Business	3
BUS	120	Principles of Marketing	3
BUS	210	Sales & Advertising	3
BUS	214	Principles of Insurance	3
SSS	104	Online Seminar IV	1
			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
SSS	105	Online Seminar V	
			12

Sixth Semester			Semester Credits
BUS	122	E-Commerce	3
ENGL	202	Technical Communications	3
PSYC	101	General Psychology	3
SOC	110	Industrial Relations	3
SSS	106	Online Seminar VI	1
			13

Total Credits Required to Graduate: 78

The best jobs start here!

Dietary Management

Learn from registered dieticians who will offer specialized nutritional expertise as you learn to understand the basic nutritional needs of clients. The Association of Nutrition & Foodservice Professionals (ANFP) curriculum and textbooks will ensure that you will meet all the requirements of a certified dietary manager, including food service management and food safety.

Once you have successfully completed the Dietary Management course, you are eligible to take the national credentialing exam. The exam is offered every fall and spring. To earn your CDM, CFPP credential, you will need to pass the national credentialing exam offered through the ANFP. MTI's Dietary Management program prepares you for the exam through online lessons that are designed to work around your busy schedule.

Award: Certificate

DM	101	Sanitation & Food Safety	2
DM	105	Menu Planning	2
DM	110	Nutrition Concepts & Medical Therapy	4
DM	118	Human Resource Management	3.5
DM	120	Management of Food Service	4
SSS	101	Online Seminar I	1

Total Credits Required for Certificate: 16.5

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	Intro to Motor Controls	3
SSS	102	Online Seminar II	1
			6

Third Semester			Semester Credits
IC	107	Programmable Logic Controls	3
IC	108	Intro to Control Devices	2
SSS	103	Online Seminar III	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.

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 applying 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 technical courses during clinical practicum 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	103	Medical Office Administration	3
MA	162	Medical Law & Ethics	2
BUS	111	Accounting for Business II	4
CIS	105	Complete Computer Concepts	3
SSS	102	Online Seminar II	1
			13

Third Semester			Semester Credits
MOP	160	CPT/ICD-9 Coding	3
MA	123	Pathophysiology	3
ENGL	101	English Composition	3
MATH	104	Technical Math	3
SSS	103	Online Seminar III	1
			13

Fourth Semester			Semester Credits
MOP	205	Computers in the Medical Office	3
MOP	206	Transcription I	4
MOP	260	Advanced Coding I	2
PSYC	101	General Psychology	3
SSS	104	Online Seminar IV	1
			13

Fifth Semester			Semester Credits
MOP	210	Medical Insurance & Billing	3
MOP	212	Electronic Medical Records	3
MOP	220	Pharmacology Basics	2
SOC	110	Industrial Relations	3
SSS	105	Online Seminar V	1
			12

Sixth Semester			Semester Credits
MOP	208	Transcription II	4
or			
MOP	262	Advanced Coding II	3
MOP	290	Clinical Internship	8
MA	100	First Aid/CPR	0.5
SSS	106	Online Seminar VI	1
			12.5/13.5

Total Credits Required to Graduate: 75.5

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. Take the program completely online or attend traditional courses on the MTI campus.

Please Note: Students enrolling in an additional full online program will be required to complete 200-level online seminar courses as outlined in the Course Description section of this catalog.

Award: One-year Diploma

First Semester			Semester Credits
Accelerated Courses			
CSS	120	Outlook Essentials	2
CSS	143	Document Production	3
Traditional Courses			
CSS	163	Spreadsheet Concepts and Applications	3
BUS	110	Accounting for Business I	4
SSS	101	Online Seminar I	1
			13

Second Semester			Semester Credits
Accelerated Courses			
CSS	122	Customer Service	3
Traditional Courses			
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
Accelerated Courses (11 weeks)			
CSS	181	Database Concepts and Applications	3
CSS	203	Web Design	3
SSS	103	Online Seminar III	1
		English Elective	3
		Mathematics Elective	3
			13

Total Credits Required to Graduate with One-Year Diploma: 40

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.

Award: One-year Diploma

First Semester			Semester Credits
Accelerated Courses			
BUS	110	Accounting for Business I	4
BUS	172	Principles of Marketing/Sales/Advertising	3
CIS	105	Complete Computer Concepts	3
CSS	120	Outlook Essentials	2
SSS	101	Online Seminar I	1
			13

Second Semester			Semester Credits
Accelerated Courses			
ACCT	220	Computer and Accounting Applications	3
ACCT	221	Accounting Software Applications	2
Traditional Courses			
ACCT	118	Tax Accounting for Business	3
BUS	111	Accounting for Business II	4
BUS	220	Supervisory Management	3
SSS	102	Online Seminar II	1
			16

Third Semester			Semester Credits
Traditional Courses			
BUS	122	E-Commerce	3
BUS	170	Entrepreneurship & Small Business Management	4
ENGL	201	Technical Writing	3
MATH	101	Intermediate Algebra	3
SSS	103	Online Seminar III	1
			14

Total Credits Required to Graduate: 43

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 sound 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 Requirement: All students applying 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. Applicants must have a grade of "C" or higher in required high school English courses; or minimum scores of 18 on the English and Reading portions of the ACT; or minimum scores of 71 in Writing and 78 in Reading on the Compass test.

Some immunization requirements may have to be met before entrance to certain clinical 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.

Award: AAS Degree

First Semester			Semester Credits
SLPA	101	Intro to Speech-Language Pathology Assistant	2
SLPA	105	Speech and Language Development	3
SLPA	106	Introduction to Phonetics	3
MA	103	Anatomy/Physiology	4
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	210	Alternative and Augmentative Communication	2
SLPA	211	Screening Processes	2
SSS	103	Online Seminar III	1
			12

Fourth Semester			Semester Credits
SLPA	100	First Aid/CPR	0.5
SLPA	230	Language Disorders and Intervention	3
SLPA	235	Clinical Management and Procedures	4
SLPA	240	Clinical Fieldwork	6
SSS	104	Online Seminar IV	1
			14.5

Total Credits Required to Graduate: 69.5

*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 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:

SPCM	101	Fundamentals of Speech	3
ENGL	101	English Composition I	3
SOC	110	Industrial Relations	3
CIS	105	Complete Computer Concepts	3
MATH	101	Intermediate Algebra	3
PSYC	101	General Psychology	3

The best jobs start here!

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 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

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
All entering first-year students enrolling on-campus are required to complete a one-credit course, SSS 100 Student Success, tailored specifically to enhance their success as students.

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

ENGL	201	Technical Writing	3
CIS	105	Complete Computer Concepts	3
MATH	104	Technical Math	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 I	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	101	General Psychology	3

Social Science (3 credits required)

SOC	110	Industrial Relations	3

Student Success (1 credit required)

SSS	100	Student Success	1

Communications (specific to identified programs)

ENGL	202	Technical 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 Grammar/Usage Review . . . . . (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.

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

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 Technology Center, call 995-3056, (800) 952-0042, send an email to training@mitchelltech.edu or visit the Corporate Education link at www.mitchelltech.edu.

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Mitchell Technical Institute

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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 (3 credits)
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 220 (3 credits)
COMPUTER AND ACCOUNTING APPLICATIONS
Detailed instruction on the use of Microsoft Excel 2010. Concepts covered include: working with formulas and functions, formatting, creating charts, graphs and pivottables/ pivotcharts, sorting and filtering databases, data consolidation between multiple worksheets and workbooks, scenario management, and importing and exporting of data. This course will help prepare the student for the Microsoft Excel certification exam.

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 111
CONSTRUCTION MATH I (2 credits)
Based on the need to understand math concepts in the construction process, students will cover the fundamental mathematics necessary to a broad range of building construction skills and mathematical matters of direct concern to the builder. Problems include step-by-step explanations and solutions.

AD 112
CONSTRUCTION MATH II (2 credits)
A continuation of AD 111.

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 172
FIRST AID/CPR (0.5 credit)
Practice and certification in first aid and CPR, as well as instruction in construction equipment and safety.

AD 211
ESTIMATING (3 credits)
Procedures used to estimate and prepare surveys for completing estimates. From working drawings and material specifications, calculations are derived. Labor needs are estimated.

AD 221
ADVANCED BUILDING PRINCIPLES (3 credits)
Experience and instruction in concrete, advanced framing techniques and construction codes are taught. This course builds upon skills gained in introductory courses.

AD 241
PRINCIPLES OF COMMERCIAL CONSTRUCTION (4 credits)
Study of commercial construction. Drawing of commercial plans is done. Emphasis is placed on terminology, material, and typical fastening techniques.

AGT 100
FIRST AID/CPR (0.5 credits)
Practice and certification in first aid and CPR.

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 (3 credits)
Comparison of agricultural machines. Tractor setup, use and performance; combine setup, use and performance. Students will learn comparison methods and machinery economics to make decisions about purchase vs. lease arrangements.

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 I (3 credits)
Study of the marketing of agricultural products. Students will learn the different marketing choices associated with the cash and futures and options markets in both grain and livestock.

AGT 180
AG PRODUCTION LAB (4 credits)
Students are given the task of assisting with the MTI Land Lab. Decisions regarding ground preparation, planting, culivating, 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.

AGT 190
INTERNSHIP I (4 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. Software is used to develop spreadsheet programs, records management, and farm accounting programs.

AGT 212
AG CHEMICAL EQUIPMENT (3 credits)
Safe handling procedures for pesticides and proper loading and mixing of crop protection products are discussed. Proper use of application equipment and nozzle selection will be studied. Hands on operation of field sprayers and fork lift safety are taught.

AGT 213
WELDING (2 credits)
Practice in both oxyacetylene and electric arc welding. Oxyacetylene cutting and brazing are covered, including mild steel welding. Practical experience includes welding butt, lap and fillet joints.

AGT 214
AG LAW (3 credits)
Included are contracts, trespass, taxes, land use laws, bankruptcy, partnerships, corporations, environmental laws, and estate planning. Exploration of various types of insurance including crop and livestock insurance are also studied.

AGT 215
AG FINANCES (3 credits)
Study of the principles of agricultural finance and the types and uses of credit instruments. Crop and livestock financing are explored along with farm budgeting and loan analysis.

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
BUILDING PRINCIPLES/ELECTRICAL (3 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 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 values for animals, feed processing practices and ration formulations.

AGT 242
LIVESTOCK DISEASES (2 credits)
Detailed study of livestock diseases, terms, symptoms, and care of sick animals.

AGT 244
FARM ANIMAL PARASITOLOGY (2 credits)
Study in the identification and treatment of parasites, and symptoms of infestations.

AGT 245
ANIMAL NUTRITION (2 credits)
Examination of feed value, costs, and crop use. Animal's nutritional requirements and computation of rations for specific species are discussed.

AGT 261
AG SALES AND 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 is studied.

AGT 262
AG BUSINESS ACCOUNTING (2 credits)
Introduces students to modern concepts of agricultural accounting/bookkeeping and emphasizes the development of procedures for providing and using data in decision making.

AGT 285
SUPERVISED OCCUPATIONAL EXPERIENCE (6 credits)
Supervised employment experience. Work in agricultural production.

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, and proficiency in livestock judging.

AGT 296
ANIMAL SCIENCE LAB II (2 credits)
A continuation of AGT 295.

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 122
PRINCIPLES OF BUILDING CONSTRUCTION II (2 credits)
Interior finishing work of a residential house. Emphasis is on materials and processes involved in finishing the interior.

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 222
CONSTRUCTION EQUIPMENT (1 credit)
Practical experience in construction equipment operations. Topics include forklift, crane and skid loader operations and OSHA 10 training.

BC 251
BUILDING CONSTRUCTION LAB III (5 credits)
Details of foundation construction, framing and exterior finish.

BC 252
BUILDING CONSTRUCTION LAB IV (6 credits)
Provides training and experience in the completion of a residential structure with emphasis on interior finish and millwork.

BC 263
ADVANCED GREEN BUILDING (1 credit)
Coursework leading to the designation of Certified Green Professional provides a solid background in green building methods, as well as the tools to inform consumers of the benefits of green construction.

BC 272
CONSTRUCTION BUSINESS MANAGEMENT (4 credits)
Introduction to the responsibilities of small business entrepreneurship.

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.

BC 290
COMMERCIAL CONSTRUCTION INTERNSHIP (5 credits)
On-the-job work experience on a commercial construction site utilizing specialty skills in steel, masonry, concrete, and other uniquely commercial techniques.

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
ESSENTIALS OF 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 (3 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 217
DATABASE OPERATIONS (3 credits)
Creation and design of data bases 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 290 (3 credits)
Supervised internship performed off campus in a business setting.

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. 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.

CA 130
BAKERY LAB I (2 credits)
Explore the fundumentals of baking through lecture, demonstration and production.

CA 132
BAKERY LAB II (2 credits)
Continuation of baking styles, with ethnic and international breads and laminate doughs. Prerequisite: "C" grade or higher in CA 130.

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. Satisfactory completion of this course is required for certification by the Educational Foundation of the National Restaurant Association.

CA 163
FOODSERVICE MATH (3 credits)
Applied mathematical operations used to increase or decrease standard recipe yields, calculate food costs, convert recipes to units of measure, and calculate portion costs and menu prices.

CA 170
FOOD THEORY I (3 credits)
Foundation in storage, preparation, and service techniques. Emphasis is on cooking foods properly. Satisfactory completion of this course and CA 180 are required for certification by the Educational Foundation of the National Restaurant Association. This course must be taken with CA 171 and CA 172.

CA 171
FOOD PRODUCTION I (2 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 grad of "C" or higher.

CA 172
SERVICE LAB I (2 credits)
Preparation of foods in an a la carte/cook-to-order setting. Table service is discussed. Customer relations are emphasized. Full-service foodservice skills and management are presented. Prerequisite: CA 162 with a grade of "C" or higher.

CA 174
FIRST AID/CPR (0.5 credit)
Practice and certification in first aid and CPR.

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 and CA 182.

CA 181
FOOD PRODUCTION II (2 credits)
Continuation of CA 171 Food Production I. Prerequisite: CA 171.

CA 182
SERVICE LAB II (2 credits)
Continuation of CA 172 Service Lab I. Prerequisite: CA 172.

CA 187
COMMUNITY SERVICE (1 credit)
Community volunteer work outside the classroom. Students will be required to complete 20 documented hours of community service. Examples could include food-related fundraisers, food bank, serving meals at a shelter, etc.

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.

CA 201
ADVANCED FOODS & SUPERVISION I (6 credits)
Continuation of CA 181 Food Production II.

CA 204
ADVANCED FOODS & SUPERVISION II (6 credits)
Continuation of CA 201 Advanced Foods & Supervision I.

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.

CA 230
CULINARY EXPLORATION (3 credits)
Focus on classic cooking techniques involved in ethnic and international foods, ice carving, food presentation and baking concepts. Each student will choose an individual area of interest to explore in depth.

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)
Computer concepts, terminology, and hardware structure. Special emphasis on operating systems, the Internet, word processing, data bases, and spreadsheet is stressed.

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, such as creating and editing documents with Adobe Acrobat Professional. This course will help prepare the student for the Microsoft Word certification exam.

CSS 163
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.

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 181
DATABASE CONCEPTS AND APPLICATIONS (3 credits)
A comprehensive presentation of Microsoft Access will be studied. Topics include creating and using a database, querying a database using the Select Query Window, maintaining a database using the Design and Update features of Access, sharing data among applications, creating reports and forms, utilizing combo boxes, enhancing forms with OLE fields, hyperlinks, and subforms, designing navigation forms, PivotTables, and PivotCharts, implementing advanced report and form techniques, using Visual Basic for Applications (VBA), creating multi-page forms, administering a database system, and using SQL. This course will help prepare the student for the Microsoft Access certification exam.

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 and Flash. Prerequisite: CSS 143.

CSS 206
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. Through hands-on activities and labs, students learn to assemble and configure a computer, install operating systems and software, use graphical and command-line operating system basics, troubleshoot hardware and software problems, install and troubleshoot peripheral devices, and implement computer system maintenance planning techniques. An introduction to networking will be addressed.

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.

CST 105
SQL DATABASE MANAGEMENT (2 credits)
The objective of this course is to provide an introduction to the SQL language. This course not only covers the syntax of SQL, but also shows how it can be used in Oracle Database 10g Express to create and maintain a database and retrieve information from it. It also provides an introduction to relational database concepts.

CST 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. It includes hands-on guide to planning, designing, installing and configuring wireless LANs that prepares students for the Certified Wireless Network Administrator (CWNA) certification. In-depth coverage of wireless networks with extensive step-by-step coverage of IEEE 802.11b/a/g/pre-n implementation, design, security, and troubleshooting. Material is reinforced with hands-on projects from two of the principal wireless LAN vendors, Cisco and Linksys.

CST 112
MS SERVER ADMINISTRATION (5 credits)
Provides hands on experience installing and configuring Windows Server 2008 to work with clients including Windows 7. Students will perform full and core CD-based standard installation, deploy an image, configure and tune the server and assign roles and services. After installing an Active Directory domain controller, students will create and assign users, groups, permissions, rights, policies and profiles. Students will practice local and remote administration of security, network, data and hardware in hands on labs. Virtualization is also utilized in this course. Prerequisites: CST 130 or CSS 206.

CST 125
A+ CERTIFICATION PREP (1 credit)
This course provides hands on experience troubleshooting computer and network issues. Students will utilize classroom time to study and prepare for the A+ Certification exams taken at the end of the semester.

CST 130
A+ CORE HARDWARE/OPERATING SYSTEMS (6 credits)
The fundamentals of PC hardware and software as well as advanced concepts. It is designed for students who want to pursue careers in IT and students who want to gain practical knowledge of how a computer works. Prerequisites: Basic keyboarding and computer skills are expected.

CST 140
CISCO CCNA I (6 credits)
Introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. It uses the OSI and TCP layered models to examine the nature and roles of protocols and services at the application, network, data link, and physical layers. 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. Labs use a "model Internet" to allow students to analyze real data without affecting production networks. Packet Tracer (PT) activities help students analyze protocol and network operation and build small networks in a simulated environment. At the end of the course, students build simple LAN topologies by applying basic principles of cabling; performing basic configurations of network devices, including routers and switches; and implementing IP addressing schemes.

CST 141
CISCO CCNA II (5 credits)
Describes the architecture, components, and operation of routers, and explains the principles of routing and routing protocols. Students analyze, configure, verify, and troubleshoot the primary routing protocols RIPv1, RIPv2, EIGRP, and OSPF. By the end of this course, students will be able to recognize and correct common routing issues and problems. Students complete a basic procedural lab, followed by basic configuration, implementation, and troubleshooting labs in each chapter. Packet Tracer activities reinforce new concepts, and allow students to model and analyze routing processes that may be difficult to visualize or understand. Prerequisite: CST 140.

CST 159
LINUX SYSTEMS (2 credits)
Provides introductory coverage of Linux Systems. The course requires many hands-on projects, which allow students to practice skills as they are learned. Virtualization is introduced and utilized throughout the course. Prerequisites: Basic keyboarding and computer skills are expected.

CST 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. 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.

CST 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 the latest technology including PDAs, cell phones, and thumb drives. Many hands-on activities are included, which allow students to practice skills as they are learned.

CST 222
INFORMATION SECURITY I (2 credits)
A comprehensive guide for anyone wishing to take the CompTIA Security+ 2008 exam. The course covers all of the CompTIA Security+ 2008 exam objectives and maps to the Security+ 2008 exam. The course covers exam topics including cross site scripting, SQL injection, rootkits, and virtualization, as well as topics of increasing importance in the industry as a whole, like the latest breeds of attackers, Wi-Fi Protected Access 2, and Microsoft Windows security.

CST 243
CISCO CCNA III (5 credits)
Provides a comprehensive, theoretical, and practical approach to learning the technologies and protocols needed to design and implement a converged switched network. Students learn about the hierarchical network design model and how to select devices for each layer. The course explains how to configure a switch for basic functionality and how to implement Virtual LANs, VTP, and Inter-VLAN routing in a converged network. The different implementations of Spanning Tree Protocol in a converged network are presented, and students develop the knowledge and skills necessary to implement a WLAN in a small to medium network. Prerequisite: CST 141.

CST 244
CISCO CCNA IV (5 credits)
Discusses the WAN technologies and network services required by converged applications in Enterprise Networks. The course uses the Cisco Enterprise Composite Model (ECM) to introduce integrated network services and explains how to select the appropriate devices and technologies to meet ECM requirements. Students learn how to implement and configure common data link protocols and how to apply WAN security concepts, principles of traffic, access control and addressing services. Finally, students learn how to detect, troubleshoot, and correct common enterprise network implementation issues. Prerequisite: CST 243.

CST 256
INFORMATION SECURITY II (3 credits)
Continuation of InfoSec I guide for anyone wishing to take the CompTIA Security+ 2008 exam. The course covers all of the new CompTIA Security+ 2008 exam objectives and maps to the new Security+ 2008 exam. The course covers newly covered exam topics including cross site scripting, SQL injection, rootkits, and virtualization, as well as topics of increasing importance in the industry as a whole, like the latest breeds of attackers, Wi-Fi Protected Access 2, and Microsoft Windows Vista security. Chapters 12, 23, 25, 28, & 29 from The Illustrated Network will be covered. As a supplement to integrate hands-on activities we will use the Cisco CCNA Security (online) course for labs. Prerequisite: CST 222.

CST 259
LINUX SERVER ADMINISTRATION (3 credits)
Using the Ubuntu server software, we will preview the Installation, configuration, and troubleshooting of GNU server software. Prerequisite: CST 159.

CST 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 will also be utilized. Prerequisite: CST 112.

CST 265
NETWORK MONITORING & MANAGEMENT (2 credits)
Exclusive hands-on exploration of Microsoft provided management tools such as System Center. Students will apply skills from previous networking and server courses to manage and monitor a local area network as well as the virtual components. Prerequisite: CST 112, CST 140, CST 141.

CST 268
MS EXCHANGE SERVER (4 credits)
Students in this course learn how to install, configure, administer, and support the Exchange Server 2007 messaging 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 2007, including the configuration of server roles, recipient objects, public folders, clusters, mobile technologies and security. In addition, this course examines the procedures used to backup, monitor and troubleshoot Exchange Server 2007. Prerequisite: CST 264.

CST 286
INTERNSHIP (6 credits)
Supervised internship performed off-campus in a computer network or systems support setting.

DM 101
SANITATION & FOOD SAFETY (2 credits)
Application of leadership and guidance skills to ensure that food safety standards are being adhered to. Includes, but is not limited to, food quality and client expectations.

DM 105
MENU PLANNING (2 credits)
Learn how to handle day-to-day responsibilities such as tray card processing, resident diets, alternative therapeutic diets, resident weight change monitoring, menus, recipes, food ordering and production processes, cost controls for food ordering, and corporate oversight of these processes.

DM 110
NUTRITIONAL CONCEPTS & MEDICAL THERAPY (4 credits)
An integration of pathophysiology, biochemistry, and nutrition concepts that form the basis for medical nutrition therapy in health care. Case study discussions and nutrition care plans are included.

DM 118
HUMAN RESOURCE MANAGEMENT (3.5 credits)
Provides a strategic overview of the key concepts and principles of each human resource function, along with their practical implications. Special emphasis is placed on human resource roles and competencies, and creating a personal career development plan. Issues, trends, and problems facing the human resource professional are also identified and addressed.

DM 120
MANAGEMENT OF FOOD SERVICE (4 credits)
comprehensive review of operations pertaining to food management and quality control. Students will examine various apects, responsibilities, management issues, and operations pertaining to food and quality. Students will engage in the theory and practice of service fundamentals. Included will be implementing cost effective procedures, purchasing food and supplies, writing food and equipment specifications, monitoring food acceptance, and (CQI) quality control improvements.

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. The student will learn procedures in installing cable TV and telephone drop wire to customers' homes; including proper grounding techniques, safety, connector installation. Students apply knowledge to structured cabling procedures. Trouble shooting and maintenance of cable systems and customer drops are discussed. 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 (4 credits)
Introduction to the components of electronics, both passive and active are covered. Students study power supplies, solid state components, frequency, resistance, capacitance, modulation, wave theory, testing devices and audio amplifiers. Extensive troubleshooting will also be 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 139
CISCO DISCOVERY I (3 credits)
This course teaches students the skills needed to become network technicians, computer technicians, cable installers, and help desk technicians. It provides a hands-on introduction to networking and the Internet using tools and hardware commonly found in home and small business environments. Labs include PC installation, Internet connectivity, wireless connectivity, file and print sharing, and the installation of game consoles, scanners and cameras.

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 (3 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 (5 credits)
Hands-on instruction covering soldering, hand tools, safety, components, color code, Ohm's law, and reading circuit diagrams will be covered. Knowledge in the proper operation of electronic test equipment will be stressed. This lab will supplement the student of Electronics 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. High power components related to automation and the SCADA industry are covered. 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 234
INTRODUCTION TO DATA TRANSMISSION (3 credits)
This course provides an introduction to data communications. Topics include overview of transmission systems, standards, protocols, software applications, communication hardware. The study of Ethernet LAN and WAN switch and router connectivity. Covers the theory, configuration, and analysis of voice, video and data converged networks, types of protocols, network engineering and troubleshooting converged networks. Explain the Transmission Control Protocol/Internet Protocol (TCP/IP) that are used today in the converged networks. Identify protocols used to make VoIP work. Develop an understanding of today's transmission network. Describe the current telecommunication network transmission infrastructure, its current capabilities and how it has evolved.

EC 239
CISCO DISCOVERY II (3 credits)
This course prepares student for jobs as network technicians. It also helps students develop additional skills required for computer technicians and help desk technicians. It provides a basic overview of routing and remote access, addressing and security. It also familiarizes students with servers that provide e-mail services, Web space, and authenticated access. Students also learn about soft skills required for help desk and customer service positions. Network monitoring and basic troubleshooting skills are taught in context.

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 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 5.0; Avaya S8300 and Cisco UC520 systems.

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-210, EC-211, EC-221, and EC-234. 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. Install, test and troubleshoot telecommunications systems. Properly install, operate and maintain traditional phone systems, Nortel DMS 100 and Altigen 3.5. Prerequisite: EC 157.

EC 257
ELECTRONICS LABORATORY IV (4 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 sevices; exercise VoIP knowledge. Operate and maintain a central office with head-end video equipment. Successfully conduct fiber and copper cable splicing.

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, feeder taps, feeder and branch circuit protection is introduced. Motor overload protection and wiring methods are discussed. Equipment design and the use of electrical equipment are explored. Prerequisite: 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 continues on wiring projects in ECM 151 and ECM 157.

ECM 122
RESIDENTIAL BLUEPRINT AND CODE (3 credits)
Home electrical systems using state and national wiring codes and regulations. 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)
AC/DC electricity behavior. Practical applications of AC/DC electricity are studied. Experiments to prove the theories of electricity are utilized. A practical wiring lab is developed. Basic wiring systems within the lab and in the MTI construction sites are completed.

ECM 157
WIRING LAB (4 credits)
Continuation of ECM 151. Basic wiring practices and methods used in residential settings are introduced. Also studied are different electrical heat and basic control systems for motors. Lab wiring and new residential wiring are completed. Systems studied in ECM 122 are utilized in lab. Safe electrical practices in the electrical industry are taught. Prerequisite: ECM 101, ECM 121, ECM 151.

ECM 172
FIRST AID/CPR (0.5 credit)
Practice and certification in first aid and CPR.

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.

ECM 221
COMMERCIAL BLUEPRINT READING (2.5 credits)
Continuation of ECM 122. Commercial and industrial installations are presented along with code-related regulations.

ECM 231
ELECTRONIC CIRCUITS (3 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 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)
Mechanical and electromagnetic control systems for AC/DC systems. Pilot devices, starting equipment, and relays used in control systems are introduced. Corequisite: ECM 255.

ECM 253
ADVANCED CONTROL SYSTEMS (2.5 credits)
Continuation of ECM 252. Applications of control devices are reviewed. Photoelectric controls, logic modules, sequential motor starting, troubleshooting, acceleration, and deceleration methods are studied. Prerequisite: ECM 252, ECM 255. Corequisite: ECM 257.

ECM 255
CONTROL LAB I (1.5 credits)
Experimental use of apparatus studied in ECM 252 and ECM 202. Projects range from basic circuitry to advanced circuits utilizing 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. 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 mediums (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
GRAMMAR/USAGE REVIEW (2 credits)
Review in the basics of written communications. Emphasis on grammar, sentence clarity and paragraph structure. Final grade assigned is (P) Pass or (NC) No Credit. 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 reviewed. 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 includes a review of 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, abstract, transmittal letter, job application portfolio, and a formal research report with an accompanying oral presentation. Prerequisite: ENGL 098 or qualifying placement score.

ENGL 202
TECHNICAL 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 (1 credit)
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 (1 credit)
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 (3 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 (3 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 (1 credit)
Designed to prepare students with the ability to read and undertand 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.

EUST 160
NERC COMPLIANCE (1 credit)
Students will learn the importance of documentation of the tests made on the equipment used in substations.

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 INERPRETING 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 (1 credit)
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 200
POWERTRAIN & 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 & 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 202
GPS/GIS LAB (4 credits)
Students will engage in application exercises and hands-on activities related to the installation and troubleshooting of GPS/GIS systems.

FPWR 210
ADV. FLUID POWER DYNAMICS & 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 290
INTERNSHIP (6 credits)
Supervised internship performed off-campus in an agricultural mechanic or service setting.

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 170
SCADA FOR HCT (2 credits)
Electronic components as they relate to the heating/cooling industry, data cabling, and the basic operation of computers and related hardware.

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
INTRO TO 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.

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. Students will have the opportunity to earn a LEED Green Association certificate.

MA 100
FIRST AID/CPR (0.5 credit)
Basic first aid and cardiopulmonary resuscitation for the health care professional. Completion results in CPR certification. Note: CPR/AED for child/adult required prior to externship.

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 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 CARE (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. Students will learn about solving equations, exponents and polynomials, graphs and systems of equations, factoring and quadratic equations. Final grade assigned is (P) Pass or (NC) No Credit. 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 also includes the study of geometry, trigonometry, and statistics. Extensive use of problem-solving and critical thinking skills are required. Test scores determine placement. Prerequisite: MATH 091 or qualifying test score.

ML 100
FIRST AID/CPR (0.5 credit)
Basic first aid and cardiopulmonary resuscitation for the health care professional. Completion results in CPR certification. Note: CPR Certification by the American Heart Association required for graduation.

ML 104
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 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 material include laboratory glassware, balances and scales, pipetting, spectrophotometry, turbidmetry, nephelometry, ion selective electrodes, electrophoresis, chromatography, and advanced quality assurance.

ML 111
HEMOSTASIS (2 credits)
Theory and practical application of coagulation tests including capillary fragility, clotting time, bleeding times, 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. An introduction to cell counts of other body fluids such as spinal fluid, transudates and exudates is covered. 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. Prerequisite: Grade of C or higher in ML 104 and ML 105.

ML 141
BASIC CHEMISTRY (4 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, and 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 103
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 160
CPT/ICD-9 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.

MOP 205
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 206
TRANSCRIPTION I (4 credits)
Transcription of medical terms and cases. Reports are generated including the first stage of treatment through discharge.

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.

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.

MOP 220
PHARMACOLOGY BASICS (2 credits)
Identification of the classifications of medicines.

MOP 260
ADVANCED CODING I (2 credits)
A continuation of MOP 160.

MOP 262
ADVANCED CODING II (3 credits)
Emphasizes hospital coding. Advanced training in HCPCS, with a review of outpatient medical coding.

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 106
GAS MAPPING AND MATHEMATICS (2 credits)
Reading maps and locating service installations. Included are calculations common to the gas industry for cost estimating price comparisons, sizing gas piping systems, load calculations, and determining degree days.

NG 110
GAS OPERATIONS & MAINTENANCE LAB (4 credits)
Lab activities and applications related to NG 102.

NG 172
FIRST AID/CPR (0.5 credit)
Practice and certification in first aid and CPR.

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 topics of time management, team orientation, and prioritization of projects. Basic interpersonal relationships between customers and co-workers, as well as expanding on topics covered in OPRV 105. 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 105 and 106. Also included will be drive train, wheel and tire service utilizing lasted professional equipment. Students will learn to write work orders, evaluate flat rate pricing guides, 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 class.

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 over head 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 OPRV124 to complete disassembly, repair, and reassembly of sub-systems and components of ATV's and Snowmobiles, as well as determine root failures of components.

OPRV 130
ELECTRICAL/ELECTRONIC SYSTEMS (2 credits)
General electrical theory and the principles of DC current operating in ATV, 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 & 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 ATV's, motorcycles, and outdoor power equipment.

OPRV 185
INTERNSHIP (6 credits)
Paid on-the-job training (OJT). Work 12 weeks in a service or shop environment.

OPRV 208
INTRO TO FABRICATION & 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. Advanced topics include CAD and use of CNC metal cutting, basic parts design and layout.

OPRV 209
ADVANCED FABRICATION AND CUSTOM FINISHES (3 credits)
A continuation of techniques and principles learned in OPRV 208. Students will design and fabricate components and projects utilizing skills already learned and using proper equipment. Focus will be on detail, quality, functionality and craftsmanship with special emphasis on safety.

OPRV 235
INTRO TO FUEL INJECTION & ELECTRONIC CONTROL SYSTEMS (4 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 (4 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 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.

PL 173
FIRST AID/CPR (0.5 credit)
Practice and certification in first aid and CPR.

PSYC 101
GENERAL PSYCHOLOGY (3 credits)
A psychology-based look at the personal adjustment and choices made by individuals in response to the world around them. Focuses on the individual's interpretation of social input and the influence of interpretations on social interaction. Designed to aid the student in understanding how the thoughts, feelings, and behavior of individuals are influenced by the actual, imagined, or implied presence of others.

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 104
INTRO TO YIELD MONITOR SYSTEMS (3 credits)
Students will be introduced to yield monitoring systems. This course will cover the sensors and equipment involved in data collection from different brands and their differences. It will also address the importance of data acquisition and processing in decision making for agriculture, and what data should be collected regarding yield quantity and quality to design a yield map. The students will learn how to install, setup, and calibrate a yield monitoring system, understand and minimize sources of errors during data collection and also learn how to retrieve the collected data to be manipulated on GIS software.

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 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, chest and abdomen. Prerequisites: MA 101, MA 103, All previous technical courses.

RAD 131
INTRODUCTION TO CLINICAL RADIOLOGY (3 credits)
This course is a laboratory course that will introduce the student to the clinical aspect of their training. Instruction will parallel that of RAD 111 and include many 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 credits)
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 200
FIRST AID/CPR (0.5 credit)
Basic first aid and cardiopulmonary resuscitation for the health care professional. Completion results in CPR certification. Note: CPR Certification by the American Heart Association required for graduation.

RAD 211
CLINICAL RADIOLOGY I (11 credits)
(36 hours clinical experience per week for approximately 18 weeks) - 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)
(36 hours clinical experience per week for approximately 18 weeks) - 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 clinical 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)
(36 hours clinical experience per week for approximately 13 weeks) 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 clinical 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 100
FIRST AID/CPR (0.5 credit)
Basic first aid and cardiopulmonary resuscitation for the health care professional. Completion results in CPR certification. Note: CPR Certification by the American Heart Association required for graduation.

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. Topics revisited will include body mechanics, patient handling skills, radiation safety and infection control.

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 will also provide the student with an understanding of the different types of radiation treatment units and their operating principles. This course also 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 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 is an online course 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. This course will also 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. Local, state and federal regulations will be discussed.

RTH 210
CLINICAL PRACTICUM I (10 credits)
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. Students are required to be at their respective clinical sites for approximately 40 hours per week during the 2nd and 3rd semesters for a total of 1200 hours.

RTH 211
MODERN RADIATION THERAPY RESEARCH (3 credits)
This course is designed to discuss the emerging technologies that are taking place in the world of radiation therapy. Topics such as brachytherapy, intensity modulated radiation therapy, and image guided radiation therapy will be discussed and researched by the student. The student will be expected to write a scientific paper for this course.

RTH 212
REGISTRY REVIEW I (1 credit)
This is an online course designed to prepare students for the required national certification exam. Mock board exams will be given along with various assigments geared to reinforce previously discussed concepts.

RTH 213
CLINICAL PRACTICUM II (8 credits)
A continuation of RTH 210. Students are required to be at their respective clinical sites for approximately 40 hours per week during the 2nd and 3rd semesters for a total of 1200 hours.

RTH 214
REGISTRY REVIEW II (1 credit)
Continuation of RTH 212. This is an online course designed to prepare students for the required national certification exam. Mock board exams will be given along with various assigments geared to reinforce previously discussed concepts.

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: 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)
Work in a position related to the satellite communications industry.

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 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 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)
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.

SD 170
BASIC HEATING/COOLING FOR SCADA (2 credits)
Students are instructed on how to identify Heating and Cooling equipment, how to setup & repair different applications, and how to recognize different Residential/Commercial Air Conditioning equipment.

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 210
BUS STRUCTURES (1 credit)
This course consists of the basic study of various industrial communications protocols and standards being utilized in industry. It will include the basic study of bus structures as they relate to industrial control systems. Emphasis will be placed on Industrial Ethernet, Profibus, Fieldbus, Modbus, DeviceNet, Data Highway, Hart, DNP3, and ASI.

SD 220
WIRELESS COMMUNICATIONS (3 credits)
This course will give a basic overview of the rapidly evolving field of wireless networks, technologies, applications and markets. The student will learn all aspects of wireless system operations, installation, and features.

SD 225
INTRO TO SCADA SOFTWARE (4 credits)
SCADA HMI software featuring CITECT and Wonderware graphic software will be studied. Proper interfacing to PCs, RTUs, and PLCs will be covered to allow for the proper operation of control circuits and for the collection of data in the system. Prerequisite: successful completion of Programmable Logic Controllers (SD159) class.

SD 230
INTRODUCTION TO VISUAL BASIC (3 credits)
The student will learn how to create Visual Basic applications that conform to well-adopted Windows standards.

SD 235
VISUAL BASIC FOR SCADA (2 credits)
Continuation of SD 230. This course applies Visual Basic to the accessing of various database programs such as Microsoft Access, Excel and Word, along with using Visual Basic to access and control PLCs in the lab. Prerequisite: successful completion of Introduction to Visual Basic (SD230) class.

SD 239
NETWORKING CONCEPTS (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. Prerequisite: successful completion of Programmable Logic Controllers (SD159) class and Intro to SCADA Software (SD225) class.

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.

SD 280
DATA CABLING LAB (2 credits)
This course covers the study of data cabling in local area networks. The student will learn the method for labeling, identifying, documenting, and testing needed to install a telecommunications infrastructure. Selection of fiber cable, installation, splicing, termination and testing will also be covered.

SLPA 100
FIRST AID/CPR (0.5 credits)
Practice and certification in first aid and CPR.

SLPA 101
INTRODUCTION TO SPEECH-LANGUAGE PATHOLOGY ASSISTANT (2 credits)
Overview of the field of speech-language pathology, 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)
Beginning clinical observation of practices and procedures required in speech-language pathology. Observation sites will be educational. Combination of on-site observation and in-class participation. Eight hours of observation required.

SLPA 103
CAREER SEMINAR (1 credit)
Promotion of professional growth opportunities. Students will explore tools and concepts necessary during the job seeking process and examine professional development as a new employee.

SLPA 105
SPEECH AND LANGUAGE DEVELOPMENT (3 credits)
Study of normal speech and language development. Topics will 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)
Study of the articulatory foundations of the description and classification of speech sounds. Introduces the International Phonetic Alphabet (IPA), physiological properties of the speech mechanism, methods of transcription, and dialectal variations. Emphasis will be on student's auditory discrimination necessary for recording normal and disordered articulatory production.

SLPA 111
INTRODUCTION TO COMMUNICATION DISORDERS AND TREATMENT (3 credits)
An overview of communication disorders, including classification, assessment, and remediation of speech, language, literacy, swallowing, and hearing disorders in children and adults. Addresses the role of the speech-language pathologist and audiologist in educational and medical settings. Examines multicultural and multilingual diversity, developmental disabilities, and collaboration with educators.

SLPA 112
CHILD GROWTH AND DEVELOPMENT (3 credits)
Developmental stages of children from conception through adolescence. Covers major theories of development and their application to parenting, teaching and other interactions with children. Introduces basic methods of observing and recording behavior.

SLPA 120
VOICE AND ARTICULATION FOR EFFECTIVE COMMUNICATION (3 credits)
Basic speech and voice production. Anatomy and physiology related to respiration (breathing/loudness), phonation (sound/pitch), resonation, and articulation (diction/clarity). Practice in improving vocal skills for effective communication.

SLPA 200
INTRODUCTION TO AUDIOLOGY AND AURAL REHABILITATION (2 credits)
Introduction to audiology, audiograms, hearing screening, and review of hearing assessments. Introduction to aural rehabilitation, hearing aids, and hearing assistive technologies (HAT), including troubleshooting and daily checks of hearing aids.

SLPA 202
CLINICAL OBSERVATION II (2 credits)
Continued clinical observation of practices and procedures required in speech-language pathology. Observation sites will be educational. Combination of on-site observation and in-class participation in preparation for clinical fieldwork. Seventeen hours of observation required. Prerequisite: SLPA 102.

SLPA 210
ALTERNATIVE AND AUGMENTATIVE COMMUNICATION (2 credits)
Introduction to common forms of augmentative and alternative communication, including manual communication, communication boards, and electronic or computer-based communication.

SLPA 211
SCREENING PROCESSES (2 credits)
Screening tools and processes used for speech, language and hearing screening. Administration of screening tests and completion of protocols.

SLPA 220
SPEECH DISORDERS AND INTERVENTION (3 credits)
This course focuses on 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.

SLPA 230
LANGUAGE DISORDERS AND INTERVENTION (3 credits)
This course explores language intervention approaches. Students are introduced to therapy techniques appropriate for treating language delays and acquired disorders with toddler, preschool, and school-aged populations. Addresses intervention for culturally and linguistically diverse children, as well as intervention for students with learning and developmental disabilities.

SLPA 235
CLINICAL MANAGEMENT AND PROCEDURES (4 credits)
Organizational and functional skills required in the speech-language pathology workplace. Includes interdisciplinary and supervisory relationships, client and public interaction, safety issues, technical writing, data collection, record keeping, computer applications, multicultural issues, and behavior management.

SLPA 240
CLINICAL FIELDWORK (6 credits)
This course is an eight-week, full- time field placement under the supervision of a speech-language pathologist certified by the American Speech Language Hearing Association. 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.

SOC 110
INDUSTRIAL RELATIONS (3 credits)
Development of skills for establishing working and personal relationships. Human relations in the workplace, employability skills, communication challenges, ethics, developing a professional presence, and a focus on the "real" world of work will be discussed.

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.

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.

SSS 103
ONLINE SEMINAR III (1 credit)
Continuation of SSS 102.

SSS 104
ONLINE SEMINAR IV (1 credit)
Continuation of SSS 103.

SSS 105
ONLINE SEMINAR V (1 credit)
Continuation of SSS 104.

SSS 106
ONLINE SEMINAR VI (1 credit)
Continuation of SSS 105.

SSS 201
ADVANCED ONLINE SEMINAR I (1 credit)
Advanced Online Seminar is for the student who plans to complete a second full online program. This course will focus on specific challenges unique to online students as well as ways to address them. Student will be expected to complete surveys throughout the semester and participate in discussion groups. Instructor input will help identify what courses to take and help design a graduation plan. This course will be a bi-weekly virtual meeting.

SSS 202
ADVANCED ONLINE SEMINAR II (1 credit)
Continuation of SSS 201.

SSS 203
ADVANCED ONLINE SEMINAR III (1 credit)
Continuation of SSS 202.

SSS 204
ADVANCED ONLINE SEMINAR IV (1 credit)
Continuation of SSS 203.

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. *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 110
SAFETY I (1 credit)
Safety in welding, cutting, and allied processes. Protection of personnel and the general area, ventilation, adopt fire prevention and protection, acknowledge gas welding and cutting safety, practice arc welding and cutting equipment safety.

WMT 111
SAFETY II (1 credit)
Safety in welding, cutting and allied processes. Determine the general safety provisions of management and supervision. Recognize safety for confined spaces, be aware of safety precautionary information and introduction of laser beam safety.

WMT 120
MANUFACTURING SYMBOLS & MEASURING (1 credit)
Manufacturing welding symbols and measuring. Exercise the ability of micrometer use, reading of fraction/metric tape measure, applying the use of a fillet weld gauge, operating dial indicators, identifying weld symbols, analyzing welding symbols on weld drawings and demonstrating actual welding scenarios with welding symbols.

WMT 121
BLUEPRINT READING (1 credit)
A comprehensive view of welding manufacturing blueprints. Interpretation of blueprints, creation of weld maps, applying weld symbols to corresponding parts, study of current manufacturing blueprints, draw fabricated part in detail with weld symbols, formulate math problems into created drawing and research blueprints with unknowns.

WMT 130
GMAW METALLURGY PROCESS (1 credit)
Introduction to metallurgy and mechanical weldability processes of carbon steel. Set up and Illustrate proper mechanical requirements for welding steel with GMAW/GTAW processes; create electrical diagrams for specific current needed to weld steel for GMAW/GTAW processes; 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.

WMT 131
CHARACTERISTICS OF ALUMINUM (1 credit)
Understanding of aluminum creation processes through electrical/mechanical requirements. Acquire the physical characteristics of aluminum, 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, analyze proper current for weldability (AC), evaluate cathodic bombardment, monitor thermal expansion, study of heat treatable aluminum alloys, study of non-heat treatable aluminum alloys, acquaint self with the aluminum classification system, understand function of welding equipment for welding aluminum with GMAW/GTAW, selection and preparation of proper tungsten for welding of aluminum, and mapping of GMAW equipment.

WMT 140
WELDING THEORY I (1 credit)
A complete look at the welding and manufacturing profession as a career builder. Trade speakers, manufacturing plant tours, welding manufacturing life style will be featured. Students will identify self-potential for the welding manufacturing program, acknowledge chain of growth for the welding and manufacturing career.

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 150
STEEL WELDING LAB (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. Lab safety; working on a class room project; apply proper technique on 10ga steel to accomplish 2F position GMAW-Pulse; apply proper technique on 3/8 steel to accomplish 2F position GMAW-Pulse; 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; apply proper technique on 12ga steel to accomplish various positions with GTAW; apply proper technique on 3/8 steel in various positions to accomplish GMAW-spray; and demonstrating proper techniques in various positions with GMAW-S on 10ga material.

WMT 151
ALUMINUM WELDING LAB (6 credits)
The student will gain the proper skill to operate all shop equipment and produce quality welds on aluminum in order to pass specific weld position tests. Band saw operations, demonstrating proper techniques in various positions with GMAW process, demonstrating proper techniques in various positions with GMAW-P process, demonstrating proper techniques in various positions with GTAW process, and fabrication of a classroom project out of aluminum material.

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 210
MANUFACTURING EQUIPMENT INSTALLATION (2 credits)
Guide for components of robotic and automatic arc welding installations. Provides performance recommendations for evaluating components of a typical robotic or automatic welding installation. Emphasis is placed on the role of the welding interface. A pin arrangement and specific pin function for each location in a standardized 37-pin connector are proposed.

WMT 220
MANUFACTURING PROGRAMMING (1 credit)
Introduction to software that helps create files that operate most manufacturing equipment: Auto Cad/Solid Works.

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.

WMT 231
MANUAL MACHINING (3 credits)
Set up and operation of manual machining. Birmingham Mill and Nardini Engine Lathe will be introduced as the machining stations. Instructions on proper maintenance, set up, and quality part production will be the key attributes.

WMT 250
LASER & PLASMA LAB (2 credits)
Introduction to the basic operations of automated plasma/laser cutting tables. The learning objectives will be focused on equipment capabilities, table design, software understanding, and quality of cutting and proper set up. Education source will come from equipment manufacture.

WMT 251
CNC MACHINING STATION LAB (2 credits)
Introduction to a CNC machining station. Education material will come from equipment manufacture.

WMT 252
FORMING IRON WORKER LAB (1 credit)
Introduction to the basic operations of a forming Iron Worker. The learning objectives will be focused on equipment capabilities, bed design, selection of tooling, quality and simple maintenance. Learning material will come from equipment manufacture.

WMT 280
APPRENTICESHIP/CAREER PREPARATION (1 credit)
Student will organize and manage a relationship with a local manufacturing facility. Student will fulfill all requirements of said manufacturing facility. Student will respect facility duties, expectations of facility, understand facility needs for welder qualification or facility acceptance, and overall evaluation of internship.

WMT 281
INTERNSHIP (6 credits)
Employer based student work experience. Student completion of 240 hours 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)
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) (4 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 (4 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 200
TURBINE ECONOMICS (3 credits)
Introduction to the economics of community-scale wind power projects. Wind energy projects are highly sensitive to many factors, particularly wind speed, and capacity. This course will provide an overview of costs, revenues, turbine sizes, etc.

WTT 213
ELECTRONICS THEORY II (4 credits)
Exploration of regulated power supplies. Prerequisite: 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)
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 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

BENJAMIN, MICHAEL (2007)
Telecommunications
B.S., University of Management and Technology

BRAUN, TODD (2010)
Electrical Construction & Maintenance
Diploma, Mitchell Technical Institute
Undergraduate Studies: 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

CRAIN, JEFFREY (2009)
Wind Turbine Technology
B.S., Embry-Riddle Aeronautical University
A.A.S., Community College of the Air Force

DARCY, JOHN (2011)
Industrial Maintenance Technology
A.A.S., Northeast Community College
Undergraduate Studies: South Dakota State University

DARLING, JOSHUA (2011)
Power Line Construction & Maintenance
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

DEFRIES, DANNY (2010)
Wind Turbine Technology
M.Ed., Naval Postgraduate College
B.S., University of South Dakota-Springfield

DEROUCHEY, ROGER (1979)
SD Center for Farm/Ranch Business Management
B.S., South Dakota State University
Diploma, Lake Area Technical Institute
Graduate Studies: South Dakota State University, University of Minnesota, Dakota State University

DONAHUE, KERRY (1999)
Electrical Construction and Maintenance
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

EDDY, STACEY (2009)
Wind Turbine Technology
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

EHLKE, JERRY (2012)
Power Line Construction & 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

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

FRERICHS, MCKENZIE (2012)
General Education (Communications)
B.A., Dakota Wesleyan 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/Computers
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

GIBLIN, DEBRA (2002)
Office Technology Specialist
M.A., University of South Dakota
B.S., University of South Dakota

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

HENDRIX, PATTY (2002)
Dietary Management
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State 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

HOFFMAN, CORINNE, RN, BSN, CMA (1995)
Medical Assistant
B.S.N., South Dakota State University

JACOBSON, KURT (2010)
Outdoor Power and Recreational Vehicle Technology
A.A., Alexandria Technical College
Undergraduate Studies: South Dakota State University

JARDING, KAREN (2009)
General Education (Math)
M.Ed., Dakota Wesleyan University
B.A., Dakota Wesleyan University

JUHNKE, JASON (2010)
Heating & Cooling Technology
A.A.S., 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
Diploma, 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
Fellowship, Forensic Pathology, Southwestern Institute of Forensic Sciences, Dallas, TX

MAHONEY, JIM (2004)
Architectural Design & Building Construction
B.S., Dakota State University

MALTSBERGER, DARIN (2008)
Outdoor Power & Recreational Vehicle Technology
A.A.S., Danville Community College
Undergraduate Studies: South Dakota State University

MARGALLO II, LUCIO, M.D., F.A.C.I.P. (1999)
Medical Director, Medical Assistant
Pre-Med, University of St. Thomas, Manila, Philippines
M.D., University of St. Thomas, Manila, Philippines
Residency, General and Surgical Medicine, Iriga City, Philippines; Clinical Assistant Professor, University of South Dakota; Assistant Professor, University of St. Anthony, Iriga City, Philippines

MATHERS, TONY (2000)
Commercial Driving
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

MCENTEE, LINDA (1992)
Office Technology Specialist
M.S., University of South Dakota
B.A., Augustana College

MELIKANT, DAWN (2011)
SD Center for Farm/Ranch Business Management
M.S., Murray State University
B.S., Western Kentucky University

MESSER, LEANNE, BSRT(R); CDT (2000)
Radiologic Technology
B.S., South Dakota State University
A.A.S., Mitchell Technical Institute
Diploma, Methodist Hospital School of Radiology Technology

MILLER, LAURA (2004)
Accounting/Business Management
M.A., University of Phoenix
B.S., Dakota State University

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

MUNSEN, TAMARA (2002)
Office Technology Specialist
M.S., Dakota State University
B.A., Dakota Wesleyan University

NELSON, TOM (1997)
Electrical Construction & Maintenance
B.S.E.E., South Dakota School of Mines & Technology
Graduate Studies: South Dakota State University

NEPPL, GREG (2008)
Architectural Design & Building Construction
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

NICOLAUS, JANET (1986)
Office Technology Specialist
M.A., Northern State University
B.A., University of South Dakota
A.A., South Dakota State University

NICOLAUS, JIMMIE (1996)
Outreach Trainer
A.A.S., National College of Business
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

ODENS, KELLY, MS, MLT(ASCP) (2005)
Medical Laboratory Technology
M.S., Southwest State University
B.S., National American University
A.A.S., Mitchell Technical Institute

OLNEY, KEMPTON (2012)
Propane & Natural Gas Technologies
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

OSBORNE, TOM (2009)
Power Line Construction & Maintenance
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

PETERSON, MICHAEL, M.D./ONCOLOGIST
Medical Director, Radiation Therapy
B.S., Cornell University
M.D., Cornell University Medical College
Residency, Northwestern Memorial Hospital, Chicago Radiation Oncology, University of Pennsylvania
Health System

PETERSON, TRAVIS (2012)
Welding & Manufacturing Technology
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

PUETZ, MICHAEL (1998)
Power Line Construction & Maintenance
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

REPENNING, LORI, DVM (2012)
Agricultural Technology
D.V.M, Kansas State University
B.S., University of Nebraska

RUSSELL, ANNIKA (2008)
Accounting/Business Management
M.A., University of Nebraska-Lincoln
B.A., Dakota Wesleyan University

RUSSELL, TONY (1994)
Automation Controls/SCADA
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

SCHAFFER, ERIC, MSRT(R), (CT) (2000)
Radiologic Technology
M.S., University of South Dakota
B.S., University of South Dakota

SCHMIDT, PAULA, CMA (2012)
Medical Office Professional
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

SCHULTZ, JENNIFER, MA, CCC-SLP (2012)
Speech-Language Pathology Assistant
M.A., University of Iowa
B.S., University of South Dakota

SCHUMACHER, JENNIFER (2000)
Information Systems Technology
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

SMITH, LYNNE, M.Ed., MT(ASCP) (2002)
Medical Laboratory Technology
M.Ed., South Dakota State University
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SOUKUP, PATRICK (2009)
Electrical Construction & Maintenance
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

STARR, H. JEAN (1992)
General Education (Math)
M.Ed., Northern State University
B.A., Northern State University

SWARTOUT, RUTHIE WILSON (2004)
General Education (Psychology/Sociology)
M.S., South Dakota State University
B.S., State University of New York - Buffalo

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
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

VERSTEEG, DAVID (1985)
Satellite Communications/Telecommunications
B.A., University of Sioux Falls
A.A.S., Mitchell Technical Institute

WAGNER, JIM (1998)
Culinary Academy of South Dakota
B.F.A., University of South Dakota
Diploma, Mitchell Technical Institute

WEISSER, SHIRLYCE, MLT(ASCP) (2009)
Medical Office Professional
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Undergraduate Studies: South Dakota State University

Administration

VON WALD, GREG
President
M.A., Iowa State University; M.A., Naval War College

GERHARDT, MARK
Vice-President for Industry Relations & Development
B.S., University of South Dakota

HOFFMAN, MICHAEL
Vice-President for Administrative Services
A.S., Watertown Business University

MUCK, DAN
Vice-President for Technology & Information Systems
Diploma, Mitchell Technical Institute

WIESE, VICKI
Vice-President for Academic Affairs
M.Ed., South Dakota State University

Staff

ARNOLD, TREVOR
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Admissions Coordinator
B.A., Dakota Wesleyan University

BOOS, DAVID
Network Administrator
B.S., Dakota State University

BROOKBANK, JULIE
Director of Marketing & Public Information
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DEUTER, CLAYTON
Director of Admissions
B.S., South Dakota State University

FOSSUM, SCOTT
Dean of Enrollment
Ed.S., University of South Dakota

GREENWAY, DOUG
Director of Corporate Education
M.S., Dakota State University

GREENWAY, JANET
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B.A., Dakota Wesleyan University

GRODE-HANKS, CAROL
Coordinator of Instructional Design and Campus Management Systems
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M.Ed., South Dakota State University

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B.A., Dakota Wesleyan University

KOBERNUSZ, BOB
Director of Interactive Services
B.S., Northern State University

KOTRBA, DARLA
Instructional Designer
M.Ed., University of Sioux Falls

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Executive Director, MTI Foundation
B.S., South Dakota State University

MURPHY, JILL
Retention Coordinator
M.A., University of South Dakota

MENTZEL, MEGAN
Career Services and Human Resources Coordinator
M.Ed., Dakota Wesleyan University

SIEVERDING, JOHN
Facilities Manager
Diploma, Mitchell Technical Institute

SMITH, MARLA
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B.A., Brigham Young University