2005-2007 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. All provisions herein are subject to change without notice and do not constitute a contract or 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.

The Institute reserves the right to modify requirements, program offerings, and 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. Students must also read the Student Handbook, which contains more information on student life and Institute policies.

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History

Mitchell Technical Institute (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 12,000 individuals have graduated from MTI since it opened. The central mission of the Institute has been to provide job preparatory programs on a full- or part-time basis to all who can benefit.

The main campus is located at 821 North Capital Street in Mitchell, South Dakota. MTI facilities include the West Campus at 601 South Ohlman Street and the Technology Center at 1800 East Spruce.

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

MTI takes pride in offering 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 business and industry training programs. Programs range from day-long business training to 24 month-long programs.

Vision Statement

At Mitchell Technical Institute our vision is to be a leader in learning and a valued partner in transforming the lives and communities of South Dakota.

Mission Statement

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

To achieve this mission, Mitchell Technical Institute:

- Provides high-quality Associate of Applied Science Degree and Diploma programs which prepare students for occupational success.
- Provides general education coursework which supports technical education and provides each student with the skills to communicate through speech and writing, use computers to process information, solve problems using basic computation, understand their role as individuals in society, and be flexible, adaptable lifelong learners.
- Provides customized training, seminars, conferences, workshops, courses, and consulting services to business, industry, and the community.
- Promotes the Institute through broad-based marketing and public relations activities.
- Promotes diversity of the student population and respond to the needs of special students: i.e., those disadvantaged educationally, economically, and culturally; nontraditional learners; single parents; displaced workers and homemakers; and those for whom English is a second language.
- Provides social and recreational activities, counseling support and a student government structure through an organized student services office.

- Continues to recruit and develop faculty and staff from backgrounds best suited to the overall development of the Institute.
- Fosters growth and learning through a conducive educational environment.
- Commits to improvement through a system of self-study and assessment.

Accreditation

Mitchell Technical Institute is accredited by:

The Higher Learning Commission, a Commission of the
North Central Association of Colleges and Schools
30 N. LaSalle Street, Suite 2400
Chicago, IL 60602-2504
(800) 621-7440; (312) 263-0456; Fax: (312) 263-7462

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 North Wacker Drive, Suite 900
Chicago, IL 60606-2901
(312) 704-5300; Fax: (312) 704-5304

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

Where We Are Located

MTI is housed in three facilities. The main administrative offices are located at the Capital Street (Main Campus) facility. Directions and maps to all three sites can be found at: www.mitchelltech.com/cf/directions.cfm.

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 advise 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 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**. (Study skills courses are offered to students desiring to improve their math, reading and communication skills.)

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

If the program is fully enrolled, students will be placed on a waiting list according to their application date. Students without a high school equivalency certificate may petition the Student Services Coordinator for an exception.

Students unable to meet program requirements may receive provisional acceptance. Students may upgrade provisional acceptance to official acceptance through a committee review consisting of the Assistant Director for Instruction, Department Head, Student Services Coordinator, and others as necessary, or by successfully completing one semester of course work counting as requirements toward a program with a grade point average of at least 2.00. Contact the Assistant Director for Instruction for details.

Admission to MTI is open to anyone without regard to race, sex, age, creed, or disability, 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, including a non-refundable application fee. (The application form is available at most high school guidance offices and at the MTI campus and online on the MTI web site.)
2. Send an *official* copy of your academic records (high school transcript, high school equivalency certificate, and/or college transcript). 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. If you cannot get an official transcript, contact the MTI Admissions Office.
3. In order to be accepted into a full-time program of study, you must complete the required entrance examination (Test of Adult Basic Education) or the ACT test. 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 or driver's license.
5. Upon acceptance to a program:
    A. An adviser will be assigned.
    B. A start date will be identified.
    C. Evaluation for preparatory course work will be made.
    D. Students will register for courses.

Admissions Guidelines

Admission to MTI is granted based on the preceding five 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 Student Services Coordinator, the Instructional Services Coordinator, the Assistant Director for Instruction or designee, and the department head . 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 elect to take an ACT test may substitute that examination for the COMPASS 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

An applicant for admission who is not a high school graduate must obtain minimum ACT scores, and meet any institute-determined requirements for admission to a specific program. Students must be at least 16 years of age, or the high school class of which the student was a member must have graduated from high school.

OR

Complete the General Educational Development (GED) High School Equivalency Certificate.

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 and to fulfill program requirements during any academic term. 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:

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

or to:

Assistant Director for Instruction, MTI
821 North Capital Street
Mitchell, SD, 57301
Telephone (605) 995-3023

Advanced Standing/Articulation

Advanced standing refers to credits transferred to MTI by an entering student for proficiencies gained from previous education and/or work experience (including military experience/training and/or high school education). Advanced standing allows students to enter a program of study without starting at the beginning because prerequisites have been met.

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. See the Registrar or Tech Prep Coordinator for details.

Dual Enrollment

In some cases, a student may be able to receive dual enrollment credit for a maximum of two classes per semester. Prior approval is required. See the Registrar 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 Student 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

If a program is fully enrolled, students already accepted into that program may be required to pay a $100 tuition deposit to maintain their enrollment status. The deposit will be credited to a student's account and deducted from the total amount owed when the first billing statement is issued. Students not paying the deposit by the specified date will forfeit their place in the program. The deposit will be refunded if the request is received at MTI in writing 30 days prior to the start of the program.

Additional Expenses

Students are required to purchase designated book, 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). Financial aid loans are not available to first time borrowers until the 30th day of the term. Please budget accordingly when making your school plans.

Refund Policy

Students who leave the Institute and desire a financial refund of tuition should see the Student Handbook for details.

Applying for Financial Aid

As soon as a student (and his or her parents if financially dependent) has completed a tax return(s) for the most recent year, a free application for federal student aid should be completed. These forms may be obtained from any high school guidance counselor or the MTI Financial Aid Office.

The completed application form may be mailed to the processing center or submitted electronically on a personal computer with access to the Internet. The Internet address is: http://www.fafsa.ed.gov.

Approximately three weeks after mailing the financial aid application or about 10 days after submitting it 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 College Work Study Program, Federal Perkins Loan, and the Federal Stafford Loan (GSL).

When the students receive their copy of the Student Aid Form, they should check the report for accuracy. If any information is incorrect, the students should contact the Financial Aid Office.

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 attend an entrance counseling session before they can receive any proceeds from that loan. Time and place will be announced at student orientation. First-time loan recipients may receive financial aid checks thirty days after the first day of classes. All other financial aid awards are available to students during the first week of classes. Returning students will generally receive all financial aid awards during the first week of classes.

To contact the Financial Aid Office at MTI, call (605) 995-3025 or (800) 952-0042 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.

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. Awards are from $400 to $4050, depending upon the annual federal government funding of the program.

The Federal Supplemental Educational Opportunity Grant Program 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. Applicants typically receive funds from $100 to $600.

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 available. See the Student Services Office or the Mitchell Area One Stop Career Center/Job Service 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 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 Stafford Loan Program is a low-interest loan program that allows dependent students to borrow up to $2625 for their first year and $3500 for their second year. Independent students may borrow up to $6625 for their first year and $7500 for their second year. This program is either subsidized or unsubsidized. If the loan is subsidized, the interest does not accrue until six months after the time you leave MTI. If the loan is unsubsidized, interest is charged from the time the loan is disbursed. Your award letter will indicate the type of loan for which you qualify. Funds are borrowed from a bank, credit union, or other lender.

Federal Parent Loans (PLUS) is a program which provides an opportunity for parents of dependent students to borrow funds for their student's educational costs. The Financial Aid office processes applications, but the money is borrowed from a bank, credit union, or other participating lender. 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.
National Guard Benefits—Members of the National Guard may qualify for 50% tuition benefits and monthly stipends under the Chapter 106 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—MTI accepts other scholarships and will provide assistance. See the Financial Aid office for more details.

STUDENT SERVICES

Housing

Although MTI does not own any student housing, the Student Services office maintains a current list of available housing in the Mitchell area. The Student Services Office has information for renters regarding agreements. Students are urged to be aware of their tenant rights and responsibilities.

Counseling Services

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

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.

Food Service

Meals are served on the main campus for a charge during the hours students are in attendance. Meal tickets are available in the Business Office. Tickets may be used to purchase any food on the cafeteria line, at the short order window, or in the Oak Room.

Insurance

During school time and school-sponsored events, MTI students are covered under group ***accident*** insurance that provides secondary coverage. (This is ***not*** major medical insurance coverage.) Additional health insurance must be purchased directly from an insurance carrier.

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 in the main building. 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.

Student Computer Use

Student access to personal computers is available in the Instructional Services Center (ISC), the cafeteria, 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.

Instructional Services Center

The Instructional Serviced Center (ISC) library provides a quiet study place for students. The library contains program materials, periodicals, and books for student use. Internet, the worldwide computer network, is available for student research. Additionally, the ISC offers help to students in reading, math, grammar, technical terminology, and spelling, individually or in groups. Student tutors for several course areas are also available.

Student Activities

MTI offers a wide variety of organized student activities sponsored by the Student Senate 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. A calendar of student activities is published biweekly in the student newsletter, *TECH TREK*.

Placement

MTI's full time Career Services Coordinator offers assistance to program graduates 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 Coordinator.

ACADEMIC INFORMATION

Academic Advising

Academic advising helps students choose courses and fulfill graduation requirements. At the registration session, students will be assigned an academic adviser who will assist the student with selection of courses, completion of registration forms and answer questions the student may have about the registration process. See the MTI course schedules for advising dates.

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.

Terms of Payment

The registration process is not complete until all costs are either paid or arrangements are made. This must be completed by the end of the first day of classes of each semester. 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 will be subject to immediate termination of their enrollment at MTI. Re-admission will be contingent upon payment in full.

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 person or in writing. You may download a transcript request form from the MTI website. Fax or mail the form to the MTI Registrar.
3. If requesting transcripts by mail, a student must provide the name under which he or she was enrolled, the program, Social Security number and the years attended.
4. Official transcripts are mailed in a sealed, labeled envelope. Official transcripts cannot be mailed directly to students.
5. Grade reports (unofficial transcripts), labeled as "Issued to Student," are available at no cost.

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 or dropped through the **10th day** of classes each semester. Courses scheduled in shorter modules may be added through the 5th day of such classes unless otherwise announced or approved by the department and Assistant Director for Instruction.

Adding and/or dropping a course after the 10th day requires approval signatures of the student, the course instructor, and the department head. 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 that time except under unusual circumstances and with the approval of the Assistant Director for Instruction. 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 and file the appropriate paperwork. Paperwork is available in the Admissions/Student Services office area. 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.

Withdrawal From School

Students withdrawing from school must:

1. complete a withdrawal form obtained from the Registrar.
2. turn in their locker key and ID Card.
3. have an exit interview with the Student Services Coordinator or Counselor and Financial Aid Coordinator or their designees.

The date of the completed withdrawal slip will determine the amount of the tuition refund to be made.

Satisfactory Academic Progress

Students attending Mitchell Technical Institute must be making satisfactory progress toward the completion of their academic goal—to obtain a degree or a diploma. Regular and punctual attendance is necessary. Active and committed class participation is required. To maintain financial aid, a student must have satisfactory progress.

Students must successfully complete at least seventy-five per cent (75%) of the credits attempted each semester in order to complete graduation requirements within the maximum time frame. Students who do not successfully complete 75% of 12 or more credits for two semesters may be suspended from financial aid.

Students have a maximum of four semesters to complete two-semester programs and six semesters to complete four-semester programs. Part-time students' completion schedules will be prorated accordingly.

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.

Academic Probation/Suspension

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 who fail to achieve a cumulative GPA of 1.0 during their first semester of enrollment will be suspended with no academic probation.

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 adviser, Registrar, or the Assistant Director for Instruction immediately to evaluate the probability of achieving the necessary GPA of 2.0 needed to graduate.

If a student is suspended for academic or other reasons, the student must wait at least one full semester before applying for re-enrollment. Students may be suspended from a program only twice. Registration will not be accepted a third time.

Students on academic probation must complete all credits attempted for that semester. 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.

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.

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.

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 Assistant Director for Instruction and the respective Department Head.
3. If students need financial aid, such as Veterans benefits, Pell Grant, etc., they will also need approval from the Financial Aid Coordinator or the respective agency.

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

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.

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 Assistant Director for Instruction no less than four calendar weeks into the subsequent term after the grades have been released. The request is considered by the Assistant Director for Instruction, instructor, and Department Head.

Students may appeal suspension to a committee made up of two instructors, the Student Services Coordinator, and the Assistant Director for Instruction, with input from the Registrar and the Financial Aid Coordinator for reinstatement of enrollment status, including federal financial aid. The appeal process is initiated by the student with a written request of their reasons for the appeal sent to the Assistant Director for Instruction by the date specified on their notification of academic suspension.

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

Credit Hour System

The credit hour is the academic unit used at Mitchell Technical Institute. One credit hour is defined as the credit earned for the completion of a course covering a 17-week semester and consisting of one class period, not less than 50 minutes, weekly.

Full-Time Student

A full-time student is one who is enrolled in twelve or more credit hours during a semester. Financial aid calculations are determined by enrollment status. 100% of aid is not available to students enrolled in fewer than 12 credits in a semester. See the Financial Aid office for details.

Change of Program

Students may request a change of programs within the Institute by completing a Transfer Form. The Department Head of the program from which they wish to transfer, the Department Head of the program to which they wish to transfer, the Student Services Coordinator, the Assistant Director, and the Financial Aid office must give approval. Transfer forms are available from the Registrar. Transfer is based on availability in a program. No transfer is guaranteed.

When a student changes programs, credits may be transferred to the new program. Only grades of "C" or better 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.

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 guidelines:

1. Official transcripts shall be submitted for use in assessing courses and credits for transfer from accredited institutions. It is the student's responsibility to have his or her transcript validated by the Registrar.
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) 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 one-third of their coursework, including their final semester, at MTI.
5. Students who choose to transfer articulated high school courses to MTI should contact the Registrar or Tech Prep Coordinator.
6. To transfer credit, an Application for Admission must be on file and a record-processing fee may be charged.
7. Non-credit courses from MTI's Business and Industry Training Division may be considered toward meeting credit course requirements. Students requesting such credit transfers must present a certificate of completion to the Assistant Director's office at MTI. The grade recorded on the student's academic record will be "CR" (credit).

Transferring Credits to Other Institutions

Students may be able to transfer MTI credits to colleges and universities and other technical institutes. See the Registrar for more information.

Credit for Prior Learning/Work Experience

Students with post-high school education or verified work experience, including military experience and training, may request evaluation of prior education and 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 may require a written examination or other documentation by the student and instructor. Departments may award advanced standing after a review and evaluation of transcripts of previous education and/or testing.

Test-for-Credit Process

Students may be allowed to receive credit by taking a test—"Testing Out"—instead of completing a course. Within the first ten days of classes, a student may notify the instructor that s/he desires to Test Out. 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 $30 (up to 3 credits) plus $5 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 may only test-for-credit for up to 50% of their courses required for graduation. ***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 Department Head and the Registrar to assure transfer of the CLEP credit.

Telecommunication/On-Line Courses

Students seeking to earn credit through telecommunication courses or on-line Internet courses should receive prior approval from their Department Head and the Registrar. Course credit must be submitted on an official transcript from an accredited institution to be transferred to MTI.

Service Learning

Some MTI programs and classes are implementing a service learning component in their curricula. Service learning is a strategy for learning and growing in which students actively apply the knowledge they have gained in the classroom to real community needs through involvement in service projects. As this project grows in scope, students may be required to complete a service learning project for satisfactory completion of a particular course or program.

Course Audits

Courses may be audited for no credit. There is a $40 fee to audit a course. A Class Audit form is available from 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 Assistant Director for Instruction explaining special circumstances which might permit waiver of MTI regulations. Requests will be referred to the Assistant Director for Instruction for review with input from the department, the Registrar, Student Services Coordinator, 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.

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 Assistant Director for Instruction 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.
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. Fulfill all financial obligations to the school including outstanding tuition, parking fines, returned check charges, childcare bills, etc.
5. File a Request to Graduate form with the Registrar's office.

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.

General Education Requirements

Students in both Diploma and Degree programs are required to take general education courses. These courses are designed to strengthen skills that will be useful to the students in their coursework, in their career field, and in their personal relationships.

Diploma (DIP) students are required to complete a minimum of 3.0 credits in communications and 3.0 credits in computer science.

Students pursuing the Associate of Applied Science (AAS) Degree are required to complete a minimum of 15 credits in the following five subject areas: written communications, computer literacy, mathematics, behavioral science, and social science.

A department may establish additional general education requirements. See program descriptions for details.

Students enrolling in communications, mathematics, and computer literacy courses may be required to take a placement exam.

To register for AAS degree math or communications courses, students must do one of the following:

1. Achieve an appropriate score on the MTI pre-admissions test or
2. Complete a preparatory mathematics or communications course with a grade of "P" or better or
3. Complete the appropriate articulated high school course.

Conferring of Degrees and Diplomas

Degrees and diplomas are officially conferred at the close of each semester. Public commencement exercises are held in the spring. Graduates who complete their coursework at the end of the summer term will be included in the spring commencement program.

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.

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 prior to 1990 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. The student has met the added requirements of the AAS degree for a chosen major.
2. Courses counted toward the degree shall have been taken within the five (5) years prior to granting the degree, or there is satisfactory evidence that the applicant's respective knowledge and skills fulfill current standards and requirements.
3. Students must complete a request to graduate form after AAS degree requirements have been met. The respective department(s) shall review an applicant's transcripts record and recommend approval for the AAS degree. The student will pay a $30.00 records processing fee and any other fees for a new diploma, transcript, etc.

Program Offerings

Accounting/Computers

Business requires accurate, systematic and computerized record keeping. Accountants and bookkeepers continue to be in high demand. Accounting/Computers is a two-year program which leads to the completion of an Associate of Applied Science degree. In the first year, students learn basic accounting principles, business management, and general business procedures.

In the second year of Accounting/Computers, advanced accounting courses are emphasized. Course work includes income taxes, governmental and cost accounting, governmental reporting, and intermediate accounting. Computerized accounting software packages, spreadsheets, and tax accounting software are utilized. AAS degree graduates are prepared for accounting work in the areas of para-professional, governmental accounting, industrial accounting, and private accounting.

Award: AAS Degree

First Semester			Semester Credits
ACCT	210	*Principles of Accounting I*	4
BUS	101	*Introduction to Business*	3
ECN	201	*Principles of Economics* (Macro)	3
CIS	105	*Microcomputer Software Applications*	3
ENGL	201	*Technical Writing*	3
			AAS 16

Second Semester			Semester Credits
ACCT	211	*Principles of Accounting II*	4
BUS	120	*Principles of Marketing*	3
BUS	140	*Business Law*	3
		Communications Elective	3
		Behavioral Science Elective	3
			AAS 16

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 and Accounting Applications I*	3
MATH	101	*Intermediate Algebra*	3
			AAS 18

Fourth Semester			Semester Credits
ACCT	213	*Intermediate Accounting II*	4
ACCT	215	*Cost Accounting II*	3
ACCT	217	*Government & Nonprofit Accounting*	3
ACCT	221	*Computer and Accounting Applications II*	3
BUS	235	*Investments*	3
BUS	217	*Database Operations*	2
			AAS 18

Total Credits Required to Graduate: 68

Agricultural Chemical Technology

Agriculture chemical technicians are employed in agriculture chemical and fertilizer sales, farm service, and chemical application. Training is provided in chemical resources, application rates, product usage, safety, and application processes. This program culminates in certification as a pesticide applicator including three months of on-the-job training (OJT).

MTI partners with Davison County to work 78 acres of farmland. MTI ag students and instructors manage all aspects of crop production including government programs, marketing, agronomy, etc. The land lab is used in conjunction with many of the production and business ag classes. Students gain experience in all areas of the operation: budgeting, planning, planting, spraying, fertilizing, harvesting and 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. A valid driver's license is required for the completion of the Commercial Driving Course. See the Course Description for AGTR 165 for a full explanation.

MTI recommends that before entering the Agricultural Chemical Technology program, applicants obtain a physical examination for their safety and protection.

Award: One-year Diploma

First Semester			Semester Credits
AG	111	*Weeds & Herbicides*	3
AG	112	*Crop Science I*	1.5
AG	145	*Agriculture Mathematics*	3
AG	158	*Farm Power/Small Engines*	1
AG	212	*Agriculture Chemicals*	2
AG	217	*Fertilizers*	2
AG	243	*Sales and Advertising*	2
AG	254	*Agriculture Chemical Equipment*	1
AG	256	*Intro to Agriculture Business Careers*	1
AGTR	165	*Industrial Transportation/CDL*	1
CIS	105	*Microcomputer Software Applications*	3
			21

Second Semester			Semester Credits
AG	113	*Crop Science II*	1.5
AG	172	*First Aid/CPR*	0.5
AG	185	*Supervised Internship I*	6
AG	211	*Soil Science*	3
AG	231	*Business Accounting*	2
AG	241	*Agriculture Law*	2
COMM	101	*Comm./Tech. Writing & Speaking*	3
			17.5

Total Credits Required to Graduate: 38.5

Agricultural Technology

Agriculture, particularly in South Dakota, provides many employment opportunities. This two-year program prepares students for careers in farm and ranch management, and crop and livestock production. This comprehensive program teaches managerial and supervisory skills. A featured component of this program is the MTI Land Lab.

MTI partners with Davison County to work 78 acres of farmland. MTI ag students and instructors manage all aspects of crop production including government programs, marketing, agronomy, etc. The land lab is used in conjunction with many of the production and business ag classes. Students gain experience in all areas of the operation: budgeting, planning, planting, spraying, fertilizing, harvesting and marketing.

Graduates work in agriculture chemical and fertilizer sales, in crop and livestock marketing, and agricultural retail sales and service. By completing the Agricultural Technology Program, a student may be certified as a pesticide applicator.

Students are expected to conform to MTI's Drug Testing Policy while enrolled in the Commercial Driving Course. See the Student Handbook for details. A valid driver's license is required for the completion of the Commercial Driving Course. See the Course Description for AGTR 165 for a full explanation.

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

Award: AAS Degree or Two-year Diploma

First Semester			Semester Credits
AG	102	*Animal Science I*	2
AG	108	*Livestock Evaluation*	1
AG	111	*Weeds & Herbicides*	3
AG	112	*Crop Science I*	1.5
AG	145	*Agriculture Mathematics* (Diploma)	3
AG	152	*Building Principles*	1
AG	157	*Farm Power/Electrical Wiring*	1
AG	158	*Farm Power/Small Engines*	1
AGTR	165	*Industrial Transportation/CDL*	1
CIS	105	*Microcomputer Software Applications*	3
		Mathematics Elective (AAS)	3
		Agriculture Elective (Diploma)	1,2,or 3
		Behavioral Science Elective (AAS)	3
			AAS 20.5
			Diploma 18.5

Second Semester			Semester Credits
AG	106	*Animal Science II*	2
AG	113	*Crop Science II*	1.5
AG	153	*Welding*	1
AG	201	*Animal Nutrition*	2
AG	211	*Soil Science*	3
AG	231	*Business Accounting*	2
AG	185	*Supervised Internship I*	6
	and		
AG	264	*Pesticide Certification*	1
	or		
AG	245	*Credit and Financing*	2
	and		
AG	131	*Principles of Farm Accounting*	2
		Agriculture Elective (Diploma)	2
ENGL	201	*Technical Writing* (AAS)	3
COMM	101	*Comm/Tech Writing & Speaking* **(Diploma)**	3

AAS 18.5/21.5
Diploma 21.5/23.5

Third Semester			Semester Credits
AG	202	*Feed Utilization*	2
AG	207	*Livestock Diseases*	2
AG	208	*Reproductive Physiology*	2
AG	212	*Agriculture Chemicals*	2
AG	217	*Fertilizers*	2
AG	243	*Sales & Advertising*	2
AG	246	*Advanced Agriculture Computers*	1
AG	247	*Taxes & Insurance*	2
AG	254	*Agriculture Chemical Equipment*	1
AGTR	165	*Industrial Transportation/CDL*	1
		Agriculture Elective	1
		Social Science Elective **(AAS)**	**3**

AAS 21
Diploma 18

Fourth Semester			Semester Credits
AG	241	*Agriculture Law*	2
AG	248	*Marketing*	2
AG	253	*Machinery Management*	2

Option I: Agriculture Management

AG	159	*Welding & Metal Fabrication*	1.5
AG	252	*Advanced Farm Building*	2
AG	257	*Advanced Electrical Wiring & Motors*	1.5
AG	258	*Advanced Farm Power*	2
		Agriculture Elective	1 or 2

AAS 14 or 15
Diploma 14 or 15

Option II: Agriculture Business Management

AG	285	*Supervised Internship II*	6
		Agriculture Elective	1 or 2

AAS 13/14
Diploma 13/14

Fall Semester Electives

AG	160	*AI/Pregnancy Checking*	1
AG	198	*Special Topics*	1
AG	199	*Special Topics*	2
AG	256	*Intro to Agriculture Business Careers*	1
AG	260	*Elementary Surveying*	1
AG	263	*Designing Livestock Systems*	1
AG	299	*Special Topics*	3

Spring Semester Electives

AG	171	*Understanding South Dakota Grasses*	2
AG	172	*First Aid/CPR*	0.5
AG	188	*Leadership Lab* I	0.5
AG	198	*Special Topics*	1
AG	199	*Special Topics*	2
AG	209	*Sire Selection*	1
AG	261	*Farm Animal Parasitology*	1
AG	275	*Animal Science Lab*	0.5
AG	288	*Leadership Lab II*	0.5
AG	299	*Special Topics*	3

Total Credits Required to Graduate: 73 (AAS)
Total Credits Required to Graduate: 71 (Diploma)

Architectural Design & Building Construction

Beginning with a firm foundation in drafting with instruments, and followed with an introduction to computed aided drafting (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 shop—where the weather is always nice. At the end of the first year, one of the students' architectural plans is selected for next year's residence.

The second year of the program, students working in construction units, build a house in the Mitchell community. As they work on the second home, they learn about concrete work as the students construct the foundation and rough finish a basement. A garage is added and a complete three-bedroom home is completed, ready for a Mitchell family.

Graduates from this design and carpentry program find employment with lumberyards, building contractors, and architectural firms. Their skills in CAD, carpentry, surveying, estimating, and cabinetry make the students in the Architectural Design and Building Construction Program valuable employees in the building trades. They have design experience and construction work on their resumes.

Award: AAS Degree or Two-Year Diploma

First Semester			Semester Credits
AD	101	*Principles of Drafting I*	2
AD	151	*Architectural Drafting Lab I*	4
AD	172	*First Aid/CPR*	0.5
BC	121	*Principles of Building Construction I*	5
BC	151	*Building Construction Lab I*	4
CIS	105	*Microcomputer Software Applications*	3
			18.5

Second Semester			Semester Credits
AD	102	*Principles of Drafting II/CAD*	2
AD	152	*Architectural Drafting Lab II*	4
BC	122	*Principles of Building Construction II*	4
BC	152	*Building Construction Lab II*	4
ENGL	201	*Technical Writing*	3
PSYC	101	*General Psychology* (AAS)	3
			AAS 20
			Diploma 17

Third Semester			Semester Credits
AD	201	*Sales Management*	2
AD	211	*Estimating I*	3
AD	241	*Principles of Commercial Construction*	3
BC	221	*Concrete Technology*	2
BC	251	*Building Construction Lab III*	5
		Social Science Elective (AAS)	3
			AAS 18
			Diploma 15

Fourth Semester			Semester Credits
AD	212	*Estimating II*	3
AD	262	*Accounting*	3
BC	252	*Building Construction Lab IV*	5
BC	272	*Construction Management*	3
BC	294	*Advanced Farm Buildings Lab*	2
MATH	101	*Intermediate Algebra* (AAS)	3
			AAS 19
			Diploma 16

Total Credits Required to Graduate: 76.5 (AAS)
Total Credits Required to Graduate: 67.5 (Diploma)

Computer Software Support

The rapid expansion of computer technology in the workplace has created the need for specialists who are both technically proficient and supportive of non-technical end users. The Computer Software Support program is a two-year program that prepares individuals for positions which provide software support, advice, troubleshooting, training, and documentation to computer end users.

The Computer Software Support graduate has an extensive knowledge of computer software and a working knowledge of hardware and peripheral devices. This specialist is proficient in Internet usage, designing and publishing web sites, database design and development, desktop publishing, and multimedia creation. The program prepares graduates to test for the MOUS (Microsoft Office User Specialist) Certifications.

Please Note: Students in this program will be required to lease a laptop computer from MTI. Please see the Admissions office or Department Head for details.

Award: AAS Degree

First Semester			Semester Credits
CSS	101	*Computer Concepts and Careers*	1
CSS	120	*Outlook Essentials*	2
CSS	143	*Word Processing*	3
CSS	163	*Spreadsheet Concepts and Applications*	3
CSS	164	*Operating Systems*	2
BUS	110	*Accounting for Business I*	4
PSYC	101	*General Psychology*	3
			18

Second Semester			Semester Credits
CSS	170	*Desktop Publishing*	3
CSS	171	*Multimedia Presentations*	3
CSS	181	*Database Concepts and Applications*	3
CSS	193	*Computer User Support*	3
ENGL	201	*Technical Writing*	3
		Social Science Elective	3
			18

Third Semester			Semester Credits
CSS	201	*Advanced Software Support*	4
CSS	203	*Web Page Design*	3
CSS	205	*Computer Peripherals*	1
CSS	206	*Troubleshooting & Basic Hardware*	4
MATH	101	*Intermediate Algebra*	3
		Communications Elective	3
			18

Fourth Semester			Semester Credits
CSS	202	*Small Office Accounting Applications*	1
CSS	204	*Advanced Web Page Design*	3
CSS	208	*PC Support Lab*	3
CSS	**210**	***Introduction to Networking***	**3**
CSS	211	*Certification Preparation*	1
CSS	220	*Electronic Commerce*	2
CSS	297	*Professional Development/Practicum*	3
			16

Total Credits Required to Graduate: 70

Computer Systems Technology

Modern computers drive the technological age. With the rapid changes in the complexity of the personal computer comes the need for technicians to keep all systems working.

The Computer Systems Technology program trains technicians, who disassemble, assemble, diagnose, and upgrade personal computers and networks. Hardware, operating systems, memory, speed, and capability characterize the computer industry. Today's computer and its systems can be out of date within a couple of years. The challenge for the computer technician is to master today's computer systems and be prepared to service tomorrow's new machines. The MTI Computer Systems Technology program trains tomorrow's computer technicians.

Please Note: Students in this program will be required to lease a laptop computer from MTI. Please see the Admissions office or Department Head for details.

Award: AAS Degree

First Semester			Semester Credits
CST	101	*Computer Systems Lab*	4
CST	130	*A+ Core Hardware*	4
CST	191	*Management Information Systems*	2
CST	192	*Basic Networking*	3
CIS	105	*Microcomputer Software Applications*	3
ENG	201	*Technical Writing*	3
			19

Second Semester			Semester Credits
CST	105	*Intro to SQL Administration*	3
CST	106	*Intro to Programming*	2
CST	111	*Computer Systems Lab II*	4
CST	131	*A+ OS Technologies*	4
CST	193	*Advanced Networking*	2
PSYC	101	General Psychology	3
			18

Third Semester			Semester Credits
CST	203	*Computer Systems Lab III*	5
CST	229	*Novell CNA Prep*	3
CST	238	*Data Communication Cabling*	3
CST	240	*Cisco CCNA Prep I*	2
CST	290	UNIX *Systems*	3
MATH	101	*Intermediate Algebra*	3
		Social Science Elective	3
			21

Fourth Semester			Semester Credits
CST	206	*Object-Oriented Programming*	2
CST	221	*Industry Experience*	1
CST	237	*Advanced Database*	3
CST	242	*Cisco CCNA Prep II*	3
CST	245	Windows *2003 Server*	3
CST	250	*Computer Systems Lab IV*	4
CST	256	*Network Security*	2
ENGL	202	*Technical Communications*	3
			21

Total Credits Required to Graduate: 79

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 center hotel kitchens in Sioux Falls.

After this fourteen-month on-campus program, students are prepared to enter the food service industry, in a restaurant or in an institutional food service operation like a hotel or hospital.

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 restaurant. The Oak Room is known throughout South Dakota as an opportunity not to be missed!

The concluding experience is a twelve-week internship in a fine dining restaurant in South Dakota or in an institutional kitchen. Graduates have experience in cooking, but equally important, are prepared for a management position in the food service industry.

Note: For more information on site availability, cost, and curriculum for the Culinary Academy's off-campus apprenticeship training program, see the Admissions office for details.

Award: One-year Diploma

First Term (Summer)			Semester Credits
CA	160	*Introductory Cooking Theory*	2
CA	161	*Introductory Cooking Lab*	2
CA	162	*Applied Food Service Sanitation*	2
CA	163	*Food Service Math I*	2
CA	174	*First Aid/CPR*	0.5
			8.5
Second Term (Fall Semester)			Semester Credits
CA	170	*Related Food Theory I*	5
CA	171	*Quantity Food Production I*	3
CA	172	*Restaurant Food Service I*	3.5
CA	173	*Food Service Math II*	2
CIS	105	*Microcomputer Software Applications*	3
			16.5
Third Term (Spring Semester)			Semester Credits
CA	180	*Related Food Theory II*	2.5
CA	181	*Quantity Food Production II*	3
CA	182	*Restaurant Food Service II*	3.5
CA	184	*Food Service Nutrition*	2.5
CA	185	*Food Service Supervision*	2.5
CA	186	*Food Service Computers*	2.5
CA	187	*Community Service*	1
ENGL	201	*Technical Writing*	3
			20.5
Fourth Term (2nd Summer)			Semester Credits
CA	190	*Internship*	6
CA	199	*Apprenticeship*	1

Total Credits Required to Graduate: 52.5

Electrical Construction & Maintenance

Electrician jobs in residential, commercial, and industrial wiring are open to MTI graduates. Positions are available with electrical contractors and maintenance companies, and with regional substations and utility companies. This two-year program provides basic training in maintenance and new construction wiring—in both residential and commercial buildings. Other training includes fiber optic and data cabling as well as programmable logic controls.

Incoming students are licensed as apprentice electricians in South Dakota. Upon completion of the Electrical and Construction Program, an MTI graduate receives 2000 hours towards certification as a journeyman with a South Dakota electrician's license.

Award: AAS Degree or Two-Year Diploma

First Semester			Semester Credits
ECM	101	*Electrical Fundamentals*	4
ECM	121	*Electrical Drawing*	4
ECM	151	*Basic Electrical Lab*	5
MATH	104	*Technical Math*	3
PSYC	101	*General Psychology* (AAS)	3
			AAS 19
			Diploma 16

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	*Microcomputer Software Applications*	3
PSYC	101	*General Psychology* (AAS)	3
			AAS 18
			Diploma 15

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
ENGL	201	*Technical Writing*	3
			AAS 19
			Diploma 19

Fourth Semester			Semester Credits
ECM	172	*First Aid/CPR*	0.5
ECM	202	*Motor Theory & Maintenance*	3.5
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*	2
			AAS 17
			Diploma 17

Total Credits Required to Graduate: 73 (AAS)
Total Credits Required to Graduate: 67 (Diploma)

Heating and Cooling Technology

The heating, cooling, and refrigeration industries are looking for personnel trained in several skills areas. Students will prepare for an expanding field that includes jobs in sales, service, installation, and industrial maintenance for a company or as a self-employed individual. Laboratory time is used to learn to install and service heating and cooling systems, as well as designing and forming sheet metal patterns for ductwork. Students are prepared in residential, commercial, and industrial work.

Students also receive extensive training in energy management and environmental controls technology. The Heating and Cooling Technology program provides students with skills and knowledge in mechanics, electricity, and sheet metal to help them get a job working in comprehensive or specialized areas. Some typical jobs include service, or installation technician, sales, service trainer, industrial maintenance, supervisor, manufacturer's representative, or business owner.

Award: AAS Degree or Diploma

First Semester			Semester Credits
HV	101	*Electrical Fundamentals*	3
HV	111	*Heating Fundamentals*	3
HV	121	*AC and Refrigeration Fundamentals*	4
HV	151	*AC/Heating/Refrigeration Laboratory I*	5
CIS	105	*Microcomputer Software Applications*	3
		Social Science Elective (AAS)	3
			AAS 21
			Diploma 18

Second Semester			Semester Credits
HV	102	*Sheet Metal Tech. & Blueprint Reading*	2
HV	122	*Sheet Metal Laboratory*	2
HV	132	*Heating & Refrigeration Theory*	4
HV	142	*HV Controls & Heat Pumps*	3
HV	152	*AC/Heating/Refrigeration Laboratory II*	4
HV	170	*SCADA for HVAC*	1.5
MATH	104	*Technical Math*	3
			19.5

Third Semester			Semester Credits
HV	211	*Domestic Heating and Cooling*	4
HV	221	*Planning & Estimating*	3
HV	231	*Heat Pumps*	2
HV	251	*AC/Heating/Refrigeration Laboratory III*	5
ENGL	201	*Technical Writing*	3
			17

Fourth Semester			Semester Credits
HV	202	*Commercial Refrigeration*	4
HV	232	*Commercial Air Conditioning*	3
HV	252	*AC/Heating/Refrigeration Laboratory IV*	5
HV	259	*DDC Temperature Control*	4
PSYC	101	*General Psychology* (AAS)	3
			AAS 19
			Diploma 16

Total Credits Required to Graduate: 76.5 (AAS)
Total Credits Required to Graduate: 70.5 (Diploma)

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 should not be confused with physician's assistants who examine, diagnose, and treat patients under a doctor's direct supervision.

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, authorizing prescription telephone orders, and preparing patients for X-rays. Medical assistants may find employment in clinics, hospitals, nursing homes, and insurance companies.

The MTI Medical Assistant program 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).

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

Program Graduation Requirements: Students must earn a grade of C (2.0) or higher in all technical courses that include a lab, competency or performance evaluation 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 I*	2
MA	103	*Anatomy/Physiology*	4
MA	111	*Medical Office Procedures*	3
ML	101	*Medical Laboratory Fundamentals*	3
ML	102	*Laboratory Fund./Phlebotomy Lab*	1
PSYC	101	Behavioral Science Elective	3
			16

Second Semester			Semester Credits
MA	112	*Laboratory Procedures I*	4
MA	115	*Medical Terminology II*	3
MA	160	*Pathophysiology*	3
CIS	105	*Microcomputer Software Applications*	3
MATH	101	*Intermediate Algebra*	3
			16

Third Semester			Semester Credits
MA	113	*Laboratory Procedures II*	3
MA	210	*Pharmacology & Admin. of Medicines*	3
MA	220	*Examination Room Techniques I*	3
MST	260	*CPT-4/ICD-9 Coding*	3
ENGL	201	*Technical Writing*	3
		Social Science Elective	3
			18

Fourth Semester			Semester Credits
MA	100	*First Aid/CPR*	1
MA	221	*Examination Room Techniques II*	3
MA	240	*Cardiac Monitoring and Care*	2
MA	250	*Clinical Externship*	6
MA	260	*Medical Law and Ethics*	2
MA	281	*Medical Transcription*	3
MST	261	*Medical Insurance/Claims Processing*	1
			18

Total Credits Required to Graduate: 68

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.

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.

Graduates may test to become certified as Medical Laboratory Technicians by the American Society of Clinical Pathologists [MLT (ASCP)] and/or the National Certification Agency for Medical Laboratory Personnel to obtain the title of Clinical Laboratory Technician [CLT(NCA)].

Program Graduation Requirements: Students must earn a grade of C or higher during clinical practicum in order to graduate.

Award: AAS Degree

First Semester			Semester Credits
ML	101	*Medical Laboratory Fundamentals*	3
ML	102	*Laboratory Fund./Phlebotomy Lab*	1
ML	105	*Laboratory Instrumentation*	2
ML	120	*Medical Terminology*	2
MA	103	*Anatomy/Physiology*	4
CIS	105	*Microcomputer Software Applications*	3
MATH	101	*Intermediate Algebra*	3
			18

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	201	*Technical Writing*	3
			21

Third Semester			Semester Credits
ML	230	*Clinical Chemistry**	4
ML	240	*Microbiology*	6
ML	272	*Immunohematology* (Blood Banking)*	3
PSYC	101	Behavioral Science Elective	3
		Social Science Elective	3
			19

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

Fifth Semester	Semester Credits
Clinical Practicum	

ML 234 *Practical Clinical Chemistry/Immunoassay** 6

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

Total Credits Required to Graduate: 80

Medical Secretary/Transcriptionist

A career as a medical secretary is one of the top twenty fastest growing occupations in the U.S. today. This program prepares students for entry into a variety of health-related positions where secretarial and business skills are needed. Employment opportunities are typically found in clinics, hospitals, dental, eye care, and insurance offices.

Students will specialize in medical classes like *Medical Terminology I & II, Anatomy and Physiology* and *Medical Law and Ethics*. The capstone course in this program is employment as an office intern in a medical facility.

Award: AAS Degree

First Semester			Semester Credits
MA	103	*Anatomy/Physiology*	4
MST	101	*Medical Terminology I*	3
MST	141	*Keyboarding/Word Processing**	3
MST	162	*Basics of Operating Systems*	1
BUS	110	*Accounting for Business I*	4
PSYC	101	Behavioral Science Elective	3
			18

Second Semester			Semester Credits
MST	102	*Medical Terminology II*	3
MST	180	*Introduction to Medical Transcription*	1
MST	195	*Medical Office Procedures*	3
MST	210	*Pharmacology Basics*	2
MA	160	*Pathophysiology*	3
ENGL	201	*Technical Writing*	3
		Social Science Elective	3
		Elective	3
			21

Third Semester			Semester Credits
MST	260	*CPT-4/ICD-9 Coding*	3
MST	281	*Medical Transcription I*	5
MATH	101	*Intermediate Algebra*	3
		Communications Elective	3
		Elective	3
			17

Fourth Semester			Semester Credits
MA	260	*Medical Law and Ethics*	2
MST	172	*First Aid/CPR*	0.5
MST	261	*Medical Insurance/Claims Processing*	1
MST	282	*Medical Transcription II*	5
MST	296	*MST Office Internship*	5
			13.5

Electives			
BUS	101	*Introduction to Business*	3
BUS	111	*Accounting for Business II*	4
BUS	120	*Principles of Marketing*	3
BUS	140	*Business Law*	3

Total Credits Required to Graduate: 69.5

Power Line Construction & Maintenance

Mitchell Technical Institute offers the only Power Line program in South Dakota. Demand for graduates of this one-year program, prepared for employment with rural electric cooperatives, municipal and private utility companies, the Bureau of Reclamation, private contractors, and many others, continues to be strong. Students graduate as apprentice line workers. 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.

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.

Note: Students are expected to conform to MTI's Drug Testing Policy while enrolled in the Commercial Driving Course. See the Student Handbook for details. A valid driver's license is required for the completion of the Commercial Driving Course. See the Course Description for PLTR 165 for a full explanation. MTI recommends that applicants to the Power Line Construction & Maintenance program obtain a physical examination for their safety and protection.

Award: Diploma

First Semester			Semester Credit
PL	111	*Fundamentals of DC/AC*	4
PL	121	*Applied Math*	2
PL	141	*Power Grid Design*	2
PL	151	*Construction of Underground Lines*	2
PL	152	*Construction of Overhead Lines*	4
PL	171	*Utility Safety I*	2
PLTR	165	*Industrial Transportation/CDL*	1
ENGL	201	*Technical Writing*	3
			20

Second Semester			Semester Credit
PL	112	*Electrical Circuits/Metering*	6
PL	154	*Maintenance of Underground Lines*	3
PL	155	*Maintenance of Overhead Lines*	5
PL	172	*Utility Safety II*	2
PL	173	*First Aid/CPR*	0.5
CIS	105	*Microcomputer Software Applications*	3
			19.5

Elective			
ECM	241	Fiber Optics	1

Total Credits Required to Graduate: 39.5

Propane & Natural Gas Technologies

There is an immediate need for employees in both natural gas and propane distribution and service occupations. In the propane industry there are 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.

The program emphasizes skills needed to install, maintain, operate, and repair gas distribution systems and equipment for residential, commercial, and industrial customers and to maintain and repair appliances used by residential and commercial customers. Employment is guaranteed with large gas service and construction companies to students who satisfactorily complete the program.

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 6 credits of general education.

Note: Students are expected to conform to MTI's Drug Testing Policy while enrolled in the Commercial Driving Course. See the Student Handbook for details. A valid driver's license is required for the completion of the Commercial Driving Course. See the Course Description for NGTR 165 for a full explanation.

Award: Diploma

First Semester			Semester Credits
NG	100	*Electrical Circuits & Testing*	3
NG	102	*Gas Operations & Maintenance*	5
NG	106	*Gas Mapping and Mathematics*	3
NG	110	*Gas Operations & Maintenance Lab*	1
NG	160	*Welding I*	1
CIS	105	*Microcomputer Software Applications*	3
SOC	110	*Industrial Relations*	3
			19

Second Semester			Semester Credits
NG	101	*Gas Appliance Service and Controls*	3
NG	103	*Gas Installation Lab I*	5
NG	105	*Measurement and Control*	5
NG	161	*Welding II*	2
ENGL	201	*Technical Writing*	3
			18

Third Term (Summer)			Semester Credits
NG	104	*Gas Installation Lab II*	6.5
NG	108	*Operator Qualification*	3
NG	111	*Agriculture Propane Equipment*	1
NGTR	165	*Industrial Transportation/CDL*	1
MATH	104	*Technical Math*	3
AG	172	*First Aid/CPR*	0.5
			15

Electives			
NG	199	*Special Topics*	2
ECM	241	*Fiber Optics*	1

Total Credits Required to Graduate: 52

Radiologic Technology

Mitchell Technical Institute is in partnership with Avera Queen of Peace Health Services, Prairie Lakes Hospital, and Lake Area Technical Institute to offer the Radiologic Technology program. This program educates students in the concepts and practices of radiologic (X-ray) technology. Graduates of the program will pursue employment opportunities in radiology or diagnostic imaging departments. Students will receive extensive clinical experiences in area medical facilities.

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: December 15**. Some immunization requirements may have to be met before entrance to certain clinical sites. See the Department Head for details.

Award: AAS Degree

First Semester (Fall)		Semester Credits
RAD 100	*Introduction to Clinical Radiology*	2
RAD 101	*Introduction to Rad Tech and Ethics*	2
MA 101	*Medical Terminology I*	2
MA 103	*Anatomy / Physiology*	4
CIS 105	*Complete Microcomputer Concepts*	3
ENGL 201	*Technical Writing*	3
	Mathematics Elective	3
		19

Second Semester (Spring)		Semester Credits
RAD 112	*Film Processing*	2
RAD 122	*Radiation Physics I*	3
RAD 132	*Radiographic Exposure and Technique*	4
RAD 202	*Clinical Radiology I*	4
RAD 212	*Rad Procedures I*	4
		17

Third Semester (Summer)		Semester Credits
RAD 113	*Radiation Biology and Protection*	4
RAD 203	*Clinical Radiology II*	4
RAD 213	*Rad Procedures II*	4
RAD 224	*Imaging Equipment*	2
		14

Fourth Semester (Fall)		Semester Credits
RAD 204	*Clinical Radiology III*	4
RAD 214	*Rad Procedures III*	4
RAD 225	*Radiographic Pathology*	3
RAD 226	*Topics in Radiography*	2
RAD 234	*Film Critique I*	2
	Social Science Elective	3
		18

Fifth Semester (Spring)		Semester Credits
RAD 123	*Quality Assurance /Quality Control*	1
RAD 205	*Clinical Radiology IV*	4
RAD 215	*Rad Procedures IV*	4
RAD 235	*Radiation Physics II*	3
	Behavioral Science Elective	3
		15

Sixth Semester (Summer)		Semester Credits
RAD 206	*Clinical Radiology V*	4
RAD 216	*Sectional Anatomy*	3
RAD 236	*Film Critique II*	2
RAD 246	*Registry Review*	4
		13

Total Credits Required to Graduate: 94

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.

Program Graduation Requirement: Students must earn a grade of C or higher during internship in order to graduate.

Award: AAS Degree

First Semester			Semester Credits
EC	111	*Electronics Theory I*	4
EC	121	*DC/AC Circuit*	4
EC	151	*Electronics Laboratory I*	3
EC	161	*Electronics Mathematics*	2
CIS	105	*Microcomputer Software Applications*	3
		Social Science Elective	3
			19

Second Semester			Semester Credits
EC	117	*Electronics Theory II*	4
EC	127	*Solid State*	3
EC	137	*Digital*	2
EC	157	*Electronics Laboratory II*	3
ENGL	201	*Technical Writing*	3
PSYC	101	*General Psychology*	3
			18

Third Semester			Semester Credits
SC	212	*PC Essentials*	4
SC	221	*Television Technology I*	2
SC	241	*Fundamentals of Telephony*	1
SC	264	*Prin. of Satellite & Wireless Communications*	3
SC	265	*Satellite Communication Lab* I	2
SC	266	*Earth Station Receiver Systems (RX)*	3
ENGL	202	*Technical Communications*	3
			18

Fourth Semester			Semester Credits
SC	227	*Data Transmission*	3
SC	274	*Earth Station Transmitter Systems (TX)*	4
SC	275	*Satellite Communications Lab II*	2
SC	276	*Teleport Regulations*	3
ECM	241	*Fiber Optics*	1
MATH	101	*Intermediate Algebra*	3
			16

Fifth Semester			Semester Credits
SC	290	*Internship*	4

Total Credits Required to Graduate: 75

SCADA Engineering Technology

Supervisory Control & Data Acquisition, known in the industry as SCADA, is emerging as one of the fastest expanding areas of industry today. The program teaches students to use computers to collect management data and to use 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.

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. This is the only program of its kind currently in the U.S.

Please Note: Students in this program will be required to lease a laptop computer from MTI. Please see the Admissions office or Department Head for details.

Award: AAS

First Semester		Semester Credit
SD 111	*DC/AC Circuits*	4
SD 117	*Electronics Theory*	4
SD 150	*Computer Hardware & Troubleshooting*	2
SD 151	*Basic Electronics Lab I*	3
SD 161	*Electronics Math*	2
CIS 105	*Complete Microcomputer Concepts*	3
	Social Science Elective	3
		21

Second Semester		Semester Credit
SD 120	*Intro to Industrial Motor Controls*	2
SD 130	*Basic Wiring & Code*	2
SD 155	*Computer Hardware & Troubleshooting II*	2
SD 157	*Electronics Lab II*	3
SD 159	*Programmable Logic Controllers*	3
SD 170	*Basic Heating & Cooling Technology*	1.5
ECM 241	*Fiber Optics*	1
ENGL 201	*Technical Writing*	3
PSYC 101	*General Psychology*	3
		20.5

Third Semester		Semester Credit
SD 210	*Device Level Bus Structures*	2
SD 220	*Wireless Communications*	3
SD 225	*Intro to SCADA Software*	2
SD 230	*Intro to Visual Basic*	3
SD 245	*1131 Standards*	2
SD 280	*Data Cabling Lab*	1
SD 282	*Data Transmission I*	3
MATH 104	*Technical Math*	3
		19

Fourth Semester		Semester Credit
SD 204	*Inventory Control & Mapping*	2
SD 205	*Process Controls*	3
SD 235	*Advanced Visual Basic*	3
SD 255	*Special Topics*	1
SD 270	*SCADA Testing & Control Lab*	6
SD 284	*Data Transmission II*	3
ENGL 202	*Technical Communications*	3
		21

Total Credits Required to Graduate: 81.5

Communication Systems Engineering Technologies

The Communication Systems Engineering Technologies program prepares students for employment as technicians in many areas of electronic communications (digital, broadband, analog, microwave, wireless, etc.). Graduates find employment opportunities in various geographic locations. Communication systems engineering technicians apply their knowledge of electronics, science, and math by assisting engineers, performing tests on 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/commercial telephone equipment.

The program begins with electronic fundamentals and moves to advanced electronic systems. Subjects covered include the circuitry used in today's communication systems, solid state and digital components, and other technology. Students will be trained on a wide range of equipment currently used in the communications industry. Some of the equipment on which students will receive hands-on training includes: central office switch programming and maintenance, T1 and DSL test equipment, signal strength and reflection test equipment, network components and routers, computer and data communications equipment, and video imaging and distribution systems. The student will also learn the skills necessary to install and maintain residential and commercial telephone equipment. With this knowledge and experience, graduates are employed with many of the nation's largest and most prestigious communication companies. Jobs range from opportunities with local telephone companies to national industries dependent on communication technology infrastructures. The career opportunities for graduates are as varied as the ways communication systems are utilized.

Award: AAS Degree

First Semester			Semester Credits
EC	111	*Electronics Theory I*	4
EC	121	*DC/AC Circuit*	4
EC	151	*Electronics Laboratory I*	3
EC	161	*Electronics Mathematics*	2
CIS	105	*Microcomputer Software Applications*	3
		Social Science Elective	3
			19

Second Semester			Semester Credits
EC	117	*Electronics Theory II*	4
EC	127	*Solid State*	3
EC	137	*Digital*	2
EC	157	*Electronics Laboratory II*	3
ENGL	201	*Technical Writing*	3
PSYC	101	*General Psychology*	3
			18

Third Semester			Semester Credits
EC	211	*Wireless Communications I*	4
EC	221	*Television Technology I*	2
EC	234	*Intro to Data Transmission*	3
EC	241	*Fundamentals of Telephony/CPE*	3
EC	245	*Fiber Optics*	1
EC	251	*Electronics Lab III*	3
ENGL	202	*Technical Communications*	3
			19

Fourth Semester			Semester Credits
EC	217	*Wireless Communications II*	3
EC	248	*Central Office Equipment*	3
EC	249	*Telephone Outside Plant*	3
EC	257	*Electronics Lab IV*	4
MATH	101	*Intermediate Algebra*	3
			16

Total Credits Required to Graduate: 72

Utilities Technology

The utilities industry is one of the most technologically intensive segments of today's economy. The utility worker who is well rounded with knowledge of different types of utilities will find success in many areas. MTI is addressing this industry need by combining the curricula of two existing programs to offer an AAS degree in Utilities Technology. Students who complete the entire Power Line Construction and Maintenance and Propane and Natural Gas Technologies programs, with the addition of a mathematics elective (3 hours) and 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.

Note: Students are expected to conform to MTI's Drug Testing Policy while enrolled in the Commercial Driving Course. See the Student Handbook for details. A valid driver's license is required for the completion of the Commercial Driving Course. MTI recommends that applicants to the Power Line Construction & Maintenance program obtain a physical examination for their safety and protection.

Award: AAS Degree

Please note: These programs can be taken in either sequence: PL first followed by NG or NG first followed by PL.

First/Third Semester		Semester Credit
PL 111	*Fundamentals of DC/AC*	4
PL 121	*Applied Math*	2
PL 141	*Power Grid Design*	2
PL 151	*Construction of Overhead Lines*	4
PL 152	*Construction of Underground Lines*	2
PL 171	*Utility Safety I*	2
		16

Second/Fourth Semester		Semester Credit
PL 112	*Electrical Circuits/Metering*	6
PL 154	*Maintenance of Underground Lines*	3
PL 155	*Maintenance of Overhead Lines*	5
PL 172	*Utility Safety II*	2
		16

First/Third Semester		Semester Credits
NG 100	*Electrical Circuits & Testing*	3
NG 102	*Gas Operations & Maintenance I*	5
NG 106	*Gas Mapping and Mathematics*	3
NG 110	*Gas Operations & Maintenance Lab*	1
NG 160	*Welding I*	1
		13

Second/Fourth Semester		Semester Credits
NG 101	*Gas Appliance Service and Controls*	3
NG 103	*Gas Installation Lab I*	5
NG 105	*Measurement and Control*	5
NG 161	*Welding II*	2
		15

Summer Term (to follow PNG segment)		Semester Credits
NG 104	*Gas Installation Lab II*	6.5
NG 108	*Operator Qualification*	3
NG 111	*Agriculture Propane Equipment*	1
		10.5

The student must also complete:

ENGL 201	*Technical Writing*	3
SOC 110	*Industrial Relations*	3
CIS 105	*Microcomputer Software Applications*	3
MATH 104	*Technical Math*	3
PSYC 101	*General Psychology*	3
PLTR 165 or		
NGTR 165	*Industrial Transportation/CDL*	1
PL 171 or		
NG 172	*First Aid/CPR*	0.5

Award: AAS Degree

Total Credits Required to Graduate: 86

General Education

Both Diploma and Associate of Applied Science Degree candidates are required to successfully complete general education courses as designated by the technical department. General Education courses are designed to enhance the student's major field of study. Employability skills outlined by business and industry are stressed.

One-Year Diploma

Students pursuing a one-year Diploma are required to complete a minimum of 3 credits in communications and 3 credits in computer literacy. Communication courses available include:

COMM 101 *Communications/Technical Writing & Speaking* .....(3 credits)
ENGL 201 *Technical Writing* .....(3 credits)

Students must meet the computer requirement by passing:

CIS 105 *Microcomputer Software Applications I* .....(3 credits)

Individual departments may require additional credits.

Students must meet a mathematics requirement by passing their department requirement:

AG 145 *Agriculture Mathematics*.....(3 credits)
CA 163 *Food Service Math I*.....(2 credits)
CA 173 *Food Service Math II*.....(2 credits)
PL 121 *Applied Math*.....(2 credits)

Two-Year Diploma

Students pursuing a two-year diploma are required to complete a communications course and to be computer literate. Communication courses available include:

COMM 101 *Communications/Technical Writing & Speaking* .....(3 credits)
ENGL 201 *Technical Writing* .....(3 credits)

Students must meet the computer requirement by passing:

CIS 105 *Microcomputer Software Applications I* ..... (3 credits)

Individual departments may require additional credits.

AAS Degree

Students pursuing the Associate of Applied Science Degree are required to complete a minimum of 15 credits in general education in five subject areas. Individual departments may require additional credits. See specific program descriptions for further details.

Communications (3 credits required)
ENGL 101 *Composition I*.....3
ENGL 201 *Technical Writing* 3
ENGL 202 *Technical Communications*.....3
SPCM 101 *Fundamentals of Speech* 3

Mathematics (3 credits required)
MATH 101 *Intermediate Algebra*.....3
MATH 104 *Technical Math* 3

Computer Literacy (3 credits required)
CIS 105 *Microcomputer Software Applications I* 3

Behavioral Science (3 credits required)
PSYC 101 *General Psychology*.....3
PSYC 103 *Psychology for the Medical Professional* 3

Social Science (3 credits required)
ECN 201 *Principles of Economics (Macro)*.....3
SOC 110 *Industrial Relations* 3

Individual departments may require additional credits. Some departments require completion of ENGL 202 *Technical Communications* or SPCM 101 *Fundamentals of Speech*. See specific program descriptions for further details.

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 pursuing the Diploma with a low placement test score in math will be required to complete:

   MATH 090 *Basic Mathematics* (2 credits)

   before proceeding into their technical subject math.

2. Students pursuing the AAS Degree with a low placement test score in algebra will be required to complete:

   MATH 091 *Basic Algebra* (2 credits)

   before entering MATH 101 or MATH 104.

3. Students pursuing the AAS Degree with low placement test scores in reading or writing will be required to complete:

   ENGL 098 *Grammar/Usage Review* (2 credits)

   before entering ENGL 101 or ENGL 201.

4. Students may be advised to take the Pre-Tech workshop during the summer session before entering a program. Pre-Tech is an intensive academic review workshop designed to help students improve test scores in reading, comprehension, study skills, and math. At the conclusion of the Pre-Tech week, students will be re-tested to determine their academic progress. The Admissions office has more information.

Farm Business Management

Mitchell Technical Institute's Farm Business Management program 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. 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. The MTI Farm Business Management Program has two instructors who serve within a 70-mile radius of Mitchell.

All records are kept 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.

The MTI Farm Business Management Program is also a certified provider of the FSA Farmer Borrower Training program.

To enroll in this program, contact the Farm Business Management instructors at 995-3098 or (800) 952-0042.

Award: Certificate

First Semester — Semester Credits
FBM 111 *Fundamentals of Farm Business Management*.....4

Second Semester — Semester Credits
FBM 121 *Farm/Ranch Data Management* 4

Third Semester — Semester Credits
FBM 131 *Implementing the System Management Data*.....4

Fourth Semester — Semester Credits
FBM 141 *Preparation for Farm Business Data Analysis*.....4

Fifth Semester — Semester Credits
FBM 151 *Interpreting and Using System Data* 4

Sixth Semester — Semester Credits
FBM 161 *Managing & Modifying Farm System Data*.....4

Seventh Semester — Semester Credits
FBM 171 *Interpreting Trends in Business Planning* 4

Eighth Semester — Semester Credits
FBM 181 *Interpreting & Evaluating Financial Data* 4

Ninth Semester — Semester Credits
FBM 191 *Integrating Information for Financial Planning* 4

Tenth Semester — Semester Credits

FBM	201	*Strategies in Farm System Data Management*	4

Eleventh Semester			Semester Credits
FBM	211	*Refining Farm System Management*	4

Twelfth Semester			Semester Credits
FBM	221	*Examination of the Context System Management*	4

Electives

FBM	231	*Analysis Preparation & Interpretation I*	2
FBM	232	*Analysis Preparation & Interpretation II*	2
FMB	233	*Analysis Preparation & Interpretation III*	2
FBM	234	*Analysis Preparation & Interpretation IV*	2
FBM	241	*Business Tax Planning*	2
FBM	251	*Estate Planning*	2
FBM	261	*Risk Management Through Marketing I*	2
FBM	262	*Risk Management Through Marketing II*	2
FBM	263	*Risk Management Through Marketing III*	2
FBM	264	*Risk Management Through Marketing IV*	2
FBM	271	*Computer Applications in Business*	2
FBM	281	*Financial Fundamentals*	2

FBM: Refers to all courses offered through the Farm Business Management Program. For a course description contact a Farm Business Management instructor.

Electives: Courses which can be taken in addition to other courses or as an individual offering.

Business/Industry Training

Business/Industry Training 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

One very popular example is computer training on today's most popular software. Your staff needs to adapt to changes as computer technologies change and as software packages improve. Through the MTI Business/Industry Training program, your employees can be trained on your choice of software, using up-to-date computer technology in our brand new computer 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 can be flexible and adaptable to your needs.

Examples of industry based certification training that have been done:

- Propane CETP training, testing & certification
- Refrigerant Transition and Recovery training, testing and certification
- Food Service Sanitation and Safety training, testing and certification
- EMT training, testing and certification
- Electric Code Class for license renewal
- K-12 Computer Workshops for certification renewal

Examples of short-term industry based training

- Natural Gas Company "Light-Up School"
- Basic Electricity for Facility Maintenance
- Boiler Operation and Maintenance
- Furnace Trouble Shooting and Maintenance
- Air Conditioning and Heat Pump Maintenance
- Refrigeration Maintenance
- Computer Maintenance and Trouble Shooting
- Supervisory\Management training
-

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 Industry Training 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 Business/Industry Training office in the MTI Technology Center, call 995-3056, (800) 952-0042, send an email to training@mti.tec.sd.us or visit www. mitchelltech.com.

Course Descriptions

Course Descriptions

ACCT 210 *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 211 *PRINCIPLES OF ACCOUNTING II* (4 credits)
Continuation of ACCT 210. Topics include payroll, partnership and corporate accounting, investments, long-term debt, statement of cash flows, financial analysis and departmental accounting. Prerequisite: ACCT 210.

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 solving uses Lotus 1-2-3 or Excel spreadsheet programs. Prerequisite: ACCT 211 with a grade of C or higher.

ACCT 213 *INTERMEDIATE ACCOUNTING II* (4 credits)
Comprehensive view of liability relationships and owner's equity. Accounting for corporations are 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 211 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. Prerequisite: ACCT 210 with a grade of C or higher.

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 211 with a grade of C or higher.

ACCT 220 *COMPUTER AND ACCOUNTING APPLICATIONS I* (3 credits)
Accounting projects using advanced Excel software techniques. A final project encompassing spreadsheet applications is completed. Prerequisite: CIS 105 and ACCT 210.

ACCT 221 *COMPUTER ACCOUNTING APPLICATIONS II* (3 credits)
Computer programs used to produce reprints and solve problems. Peachtree and Quickbooks accounting software are emphasized. Prerequisite: ACCT 211 with a grade of C or higher.

AD 101 *PRINCIPLES OF DRAFTING I* (2 credits)

Drawing methods in architectural drafting. Site planning and plot plans drawing are presented. Computer-aided drafting (CAD) is introduced.

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

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

AD 152 *ARCHITECTURAL DRAFTING LAB II* (4 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 credits)
Practice and certification in first aid and CPR, as well instruction in construction equipment and safety.

AD 201 *SALES MANAGEMENT* (2 credits)
Basic principles of selling, marketing and human relations. Selling in situations relating to the modern retail lumber business is covered comprehensively.

AD 211 *ESTIMATING I* (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 212 ESTIMATING II (3 credits)
A continuation of AD 213.

AD 241 *PRINCIPLES OF COMMERCIAL CONSTRUCTION* (3 credits)
Study of commercial construction. Drawing of commercial plans is done. Emphasis is placed on terminology, material, and typical fastening techniques.

AD 262 *ACCOUNTING* (3 credits)
Introduction to the principles of industrial accounting.

AG 102 *ANIMAL SCIENCE I* (2 credits)
Introduction to the red meat industry including organizations, product value, breeds and methods of individual and sire selection. Management goals are evaluated.

AG 106 *ANIMAL SCIENCE II* (2 credits)
Study of the establishment and operation of a beef, swine, sheep, or dairy enterprise including production performances, animal environment, marketing strategies, and management alternatives.

AG 108 *LIVESTOCK EVALUATION* (1 credit)
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.

AG 111 *WEEDS AND HERBICIDES* (3 credits)
Study of weed plant and seed identification, classification and types of weeds for control purposes, and cultural and chemical control of weeds. A unit on sprayer calibration is included.

AG 112 *CROP SCIENCE I* (1.5 credits)
Study of the importance, uses, and production of biotechnology with an emphasis on the production of crops in South Dakota.

AG 113 *CROP SCIENCE II* (1.5 credits)
Continuation of AG 112. Study of the importance, uses and production of the major row crops and small grains raised in South Dakota. Students assist in the planning and operation of the MTI Land Lab working with projects like seeding rates, fertilizer and chemical products selection and perform the application of those products.

AG 131 *PRINCIPLES OF FARM ACCOUNTING* (2 credits)

Study of the accounting process through double-entry accounting, recording business transactions, accounting for cash, accounting for merchandise sales, and completion of the accounting cycle.

AG 145 *AGRICULTURE MATHEMATICS* (3 credits)
Review of business math fundamentals such as fractions, decimals, metrics and percentages. Interest calculations, consumer loans, retail and marketing math are covered. Mathematics calculation for areas, and volumes are discussed. Office procedures and legal locations are reviewed. Fulfills diploma mathematics requirement.

AG 152 *BUILDING PRINCIPLES* (1 credit)
Selection of building materials and construction. The design and construction concepts of livestock, storage and feed handling facilities is presented.

AG 153 *WELDING* (1 credit)
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.

AG 157 *FARM POWER/ELECTRICAL WIRING* (1 credit)
Basic farm wiring including calculation of wattage, voltage, and wiring size.

AG 158 *FARM POWER/SMALL ENGINES* (1 credit)
Small engine theory, construction, disassembly repair and small engine overhaul. Small engines are overhauled including electrical systems, carburetors, starters, generators, bearings, and seals.

AG 159 *WELDING AND METAL FABRICATION* (1.5 credits)
Advanced skills in horizontal and vertical joints in both electric arc and oxyacetylene welding are emphasized. Experience on TIG and MIG welders, hard surfacing and cast iron welding is provided. Design and construction of a metal project.

AG 160 *AI/PREGNANCY CHECKING* (1 credit)
Reproductive systems of swine and cattle. Artificial insemination of livestock including pregnancy checking in cows when resources are available.

AG 171 *UNDERSTANDING SOUTH DAKOTA GRASSES* (2 credits)
A two-semester study of the primary grasses of South Dakota. Students will develop skills in identification, natural habitat, and annual feed values of each grass. Lab work may include one day spent at South Dakota Rangeland Days, one day in western South Dakota, and three days in the Black Hills.

AG 172 *FIRST AID/CPR* (0.5 credits)
Practice and certification in first aid and CPR, as well as instruction in agricultural equipment and chemical safety.

AG 185 *SUPERVISED INTERNSHIP I* (6 credits)
Work off-campus in an agricultural business related to livestock production, feed and animal health, livestock sales, agricultural chemicals, or fertilizer sales and applications. Prerequisite: AG 264 and AGTR 165.

AG 188 *LEADERSHIP LAB I* (0.5 credits)
Preparation and participation in post-secondary Agriculture Student Organization (PAS) for state and national competition. Includes career planning, career progress, extemporaneous speaking, prepared public speaking, sales, agricultural mechanics, and employment interviewing.

AG 198 *SPECIAL TOPICS* (1 credit)
The study of any particular topic that may interest the student. Time will be spent on topics of the student's choice, research into a particular area, small projects and class presentations.

AG 199 *SPECIAL TOPICS* (2 credits)
The study of any particular topic that may interest the student. Time will be spent on topics of the student's choice, research into a particular area, small projects and class presentations.

AG 201 *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.

AG 202 *FEED UTILIZATION* (2 credits)
Advanced study of feed stuffs and their values for animals, feed processing practices and ration formulations.

AG 207 *LIVESTOCK DISEASES* (2 credits)
Detailed study of livestock diseases, terms, symptoms, and care of sick animals.

AG 208 *REPRODUCTIVE PHYSIOLOGY* (2 credits)
Study of young mammal development. Microscopic cell study, fetal development, genetics, artificial insemination, pregnancy testing and performance testing are discussed.

AG 209 *SIRE SELECTION* (1 credit)
Familiarizes students with available sources of sire information. Type, pedigree, performance, production (EPD & ratio), carcass, linear (dairy), and dollar data will be analyzed. Students should be able to evaluate the worth of a sire by the end of the course.

AG 211 *SOIL SCIENCE* (3 credits)
Study of soil formation, factors affecting productivity, capability classes and conservation.

AG 212 *AGRICULTURAL CHEMICALS* (2 credits)
Advanced study of agricultural chemicals, pesticides, and chemical applications. Equipment for liquid and dry chemicals, as well as non-chemical alternatives are studied. A record which includes chemical safety, individual worksheets, and advertising sales literature is maintained. The State Certification Test for Pesticide Applicators is administered. A 70% or higher score is required to spray for certification as a custom applicator in South Dakota.

AG 217 *FERTILIZERS* (2 credits)
Study of fertilizer types and elements, soil testing, and applications. The blending and manufacturing of dry, liquid and suspension fertilizers is studied.

AG 231 *BUSINESS ACCOUNTING* (2 credits)
Study of the accounting forms and procedures used in agriculture business. Practice sets and accounting problems are completed for experience necessary for employment in a retail farm store.

AG 241 *AGRICULTURAL LAW* (2 credits)
Agriculture law. Included are contracts, trespass, land use laws, bankruptcy, partnerships, corporations, environmental laws, and estate planning.

AG 243 *SALES AND ADVERTISING* (2 credits)
Development of skills needed by an agricultural salesperson. An investigation of the agricultural sales process and advertising methods.

AG 245 *CREDIT AND FINANCING* (2 credits)
Study of the types and use of credit instruments. Farm budgeting is explored. Finance representatives explain farm credit. Presentations will be made by representatives of outside resources such as banks, PCA, Federal Land Bank, FHA and others.

AG 246 *ADVANCED AG COMPUTERS* (1 credit)
Continuation of the introduction to computers using agriculture programs, Software is used to develop spreadsheet programs, records management, and farm accounting programs.

AG 247 *TAXES AND INSURANCE* (2 credits)
Exploration of life, health, homeowner's, auto, crop and livestock insurance. Taxes are discussed with an emphasis on income tax forms and procedures. Computer software is used in the tax preparation process.

AG 248 *MARKETING* (2 credits)
Marketing of agricultural products. Profit projection and cost of production is studied. Cash livestock, grain markets, and the futures market in both livestock and grain commodities are studied. Futures and options are explored.

AG 252 *ADVANCED FARM BUILDING* (2 credits)
Continuation of the AG 152 *Building Principles* course. Experience in truss rafter, concrete block, and concrete placement is provided.

AG 253 *MACHINERY MANAGEMENT* (2 credits)
Comparison of agricultural machines. The size of equipment is calculated and a comparison of the economics of buying, owning, or leasing is made.

AG 254 *AGRICULTURAL CHEMICAL EQUIPMENT* (1 credit)
Study of the utilization and safety of specialized agricultural equipment. Operating and calibrating specialized equipment: fork-lifts, skid loaders, articulating loaders, spray coupes and floaters. Demonstrations, on-site observations, and troubleshooting are utilized.

AG 256 *INTRODUCTION TO AGRICULTURAL BUSINESS CAREERS* (1 credit)
Examination of agricultural job opportunities, as well as cooperative management and entrepreneurship. Discussions include professional image, troubleshooting customer complaints, business etiquette, and human relations.

AG 257 *ADVANCED ELECTRICAL WIRING AND MOTORS* (1.5 credits)
Study of the installation of lamps and fixtures, outlets, switches, low-voltage controls, and automatic controls. Troubleshooting of electric motors and farm wiring are included.

AG 258 *ADVANCED FARM POWER* (2 credits)
Continuation of AG 158 *Farm Power/Small Engines*. Preventative maintenance of hydraulics and diesel engines is learned. Major overhaul of farm tractors is included.

AG 260 *ELEMENTARY SURVEYING* (1 credit)
Preparation for the operation of levels and transits. Agricultural applications include laying out waterways, terraces, and foundations. Field notes and differential leveling will be performed as lab exercises.

AG 261 *FARM ANIMAL PARASITOLOGY* (1 credit)
Study in the identification and treatment of parasites, and symptoms of infestations.

AG 263 *DESIGNING LIVESTOCK SYSTEMS* (1 credit)
Familiarization with the housing requirements of livestock. The identification and selection of materials, as well as livestock housing system design is completed.

AG 264 *PESTICIDE CERTIFICATION* (1 credit)
Identification of pests, economic thresholds, monitoring techniques, and pest control. Emphasis on crop insects, weeds, chemicals, crop diseases, and fertility.

AG 275 *ANIMAL SCIENCE LAB* (0.5 credits)
A five-day field trip to the Denver Livestock Show and Rodeo and a tour of the Monfort Feedlots, the Yocom McColl Wool Testing Lab, Excel Packing Plant, and Farr Feedlot.

AG 285 *SUPERVISED INTERNSHIP II* (6 credits)
Paid on-the-job training (OJT). Work 12 weeks in an agricultural business related to livestock production, feed and animal health sales, livestock buyers, agricultural chemical and fertilizer sales and applications. (12-week, 480 hours minimum). Prerequisite: AG 256 and departmental approval.

AG 288 *LEADERSHIP LAB II* (0.5 credits)
Preparation and participation in Postsecondary Agriculture Student Organization (PAS) at state and national competition. Included are career planning, career progress, extemporaneous speaking, prepared public speaking, sales, agricultural mechanics, and employment interviewing.

AG 299 *SPECIAL TOPICS* (3 credits)
The study of any particular topic that may interest the student. Time will be spent on topics of the student's choice, research into a particular area, small projects and class presentations.

AGTR 165 *INDUSTRIAL TRANSPORTATION/CDL* (1 credit)
Instruction in commercial transportation. Opportunities are provided for obtaining a commercial drivers license. Arrangements are made for taking the test(s) required by the state. A CDL is a requirement of the Agricultural Chemical Technology and Agricultural Technology programs. Please note: Students are required to show proof of a valid CDL by the end of the 10th day of the semester in order to drop this class.

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* (4 credits)

Interior finishing work of a residential house. Emphasis are on materials and processes involved in finishing the interior.

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* (4 credits)
Study of the materials and processes involved interior finishing.

BC 221 *CONCRETE TECHNOLOGY* (2 credits)
Principles of concrete with emphasis on reinforced concrete substructures. Introduction to masonry practices and projects are included.

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

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

BC 272 *CONSTRUCTION MANAGEMENT* (3 credits)
Introduction to the responsibilities of small business entrepreneurship.

BC 294 *ADVANCED FARM BUILDINGS LABORATORY*(2 credits)
Construction taught at a farm or ranch site. In partnership with the MTI Agricultural Technology department, students construct an on-site structure for a specific ag-related purpose. Projects may include the construction of a farm building: pole barn, machinery shed, confinement unit, etc.

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 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 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 217 *DATABASE OPERATIONS* (2 credits)
Creation and design of data bases and data base view sheets. The query process and the maintenance of data bases are taught. The integration of data bases into spreadsheet applications is utilized.

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.

CA 160 *INTRODUCTORY COOKING THEORY* (2 credits)
Introduction to careers in the food service industry. Includes instruction in personal hygiene, safety, food preparation tools and equipment. Food service operation, sanitation and introductory classes in basic cooking principles are presented.

CA 161 *INTRODUCTORY COOKING LAB* (2 credits)
Basic food preparations and skill development in utilizing food service tools and equipment. Hand skills are demonstrated and laboratory practice of these skills is encouraged. The lab includes meat cutting, preparation of fish and poultry, and baking.

CA 162 *APPLIED FOODSERVICE SANITATION* (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 I* (2 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 *RELATED FOOD THEORY I*(5 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.

CA 171 *QUANTITY FOOD PRODUCTION* I (3 credits)
Preparation of foods for cafeteria service, as well as fast food preparation and service. Includes the selection and preparation of dishes from an assigned task list.

CA 172 *RESTAURANT FOOD SERVICE I* (3.5 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.

CA 173 *FOODSERVICE MATH II* (2 credits)
Continuation of CA 163 *Foodservice Math I.* Calculations include the cost of recipes, formulas and portions, and the selling price required to recover the desired food cost and profit. Yield percentages, standard counts, drained weights, and yield-test data are utilized to determine appropriate costs and prices.

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

CA 180 *RELATED FOOD THEORY II* (2.5 credits)
Continuation of CA 170 *Related Food Theory I.* Satisfactory completion of this course and CA 170 is required for certification by the Educational Foundation of the National Restaurant Association.

CA 181 *QUANTITY FOOD PRODUCTION II* (3 credits)
Continuation of CA 171 *Quantity Food Production I.*

CA 182 *RESTAURANT FOOD SERVICE II* (3.5 credits)
Continuation of CA 172 *Restaurant Food Production and Service I.*

CA 184 *FOODSERVICE NUTRITION* (2.5 credits)
Fundamental nutritional concepts for the food service professional. Application of nutritional information for food service operations is presented. Examples of marketing and implementation of nutritional programs are explored. Satisfactory completion of this course is required for certification by the Educational Foundation of the National Restaurant Association.

CA 185 *FOODSERVICE SUPERVISION* (2.5 credits)
Training for first-line supervisors in the food service industry. Supervision of personnel includes hiring, training, evaluating, coaching, disciplining and terminating employees. Training provides information as a first-line employer. The supervisor's role and responsibilities are emphasized. Satisfactory completion of this course is required for certification by the Educational Foundation of the National Restaurant Association.

CA 186 *FOODSERVICE COMPUTERS* (2.5 credits)
Experience working with a computerized foodservice management program. Included are inventory control, recipe adjusting, pricing, and scheduling. The financial reporting reflecting food costs, labor costs, sales income, and profit and loss statements.

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 Taste of the Nations, food bank, serving meals at a shelter, etc.

CA 190 *INTERNSHIP* (6 credits)
Experience in a commercial foodservice 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.

CA 199 *APPRENTICESHIP* (1 credit)
On-the-job experience in a commercial foodservice operation. Work in all areas of a commercial kitchen provides knowledge and skills of each position. NOTE: This course is only for student enrolled in the apprenticeship training program off-campus.

CIS 105 *MICROCOMPUTER SOFTWARE APPLICATIONS I* (3 credits)
Computer concepts, terminology, and hardware structure. Special emphasis on operating systems, the Internet, word processing, data bases, and spreadsheet is stressed.

COMM 101 *COMMUNICATIONS/TECHNICAL WRITING & SPEAKING* (3 credits)
Introductory technical writing course. Assignments are designed to improve writing and communication skills essential to career preparation. (This class is only available to students in identified diploma programs.)

CSS 101 *COMPUTER CONCEPTS AND CAREERS* (1 credit)
Exploration of computers and computer-related job opportunities.

CSS 120 *INTERNET AND E-MAIL ESSENTIALS* (2 credits)
Hands-on experience using Microsoft Outlook to organize, find, and view electronic mail, personal and group calendars, and task and contact management information. Introduction to Internet terminology, Internet browsers, and search techniques.

CSS 143 *WORD PROCESSING/DESKTOP PUBLISHING* (3 credits)
Applied experience using word processing software such as 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.

CSS 163 *SPREADSHEET CONCEPTS AND APPLICATIONS* (3 credits)
Practical experience in operating microcomputer spreadsheets such as Microsoft Excel. Learn to create and edit spreadsheets; add formulas and functions; graph statistics; create, sort, and query a worksheet database; conduct what-if analysis using PivotTables and PivotCharts, work with multiple workbooks and templates.

CSS 164 *OPERATING SYSTEMS* (2 credits)
An introduction to the functions of the Windows operating systems. Learn to customize the Windows operating environment, implement shortcut strategies, manage files, develop an effective backup strategy, use various systems tools, and manage shared files through a network.

CSS 170 *DESKTOP PUBLISHING* (3 credits)
Training in desktop publishing software such as Microsoft Publisher and Adobe PageMaker. Using desktop publishing software, brochures, newsletters, posters or other displays are created. Prerequisite: CSS 143.

CSS 171 *MULTIMEDIA PRESENTATIONS* (3 credits)
Use of presentation software such as Microsoft PowerPoint and Macromedia Flash. Learn to add text, graphics, sound, hyperlinks, animation, and video to presentations. Explore various video editing software. Prerequisite: CSS 143.

CSS 181 *DATABASE CONCEPTS AND APPLICATIONS* (3 credits)
Practical experience working with database software such as Microsoft Access. Emphasis includes creating, editing, and querying databases; creating reports, forms, and combo boxes; creating and using a switchboard; and importing and exporting data. Prerequisite: CSS 164.

CSS 193 *COMPUTER USER SUPPORT* (3 credits)
An overview of the user support field. The knowledge, skills, and abilities necessary for success in the support industry are covered. Emphasis is place on developing communication and customer service skills, technical writing for end users, help desk functions, use of information resources, and training computer users.

CSS 201 *ADVANCED SOFTWARE SUPPORT* (3 credits)
Application and integration of a variety of software packages. Typical customer questions and problems are researched and solved. Help desk functions via telephone, e-mail, remote connectivity, and in person are practiced. Integration of personal digital assistants and voice activation software are also covered in this course. Prerequisites: CSS 120, CSS 143, CSS 163, CSS 164, CSS 171, CSS 181, CSS 193.

CSS 202 *SMALL OFFICE ACCOUNTING APPLICATIONS* (1 credit)
An overview of the popular software programs Quicken and Quickbooks. Students will learn to organize tax receipts; track investments; amortize loans; balance checkbooks; categorize, subcategorize, split and schedule transactions of any type; print checks; pay bills electronically; download stock quotes and more. For the small to midsized business that desires a more traditional approach to accounting, students will learn how to set up a chart of accounts, reconcile checking accounts, create and print invoices, receipts, and statements, track payables, inventory, and receivables, create estimates and generate reports.

CSS 203 *WEB PAGE DESIGN* (3 credits)
Creation of Web pages and sites using HTML, Microsoft FrontPage, and Macromedia Flash. Emphasis is placed on web design, formatting a Web page, adding hyperlinks and bookmarks, creating tables and frames, publishing a web site, creating forms for data input, and integrating a database with a FrontPage Web. Photo editing software such as Adobe Photoshop will also be utilized in this course. Prerequisite: CSS 143.

CSS 204 *ADVANCED WEB PAGE DESIGN* (3 credits)
Continued development of web design skills using HTML, Microsoft FrontPage, Macromedia Flash, and Adobe Photoshop. Development of business Web site required.

CSS 205 *COMPUTER PERIPHERALS*(1 credits)
Information on the purchase, installation and maintenance of modems, printers, scanners, digital and video cameras, back-up devices, smart boards, LCD projectors are covered. Configuration of these systems on personal computers is practiced.

CSS 206 *TROUBLESHOOTING AND BASIC HARDWARE* (4 credits)
Solving hardware problems using the internal diagnostic systems in a computer. Emphasis is placed on identifying hardware components and diagnosing and fixing hardware-related problems.

CSS 208 *PC SUPPORT LAB* (3 credits)
Capstone work solving various hardware and software computer problems. Emphasis is placed on troubleshooting, installing software, and using a variety of software packages. Group and individual computer software training sessions are conducted. Prerequisite: CSS 193, CSS 201, CSS 205 CSS 206.

CSS 210 *INTRODUCTION TO NETWORKING* (4 credits)
Introduction to the concepts and components involved with networking computers for hardware and software sharing. Electronic mail, file sharing, and networking systems will be explored. Prerequisite: CSS 205 and CSS 206.

CSS 211 *CERTIFICATION PREPARATION* (1 credit)
Preparation for Microsoft Office user specialist exams. Certification is available in one or more of the following areas: Microsoft Word, Excel, Access, PowerPoint, and Outlook.

CSS 220 *ELECTRONIC COMMERCE* (2 credits)
Investigation of selling, buying and organization-management activities via the Web. Information covered includes creating a successful Web presence, building an Online store, electronic commerce security, electronic payment systems, and legal issues.

CSS 297 *PROFESSIONAL DEVELOPMENT/PRACTICUM* (3 credits)
Promotion of professional growth opportunities and an on-the-job work experience. Students apply technical training in a work setting on or off-campus. Prerequisite: The student must meet department criteria to be eligible for practicum.

CST 101 *COMPUTER SYSTEMS LAB I* (4 credits)
Hands-on lab projects and computer support experience.

CST 105 *INTRO TO SQL ADMINISTRATION* (3 credits)
The course of study prepares database administrators to work with the SQL Server 2000 in medium to very large computing environments. Databases play a central role in every organization whether they manage financial, customer or inventory information, and SQL Server 2000 has gained considerable market share over the last few years with its competitive features and relatively inexpensive price tag.

CST 106 *INTRO TO PROGRAMMING*(2 credits)
An introduction to programming logic. It introduces concepts and enforces good style and logical thinking. No programming experience is required, and the text does not focus on any particular language.

CST 111 *COMPUTER SYSTEMS LAB II* (4 credits)
This course is designed to give the students the hands-on practical experience needed to learn to install, troubleshoot and repair personal computers, operating systems and networks. Lab activities are designed specifically to correlate with the A+ OS Technologies course, CST 131. This Lab also focuses on students using their learned skills to provide technical support to MTI students, faculty and friends.

CST 130 *A+ CORE HARDWARE* (4 credits)
Fundamentals of troubleshooting and supporting computer hardware. Safe and proper use of equipment is stressed. The operation of internal components are explained.

CST 131 *A+ OS TECHNOLOGIES* (4 credits)
Fundamentals of troubleshooting and supporting operating systems. The understanding and implementation of corporate-wide systems is discussed.

CST 191 *MANAGEMENT INFORMATION SYSTEMS* (2 credits)
This course is designed to make the students knowledgeable of the fundamentals underlying the design, implementation, control, evaluation and strategic use of modern, computer-based information systems for business data processing, office automation, information reporting, decision-making, and electronic commerce. While some of the effort will be devoted to hands-on work with business software, the major emphasis will be on the managerial and strategic aspects of information technology.

CST 192 *BASIC NETWORKING* (3 credits)
Installation and support of computer network hardware and software. Local Area Networks (LAN) and Wide Area Networks are taught. The topologies, protocols and the practical implementation are discussed.

CST 193 *ADVANCED NETWORKING* (2 credits)
A continuation of CST 192.

CST 203 *COMPUTER SYSTEMS LAB III* (5 credits)
Accomplish tasks assigned for Windows 2000 Server administration, Novell administration, Linux administration and maintain connectivity to the MTI LAN. Maintain a record of tasks accomplished in lab as well as service requests made from within the school system. Students are encouraged to bring projects to work on in lab as well after getting approval from the instructor.

CST 206 *OBJECT-ORIENTED PROGRAMMING* (2 credits)
This course is intended to give students a solid foundation in programming with Visual Basic, using the .NET (2003) platform. The text teaches programming from a task-driven rather than a command-driven approach. By working through the chapters, students learn how to use VB .NET applications found in the workplace.

CST 221 *INDUSTRY EXPERIENCE* (1 credit)
This course is designed to help prepare students for future employment in information technology, project management and customer relations, through business and industry tours and weekly industry site shadowing.

CST 229 *NOVELL CNA PREP* (3 credits)
This course is designed to give a student the tools to prepare for the CNA test and gain an understanding of NOVELL networks.

CST 237 *ADVANCED DATABASE* (3 credits)
This course is intended to give students an experience using SQL commands and interact with the Oracle9i database. In addition, concepts relating specifically to the objectives of the Oracle9i SQL certification exams have been incorporated into the text for those individuals wishing to pursue certification.

CST 238 *DATA COMMUNICATION CABLING* (3 credits)
This course provides the knowledge and skills for basic data network cabling and installation. Students will develop skills in reading network designs, pulling and mounting cable, cable management, wiring cabinets and panel installation and termination as well as installing jacks and cable testing.

CST 240 *CISCO CCNA PREP I* (2 credits)
Preparation for and experience with CCNA (Cisco Certified Network Administrator) certification test. Designed to familiarize technicians with Cisco routers and networking concepts. Switching technologies, Internet protocol, configuration of routers, virtual private LANS, and traffic network management. Course includes practice exams for the Cisco certification test and hands-on experience with Cisco routers.

CST 242 *CISCO CCNA PREP II* (3 credits)
A continuation of CST 240. Hands-on implementation of Cisco router programming and security procedures and practices.

CST 245 *WINDOWS 2003 SERVER* (3 credits)
Microsoft Windows XP Professional and Server 2003 networking and administration technology. Server 2003 networking concepts will be covered including practical experience with hands-on exercises and real-world scenarios.

CST 250 *COMPUTER SYSTEMS LAB IV* (4 credits)
Accomplish tasks assigned for Windows 2003 Server administration, Visual Basic programming, Network Security projects and maintain connectivity to the MTI LAN as well as the external test network. Maintain a record of tasks accomplished in lab as well as service requests made from within the school system. Students are encouraged to bring projects to work on in lab as well after getting approval from the instructor.

CST 256 *NETWORK SECURITY* (2 credits)
Comprehensive overview of network security. Safeguards, cryptography, and topologies used to establish network security are studied. Disaster recovery, business continuity and computer forensics are also covered.

CST 290 UNIX *SYSTEMS* (3 credits)
Operation and support of UNIX operating systems. The UNIX operating environment is taught using the commands in command administrative tasks. Experience is gained writing command lines, in setting up user accounts, and in maintaining data files.

Printers and other vital components in a UNIX are kept operational. The Bourne and C-shell commands, and the UNIX filters are the instructional backbone.

EC 111 *ELECTRONICS THEORY I* (4 credits)
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.

EC 117 *ELECTRONICS THEORY II* (4 credits)
Exploration of regulated power supplies, audio amplifiers, IF amplifiers, oscillators and antenna design. Extensive troubleshooting is utilized. Compact disk theory and troubleshooting will also be studied. An AM/FM radio receiver is analyzed as an example of an electronic one-way communication system.

EC 121 *DC/AC CIRCUIT* (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. 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.

EC 127 *SOLID STATE* (3 credits)
Comprehensive study of transistors, thyristors, diodes, and linear IC devices. Beginning with basic P-N junction theory and audio transistor amplifier design. The three basic transistor configurations and their characteristics are stressed for the bipolar transistor and the field effect transistor.

EC 137 *DIGITAL* (2 credits)
Introduction to binary notation and numbering systems including octal and hexadecimal. Emphasis is also placed on logic gates, truth tables, flip flops, counters, and basic computer architecture.

EC 151 *ELECTRONICS LAB I* (3 credits)
Experience with soldering, hand tools, components, color code, Ohm's law, and reading circuit diagrams. Work with ohmmeters, ammeters, voltmeters, power supplies and other devices is included. This lab examines AC/DC circuit characteristics, including capacitance and inductance. Construction of a digital multimeter is taught.

EC 157 *ELECTRONICS LAB II* (3 credits)
Continuation of EC 151. Semiconductors and integrated circuit devices are discussed. Emphasis is placed on troubleshooting of audio and RF amplifier circuits, push-pull amplifiers, discrete components, operational amplifiers, and basic digital circuits. An AM/FM radio is built. Other electronic projects are constructed in addition to creating a printed circuit board.

EC 161 *ELECTRONICS MATHEMATICS* (2 credits)
General review of electronic mathematics. Logarithms and trigonometric functions, use of an electronic calculator, and the solution of electronic problems are introduced.

EC 211 *WIRELESS COMMUNICATIONS I* (4 credits)
Fundamentals from the basic electronics core subjects. The study of radio frequency communications begins with an in-depth analysis of AM modulation. The AM transmitter and receiver are studied for both low power and high power applications. Electronic theory, circuits and tests and measurements are studied. The primary focus is on frequency modulation (FM). The transmitter and receiver are studied, as well as applications. The two types of modulations are explored in transceiver and radio repeater fields. Other areas covered include transmission lines, radio wave propagation, and antenna theory.

EC 217 *WIRELESS COMMUNICATIONS II* (3 credits)
Expansion of theories covered in EC 211. Communication techniques, land mobile radio operations, cellular telephony, 800 Mhz trunking, and emerging technologies, including PCS, are introduced. Microwave and data communications are also covered.

EC 221 *TELEVISION TECHNOLOGY* (2 credits)
The television industry including transmitting and receiving. The complex nature of cable and signal distribution is analyzed. The NTSC television waveform is studied. The terminology of television is introduced and video circuits are studied.

EC 234 *INTRODUCTION TO DATA TRANSMISSION* (3 credits)
Exploration of data transmission. The starting point for this study is the personal computer. The world of data communications becomes the primary focus. The OSI model and its applications to various data communication is explored . Local Area Networks (LAN) and WAN receive much attention.

EC 241 *FUNDAMENTALS OF TELEPHONY/CPE* (3 credits)

Exploration of voice communication. The current telecommunications and PSTN environment is investigated. Customer premise equipment such as 2500 sets, multi-line telephones, key systems, PBXs, voice-mail systems, and structured cabling systems are studied.

EC 245 *FIBER OPTICS* (1 credit)
Fiber optics in all technologies. Selection of fiber optic cable, installation, splicing, termination and testing are taught.

EC 248 *CENTRAL OFFICE EQUIPMENT* (3 credits)
Continuation of EC 241. Examination of central office (CO) equipment is the major area of study. CO peripheral equipment, multiplexing and multiplexing equipment, and switching and switching equipment are basic areas of study. Prerequisite: EC 241.

EC 249 *TELEPHONE OUTSIDE PLANT* (3 credits)
Continuation of EC 241. The outside plant design and maintenance in telephony is studied. Twisted pair and optical fiber, the two primary types of transmission media are examined. Electrical protection equipment is emphasized.

EC 251 *ELECTRONICS LABORATORY III* (3 credits)
Theory and techniques in an applied environment. Experience performing laboratory experiments and troubleshooting defective electronic equipment proves useful. The school district's telephone and cable systems are used as a learning environment.

EC 257 *ELECTRONICS LABORATORY IV* (4 credits)
Continuation of EC 251. Advanced troubleshooting procedures are presented. Systems studied include the school district's telephone and cable system, televisions, VCRs, two-way communication devices, and other related equipment.

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.

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.

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.

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

ECM 202 *MOTOR THEORY AND MAINTENANCE* (3.5 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 characterics. 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.

ECM 253 *ADVANCED CONTROL SYSTEMS* (1.5 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.

ECM 255 *CONTROL LAB I* (2 credits)
Experimental use of apparatus studied in ECM 252 and ECM 202. Projects range from basic circuitry to advanced circuits utilizing timing devices.

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.

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* (2 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.

ECN 201 *PRINCIPLES OF ECONOMICS (MACRO)* (3 credits)
Introduction to economic concepts and theories. Principles and tools used to evaluate economic, political, and social problems. Specific topics include: market economy; aggregate supply and demand; public and private sector finance; national income and output; inflation; unemployment; monetary policy; fiscal policy; and commercial banking.

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 *COMPOSITION I* (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 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.

FBM 111 *FUNDAMENTALS OF FARM BUSINESS MANAGEMENT* (4 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.

FBM 121 *FARM/RANCH DATA MANAGEMENT* (4 credits)
Basic farm business management concepts. Students will study the farm management planning cycle and develop and 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* (4 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* (4 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* (4 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* (4 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* (4 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 EVALUATION OF FINANCIAL DATA* (4 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* (4 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* (4 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* (4 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* (4 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 231 *ANALYSIS PREPARATION AND INTERPRETATION I* (2 credits)

Exploration of possible implications and/or solutions to the farm business analysis. A systematic method to assess farm business strengths and weaknesses based on the analysis will be used.

FBM 232 *ANALYSIS PREPARATION AND INTERPRETATION II* (2 credits)
Continuation of FBM 231.

FBM 233 *ANALYSIS PREPARATION AND INTERPRETATION III* (2 credits)
Continuation of FBM 232.

FBM 234 *ANALYSIS PREPARATION AND INTERPRETATION IV* (2 credits)
Continuation of FBM 233.

FBM 241 *BUSINESS TAX PLANNING* (2 credits)
Alternative tax management plans. The student will estimate farm business tax liability based on his or her own records and will develop a plan to make changes in final tax liability.

FBM 251 *ESTATE PLANNING* (2 credits)
Overview of legal issues affecting ownership, operation and transfer for business operators and managers.

FBM 261 *RISK MANAGEMENT THROUGH MARKETING I* (2 credits)
Special topics in marketing.

FBM 262 *RISK MANAGEMENT THROUGH MARKETING II* (2 credits)
Continuation of FBM 261.

FBM 263 *RISK MANAGEMENT THROUGH MARKETING III* (2 credits)
Continuation of FBM 262.

FBM 264 *RISK MANAGEMENT THROUGH MARKETING IV* (2 credits)
Continuation of FBM 263.

FBM 271 *COMPUTER APPLICATIONS IN BUSINESS* (2 credits)
Basic computer literacy. Students will identify commonly used software and demonstrate its use.

FBM 281 *FINANCIAL FUNDAMENTALS* (2 credits)
Application of various financial instruments used in acquiring capital for use in business. Students will investigate ways in which both earnings and financial progress can be measured.

HV 101 *ELECTRICAL FUNDAMENTALS* (3 credits)
Basics of electricity. Direct current (DC), alternating current (AC), electrical laws and symbols, circuit fundamentals, and the use of test equipment is taught. Electrical fundamentals related to heating, ventilation, air conditioning and refrigeration systems is emphasized. Projects are assigned using computer simulation programs and laboratory trainers.

HV 102 *SHEET METAL TECHNOLOGY AND BLUEPRINT READING* (2 credits)
Basic sheet metal and fittings. The use of sheet metal hand tools and equipment is taught. Procedures for duct layout and sheet metal terminology is reviewed. Reading blueprints for residential and commercial buildings is taught.

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 LAB* (2 credits)
Use, maintenance and operating adjustments of sheet metal shop equipment. Pattern layout, fabrication, use of hand tools, and assembly procedures are covered. Each forced air component covered in HV 102 is demonstrated.

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 170 *SCADA FOR HVAC* (1.5 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* (4 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 221 *PLANNING AND ESTIMATING* (3 credits)
Calculations of heat loss and heat gain on residential/commercial buildings and on refrigeration equipment. Computer software calculation programs are used to determine heat loss and gain.

HV 231 *HEAT PUMPS* (2 credits)
Application and design of heat pumps. The efficiency of heat pumps is compared to alternative systems. Maintenance, installation and troubleshooting procedures are taught.

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* (5 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* (4 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.

MA 100 *FIRST AID/CPR* (1 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.

MA 101 *MEDICAL TERMINOLOGY I* (2 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 of 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 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)
Continuation of ML 101. 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: ML 101 and ML 102.

MA 113 *LABORATORY PROCEDURES II* (3 credits)
An emphasis on laboratory procedures includes chemistry, basic immunology and serology, and microbiology. Automated instrumentation and POL point-of-care equipment are used. Prerequisite: ML 101 and ML 102.

MA 115 *MEDICAL TERMINOLOGY II* (3 credits)
Terminology used in health care. Included are word construction, analysis, spelling, and pronunciation of medical terms. Prerequisite: MA 101.

MA 160 *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 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 115, MA 160.

MA 220 *EXAMINATION ROOM TECHNIQUES I* (3 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 115, MA 160.

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 101, MA 103, MA 115, MA 160.

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 115, MA 160.

MA 250 *CLINICAL EXTERNSHIP* (6 credits)
Experience in medical facilities and organizations. Work is performed under the direct supervision of licensed medical personnel.

MA 260 *MEDICAL LAW AND ETHICS* (2 credits)
Ethical principles and legal regulations governing a medical practice.

MA 281 *MEDICAL TRANSCRIPTION* (3 credits)
Transcription of medical terms and cases. Reports are generated including the first stage of treatment through discharge.

MATH 090 *BASIC MATHEMATICS* (2 credits)
Review of basic mathematics. A study of fractions, decimals, and percentages is completed. Final grade assigned is (P) Pass or (NC) No Credit. Test scores determine placement.

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.

ML 101 *MEDICAL LABORATORY FUNDAMENTALS* (3 credits)
Introduction to medical laboratory work with specific reference to the role, ethics, conduct, certification, education, employment, and fundamental knowledge and skills related to medical laboratory personnel. Basic mathematics review and lab related math such as the metric system, temperature conversions, concentration units, dilutions, ratios and statistics used in quality control are covered. Included in this course is laboratory safety to include physical, chemical and biological hazards, laboratory safety, barriers and isolation techniques. Students are instructed in the collection and preparation of specimens to include venipunctures and capillary sticks, reporting of laboratory results, and quality assurance methods.

ML 102 *LABORATORY FUNDAMENTALS/PHLEBOTOMY LAB* (1 credit)
Laboratory activities related to lecture material covered in ML 101.

ML 105 *LABORATORY 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.

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.

ML 120 *MEDICAL TERMINOLOGY* (2 credits)
Meanings of root words, prefixes, and suffixes will be studied. Students will gain proficiency in analyzing medical words and have an understanding of how the elements relate and apply to medicine.

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.

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: A grade of C or higher in this course is required before enrolling in ML 272.*

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.

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.

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.

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.

MST 101 *MEDICAL TERMINOLOGY I* (3 credits)
Proficiency is developed in analyzing medical words and in understanding how the word elements are related and apply to medicine. Meanings of root words, prefixes, and suffixes are studied.

MST 102 *MEDICAL TERMINOLOGY II* (3 credits)
A study and application of terminology used in health care. Word construction, analysis, spelling and pronunciation of medical terms is emphasized. Prerequisite: MST 101.

MST 141 *KEYBOARDING/WORD PROCESSING* (3 credits)
Develops the ability to operate and maintain the computer efficiently. Builds foundation of correct English and acceptable keyboard usage. Develops proper techniques and high-speed efficiency. The creation and formatting of documents, the insertion and modification of graphics, the development and editing of tables are taught.

MST 162 *BASICS OF OPERATING SYSTEMS* (1 credit)
Introduction to the Windows operating systems in personal computing. File management and Windows program accessories are introduced. Windows basics are explored.

MST 172 *FIRST AID/CPR* (0.5 credits)
Practice and certification in first aid and CPR.

MST 180 *INTRODUCTION TO MEDICAL TRANSCRIPTON* (1 credit)
Introduction to the transcription of dictated medical material into a variety of medical documents. The importance of producing accurate medical data using a broad knowledge of medical terms is emphasized. Prerequisite: MST 101.

MST 195 *MEDICAL OFFICE PROCEDURES* (3 credits)
Explanations and illustrations of procedures, situations and work in a medical office with emphasis placed on communication skills and medical ethics.

MST 210 *PHARMACOLOGY BASICS* (1 credit)
Identification of the classifications of medicine. Prerequisite: MST 102.

MST 260 *CPT-4/ICD-9 CODING* (3 credits)
An overview of health coding systems. CPT-4 procedural coding and ICD-9 diagnostic coding is presented. Prerequisite: MST 101 or MA 101 and MA 115.

MST 261 *MEDICAL INSURANCE/CLAIMS PROCESSING* (1 credit)
An overview of processing medical insurance claims. Prerequisite: MST 260.

MST 281 *MEDICAL TRANSCRIPTION I* (5 credits)
Transcription of medical terms and cases. Reports are generated including the first stage of treatment through discharge. Prerequisite: MST 101 and MST 141.

MST 282 *MEDICAL TRANSCRIPTION II* (5 credits)
Continued development of medical transcription skills. Prerequisite: MST 281.

MST 296 *MST OFFICE INTERNSHIP* (5 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* (3 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 I* (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 104 *GAS INSTALLATION LAB II* (6.5 credits)
Installation of gas piping and regulation systems. Construction equipment such as trenchers, backhoes, tamping, boring equipment, etc. are used. Steel and plastic distribution systems are installed. Topics include setting tanks, delivery of propane, evacuation of tanks, purging tanks, technician safety, crossings and casings, facility marking, and pressure testing.

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* (3 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 108 *OPERATOR QUALIFICATION* (3 credits)
Certification test for Midwest Gas Association Operator Qualification. Students must complete 46 modules developed by the Midwest Gas Association. Note: All modules must be passed in order to graduate.

NG 110 GAS OPERATIONS & MAINTENANCE LAB (1 credit)
Lab activities and applications related to NG 102 *Gas Operations and Maintenance*.

NG 111 *AG PROPANE EQUIPMENT* (1 credit)
Gas use in industrial and agricultural equipment.

NG 160 *WELDING I* (1 credit)
Welding in the gas industry.

NG 161 *WELDING II* (2 credits)
Continuation of NG 160.

NG 199 *SPECIAL TOPICS* (2 credits)
The advanced study of any particular topic that may interest the student. Time will be spent on topics of the student's choice, research into a particular area, small projects and class presentations.

NGTR 165 *INDUSTRIAL TRANSPORTATION/CDL* (1 credit)
Instruction in commercial transportation. Opportunities are provided for obtaining a commercial drivers license. Arrangements are made for taking the test(s) required by the state. A CDL is a requirement of the Propane and Natural Gas Technologies program. Please note: Students are required to show proof of a valid CDL by the end of the 10th day of the semester in order to drop this class.

PL 111 *FUNDAMENTALS OF DC/AC* (4 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* (6 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 121 *APPLIED MATH* (2 credits)
Review course in basic math preparing the student for electrical problems.

PL 141 *POWER GRID DESIGN* (2 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 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* (4 credits)
Basic theory and design for the installation and construction of a high voltage overhead system. Installing and constructing an actual overhead system will be part of a lab project.

PL 154 *MAINTENANCE OF UNDERGROUND LINES* (3 credits)
System protection, sectionalizing and grounding procedures, and basic fault procedures on underground low and high voltage lines.

PL 155 *MAINTENANCE OF OVERHEAD LINES* (5 credits)
Fundamental operation and maintenance of overhead distribution and transmission lines. Hands-on application will be utilized by operating and maintaining the lines built in PL 141 and PL 151.

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 credits)
Practice and certification in first aid and CPR.

PLTR 165 *INDUSTRIAL TRANSPORTATION/CDL* (1 credit)
Instruction in commercial transportation. Opportunities are provided for obtaining a commercial drivers license. Arrangements are made for taking the test(s) required by the state. A CDL is a requirement of the Power Line Construction and Maintenance program. Please note: Students are required to show proof of a valid CDL by the end of the 10th day of the semester in order to drop this class.

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.

PSYC 103 *PSYCHOLOGY FOR THE MEDICAL PROFESSIONAL* (3 credits)
An overview of the special circumstances confronted by health care professionals when dealing with patients, families, friends, and others. The course will cover information that will assist students in health care occupations to learn the basic principles of human behavior. Special attention is given to death and dying issues.

RAD 100 *INTRODUCTION TO CLINICAL RADIOLOGY* (2 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 101 and include many competencies necessary for clinical success. Students will spend approximately 6 hours per week in the clinical setting under close and direct supervision.

RAD 101 *INTRODUCTION TO RAD TECH AND ETHICS* (2 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 113 *RADIATION BIOLOGY AND PROTECTION* (4 credits)
This course is a study of the principles of cell radiation interaction. Students study factors affecting cell response to acute and chronic results of radiation. Principles of radiation protection and responsibility by the radiographer to patients, personnel, and the public are presented. Maximum permissible dose and regulatory policy are also discussed. Prerequisites: RAD 101,122,132

RAD 122 *RADIATION PHYSICS I* (3 credits)
This course provides a description of 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, x-ray circuitry, and the interactions between x-radiation and matter.

RAD 123 *QUALITY ASSURANCE /QUALITY CONTROL* (1 credit)
The student will perform test procedures and evaluate/interpret components of the radiographic system. Various aspects of preventive and corrective maintenance, related to quality assurance of the components of the radiographic system, will be discussed. Prerequisites: RAD 101, 112, 122, 132

RAD 132 *RADIOGRAPHIC EXPOSURE AND TECHNIQUE* (4 credits)
Included is an overview of how the X-ray machine produces x-radiation. This course is designed to create a foundation for understanding the principles of radiographic technique and quality. Emphasis is on radiographic image quality through presentation of prime exposure factors, solving technical problems, and making adjustments to correct those problems.

RAD 202 *CLINICAL RADIOLOGY I* (4 credits)
This is the student's first clinical experience in performing as an actual part of the health care team. The clinical training plan will focus on patient care, protocol in the health care facility and imaging department, and on identification of radiographic imaging equipment and supplies. The student also begins to perform radiographic positioning of the thorax and abdomen. Prerequisites: MA 101, 103, CIS 105, RAD 101, 100, 112

RAD 203 *CLINICAL RADIOLOGY II* (4 credits)
This clinical course is designed to allow the student to practice what was learned in RAD 212. The clinical training plan will focus on patient care and examinations including those of the chest, abdomen, urinary system and digestive system. The student will also be introduced to ER trauma, portables and radiographic procedures in the OR. Prerequisites: RAD 202, 212

RAD 204 *CLINICAL RADIOLOGY III* (4 credits)
This clinical course is designed to allow the student to practice what was learned in RAD 213. The clinical training plan will focus on patient care and examinations including those of the upper and lower extremities. The student will continue to practice and perfect the skills acquired in RAD 203. Prerequisites: RAD 203, 213

RAD 205 *CLINICAL RADIOLOGY IV* (4 credits)
This clinical course is designed to allow the student to practice what was learned in RAD 214. The clinical training plan will focus on patient care and examinations including those of the spine, pelvis, and hip. The student will continue to practice and perfect the skills acquired in RAD 204. Prerequisites: RAD 204, 214

RAD 206 *CLINICAL RADIOLOGY V* (4 credits)
This clinical course is designed to allow the student to practice what was learned in RAD 214. The clinical training plan will focus on patient care and examinations including those of the skull, facial bones, and sinuses. The student will continue to practice and perfect the skills acquired in RAD 205. Prerequisites: RAD 205, 215

RAD 212 *RADIOGRAPHIC PROCEDURES I* (4 credits)
This course will provide the student with the knowledge necessary to perform radiographic procedures relative to the chest, abdomen, 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, 103, RAD 101

RAD 213 *RADIOGRAPHIC PROCEDURES II* (4 credits)
This course will provide the student with the knowledge necessary to perform radiographic procedures relative to the upper and lower extremities. Emphasis will be placed on radiographic terms, detailed anatomy, positioning manipulation of equipment and accessories, and related patient care. Prerequisites: RAD 212

RAD 214 *RADIOGRAPHIC PROCEDURES III* (4 credits)
This course will provide the student with the knowledge necessary to perform radiographic procedures relative to the spine, pelvis and hip. Emphasis will be placed on radiographic terms, detailed anatomy, positioning manipulation of equipment and accessories, and related patient care. Prerequisite: RAD 213

RAD 215 *RADIOGRAPHIC PROCEDURES IV* (4 credits)
This course will provide the student with the knowledge necessary to perform radiographic procedures relative to the skull, facial bones and sinuses. Emphasis will be placed on radiographic terms, detailed anatomy, positioning manipulation of equipment and accessories, and related patient care. Prerequisite: RAD 214

RAD 216 *SECTIONAL ANATOMY* (3 credits)
This class provides students with the tools for understanding anatomy in three dimensions. Students will be able to visualize anatomical appearance and relationships in a planar section following completion of this material. Concentration will be on cranial, thoracic, abdominal, and pelvic structures. This course will be integrated with RAD 226 (Topics in Radiography). Prerequisites: MA 101, MA 103, RAD: 202, 212, 203, 213, 204, 214, 205, 215

RAD 224 *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 behind CT, MRI, US, and Nuclear Medicine. Prerequisite: RAD 101,122,132

RAD 225 *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.

RAD 226 *TOPICS IN RADIOGRAPHY* (2 credits)
This course includes preparation and presentation of scientific papers. Prerequisites: CIS 105, MA 101, MA 103, RAD: 101, 113, 122, 123, 132, 202, 212, 203, 213, 224

RAD 234 *FILM 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 of the study of the thorax, abdomen, urinary system, and digestive system. Prerequisites: RAD 101, 112, 122, 132, 123

RAD 235 *RADIATION PHYSICS II* (3 credits)
This course is a follow-up to RAD 122 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. Students are required to assist with instruction of this course. Prerequisite: RAD 122

RAD 236 *FILM 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 of the study of the upper and lower extremities, spine, and skull. Prerequisites: RAD 101, 112, 122, 132, 123

RAD 246 *REGISTRY REVIEW* (4 credits)
This course is designed to utilize a structured series of mock registry exams 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.

SC 212 *PC ESSENTIALS* (4 credits)
Instructs the student in the basic workings of the common PC, its hardware, software and the most common Windows and DOS operating systems in use today. Students will also venture into the basics of computer programming including DOS batch file programming, native scripting in Windows XP and Windows 2000 using VB Script and Microsoft Visual Basic.
The student, upon successful completion, will be qualified to operate and maintain Microsoft Windows PC's and have sufficient knowledge of the BASIC programming syntax and DOS to enable them to write useful computer programs and DOS batch files.

SC 221 *TV TECHNOLOGY I* (2 credits)
Systems used in today's television industry, both transmitting and receiving. Systems will be studied in block form and the NTSC television waveform will be analyzed in detail. The terminology of television will be introduced to the student and detailed study of video circuits will begin

SC 227 *DATA TRANSMISSION* (3 credits)
Methods and procedures necessary to transfer information from one electronic device to another. Knowledge is gained in digital communications, cabling, data transmission languages, modems, networks, error detection and correction, and data security methods. All major networking protocols are studied (Ethernet, ATM, ISDN, token ring) allowing the students to become skilled in many different networking environments. All major network layouts are studied including local area networks (LAN), wide-area networks (WAN) including satellite links and metrolinks (inter-city networks).

SC 241 *FUNDAMENTALS OF TELEPHONY* (1 credit)
Basics of telephony. Major emphasis is placed on color coding, private branch exchanges (PBX) and key station units. Basic fault location methods are introduced.

SC 264 *PRINCIPLES OF SATELLITE & WIRELESS COMMUNICATIONS* (3 credits)
Advanced study in the satellite field by exposing them 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* (2 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)* (3 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.

SC 275 *SATELLITE COMMUNICATIONS LAB II* (2 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.

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* (4 credits)
Work in a position related to the satellite communications industry.

SD 111 *DC/AC CIRCUITS* (4 credits)
This is the study of Direct Current (DC) theory and the fundamentals of series and parallel DC circuits. Emphasis is on the concept of electricity and its behavior with respect to conductors and electronic devices that are installed in electrical circuits. The study of alternating current (AC) circuits begins with the generation of sine wave, review of trigonometric functions and continues through resonance and filter circuits.

SD 117 *ELECTRONICS THEORY* (4 credits)
This is an 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.

SD 120 *INTRO TO IND. MOTOR CONTROLS* (2 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.

SD 130 *INTRO TO BASIC WIRING & ELEC. CODE* (2 credits)
The study of electrical current flow using wiring diagrams will be studied along with the electrical code that relates to this area of study.

SD 150 *COMPUTER HARDWARE AND TROUBLESHOOTING I* (2 credits)
Identifies the core objectives to take the CompTIA A+ Core exam. Computer hardware installation, configuration, upgrading, troubleshooting and maintaining personal computers are studied.

SD 151 *BASIC ELECTRONICS LAB I* (3 credits)
Gain experience with soldering, hand tools, components, color code, Ohm's Law, and reading circuit diagrams. Work with ohmmeters, ammeters, voltmeters, power supplies, and other devices is included. This lab examines both DC and AC circuit characteristics.

SD 155 *COMPUTER HARDWARE AND TROUBLESHOOTING II* (2 credits)
Continuation of SD 150. Experience working with DOS and other software that allows programs to run on computers is introduced. Working with directories, files and DOS shell is studied. Printer operation and basic networking are discussed.

SD 157 *BASIC ELECTRONICS LAB II* (3 credits)
Continuation of SD 151. Included will be an emphasis on digital circuitry and components along with the study of semiconductors, integrated circuits, and and will incorporate half of the semester into the study of HCT as it pertains to SCADA systems.

SD 159 *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.

SD 161 *ELECTRONICS MATH* (2 credits)
This is a general review of electronic mathematics. Logarithms and trigonometric functions, use of an electronic calculator, and the solution of electronic problems are introduced.

SD 170 *BASIC HEATING AND COOLING TECHNOLOGY* (1.5 credits)
This course will involve the study of DDC controls, HVAC terminology, EPA certification, and the basic study of Building Air Handling controlling and monitoring.

SD 204 *INVENTORY CONTROL & MAPPING* (2 credits)
Control technicians are expected to use portable computers to identify structures, inventory changes in devices and structures, update inventory records, schedule work orders, and keep and analyze trouble call records. Students will use the software packages to perform these tasks on actual distribution and control systems in a controlled environment.

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 *DEVICE LEVEL BUS STRUCTIONS* (1 credit)
The study of basic bus structures relating to industrial control systems will be studied. Emphasis will be placed on Profibus, Fieldbus, Modbus, and DeviceNet.

SD 220 *WIRELESS COMMUNICATIONS* (3 credits)
Fundamentals relating to basic electronics circuits will be covered in this course. The study of radio frequency communications begins with AM through FM. Basic microwave and satellite communication links will be studied.

SD 225 INTRO TO SCADA SOFTWARE (2 credits)
SCADA software featuring the CITECT graphic software will be studied. Proper interfacing to PCs, RTUs, and PLCs will be covered to allow the proper operation of control circuits and for the collection of data in the system.

SD 230 *INTRODUCTION TO VISUAL BASIC* (3 credits)
This course is designed to provide the programmer with the tools needed to create Visual Basic applications that conform to well-adopted Windows standards.

SD 235 *ADVANCED VISUAL BASIC* (3 credits)
Continuation of SD 230. Applies Visual Basic to the access of various database programs such as Microsoft Access, Excel and Word.

SD 245 *1131 STANDARDS* (2 credits)
IEC-1131 is an international standard of the International Electrotechnical Commission. It specifies the syntax and semantics of a unified suite of programming languages for controllers. In this class, the study of ladder diagrams, function block diagrams, and sequential function charts will be studied.

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 a particular area, small projects and class presentations.

SD 270 *SCADA TESTING AND CONTROL LAB* (6 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 RTUs and 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.

SD 280 DATA CABLING LAB (1 credit)
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.

SD 282 DATA TRANSMISSION I (3 credits)

Explores data transmission. The starting point for this study is the personal computer and expands out to cover local area networks.

SD 284 DATA TRANSMISSION II (2 credits)
Continuation of SD 282. The world of data communication becomes the primary focus with emphasis on the Ethernet system used in the SCADA lab.

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.

Faculty

(Year of Appointment in parentheses)
* Denotes Department Head

ADAMS, CAROL, MT(ASCP) (1979)
Medical Laboratory Technician
B.S., University of South Dakota
Graduate Studies: University of South Dakota; Dakota State University

ALBERTZ, KELVIN (2000)
Computer Systems Technology
A.A.S., Mitchell Vocational Technical Institute
A.A.S., 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

CARLSON, ROGER (1990)
Agriculture Technology
B.S., South Dakota State University
Graduate Studies: South Dakota State University

CASE, LINDA (2001)
General Education (Communications)
M.A., Northern State University
B.S., Iowa State University

CLARK, KAREN (2004)
General Education (Communications)
M.A., Northern State University
M.Ed., South Dakota State University
B.A., Dakota Wesleyan University

CROSS, CHERI (2001)
Medical Secretary/Transcriptionist
B.A., Concordia College-Moorhead
B.S.N., North Dakota State University

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

DOESCHER, RANDY (1980)
Culinary Academy of South Dakota
A.A.S., Mitchell Vocational Technical Institute
Undergraduate Studies: South Dakota State University

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

FELTMAN, DENNIS (1998)
Electrical Construction and Maintenance
Diploma, Mitchell Vocational Technical School
Undergraduate Studies: South Dakota State University

FERGEN, DAN (2000)
Electronics/SCADA Engineering Technology
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

FREEMAN, PAULA (2005)
Certificate, University of Minnesota School of Radiation Therapy
Certificate, Sioux Valley School of Radiologic Technology
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

FUNOVITS, CATHY RT(R) (2002)
Radiologic Technology
Diploma, St. Luke's School of Radiologic Technology, Fargo ND
Undergraduate Studies: North Dakota State University, South Dakota State University

GARTON, DAVID JR. (1978)
Accounting/Computers
Diploma, Mitchell Vocational Technical Institute
Undergraduate Studies: South Dakota State University

GIBLIN, DEBRA (2002)
Computer Software Support
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

GROSZ, MYRON (1975)
Architectural Design and Building Construction
Diploma, Mitchell Vocational Technical School
Undergraduate Studies: South Dakota State University

HAEDER, DAN (1998)
Communication Systems Engineering Technology
A.A.S., Mitchell Technical Institute
Undergraduate Studies: Dakota State University

HANSON, TERRY (1992)
Propane & Natural Gas Technologies
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

HENDRIX, PATTY (2002)
Culinary Academy of South Dakota
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

HOEFFNER, DAN (2003)
Propane and Natural Gas Technologies
Undergraduate Studies: South Dakota State University

HOFFMAN, CORINNE, RN, BSN, CMA (1995)
Medical Assistant

B.S.N., South Dakota State University

HOSTLER, LARRY (1988)
Agricultural Technology
B.S., South Dakota State University
Graduate 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

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

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

MESSER, LEANNE, RT(R); CDT (2000)
Radiologic Technology
Diploma, Methodist Hospital School of Radiology Technology
Undergraduate Studies: South Dakota State University

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

MOKE, DALE (2000)
Communication Systems Engineering Technology
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

MORRISON, JUSTIN (1999)
Computer Systems Technology
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)
Computer Software Support
B.A., Dakota Wesleyan University
Graduate Studies: Dakota State University

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

NICOLAUS, JANET (1986)
Computer Software Support
M.A., Northern State University
B.A., University of South Dakota
A.A., South Dakota State University

NICOLAUS, JIM (1996)
Electrical Construction & Maintenance
A.A.S., National College of Business
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

O'LAUGHLIN, RANDALL (2005)
Communication Systems Engineering Technology
M.B.A., Cal Baptist University
B.S., Cal State University-San Bernadino
A.A., San Bernadino Valley College

PETERSEN, SHIRLEY (1983)
Instructional Services Coordinator
M.Ed., University of Arizona
B.A., Morningside College
Post-graduate Studies: South Dakota State University, Augustana College, Black Hills State University

PIETZ, CALVIN (1979)
Farm Business Management
B.S., South Dakota State University
Graduate Studies: South Dakota State University, University of Minnesota

PETERSON, DAVID (2005)
Power Line Construction & Maintenance
Diploma, Mitchell Vocational Technical Institute
Undergraduate Studies: South Dakota State University

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

RUSSELL, TONY (1994)
SCADA Engineering Technology
A.A.S., Mitchell Technical Institute
Diploma, Mitchell Vocational Technical Institute
Undergraduate Studies: South Dakota State University

SCHAFFER, ERIC, BSRT(R), (CT) (2000)
Radiologic Technology
B.S., University of South Dakota
Diploma, Queen of Peace School of Diagnostic Imaging

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

SMITH, LYNNE MT(ASCP) (2002)
Medical Laboratory Technology
M.Ed., South Dakota State University
B.S., South Dakota State University

SONNE, MYRON (1970)
Agricultural Technology
M.Ed., South Dakota State University
B.A., South Dakota State University

STARR, H. JEAN (1992)

General Education (Mathematics)
M.Ed., Northern State College
B.A., Northern State College

STIRLING, THOMAS (1978)
Electrical Construction and Maintenance
Diploma, Mitchell Vocational Technical School
Undergraduate Studies: South Dakota State University

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

THIE, TERRY (2000)
Heating and Cooling Technology
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

THURY, RON (2002)
Heating and Cooling Technology
A.A.S., Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

TRAUPEL, VICKI (1994)
Medical Secretary/Transcriptionist
A.A., Dakota Wesleyan University
Diploma, Mitchell Vocational Technical School
Undergraduate Studies: South Dakota State University

VERSTEEG, DAVID (1985)
Communication Systems Engineering Technology
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 Vocational Technical School

WEISS, KAREN (1994)
Medical Secretary/Transcriptionist
B.S., Viterbo College

WESTBERG, RANDY (1997)
Power Line Construction & Maintenance
Diploma, Mitchell Technical Institute
Undergraduate Studies: South Dakota State University

Administration

(Highest degree attained in parentheses)

PAUSTIAN, CHRIS A. (M.A., University of South Dakota)
Director

KRIESE, THERESA (B.S., Northern State University)
Assistant Director for Finance

MUCK, DAN (Diploma, Mitchell Technical Institute)
Assistant Director for Technology

WIESE, VICKI (M.Ed., South Dakota State University)
Assistant Director for Instruction

BROOKBANK, JULIE (M.A., University of Nebraska)
Marketing Coordinator

DUETER, CLAYTON (B.S., South Dakota State University)
Admissions Specialist

EDWARDS, TIM (M.Ed., South Dakota State University)
Student Services Coordinator

FOSSUM, SCOTT (M.A., University of South Dakota)
Tech Prep Coordinator

GREENWAY, DOUG (M.S., Dakota State University)
Business/Industry Training Coordinator

GREENWAY, JANET (B.A., Dakota Wesleyan University)
Career Services Coordinator

GRODE, CAROL (B.S., Northern State University)
Registrar

HART-SCHUTTE, JULIE (M.S., South Dakota State University)
Counselor

HEEMSTRA, JOHN (M.Ed., South Dakota State University)
Teleport Operations Manager

UECKER, GRANT (B.A., Dakota Wesleyan University)
Financial Aid Coordinator

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