### Fall Semester 1999 (39 Days)

- **Fee Deadline**: August 18
- **Classes begin**: August 23
- **Last date to file application for graduation in December**: September 3
- **Labor Day Holiday**: September 6
- **Last date to withdraw from 1st eight week classes**: September 17
- **Classes end for 1st eight weeks**: October 15

### Second Eight Week Classes for Fall Semester 1999 (42 Days)

- **Classes begin**: October 18
- **Fee Deadline**: October 18
- **Last date to withdraw from individual semester classes**: November 12
- **Last date to withdraw from individual 2nd eight week classes**: November 12
- **Thanksgiving Holiday**: November 24-26
- **Last date to completely withdraw from school**: December 3
- **Classes end for 2nd eight weeks**: December 17

### Spring Semester 2000 (38 Days)

- **Fee deadline**: January 5
- **Classes begin**: January 10
- **Martin Luther King Day/Idaho Human Rights Day**: January 17
- **Last date to file application for graduation in May**: January 24
- **Last date to withdraw from 1st eight week classes**: February 4
- **Presidents Day Holiday**: February 18
- **Classes end for 1st eight weeks**: March 3
- **Spring Break**: March 6-10

### Second Eight Week Classes for Spring Semester 2000 (45 Days)

- **Classes begin**: March 13
- **Fee deadline**: March 13
- **Last date to withdraw from individual semester classes**: April 7
- **Last date to withdraw from individual 2nd eight week classes**: April 7
- **Last date to completely withdraw from school**: April 28
- **Last date to file application for graduation in August**: May 5
- **Classes end for 2nd eight weeks**: May 12
- **Commencement**: May 13

### Summer Session 2000 (38 Days)

- **Memorial Day Holiday**: May 22
- **Classes begin**: May 23
- **Fee deadline**: May 23
- **Cosmetology classes begin**: June 5
- **Last date to withdraw from individual summer classes**: June 19
- **Last date to completely withdraw from school**: June 23
- **Independence Day Holiday**: Monday, July 4
- **Classes end for Session 5**: July 14
- **Cosmetology Classes end**: July 28
- **Commencement (10 a.m.)**: August 4
School of Applied Technology

Ranaye J. Marsh, Ph.D., Dean
Debbie Thompson, Associate Dean

Idaho State University’s School of Applied Technology is a major unit on campus, organized to serve the need of students and the business/industry of Idaho, who are in need of qualified, competent employees. Our school has been developed over many years with the principle of serving as a cornerstone of our operation.

There is tremendous change going on, not only in our state, but nationwide and worldwide at the same time. Occupational skills and knowledge are changing in the marketplace and students of all ages attend Idaho State University’s School of Applied Technology. As change continues, there is little question of the need for people to possess skills and knowledge in their profession, coupled with critical thinking and human relations abilities. Work ethics, honesty, positive attitude and the will to succeed in a productive manner are ingredients of quality that the businesses of Idaho are looking to regarding employees.

The School of Applied Technology is a comprehensive post-secondary technical institution that is the largest in Idaho. The process of instruction includes learning the academics through classroom lectures/demonstration procedures, coupled with applying the learned concepts in a laboratory/shop setting. The quality of our school is measured through the success of graduates who enter the marketplace successfully within the businesses of communities. With facilities representative of the business and industrial settings, each program demonstrates its quality by the faculty’s expertise. The faculty of the School of Applied Technology is of high caliber and is certified and prepared to serve students.

Our Student Services department is available to assist you to plan and make career choices which will foster future success. There are staff members and administrators on the team who subscribe to the philosophy of serving the student and adopting program changes to meet the needs of business, industry, and students. Programs are designed to provide students the opportunity to prepare for occupations found in Idaho.

Leadership opportunities are available to students through our university in activities related to Associated Students of Idaho State University (ASISU), the Vocational-Technical Student Government, Delta Epsilon Chi (DEC), the Data Processing Management Association (DPMA), the Business Professionals Association (BPA), and the Vocational Industrial Clubs of America (VICA). Our current and past students have demonstrated their leadership and technical abilities by winning medallions at state and national competitions.

The School of Applied Technology at Idaho State University is educationally unique as one of the major educational units tied into a major university system. Learning within a university structure is appealing to parents who send their children to a university and to many students who desire additional social opportunities through a university atmosphere, intercollegiate sports functions, major concerts, and a total learning environment that only a university setting can provide. Support institutions such as the LDS Institute and the Newman Center are also available to students.

There are many technical schools that provide “training” but are unable to provide a complete and comprehensive delivery of services that can be found at Idaho State University. Students come from throughout Idaho and other states to attend the School of Applied Technology (S.A.T.). A number of the S.A.T. technical programs at ISU are designed to allow students the opportunity to further their education by offering a Bachelor of Applied Technology degree program (BAT).

Preparing for the future to be successful and securing a quality education are important decisions. ISU School of Applied Technology personnel are here to assist you in the preparation.

Policy Statement

Idaho State University endeavors to achieve equal educational opportunity for minorities, persons with disabilities and women students through recruitment, admission, curricular and extracurricular programs, advising and retention practices and student aid and employment. Discrimination of any person based on race, religion, sex or disability is illegal. Any Person that feels he she has been a victim of discrimination for any of the previous mentioned reasons should contact the Affirmative Action office located in the Museum Building, Room 420 for filing complaints. The telephone number is 236-3964 or 236-3973.

Admission to the School of Applied Technology

Persons are admitted to the School of Applied Technology programs based on their interest, aptitude, and potential to succeed in the specific program of instruction.

Several programs have special entry requirements in addition to the general requirements. For additional information contact the School of Applied Technology Student Services Office at (208) 236-2622.

Part-time enrollment in regular preparatory programs is possible. Contact the office of Student Services and a counselor will assist you in the part-time application process.

All Applied Technology classes will be offered upon sufficient student interest, if there is a certified instructor available and if there are available facilities.

Transfer Students

Individuals who are attending or have attended other institutions and wish to transfer to a program at ISU School of Applied Technology may be awarded credit based on their demonstrated proficiency. The program receiving the transfer student will determine proficiency and the amount of credit to be awarded based on an official transcript unless there is an established articulation agreement in effect. Transfer students must satisfy the same admission requirements as new student applicants.
Admission Steps

The following Applied Technology entrance core subject requirements were established by the State Board of Education and were implemented the Fall 1997 semester and thereafter. Students must meet these minimum credit requirements with an average GPA of 2.0 to be eligible for admission. Students must comply with the requirements at the time of their high school graduation.

A. Students who graduated from high school in 1997 or later must:

1. Verify graduation from an accredited high school by providing an official transcript that reflects the date of graduation, completion of the Vocational-Technical Admission Core (see text below, and a minimum 2.0 GPA,
2. Meet the minimum CPT levels established for the program of choice.

B. Students who graduated from high school or received a GED prior to 1997 must:

1. Verify graduation from an accredited high school by providing an official transcript that reflects the date of graduation and a minimum 2.0 GPA,

or

2. Verify an earned GED by providing an official certificate,

3. Meet the minimum CPT levels established for the program of choice.

Students who do not meet the above requirements may be granted admission on a provisional basis. Students admitted provisionally will enter on probation and must maintain a GPA of 2.0 or better to continue in Applied Technology courses. At a minimum, students must:

1. Have graduated from high school, earned a GED certificate or equivalent,

and

2. Meet the minimum CPT levels established for the program of choice.

If you do not meet the above standards for provisional admission and still wish to pursue admission to the School of Applied Technology, contact the SAT Student Services (208-236-2622) to inquire about an appeal process.

Acceptance

An acceptance letter is sent to all accepted School of Applied Technology applicants. An advance registration deposit, which will be applied to the first registration fee, is required of applicants upon acceptance into a School of Applied Technology program to assure a place in the program. Registration materials will be mailed to accepted students approximately three weeks prior to fee payment.

Change of Curriculum

Students who wish to change their registration from Applied Technology to academic courses will be required to contact the School of Applied Technology Student Services to initiate the process. The student will be required to meet the University’s admission requirements.

Expenses

The following fees are estimates and are subject to change without notice.

Expenses per semester (two semesters per year) are listed below,*

Type of Expense Per Semester
Resident student $1,090
Non-resident student $3,120
Housing, meals (See the university’s “Expenses” section of this catalog)
Credit hour $109.00
Student Insurance Fee per Semester (mandatory— included in fees) $205
Late Registration Fee: 3rd through 5th day of classes $ 20
After 5th day of classes $ 50
*Fees may vary depending on the student’s entrance date.

Refund Policy

General fees: When any regularly enrolled student withdraws from the School of Applied Technology, registration charges are computed from the first official day of the School of Applied Technology semester and are refunded on the following basis:

Semester based programs before class through 1st week: 100%
During 2nd week of classes: 75% During 3rd & 4th weeks of classes: 50%
After 4th week: NO REFUNDS

This policy does not include the advance deposit required by the School of Applied Technology. Contact the School of Applied Technology Student Services at 236-2622 for these refund deadlines.

The university reserves the right to deduct any outstanding bills from the refund amount. Refunds of fees and housing are used first to offset financial aid awarded and received by the student requesting the refund. A check for the balance is mailed to the permanent home address of the student with an itemized statement of deductions. Refund checks are not processed until four to six weeks after the date of registration.

Credits

One School of Applied Technology credit is equivalent to approximately 48 hours of study, 30 hours of which are in the classroom, lab and/or shop. School of
Applied Technology students ordinarily enroll for 16 credits a semester. A semester is approximately 16 weeks in length.

Students enrolled in School of Applied Technology courses for fewer than 8 credit hours per semester will be classified as part-time students.

**Change of Program**

To change programs within the school, a currently enrolled student should see a counselor in the Student Services Office. The counselor will provide a change of program card and assist with its completion. After all required signatures are obtained, the card should be returned to the School of Applied Technology Student Services Office.

If a student is on probation and changes to another program, the probation status carries over to the new program. If a student is on dismissal and changes programs, the dismissal status carries over to the new program. A student on dismissal must petition to enter school into the new program on probation.

**Auditors**

Refer to Academic Requirements section of the catalog.

**Credits Granted for Previous Training or Experience**

1. A student may substitute previous training, education, or work experience toward a specific course in the program. The student must petition to receive approval from the course instructor. Specific performance objectives established for the course must be demonstrated.

2. If the petition is approved the course will be noted on the transcript once the student successfully completes one semester. Successful completion is defined as receiving a 2.0 GPA without any F grades. The Student Services Office can assist with this process.

**Credit by Examination**

A student may obtain credit by successfully completing a proficiency test. The student must petition, receive approval, and pay for the credits prior to taking the exam. When a proficiency test for credit is taken, a passing grade as determined by the individual program is needed to receive credit for the course. See “Credit by Examination” in the Expenses and Academic Regulations section near the front of this catalog.

**General Education Requirements**

A minimum of 12 general education credits are required for any Associate of Applied Science degree. Specific academic general education courses may be substituted for those offered by the School of Applied Technology. Students having completed an Associate degree from another Idaho institution will be considered as having met the general education requirements according to the “Statewide Articulation and Associate Degree Policy” found in the General Information section of this catalog.

Students transferring into an ISU bachelor degree program may count TGE 151-152 towards the fulfillment of Goal 1. These courses may also qualify the student for enrollment in ENGL 201 which is also required to fulfill Goal 1.

Students who have taken TGE 151-152 are advised to take ENGL 110 before enrolling in ENGL 102 to enhance their likelihood of success with the reading demands of ENGL 201.

Students who know early that they plan to transfer into an ISU bachelor degree program are advised to take ENGL 101 instead of the TGE sequence.

**Semester Withdrawal**

Students may withdraw from class/es or from a program within the first twelve weeks of a semester. To initiate a withdrawal from a class/es a student must obtain a drop/add card; to initiate withdrawal from a program, a student must complete a withdrawal form. Beginning the eleventh day of school, a “W” grade will appear on the transcript opposite the course work not completed. “W” grades will not be used in computing the grade point average. Beginning the fifth week of classes, students may withdraw for medical or hardship reasons only. Medical withdrawals are initiated by the director of the Student Health Service. Hardship withdrawals are handled by petition to the Associate Dean of the School of Applied Technology. Students can initiate the petition through a counselor in the School of Applied Technology Student Services Office. Beginning the second week prior to the end of the semester, no hardship withdrawals are accepted.

**Medical Withdrawal**

Medical withdrawals are initiated and granted only by the medical director of the Student Health Service and will be applicable to all courses in which the student is currently enrolled. On the transcript, a “W” grade will appear opposite all course work not completed. “W” grades will not be used in computing the grade point average.

**Program Completion**

A grade report and transcript will indicate that a student has successfully completed a program or option within a program.

**Repeating Courses**

A student may repeat any course no matter what grade was received, if in the meantime, he/she has not received a grade of C or better in a more advanced course in the same program for which the course is a prerequisite. If a course is repeated, the grade made on the last repetition is used in computing the grade point average except for determination of honors. Where the grade first obtained in the course also is counted. If a student repeats a course and the credits have changed for that course, the student will receive original credits on transcript.
Probation and Dismissal Policy
At the end of any semester or summer session, undergraduate students may be placed on probation if the accumulative ISU grade point average does not meet the minimum requirement as stated in the scholastic probation scale.

Scholastic Probation Scale

<table>
<thead>
<tr>
<th>Credits Attempted</th>
<th>Minimum ISU GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Including Transfer Accumulative Credits)</td>
<td></td>
</tr>
<tr>
<td>1 through 25</td>
<td>1.75</td>
</tr>
<tr>
<td>26 and up</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Students on probation who attain a grade point average of 2.0 or higher during the next semester after being placed on probation, but whose cumulative grade point average is still below 2.0, will remain on probation.

Following dismissal under the scholastic probation and dismissal ruling and a lapse of one semester, a student may petition for permission to re-enter the program. If permission is granted, s/he will enter as a student on probation. This process may be initiated in the School of Applied Technology Student Services Office.

If you are petitioning to waive the dismissal rule, attending the First Year Seminar class is strongly recommended.

Program Termination
A grade report and transcript will indicate if the student completes a session(s), but does not complete the total program of instruction or option within the program.

Progression
Progression into succeeding courses of study will require successful completion (passing grades) of any courses listed as prerequisites for those desired courses.

Graduation Requirements

Application for Graduation:
Students planning to graduate should apply for graduation no less than one semester before all requirements are completed. To obtain applications for graduation and pay a $20.00 graduation/diploma fee, students need to contact the Student Services Office in the RFC Building. Additional/Optional graduation applications may be completed for a fee of $10 each.

To graduate from a School of Applied Technology preparatory program, a student must have an accumulative grade point average of 2.0 (without any F grades) based on the required Applied Technology courses in the enrollee’s program of study or successfully complete a series of proficiency tests and be recommended by the program coordinator. A student must complete an application for graduation and pay a certificate fee.

Applied Technology policies not stated in the School of Applied Technology section of the catalog will follow Idaho State University policies. Waiver of any of the above rules may be made only by the student’s petition and approval by the program coordinator, department chairperson, and the associate dean of the School of Applied Technology.

Associate of Applied Science Degree
The Associate of Applied Science degree is offered for designated programs through the School of Applied Technology. Programs offering this degree are at least 18 months in length and meet specific curriculum requirements related to technical and technical support course work as well as General Education Requirements. For additional information, contact the Student Services Office at the School of Applied Technology.

Bachelor of Applied Technology Degree
The Bachelor of Applied Technology (BAT) degree is an optional University degree for students who have completed an Associate of Applied Science (A.A.S.) degree approved by the Idaho State Board of Education. All A.A.S. programs at ISU are approved. If students wish to coordinate the option of using the A.A.S. to apply toward a BAT degree, they should consult with their A.A.S. program advisor about which University general education courses can be used to fulfill requirements for both the A.A.S. and the BAT degrees. More detailed information is provided in this catalog under Academic Requirements. The BAT degree is administered through the university’s Office of Individualized Education Programs. For further assistance in considering this degree option, students are advised to contact the Student Services Office at the School of Applied Technology or the University’s Office of Individualized Education Programs.

Regular Preparatory Programs
Each of the school’s preparatory programs consists of a series of courses designed to teach the necessary skills and knowledge of a specific occupational field in which learning takes place in its practical and proper relationship. These preparatory programs vary in length by sessions. Program length may vary depending on students’ academic qualifications at time of acceptance. Normally, one semester consists of sixteen weeks of instruction, and 2 ¹/₂ semesters are offered per year. Classes operate on the average of six hours each week day.

Computer Software Engineering Technology offers evening courses for credit. Contact the School of Applied Technology Student Services Office for further details at 236-2622.

Program/Option Availability
A program/option may not be offered if one or more of the following conditions exist:
1. insufficient student enrollment
2. a certified instructor is not available
3. adequate facilities/equipment are not available

Technical General Education
One semester emphasizing technical general education is incorporated into each program curriculum. Students demonstrating effective academic skill in math, written communications, and reading will bypass this section of the curriculum.

A student must earn a grade of “C” or better in every class to enter their chosen program.

Students placed in the occupational content area of their curriculum who were not enrolled in Technical General Education will receive appropriate Technical General Education credit after successfully completing one semester of the occupational-based curriculum. Successful completion is defined to mean a 2.0 GPA without any F grades.
Aircraft Maintenance Technology

2½ Semester and 4½ Semester Programs

Two certificate options, one Associate of Applied Science Degree and one Bachelor of Applied Technology degree are available.

Program Coordinator and Instructor: Lighter
Instructors: Bakken and staff

Airframe Option

(2½ Semesters)

The following courses are required for a certificate:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRM 100</td>
<td>Technical General Education</td>
<td>1-16</td>
</tr>
<tr>
<td>AIRM 101</td>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>AIRM 102</td>
<td>Aircraft Drawing</td>
<td>1</td>
</tr>
<tr>
<td>AIRM 103</td>
<td>Truss Structures</td>
<td>3</td>
</tr>
<tr>
<td>AIRM 104</td>
<td>Materials and Processes</td>
<td>7</td>
</tr>
<tr>
<td>AIRM 105</td>
<td>Sheetmetal Structure</td>
<td>6</td>
</tr>
<tr>
<td>AIRM 106</td>
<td>Forms and Regulations</td>
<td>3</td>
</tr>
<tr>
<td>AIRM 107</td>
<td>Basic-Electricity</td>
<td>3</td>
</tr>
<tr>
<td>AIRM 108</td>
<td>Fluid Systems</td>
<td>5</td>
</tr>
<tr>
<td>AIRM 109</td>
<td>Landing Gear Systems</td>
<td>4</td>
</tr>
<tr>
<td>AIRM 110</td>
<td>Utility Systems</td>
<td>3</td>
</tr>
<tr>
<td>AIRM 111</td>
<td>Electrical Systems</td>
<td>5</td>
</tr>
<tr>
<td>AIRM 112</td>
<td>Structural Welding</td>
<td>2</td>
</tr>
<tr>
<td>AIRM 170</td>
<td>Report Writing I</td>
<td>1</td>
</tr>
</tbody>
</table>

TOTAL: 62 cr

Power Plant Option

(4 Semesters and 1 Summer Session)

The following courses are required for a power plant certificate, in addition to the Airframe requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRM 221</td>
<td>Basic Reciprocating Engines</td>
<td>3</td>
</tr>
<tr>
<td>AIRM 222</td>
<td>Advanced Reciprocating</td>
<td></td>
</tr>
<tr>
<td>AIRM 223</td>
<td>Basic Turbine Engines</td>
<td>3</td>
</tr>
<tr>
<td>AIRM 224</td>
<td>Advanced Turbine Engines</td>
<td>2</td>
</tr>
<tr>
<td>AIRM 225</td>
<td>Engine Lubrication Systems</td>
<td>2</td>
</tr>
<tr>
<td>AIRM 226</td>
<td>Induction and Exhaust Systems</td>
<td>2</td>
</tr>
<tr>
<td>AIRM 227</td>
<td>Engine Fuel Systems</td>
<td>3</td>
</tr>
<tr>
<td>AIRM 228</td>
<td>Ignition and Cooling Systems</td>
<td>5</td>
</tr>
<tr>
<td>AIRM 229</td>
<td>Engine Electrical and Instrument Systems</td>
<td>4</td>
</tr>
<tr>
<td>AIRM 230</td>
<td>Engine Propellers</td>
<td>4</td>
</tr>
<tr>
<td>AIRM 270</td>
<td>Report Writing II</td>
<td>2</td>
</tr>
</tbody>
</table>

TOTAL: 94 cr

Associate of Applied Science Degree in Aircraft Maintenance Technology

(Four Semesters and One Summer Session)

The following courses are required for an Associate of Applied Science Degree, in addition to the Power Plant requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TGE 156</td>
<td>Applied Business Principles</td>
<td>2</td>
</tr>
<tr>
<td>TGE 158</td>
<td>Applied Job Search</td>
<td>2</td>
</tr>
<tr>
<td>TGE 160</td>
<td>Applied Human Relations</td>
<td>2</td>
</tr>
</tbody>
</table>

TOTAL: 100 cr

Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for AIRM 100 and will not be required to attend the initial session.

Based on your keyboarding skills, you may be required to take a 1 credit Keyboarding class in order to meet the competencies of the program.

AIRM 100 Technical General Education (variable) 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

AIRM 101 Mathematics 3 credits. Mathematical theory pertaining to gear ratios, areas, power formulas, bend allowances, and weight and balances on aircraft.

AIRM 102 Aircraft Drawing 1 credit. Theory and lab practice in making, reading, and use of drawings and blueprints on aircraft.

AIRM 103 Truss Structures 3 credits. Theory and lab practice in gas welding; rebuilding and repairing of wood structures and fabric repair and recovering techniques.

AIRM 104 Materials and Processes 7 credits. Theory and lab practice covering aircraft; ground operation; assembly and rigging; hardware, care, properties, and uses of various materials; aircraft finishes and the various methods of finish application.

AIRM 105 Sheetmetal Structures 6 credits. Theory and lab practice in maintenance and repair of metal aircraft.

AIRM 107 Forms and Regulations 3 credits. Theory and lab practice in interpretation and use of the various forms and regulations pertaining to aircraft maintenance.

AIRM 108 Basic Electricity 3 credits. Theory and lab practice in operation, maintenance, and repair of electrical systems in aircraft.

AIRM 109 Fluid Systems 5 credits. The students will learn how to identify the different fluids that are used in the hydraulic systems and the care and precautions that are necessary for the safe handling of these fluids. The student will be instructed in the operation of systems and be able to troubleshoot the systems.

AIRM 110 Landing Gear Systems 4 credits. Theory and lab practice in operation, maintenance, and repair of landing gear systems of the aircraft.

AIRM 111 Utility Systems 3 credits. Theory and lab practice in operation, maintenance, and repair of utility systems such as position and warning, aircraft instruments, climate controls, communication and navigation, ice and fire protection, and miscellaneous systems.

AIRM 112 Electrical Systems 5 credits. Theory and lab practice in operation, maintenance, and repair of electrical systems in aircraft.

AIRM 120 Structural Welding 2 credits. Theory and lab practice in gas welding of aircraft structural components.

AIRM 170 Report Writing I 1 credit. Preparation of reports according to Federal aeronautics administration specifications.

AIRM 221 Basic Reciprocating Engines 3 credits. Design, construction, and operation of radiators, and jet engines; disassembly, assembly, and run-up of various types of engines.

AIRM 222 Advanced Reciprocating Engines 2 credits. Repair and overhaul of reciprocating engines; installation and test.

AIRM 223 Basic Turbine Engines 3 credits. Design, construction, and operation of gas turbine and turbo prop engines.

AIRM 224 Advanced Turbine Engines 2 credits. Repair and overhaul of turbine engines.

AIRM 225 Engine Lubrication Systems 3 credits. Design and operation of oil system; its repair and installation.

AIRM 226 Induction and Exhaust Systems 2 credits. Design and operation of air intake, exhaust on reciprocating and jet engines.

AIRM 227 Engine Fuel Systems 3 credits. Design and operation of carburetor, fuel injection, and hydromechanical fuel systems on reciprocating and jet engines.

AIRM 228 Ignition and Cooling Systems 5 credits. Design, operation, and overhaul of magneto ignition and capacitor discharge systems.

AIRM 229 Engine Electrical and Instrument Systems 4 credits. Design, operation, and overhaul of the various electrical components and system indicators used on aircraft engines.
Automotive Collision Repair and Refinishing

2½ to 4 Semester Program*

Program Coordinator and Instructor:
Butler
Instructor: Beamis

Three Certificate Options, one Associate of Applied Science degree, and one Bachelor of Applied Technology degree are available.

*Program length will vary depending on student’s academic qualifications at time of acceptance.

Automotive Collision Repair

(2½ Semesters)

A minimum of 56 credits is required for a certificate in Automotive Collision Repair. Required courses:

ACRR 100 Technical General Education 1-16 cr
ACRR 146 Introduction to Collision and Refinishing 8 cr
ACRR 147 Advanced Collision Repair and Refinishing 8 cr
ACRR 160 Advanced Collision Refinishing I 8 cr
ACRR 161 Advanced Collision Refinishing II 8 cr
ACRR 162 Advanced Collision Refinishing III 8 cr

TOTAL: 56 cr

Associate of Applied Science Degree in Automotive Collision Repair and Refinishing

(4 Semesters)

A minimum of 92 credits is required for an Associate of Applied Science degree in Automotive Collision Repair and Refinishing. Required Courses:

Certificate in Automotive Collision Repair and Refinishing, plus:

TGE 151 Applied Technical Writing I 2 cr
TGE 152 Applied Technical Writing II 2 cr
TGE 153 Applied Technical Speaking 2 cr
TGE 156 Applied Business Principles 2 cr
TGE 158 Applied Job Search 2 cr
TGE 160 Applied Human Relations 2 cr

TOTAL: 92 cr

Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for ACRR 100 and will not be required to attend the initial session. Students must have (or have ordered) tools necessary for Automotive Collision Repair and Refinishing prior to enrolling in ACRR 146.

ACRR 100 Technical General Education (variable) 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

ACRR 146 Introduction to Collision and Refinishing 8 credits. Orientation to university, school, and program policies and procedures. Theory and practice to use and care for body tools, fasteners; operation of oxyacetylene and m.i.g. welding equipment including brazing and cutting. Also, the fundamentals of basic metal finishing including the use of plastic filler. Safety rules and procedures will be emphasized. PREREQ: Must have tools required or ordered within one week of beginning of class. “Right to know” laws, OSHA, and hazardous material are stressed.

ACRR 147 Minor Collision Repair and Refinishing 8 credits. The metal finishing with fillers and hazardous material are stressed. Course provides an overview of business/communication skills, critical thinking and basic technical writing are stressed.

ACRR 150 Technical General Education 1-16 cr
ACRR 146 Introduction to Collision and Refinishing 8 cr
ACRR 147 Minor Collision Repair and Refinishing 8 cr
ACRR 160 Advanced Collision Refinishing I 8 cr
ACRR 161 Advanced Collision Refinishing II 8 cr
ACRR 162 Advanced Collision Refinishing III 8 cr
ACRR 252 Cooperative Work Experience 8 cr

TOTAL: 80 cr
ACRR 160 Advanced Refinishing 18 credits. Advanced technical refinishing terms will be introduced and explained along with Environmental Protection Agency laws. High Volume Low Pressure application will be used. Emphasis on detailing a vehicle. System application will be emphasized.

ACRR 161 Advanced Refinishing II 18 credits. Single-stage, two stage and tri-coating will be stressed in live projects. The ability to use High Volume Low Pressure application system will be improved, paint problems will be introduced. PREREQ: ACRR 160.

ACCR 162 Advanced Refinishing III 8 credits. This course will prepare the student to match the area to be refinished for a better blend with the existing finish. Striping and painting variation of applications. Problems again will be covered. PREREQ: ACRR 161.

ACRR 210 Advanced Collision Repair 18 credits. Training in automotive electrical circuitry. Fiberglass, interior and exterior plastic repair will be taught, glass removal and replacement, and removable body panel and parts. Advanced training in panel alignment and replacement. Advanced welding techniques will be taught. PREREQ: ACRR 211.

ACRR 211 Advanced Collision Repair II 8 credits. Damage inspection and use of shop manuals will be used in damage analysis and writing collision damage reports. Basic frame and unibody repair and alignment. Steering and alignment systems will be diagnosed and repaired in conjunction with frame and unibody repair. PREREQ: ACRR 210.

ACRR 212 Advanced Collision Repair III 8 credits. Advanced training in the areas needed most that have been covered in ACRR 210 and 211, with emphasis placed on quality and speed. PREREQ: ACRR 210. ACRR 211.

ACRR 252 Cooperative Work experience 8 credits. An opportunity for the student to receive on-the-job work experience with an automotive body business in either collision repair or refinishing.

ACRR 299 Special Topics (variable) 1-8 credits. Addresses the specific needs of individuals, enabling students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.

TGE 156Applied Business Principles 2 credits. The course provides students with an overview of economic principles related to technical courses of study. Meets general education requirement for the A.A.S. degree.

TGE 158 Applied Job Search 2 credits. Course provides techniques and development of employment process skills. Includes instruction in resume/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

TGE 160 Applied Human Relations 2 credits. Course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership and personal attitude. Meets general education requirement for the A.A.S. degree.

### Automotive Technology

#### 3 Semester Program

*Minimum of 64 credits required for program.*

Program Coordinator and Instructor: 

Jenkins

Instructors: Kvasnicka, Stone and Staff

Also see Marketing and Management Occupations (Business Technology option) for the Associate of Applied Science degree.

The following courses are required for a certificate:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTM 100</td>
<td>Technical General Education</td>
<td>1-16 cr</td>
</tr>
<tr>
<td>AUTM 101</td>
<td>Vehicle Controls</td>
<td>8 cr</td>
</tr>
<tr>
<td>AUTM 102</td>
<td>Power Train</td>
<td>8 cr</td>
</tr>
<tr>
<td>AUTM 103</td>
<td>Automotive Engines</td>
<td>8 cr</td>
</tr>
<tr>
<td>AUTM 104</td>
<td>Auto Electrical Units</td>
<td>8 cr</td>
</tr>
<tr>
<td>AUTM 105</td>
<td>Live Work I</td>
<td>8 cr</td>
</tr>
<tr>
<td>AUTM 106</td>
<td>Live Work II</td>
<td>8 cr</td>
</tr>
</tbody>
</table>

**TOTAL: 64 cr**

#### Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for AUTM 100 and will not be required to attend the initial session.

AUTM 100 Technical General Education (variable) 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also,for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

AUTM 101 Vehicle Controls 8 credits. (Theory and Laboratory) (Domestic and Foreign) Introduction to Automotive Technology. Front and rear suspension systems, steering systems (power and manual), Brake systems (drum and disk, power and manual). Rear differentials, rear axles, universal joints, drivelines and front wheel drive shafts. Front and rear wheel alignments and wheel balancing (tires and wheels).


AUTM 104 Automotive Electrical Units 8 credits. (Theory and Laboratory) (Domestic and Foreign) Alternator repair and test procedures on all types. Starter motors repair and test procedures on all types. Chassis wiring, computer control fundamentals, computer control senders, computer control controls, computer test methods and monitors, fuel and carburetor standard types, computer control fuel solenoid and throttle body carburetors, port injection and computer controlled ignition and timing. Introduction to blowers and turbochargers and emission control systems.

AUTM 105 Live Work I 8 credits. (Laboratory) (Domestic and Foreign) Application of previously learned material in courses 101 to 104 by working on customers’ cars in an actual shop situation.

AUTM 106 Live Work II 8 credits. (Laboratory) (Domestic and Foreign) An extension of Live Work I. It is also the final step in preparing students for industry. All work is on customers’ automobiles that are current and late models, conducted in a shop situation, and using flat rate for time. At this time the student will be trained in shop management and customer relations as a shop foreman.

AUTM 199 Special Topics (variable) 1-8 credits. Addresses the specific needs of individuals, enabling students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.
Building Construction Technology

4 Semester Program

One Associate of Applied Science degree is available to the student.

Program Coordinator and instructor: Callaghan
Instructor: Maag

The following courses are required for an Associate of Applied Science degree:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCT 100</td>
<td>Technical General Education</td>
<td>1-16 cr</td>
</tr>
<tr>
<td>BCT 105</td>
<td>Cabinet Layout and Drawing I</td>
<td>1 cr</td>
</tr>
<tr>
<td>BCT 110</td>
<td>Hand Tools, Power Hand Tools, and Power Tools</td>
<td>1 cr</td>
</tr>
<tr>
<td>BCT 111</td>
<td>Wood and Panel Construction</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 112</td>
<td>Door and Frame Construction</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 113</td>
<td>Cabinet Setting</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 114</td>
<td>Laminate and Counter Top Installation</td>
<td>1 cr</td>
</tr>
<tr>
<td>BCT 115</td>
<td>Trim Carpentry Techniques</td>
<td>3 cr</td>
</tr>
<tr>
<td>BCT 116</td>
<td>Wall Framing Theories</td>
<td>1 cr</td>
</tr>
<tr>
<td>BCT 117</td>
<td>Wall Framing Lab</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 118</td>
<td>Roof Framing Lab</td>
<td>3 cr</td>
</tr>
<tr>
<td>BCT 120</td>
<td>Theory of Timber Frame</td>
<td>1 cr</td>
</tr>
<tr>
<td>BCT 121</td>
<td>Timber Frame Construction Lab</td>
<td>5 cr</td>
</tr>
<tr>
<td>BCT 140</td>
<td>Construction</td>
<td></td>
</tr>
<tr>
<td>BCT 160</td>
<td>Blueprint Reading</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 201</td>
<td>Concrete (Forming, Pouring and Finishing)</td>
<td>3 cr</td>
</tr>
<tr>
<td>BCT 202</td>
<td>Floor and Sills</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 203</td>
<td>Wall and Ceiling</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 204</td>
<td>Roof-Rafters and Sheathing</td>
<td>3 cr</td>
</tr>
<tr>
<td>BCT 205</td>
<td>Special Framing (Stairways)</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 210</td>
<td>Cornices and Gable Ends</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 211</td>
<td>Roofing</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 212</td>
<td>Exterior Walls and Trim</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 213</td>
<td>Exterior Doors</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 214</td>
<td>Insulation</td>
<td>1 cr</td>
</tr>
<tr>
<td>BCT 215</td>
<td>Drywall</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 216</td>
<td>Interior Doors and Trim</td>
<td>2 cr</td>
</tr>
<tr>
<td>BCT 217</td>
<td>Flooring</td>
<td>1 cr</td>
</tr>
<tr>
<td>BCT 240</td>
<td>Construction Drafting</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 151</td>
<td>Applied Technical Writing I</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 152</td>
<td>Applied Technical Writing II</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 156</td>
<td>Applied Business Principles</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 158</td>
<td>Applied Job Search</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 160</td>
<td>Applied Human Relations</td>
<td>2 cr</td>
</tr>
<tr>
<td></td>
<td><strong>Total 77 cr</strong></td>
<td></td>
</tr>
</tbody>
</table>

Courses

**BCT 100 Technical General Education 1-16 credits.** The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

**BCT 105 Cabinet Layout and Drawing 1 credit.** Students will learn to read a set of cabinet drawings and make a list of materials to construct them.

**BCT 110 Hand Tools, Power Hand Tools, and Power Tools 1 credit.** Students will learn to read a set of cabinet drawings and make a list of materials to construct them.

**BCT 111 Wood and Panel Construction 2 credits.** Students will learn about different types of wood and the use of each type. In Panel Construction the student will start using the power tools in the construction of panels for doors and walls.

**BCT 112 Door and Frame Construction 2 credits.** Students will learn to build different types of doors and frames used in cabinets and built-ins.

**BCT 113 Cabinet Setting 2 credits.** The processes and procedures of installing cabinets in kitchens, bathrooms, utility rooms and formal areas will be presented. The methods discussed will be put into practice.

**BCT 114 Laminate and Counter Top Installation 1 credit.** Students will learn the installation of ready-made counter tops and site-made counter tops. The installation of laminates and different types of edge treatments will also be covered.

**BCT 115 Trim Carpentry Techniques 3 credits.** Students will learn to build and install base molding, door and window casing, crown molding, chair rails, and wall molding.

**BCT 116 Wall Framing Theories 1 credit.** Students will learn the different parts of a frame wall and roof, the methods for layout, the methods of assembly and erection, and how to estimate the materials and labor needed to complete the building of walls and roof framing.

**BCT 117 Wall Framing Lab 2 credits.** The student will build different wall sections, and solutions to problems will be covered.

**BCT 118 Roof Framing Lab 3 credits.** Students will frame up a gable roof, a gable roof with a dormer, a hip roof, a gambrel roof, and will lay out a truss.

**BCT 120 Theory of Timber Frame Construction 1 credit.** Students will be introduced to one of the oldest forms of construction that is still used today. The different types of joints, the materials and the methods used will be covered.

**BCT 121 Timber Frame Construction Lab 5 credits.** Students will build a timber-frame building. The building will be a teaching aid so that the student may sharpen his skills in this form of building construction.

**BCT 140 Construction Blueprint Reading 2 credits.** Students will learn to read a set of blueprints and be able to make a list of materials from the blueprints.

**BCT 160 Construction Mathematics 2 credits.** Students will learn the use of various measuring systems of construction and emphasis will be placed on the math used in the building construction trade.

**BCT 201 Concrete (Forming, Pouring and Finishing) 3 credits.** An introduction to concrete foundations used in residential structures. Students will learn methods to pour, reinforce, and estimate concrete volume. Modern architectural design is increasingly using concrete footings and foundations. Students will learn the use of form, ties, and clamps to pour footings and foundations.

**BCT 202 Floor and Sills 2 credits.** Students will learn the proper techniques and methods to frame a wood structure. Components of floor and sill framing will be taught as well as materials estimating.

**BCT 203 Wall and Ceiling 2 credits.** Students will be taught the vertical and horizontal support members of a structure and their purpose as the basis for further construction. Students will be able to assemble all the framing members of a structure.

**BCT 204 Roof — Rafters and Sheathing 3 credits.** Various roof framing members and different types of roofs will be identified. Students will learn about different types of roof openings and sheathing.

**BCT 205 Special Framing (Stairways) 2 credits.** Stairways and other special framing situations will be covered. The types and parts of staircases will be identified. Methods used for measuring rise and run, and materials estimating will be included.

**BCT 210 Cornices and Gable Ends 2 credits.** Types and styles of cornices and gables will be identified including the proper construction of each and the appropriate methods for finishing and covering. The student will learn measuring and estimating for purchase of materials.

**BCT 211 Roofing 2 credits.** Roof covering is becoming a specialized area of construction. Types of roofs, appropriate roofing materials and tools needed to complete roof application will be taught. Students will be able to select and apply roofing to a framed structure.

**BCT 212 Exterior Walls and Trim 2 credits.** Different types of water and wind wall protection will be covered and installation of siding to a framed structure will be taught. Students will also learn joint finishing and trim techniques to complete exterior walls.

**BCT 213 Exterior Doors 2 credits.** Students will learn types of exterior doors and provide complete installation procedures to include door, frame, hardware, threshold, and weather-stripping.

**BCT 214 Insulation 1 credits.** Energy conservation as it relates to types and uses for insulation in a residential structure will be discussed. Students will learn classification, types, and how to figure quantities needed on a project.

**BCT 215 Drywall 2 credits.** Drywall sizes, types, and uses of drywall will be covered. Students will learn techniques to install, finish drywall joints and depressions, and learn types of drywall finishes that may be applied. Measuring and estimating will also be taught.
Child Development

2 Semester Program

Program Coordinator and Instructor: Beitia

Also see Marketing and Management Occupations (Business Technology) for the Associate of Applied Science degree.

The following courses are required for a certificate:

All required courses must be completed with a grade of "C" or better.

Child Care Provider Option

CHLD 100 Technical Education 2 credits. Course provides instruction in general technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology/vocabulary building. Meets general education requirement for the A.A.S. degree.

CHLD 105 Professionalism 3 credits. An introductory course including orientation to the Child Development program; stages of child development. Introduction to professional organizations, networks, community resources, and advocacy. Also including methods of observation and use of observations to plan curriculum. Includes classroom lectures, individualized instruction, and lab.

CHLD 110 Child Health, Safety and Environment 4 credits. This course covers information on safe and healthy environments for young children. Students receive information concerning positive health and safety practices in day care, preschool, and elementary school situations. Students will be taught how to assess and ensure safe indoor and outdoor areas. Includes mental health and personal safety. Includes classroom lectures, individualized instruction.

CHLD 113 Child Care and Education Practicum 1-20 credits. A field based learning lab in which the student, under supervision, trains in child care facilities in the local service area. Students will observe and participate in actual child care techniques and procedures within a care providing facility.

CHLD 120 Early Childhood Social and Emotional Development 6 credits. Introduction to children's social development, social awareness, and concept of self. This course focuses on development of personal self-esteem in caregivers as well as children. Includes classroom lectures, independent instruction, and practicum.

CHLD 125 Guidance In Early Childhood Education 3 credits. All required courses must be completed with a grade of "C" or better.

CHLD 130 Early Childhood Physical and Cognitive Development 6 credits. This course focuses on providing an environment supportive of children's acquisition of motor and cognitive competence through activities and opportunities that encourage curiosity, development levels and learning styles of children. Includes classroom lectures, individualized instruction, and practicum.

CHLD 135 Fostering Creativity 3 credits. An introductory course which includes the value of play for children and methods to advance emotional, physical, and intellectual competence through opportunities that stimulate children to play with sound, rhythm, language materials, space and ideas in individual ways, and to express their creative abilities. Creativity in caregivers is also examined. Includes classroom lectures, individualized instruction, and practicum.

Family Child Care Option Evening Courses:

CHLD 160 Technical Communication skills, critical thinking and basic technical writing are stressed.

CHLD 165 Child Care and Education Practicum 1-20 credits. A field based learning lab in which the student, under supervision, trains in child care facilities in the local service area. Students will observe and participate in actual child care techniques and procedures within a care providing facility.

CHLD 168 Early Childhood Physical and Cognitive Development 6 credits. This course focuses on providing an environment supportive of children's acquisition of motor and cognitive competence through activities and opportunities that encourage curiosity, development levels and learning styles of children. Includes classroom lectures, individualized instruction, and practicum.

CHLD 170 Fostering Creativity 3 credits. An introductory course which includes the value of play for children and methods to advance emotional, physical, and intellectual competence through opportunities that stimulate children to play with sound, rhythm, language materials, space and ideas in individual ways, and to express their creative abilities. Creativity in caregivers is also examined. Includes classroom lectures, individualized instruction, and practicum.

Courses

CHLD 100 Technical General Education (variable) 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught.
CHLD 150 Parent Involvement and Program Management 3 credits. This course introduces students to family education, program management, and professionalism in early childhood education. Topics studied in depth include: parenting styles and strategies, family communication, discipline, stress management, functional and dysfunctional families, family structures, team building, time management, job interviews, résumé development, professional image, and professional development. Includes classroom lectures and individualized instruction.

CHLD 170 Fostering Creativity FCC 1 credit. An introductory course which includes the value of play for children and methods to advance emotional, physical and intellectual competence through opportunities that stimulate children to play with sound, rhythm, language materials, space and ideas in individual ways, and to express their creative abilities. Creativity in caregivers is also examined. Includes classroom lectures, and individualized instruction.

CHLD 172 Curriculum Implementation FCC 2 credits. This course combines skills learned in previous courses into responsibility for planning and implementation in the classroom. This course focuses on applying theory into a practical setting. Includes classroom lectures and individual instruction.

CHLD 174 Parent Involvement and Program Management FCC 1 credit. This course introduces students to family education program management and professionalism in early childhood education. Topics studied in depth include: parenting styles and strategies, family communication, discipline, stress management, functional and dysfunctional families, family structures, team building, time management, job interviews, résumé development, professional image, and professional development. Includes classroom lectures and individualized instruction.

CHLD 199 Child Development Special Topic Workshops 1-12 credits. Variable content and delivery to meet the desired results.

Civil Engineering Technology

4 Semester Program

Program Coordinator and Instructor: Merrill
Instructor: Wissa

One Associate of Applied Science Degree, and one Bachelor of Applied Technology degree are available to the student in Civil Engineering Technology.

The following courses are required for an Associate of Applied Science degree:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIVT 100</td>
<td>Technical General Education</td>
<td>1-16</td>
</tr>
<tr>
<td>CIVT 121</td>
<td>Mathematics I</td>
<td>6</td>
</tr>
<tr>
<td>CIVT 122</td>
<td>Mathematics II</td>
<td>3</td>
</tr>
<tr>
<td>CIVT 123</td>
<td>Drawing Laboratory I</td>
<td>4</td>
</tr>
<tr>
<td>CIVT 124</td>
<td>Drawing Laboratory II</td>
<td>4</td>
</tr>
<tr>
<td>CIVT 125</td>
<td>Surveying I</td>
<td>4</td>
</tr>
<tr>
<td>CIVT 126</td>
<td>Surveying II</td>
<td>5</td>
</tr>
<tr>
<td>CIVT 130</td>
<td>Materials Testing and Specifications I</td>
<td>2</td>
</tr>
<tr>
<td>CIVT 241</td>
<td>General Physics</td>
<td>4</td>
</tr>
<tr>
<td>CIVT 242</td>
<td>Engineering Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>CIVT 243</td>
<td>Materials Testing and Specifications II</td>
<td>4</td>
</tr>
<tr>
<td>CIVT 244</td>
<td>Materials Testing and Specifications III</td>
<td>3</td>
</tr>
</tbody>
</table>

CIVT 245 Route Survey and Design 10 cr
CIVT 246 Land and Construction Survey 7 cr
TGE 151 Applied Technical Writing I 2 cr
TGE 152 Applied Technical Writing II 2 cr
TGE 153 Applied Technical Speaking 2 cr
TGE 156 Applied Business Principles 2 cr
TGE 158 Applied Job Search 2 cr
TGE 160 Applied Human Relations 2 cr

TOTAL: 88 cr

The courses listed above will be taught in sequential blocks of instruction. Successful completion of a course is required before the student can progress in the program. If the student fails any math, theory, or lab course, then that course must be repeated and a passing grade obtained before the student can advance in the program. The student must exit the program and make up the deficiency through Technical General Education or other appropriate methods. The student will then be allowed to repeat the course at the next available program opening.

Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for CIVT 100 and will not be required to attend the initial session. Based on your keyboarding skills, you may be required to take a 1 credit keyboarding class in order to meet the competencies of the program.

CIVT 100 Technical General Education (variable) 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

CIVT 121 Mathematics I 6 credits. A basic study of technical mathematics including numbers and order of operations, algebra, equations and word problems, functions, graphical geometry, right triangle trigonometry, vectors, factoring and fractional equations. The use of the scientific calculator will be emphasized and math will be applied to practical laboratory and field work when possible.

CIVT 122 Mathematics II 3 credits. A continuation of CIVT 121 Mathematics I studying vectors and oblique triangle trigonometry, radian, arc length and rotation, statistics, systems of linear equations and determinants, exponents and radicals, and quadratic equations. Emphasis will be placed in areas relating to Civil Engineering Technology when possible.

Prerequisite: CIVT 121.
CIVT 123 Drawing Laboratory I 4 credits. A basic study of mechanical drawing with AutoCad emphasis. Instructional units include: drawing setup; coordinates; icon uses; drawing basic objects; drawing display control; using layers, line types, and colors; editing; polylines and text; multisnaps and sections; dimensioning; and an introduction to 3-D drafting. Course is taught the second eight weeks of the fall semester.

CIVT 124 Drawing Laboratory II 4 credits. Civil Engineering drafting, municipal and rural maps and drawings, drainage applications, plan and profile drawings, cross-sections, earthwork and other details relating to Civil Engineering Technology drawings. AutoCAD is used for most of the drawings. Course is taught the first eight weeks of the second semester.

CIVT 125 Surveying I 4 credits. Introduction and field use of surveying equipment. Theory and use of theodolites, total station EDM's, leveling, chaining or taping, hand levels and rods. Field projects: simple traverse, land measurement methods, differential leveling, profile leveling, and other related work with applications to basic trigonometry in surveying. Taught the first eight weeks of the first semester.


CIVT 130 Materials Testing and Specifications I 2 credits. Introduction to basic lab equipment, test procedures, and specifications. Learned tests used for soils classification in preparation for soils survey accomplished in the first semester, second year of the program.

CIVT 241 General Physics 4 credits. General study in applied physics including practical problems. Units of measurement and the metric system, linear and rotational motions, and principles of simple machines. The system of forces, structure of matter, work energy and power, vector and graphic solutions, heat transfer, and basic electrical concepts.

CIVT 242 Engineering Mechanics 4 credits. Non-calculus course relating to the principles of plane statics and dynamics and their application to engineering problems. Includes such topics as force systems, equilibrium conditions, and force analysis of structures. Study of stresses and strains, beam section properties, physical and mechanical. Computation of bending and shear forces and design of structural beams.


CIVT 244 Materials Testing and Specifications III 3 credits. Concrete theory, testing and design, inspection practices and specifications. Anticipated field trips to conduct tests at actual construction sites. Introduction to steel theory and usage. Introduction to plan reading. Introduction to tension and theory.

CIVT 245 Route Survey and Design 10 credits. Study of route surveying. Circular, spiral, and parabolic curves as applied to highway design. Route locations, preliminary investigations, topographic maps, contours, design, detail maps, planes, and specifications. The student will perform both field and lab work to accomplish total results. The student also will learn resections, Idaho State plane coordinates and radial surveying. All computations will be made by the use of a programmable calculator and a personal computer. Maps will be drawn with plotters using computer aided drafting (CAD) and survey software.

CIVT 246 Land and Construction Surveys 7 credits. Advanced study including construction stakeout, and surveys of public lands. Students will perform design/drafting of a road project. Fundamentals of global positioning system (GPS) and equipment utilization in surveying. Includes special problems in surveying and the use of a personal computer and computer aided drafting (CAD). The student will develop a road project report, covering field and design activities and design drawings. Principles of construction, quality management and construction scheduling of projects.

CIVT 299 Special Topics (variable) 1-8 credits. This course is designed to address the specific needs of individuals. It will enable the students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.

TGE 151 Applied Technical Writing I 2 credits. Course provides instruction in informal technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology/vocabulary building. Meets general education requirement for the A.A.S. degree.

TGE 152 Technical Writing II 2 credits. Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.

TGE 156 Applied Business Principles 2 credits. The course provides students with an overview of business/economic principles related to technical courses of study. Meets general education requirement for the A.A.S. degree.
Summer Session

CBET 152 Digital/Laser/Display Systems 3 cr
CBET 154 Electronic Cash Register/Calculators 5 cr
CBET 156 Bond Copiers/Imaging Systems 6 cr
TGE 158 Applied Job Search 2 cr

Total: 62 cr

The courses listed above will be taught in sequential blocks of instruction. Successful completion of a course is required before the student can progress in the program. If the student fails any, theory, or lab course, then that course must be repeated and a passing grade obtained before the student can advance in the program. The student must exit the program and make up the deficiency through Technical General Education or other appropriate methods. The student will then be allowed to repeat the course at the next available program opening.

Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for CBET 100 and will not be required to attend the initial session.

Based on your keyboarding skills, you may be required to take a 1 credit keyboarding class in order to meet the competencies of the program.

CBET 100 Technical General Education (variable) 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

CBET 140 Mechanical Devices/Adjustments and Procedures 4 credits. Use the typewriter as a training device. Disassembly and assembly of all components of a single element machine and theory of the electrical parts, their functions and adjustments will be taught. Troubleshooting, repair, and overhaul of typewriters will be performed. Instruction in hand tools, power tools, mechanical parts and lubrication of parts will occur. Lecture/laboratory.

CBET 141 Operating Systems/Installation and Configuration 4 credits. Prepares the student with keyboarding skills, and operating systems, their commands and functions. Basic word processing, DOS commands, Windows, Windows95, commands, basic software installation and computer terms will be covered. Lecture/laboratory.

CBET 143 Customer Relations 2 credits. Prepares the student to meet the public and communicate orally. Introduces significance of maintenance agreements, telephone etiquette, dress standards, personal hygiene, work standards and human relations. Lecture.

CBET 147 Basic Computer Servicing 6 credits. Introduces the student to servicing of computers. Includes training in disk drives, power supplies, modems, printers, keyboards, monitors and hookups. Diagnostic troubleshooting methods and utility programs are explored. Lecture/laboratory.

CBET 149 Electronic Concepts 4 credits. Student is introduced to basic electricity and electronics. Simple DC circuits, use of a Volt-Ohm-meter, soldering, resistors, capacitors, conductors, insulators, Ohm’s law, Diodes, transistors, and motors will be covered. Includes math applications covering positive and negative numbers related to basic electronics. Decimals, metrics and algebra formulas are covered. Lecture/Laboratory.

CBET 152 Digital/Laser/Display Systems 3 credits. Electronic terms and schematics will be utilized. Logic gates and basic digital electronics will be explored. Digital binary formulas will be discussed. Laser concepts and fiber optics will be covered. Lecture/laboratory.

CBET 154 Electronic Cash Register/Calculator 5 credits. The theoretical operation of electronic calculators and electronic cash registers will be discussed. Demonstrate disassembly, assembly, adjustments and checkout procedures. Perform setup programming, troubleshooting, safety and hookup of cash registers to computer networks such as scanners and scales. Lecture/laboratory.

CBET 156 Bond Copiers/Imaging Systems 6 credits. Operate bond copiers, laser and digital printers. Hookups, theory of electronics, basics of xerography, supplies, disassembly, assembly, troubleshooting, adjustments, cleaning methods and safety will be covered. Fax machine operation and servicing are covered. Lecture/laboratory.

CBET 158 Customer Relations Practicum 2 credits. The student will work for other people by going to them and performing service work on controlled basis.

CBET 162 Product Sales 1 credits. Prepares the student with an introduction to sales techniques, selling office equipment, percentage marks ups, discounts and invoices. Relates how sales are an important part of business computer/systems technology and retail sales. The team effort is important.

CBET 164 System Integration/PC Network 7 credits. Advanced diagnostic troubleshooting methods, network application, hookups, hub and computer applications will be studied. Lecture/laboratory.

CBET 190 Internship 108 credits. On-the-job experience for students pursuing work experience for students pursuing work experience for students pursuing work experience. Permission of the instructor is required.


TGE 158 Applied Job Search 2 credits. Course provides techniques and development of employment process skills. Includes instruction in resume/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

TGE 162 Keyboarding 1 credit. Enables the development of basic touch keyboarding skill in a minimum of time. Completion should prepare students to (a) input alphabetic, numeric, and symbol information quickly and accurately and (b) understand basic vocabulary and concepts used in keyboarding operations when entering and retrieving information.

Computer Software Engineering Technology

2½ to 4½ Semesters

Program Coordinator and Instructor: Naas
Instructors: Byrd, Lance, Volkers

Three certificate options, two Associate of Applied Science degrees, and one Bachelor of Applied Technology degree are available.

Microcomputer Specialist (Five - 3 Credit Classes)

The following courses are required for a certificate:

CSET 181 Microcomputer Applications 3 cr
CSET 183 Microcomputer Operating Systems 3 cr
CSET 185 Microcomputer Database Management and 4th GL’S 3 cr
Courses required for the Microcomputer Specialist Option are only offered in the evening. Federal Financial Aid is not available when the student is seeking only the above certificate.

### Computer Operator

**2½ Semesters**

The following courses are required for a certificate.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CSET 100</td>
<td>Technical General Education</td>
<td>1-16</td>
</tr>
<tr>
<td>CSET 111</td>
<td>Business Math</td>
<td>3</td>
</tr>
<tr>
<td>CSET 117</td>
<td>COBOL Programming I</td>
<td>4</td>
</tr>
<tr>
<td>CSET 118</td>
<td>COBOL Programming II</td>
<td>4</td>
</tr>
<tr>
<td>CSET 135</td>
<td>Accounting</td>
<td>3</td>
</tr>
<tr>
<td>CSET 181</td>
<td>Microcomputer Applications Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSET 183</td>
<td>Microcomputer Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSET 217</td>
<td>Visual Basic Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSET 218</td>
<td>Visual Basic Programming Advanced</td>
<td>3</td>
</tr>
<tr>
<td>CSET 219</td>
<td>C++ Programming</td>
<td>4</td>
</tr>
<tr>
<td>CSET 286</td>
<td>Database Management and Design</td>
<td>4</td>
</tr>
<tr>
<td>TGE 151</td>
<td>Applied Technical Writing I</td>
<td>2</td>
</tr>
<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking</td>
<td>2</td>
</tr>
<tr>
<td>TGE 156</td>
<td>Applied Business Principle</td>
<td>2</td>
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<tr>
<td>TOTAL:</td>
<td></td>
<td>56</td>
</tr>
</tbody>
</table>

### Computer Programmer

**3½ Semesters**

The following courses are required for a certificate.

<table>
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</tr>
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<tr>
<td>CSET 118</td>
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<td>4</td>
</tr>
<tr>
<td>CSET 135</td>
<td>Accounting</td>
<td>3</td>
</tr>
<tr>
<td>CSET 181</td>
<td>Microcomputer Operating Systems</td>
<td>3</td>
</tr>
<tr>
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</tr>
<tr>
<td>CSET 217</td>
<td>Visual Basic Programming</td>
<td>3</td>
</tr>
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<td>CSET 218</td>
<td>Visual Basic Programming Advanced</td>
<td>3</td>
</tr>
<tr>
<td>CSET 219</td>
<td>C++ Programming</td>
<td>4</td>
</tr>
<tr>
<td>CSET 224</td>
<td>UNIX and Internet</td>
<td>3</td>
</tr>
<tr>
<td>CSET 278</td>
<td>Interactive Programming I</td>
<td>3</td>
</tr>
<tr>
<td>CSET 284</td>
<td>Oracle</td>
<td>3</td>
</tr>
<tr>
<td>CSET 286</td>
<td>Database Management and Design</td>
<td>4</td>
</tr>
<tr>
<td>TGE 151</td>
<td>Applied Technical Writing I</td>
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</tr>
<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking</td>
<td>2</td>
</tr>
<tr>
<td>TGE 156</td>
<td>Applied Business Principles</td>
<td>2</td>
</tr>
<tr>
<td>TGE 158</td>
<td>Applied Human Relations</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL:</td>
<td></td>
<td>56</td>
</tr>
</tbody>
</table>

### Associate of Applied Science in Computer Software Engineering/Network Specialist

**4½ Semesters**

The following courses are required:

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
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<td>CSET 100</td>
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<tr>
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<tr>
<td>CSET 135</td>
<td>Accounting</td>
<td>3</td>
</tr>
<tr>
<td>CSET 181</td>
<td>Microcomputer Applications Systems</td>
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</tr>
<tr>
<td>CSET 183</td>
<td>Microcomputer Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSET 187</td>
<td>Microcomputer Networking and Connectivity</td>
<td>3</td>
</tr>
<tr>
<td>CSET 217</td>
<td>Visual Basic Programming</td>
<td>3</td>
</tr>
<tr>
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<td>Database Management and Design</td>
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<tr>
<td>TGE 151</td>
<td>Applied Technical Writing I</td>
<td>2</td>
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<tr>
<td>TGE 152</td>
<td>Applied Technical Writing II</td>
<td>2</td>
</tr>
<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking</td>
<td>2</td>
</tr>
<tr>
<td>TGE 156</td>
<td>Applied Business Principles</td>
<td>2</td>
</tr>
<tr>
<td>TGE 158</td>
<td>Applied Human Relations</td>
<td>2</td>
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<tr>
<td>TGE 160</td>
<td>Applied Human Relations</td>
<td>2</td>
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</table>

### Associate of Applied Science in Computer Software Engineering/Language Specialist

**4½ Semesters**

The following courses are required:

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>CSET 100</td>
<td>Technical General Education</td>
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</tr>
<tr>
<td>CSET 111</td>
<td>Business Math</td>
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</tr>
<tr>
<td>CSET 117</td>
<td>COBOL Programming I</td>
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<tr>
<td>CSET 118</td>
<td>COBOL Programming II</td>
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</tr>
<tr>
<td>CSET 135</td>
<td>Accounting</td>
<td>3</td>
</tr>
<tr>
<td>CSET 181</td>
<td>Microcomputer Applications Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSET 183</td>
<td>Microcomputer Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSET 187</td>
<td>Microcomputer Networking and Connectivity</td>
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</tr>
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<td>CSET 217</td>
<td>Visual Basic Programming</td>
<td>3</td>
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<td>CSET 284</td>
<td>Oracle</td>
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<tr>
<td>CSET 286</td>
<td>Database Management and Design</td>
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<tr>
<td>CSET 287</td>
<td>Systems Analysis and Design</td>
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<tr>
<td>CSET 288</td>
<td>Systems Development and Implementation</td>
<td>3</td>
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<tr>
<td>CSET 290</td>
<td>4th Generation Language Advanced</td>
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<tr>
<td>TGE 151</td>
<td>Applied Technical Writing I</td>
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<tr>
<td>TGE 152</td>
<td>Applied Technical Writing II</td>
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<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking</td>
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<tr>
<td>TGE 156</td>
<td>Applied Business Principles</td>
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</tr>
<tr>
<td>TGE 158</td>
<td>Applied Job Search</td>
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</tr>
<tr>
<td>TGE 160</td>
<td>Applied Human Relations</td>
<td>2</td>
</tr>
<tr>
<td>TGE 158</td>
<td>Applied Business Principles</td>
<td>2</td>
</tr>
<tr>
<td>TGE 160</td>
<td>Applied Human Relations</td>
<td>2</td>
</tr>
<tr>
<td>TOTAL:</td>
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<td>87</td>
</tr>
</tbody>
</table>

#### Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for CSET 100 and will not be required to attend the initial semester.

Based on keyboarding skills, students may be required to take a 1 credit Keyboarding class in order to meet the competencies of the program.
CSET 100 Technical General Education (variable) 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the equation of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

CSET 111 Business Math 3 credits. Study of the fundamental operations of numbers, fractions, decimals and percentages as applied in business. Includes such topics as bank reconciliations, simple interest, discounts, notes, and cost of installment purchases. Laboratory projects using the BASIC programming language will be used to augment selected topics.

CSET 117 COBOL Programming I 4 credits. This course involves writing, executing, debugging, and documenting a series of COBOL programs that illustrate typical business applications. Structured programming techniques will be emphasized, as well as tape and disk applications. This course teaches problem solving and essentials to programming techniques.

CSET 118 COBOL Programming II 4 credits. This is a continuation of COBOL. Concepts emphasized will be tables, sorts, advanced procedural commands, external subroutines and interactive programming.

CSET 135 Accounting 3 credits. Introduces the fundamentals of the double-entry accounting system. Topics include assets, liabilities, owners’ equity, general journal, general ledger, balance sheet, income statement, register, petty cash, bank reconciliation, and payroll accounting.

CSET 137 RPG II 3 credits. Business application concepts are stressed using the RPG II language. Specific topics include sequential and random file processing, arrays and tables, multiple input and output file handling.

CSET 138 RPG III Advanced (AS/400) 3 credits. This is an advanced programming course utilizing skills acquired from RPG II. Stresses the new concepts and commands of RPG III and RPG 400. The hardware and software used in this course is an IBM AS/400.

CSET 142 PC Architecture 3 credits. Students will learn the history and design of the popular personal computer development by IBM. They will also learn PC clone technology. Memory organization, disk systems, adapter board technology, monitors, and peripherals will be studied.

CSET 181 Microcomputer Applications 3 credits. An introduction to microcomputer concepts with an end-user orientation. Students will be exposed to the major hardware components used in microcomputers today. The major productivity tools currently used in microcomputers will be covered. These tools will include word processing, spreadsheets, database management systems, and data communications software. An overview of management information systems and current uses of microcomputers in business will be covered along with current social issues and technological trends involved in the world of microcomputers.

CSET 183 DOS/Windows Operating Systems 3 credits. This course will present the functions of current microcomputer operating systems and how to use these systems to manage the microcomputer. The various file systems used by microcomputers will be covered in sufficient detail to allow the student to maintain files on a variety of microcomputer systems. The student will learn how to install software packages and determine the most optimal systems to use for a given application. Student will learn how to present jobs for both foreground and background processing. PREREQ: CSET 181.

CSET 185 Microcomputer Database Management and 4th GL’S 3 credits. This course will present the theory and usage of current relational database system used on microcomputers. The student will design and use database systems using current microcomputer packages to include a 4th GL. The advantages and disadvantages of database systems will be explored. The major features of current database systems will be covered in sufficient detail to allow the student to select the most appropriate system to use for the home or office. PREREQ: CSET 181.

CSET 187 Microcomputer Networking and Connectivity 3 credits. Basic concepts and terminology used in local area networks using microcomputer technology. Students will be exposed to network operating systems and hardware. A prototype local area network will be designed to include network hardware and software. Problems associated with management of local area networks will be presented and solved. The student will be able to identify the best protocols to use, and the hardware and software necessary to implement a local area network. PREREQ: CSET 181.

CSET 189 Microcomputer Software Development Tools 3 credits. A general introduction to computer programming using a problem oriented format. Problems will be presented and the student will be taught how to solve these problems using several programming techniques. Students will use several current high level microcomputer languages such as “C” and others to implement the solutions to these problems. The advantages and disadvantages of each language will be explored. PREREQ: CSET 181.

CSET 217 Visual Basic Programming 3 credits. Fundamentals of Microsoft Visual Basic programming. Students will learn how to use Object Linking and Embedding (OLE) to link commercial applications to their programs. Dynamic Linking and Loading (DLL) concepts will be taught to allow linking of Windows’ library routines to applications to allow quicker development of Windows graphics programs.

CSET 218 Visual Basic Programming Advanced 3 credits. Students learn to use Visual Basic Database Object to access Microsoft and Oracle databases. Object linking and embedding is used to create OLE server applications. Applications are created using arrays and the grid control.

CSET 219 C++ Programming 4 credits. Fundamentals of the C++ programming language to include Object Oriented Programming (OOP). Concepts will include classes, encapsulation, inheritance and polymorphism. A prerequisite for this course will be knowledge of another programming language.

CSET 240 Windows/NT Operating Systems 3 credits. Students will learn how to use the popular Microsoft Windows/NT operating system. Students will learn to run both DOS and Windows applications using Windows/NT.

CSET 241 OS/2 Operating System 3 credits. Students will learn how to use the popular IBM operating system OS/2. Students will learn to run both DOS and Windows applications using OS/2. The command language, file system, batch processing and other OS/2 techniques will be taught.

CSET 242 UNIX and Internet 3 credits. Students will learn to use the command line interface to the UNIX operating system. Shell programs are written to access batch features of UNIX. The major features of the Internet are covered to include Telnet, ftp, Usenet, and the World Wide Web. Students download and upload files using ftp and learn to use compression tools such as pkzip and pkunzip. Each student designs and develops an individual home page on the web.

CSET 244 OS/400 Operating System 3 credits. Students will learn to use the AS/400. The AS/400 file system will be taught. Students will learn how to use Program Development Manager (PDM) and SEU to create data files and applications programs. The OS/400 command language (CL) will be used to create batch programs.

CSET 278 Interactive Programming I (CICS) 3 credits. A study of interactive programming theory and practice. Write and run programs using the available hardware and interactive programming software. CICS is taught here.

CSET 284 Oracle 3 credits. Programming in Oracle on the personal computers. The course includes design, development, and testing using Oracle. Developer 2000 tools/forms, reports, and graphics.

CSET 286 Data Base Management and Design 4 credits. A popular language, such as Oracle or Visual Basic, will be used to introduce the student to the concepts of managing and designing database management systems. Students will learn how to design databases using Intentity Relationship Diagrams and normalization procedures. Two-tier client/server applications will be developed and three-tier architectures will be explored.

CSET 287 Systems Analysis and Design 4 credits. The fundamentals of the systems life cycle. Job requests through the preliminary investigation. Analysis of the current system through design of the new system are covered.

CSET 288 Interactive Programming II (CICS) 3 credits. Continuation of CSET 278. The student programmers will design, code, debug, and test applications programs for on-line applications using CICS/VS. A simple high level programing interface is provided to allow application programs to request facilities such as task and terminal information, formatting of data to terminals, and interface to systems service programs. Emphasis will be placed on how to code, debug, and test CICS/VS application programs.
CSET 289 Systems Analysis and Design - Advanced 3 credits. Continuation from CSET 287 Systems Analysis and Design. Students will learn to use Computer Assisted Software Engineering (CASE) tools to assist in the design and development of application. Prototyping applications will also be taught.

CSET 290 System Development and Implementation 4 credits. Continuation from Systems Analysis and Design. Program development, coding, and testing the system. Implementation, training, conversion, systems evaluation, and maintenance.

CSET 291 C Language Programming 3 credits. Theory and application in the C programming language. Business related problems will be solved while exploring the following concepts in the C language: arrays, pointers, strings, input, output and files. The evolution of C to C++ will be explored.

CSET 293 Oracle Advanced 3 credits. This course is a continuation of CSET 284 Oracle. This course includes Oracle Database design and development using Oracle’s Developer 2000 Software tools.

CSET 295 Network Management 3 credits. Fundamentals of managing a Novell Local Area Network (LAN). Topics will include network basics, network directory structures, drive mappings, security, menu utilities, file server utilities, printing, login scripts, creating user menus, network applications and system backup. A prerequisite for this course will be a knowledge about LAN architecture and basic PC connectivity.

CSET 298 Directed Studies 1-16 credits (variable). Work tailored to individual requirements under faculty guidance; permission of instructor required.

CSET 299 Internship 1-16 credits (variable). On-the-job placement providing further work experiences for persons pursuing careers in business speech communication. Includes infor-
mative and persuasive presentations, effective business speech communication. Includes information and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.

CSET 160 Applied Human Relations 2 credits. Course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership and personal attitude. Meets general education requirement for the A.A.S. degree.

TGE 150 Applied Terminology/Writing 1 credit. Covers student’s program terminology and business communications.


TGE 152 Technical Writing II 2 credits. Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.

TGE 156 Applied Business Principles 2 credits. The course provides students with an overview of business/economic principles related to technical courses of study. Meets general education requirement for the A.A.S. degree.

COSM 100 Technical General Education 72 credits is required to be eligible to take the State Board Examination. Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for COSM 100 and will not be required to attend the initial session.

Cosmetology

3½ Semester and 1 Session Program Options

Acting Program Coordinator and Instructor: Haddenham

COSM 100 Technical General Education

Total: 8 cr

COSM 116 Introduction to Principles of Cosmetology

Course: The course is designed to provide the student with basic knowledge of the fundamentals of hair chemistry and biology with an introduction to basic permanent waving chemistry, hair cutting and hair styling. The student will perform and demonstrate application of the basic principles of physical application on a mannequin. Interpersonal skills, professional and personal development, the dynamics of people skill within the salon industry will be introduced. This course requires critical thinking, writing and verbal communication skills pertaining to the field of cosmetology. Role playing and mock situations will be utilized. Classroom and lab will integrated.

COSM 116 Introduction to Principles of Cosmetology 8 credits.

(One Session—Summer Only)

The following courses are required for a certificate. Successful completion of the 72 credits is required to be eligible to take the State Board Examination.

TOTAL: 72 cr
COSM 117 Beginning Principles and Practice of Cosmetology 8 credits. This course builds upon concepts and practices taught in COSM 116. This course will continue with the basic fundamentals of hair design, hair chemistry and biology, and interpersonal skills. Classroom and lab will be integrated. PREREQ: COSM 116

COSM 126 Fundamental Principles and Practice of Cosmetology I 8 credits. Continuation of concepts and practices taught in COSM 117. This course is a combination of classroom, lab and live work on the clinic floor dealing with customers needs and practical application therein. PREREQ: COSM 117

COSM 127 Fundamental Principles and Practice of Cosmetology II 8 credits. Continuation of COSM 126. This course is a combination of lab, live work, and classroom work. The students will perform services on clientele, learn retail, customer relation, scheduling appointments, and dispensary duties pertaining to all phases of cosmetology. PREREQ: COSM 126.

COSM 150 Principle and Practice of Nail Technology 8 credits. This course is designed to prepare students for the State Board Examination for Nail Technology Certification. This course will explore all types of recognized nail care and design methods including manicuring, pedicuring, sculpted nail application, nail care, chemistry, biological concepts, anatomy and physiology of nails, and safety standards and procedures.

COSM 156 Fundamental Principles and Practice of Cosmetology III 2 credits. Continuation of COSM 127. PREREQ: COSM 127.

COSM 157 Fundamental Principles and Practice of Cosmetology IV 6 credits. Continuation of COSM 156. PREREQ: COSM 156.

COSM 236 Advanced Principles and Practices of Cosmetology I 8 credits. Continuation of COSM 157. Study of advances techniques and concepts of cosmetology, including salon development, the salon business, and state laws and regulations. PREREQ: COSM 157.

COSM 237 Fundamental Principles and Practice of Cosmetology II 8 credits. Continuation of COSM 236. State board preparation and advanced techniques and concepts of cosmetology. PREREQ: COSM 236.

COSM 279 Seminar 1-16 credits (variable). This course is designed as a review for re-examination and/or refresher course for cosmetologists from Idaho or other states in preparation for the Idaho State Board of Examination. This course is designed as a review for re-examination and/or refresher course for cosmetologists from Idaho or other states in preparation for the nation and/or refresher course for cosmetologists. This course is designed as a review for re-examination and advanced techniques and concepts of the program’s full-time pre-employment program. Teacher training is available for those individuals preparing to take the State Board Instructors Examination. Permission from the cosmetology program coordinator is required.

Culinary Arts Technology

2½ and 4½ Semester Program

Program Coordinator and Instructor: Hanson
Instructors: Chef Henri Nippert and Staff

Culinary Arts Certificate Option

(2½ Semester)

The following courses are required for a certificate:

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for CUAR 100 and will not be required to attend the initial session.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUAR 100</td>
<td>Technical General Education 1-16 cr</td>
</tr>
<tr>
<td>CUAR 111</td>
<td>Culinary Skill Development 8 cr</td>
</tr>
<tr>
<td>CUAR 115</td>
<td>Applied Sanitation &amp; Safety 2 cr</td>
</tr>
<tr>
<td>CUAR 117</td>
<td>Food Service Math 2 cr</td>
</tr>
<tr>
<td>CUAR 121</td>
<td>Culinary Skill Development II 8 cr</td>
</tr>
<tr>
<td>CUAR 125</td>
<td>Food Service Operations 3 cr</td>
</tr>
<tr>
<td>CUAR 127</td>
<td>Dining Room, Banquet, and Catering Operations 3 cr</td>
</tr>
<tr>
<td>CUAR 129</td>
<td>Job Portfolio 1 cr</td>
</tr>
<tr>
<td>CUAR 131</td>
<td>Culinary Skill Development III 4 cr</td>
</tr>
<tr>
<td>CUAR 135</td>
<td>Menu Mechanics 2 cr</td>
</tr>
<tr>
<td>CUAR 137</td>
<td>Nutrition in Food Service Operations 2 cr</td>
</tr>
<tr>
<td>TGE 151</td>
<td>Applied Technical Writing I 2 cr</td>
</tr>
<tr>
<td>TGE 152</td>
<td>Applied Technical Writing II 2 cr</td>
</tr>
<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking 2 cr</td>
</tr>
</tbody>
</table>

Plus 3 credits from one of the following communication courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Principles of Speech 2 cr</td>
</tr>
<tr>
<td>ENGL 101</td>
<td>English Composition 3 cr</td>
</tr>
<tr>
<td>ENGL 201</td>
<td>Critical Reading &amp; Writing 3 cr</td>
</tr>
<tr>
<td>MANT 130</td>
<td>Business Communications 3 cr</td>
</tr>
<tr>
<td>OT 118</td>
<td>Business Communications I 3 cr</td>
</tr>
<tr>
<td>OT 119</td>
<td>Business Communications II 3 cr</td>
</tr>
</tbody>
</table>

(Total 54 cr)

Culinary Arts Technology Associate of Applied Science Degree Option

(4½ Semester Program)

Required Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUAR 100</td>
<td>Technical General Education 1-16 cr</td>
</tr>
<tr>
<td>CUAR 111</td>
<td>Culinary Skill Development 8 cr</td>
</tr>
<tr>
<td>CUAR 115</td>
<td>Applied Sanitation and Safety 2 cr</td>
</tr>
<tr>
<td>CUAR 117</td>
<td>Food Service Math 2 cr</td>
</tr>
<tr>
<td>CUAR 121</td>
<td>Culinary Skill Development II 8 cr</td>
</tr>
<tr>
<td>CUAR 125</td>
<td>Food Service Operations 3 cr</td>
</tr>
<tr>
<td>CUAR 127</td>
<td>Dining Room, Banquet, and Catering Operations 3 cr</td>
</tr>
<tr>
<td>CUAR 129</td>
<td>Job Portfolio 1 cr</td>
</tr>
<tr>
<td>CUAR 131</td>
<td>Culinary Skill Development III 4 cr</td>
</tr>
<tr>
<td>CUAR 135</td>
<td>Menu Mechanics 2 cr</td>
</tr>
<tr>
<td>CUAR 137</td>
<td>Nutrition in Food Service Operations 2 cr</td>
</tr>
<tr>
<td>TGE 151</td>
<td>Advanced Grill/Short Order Cookery 3 cr</td>
</tr>
<tr>
<td>TGE 152</td>
<td>Advanced Garde Manager 3 cr</td>
</tr>
<tr>
<td>TGE 153</td>
<td>Interpersonal Relations 3 cr</td>
</tr>
<tr>
<td>TGE 151</td>
<td>$cr</td>
</tr>
<tr>
<td>TGE 152</td>
<td>$cr</td>
</tr>
<tr>
<td>TGE 153</td>
<td>$cr</td>
</tr>
<tr>
<td>CUAR 207</td>
<td>Career Internship 4 cr</td>
</tr>
</tbody>
</table>

Plus 3 credits from one of the following computer courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 101</td>
<td>Introduction to Computers 3 cr</td>
</tr>
<tr>
<td>CSET 181</td>
<td>Microcomputer Applications 3 cr</td>
</tr>
<tr>
<td>OT 170</td>
<td>Introduction to Computer Applications 3 cr</td>
</tr>
</tbody>
</table>

Plus 3 credits from one of the following accounting courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 201</td>
<td>Principles of Accounting I 3 cr</td>
</tr>
<tr>
<td>CSET 135</td>
<td>Accounting 3 cr</td>
</tr>
<tr>
<td>MANT 120</td>
<td>Concepts of Accounting 3 cr</td>
</tr>
<tr>
<td>OT 120</td>
<td>Bookkeeping 3 cr</td>
</tr>
</tbody>
</table>

Plus 3 credits from one of the following communication courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Principles of Speech 2 cr</td>
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<td>ENGL 101</td>
<td>English Composition 3 cr</td>
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<td>ENGL 201</td>
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<tr>
<td>TGE 151</td>
<td>Applied Technical Writing I 2 cr</td>
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<tr>
<td>TGE 152</td>
<td>Applied Technical Writing II 2 cr</td>
</tr>
<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking 2 cr</td>
</tr>
</tbody>
</table>

TOTAL: 54 cr
Courses

CUAR 100 Technical General Education (variable) 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

CUAR 111 Culinary Skill Development I 8 credits. Hands-on preparation that teaches basic food services skills in a commercial kitchen environment. The course stresses the use of standardized recipes and procedures. It provides daily end-product critiquing. It includes completing stations rotations in the following areas of food preparation and skills. F, S.

Baking 1 & 2 — Fundamental principles and procedures for preparing baked goods, pastries and desserts will be given to the student in both theory and practice.

Dining Room, Banquet & Catering — Hands-on experience in all facets of banquet and catering operations to include set-up and service.

Entree Preparation 1 & 2 — Principles of preparation of vegetables, starches, stocks, soups, sauces, and various types of meat, poultry, and seafood dishes, and their applications will be given to the student in both theory and practice.

Garde-Manager — Principles of preparation of salads, cold sauces, appetizers, and garnishes and their applications. Emphasis on color, texture, and temperature in preparation and presentation.

Meat Cutting — Fundamental principles and procedures for cutting various types of meat.

Sandwich — Hands-on experience in the preparation and presentation of cold sandwiches.

Short-Order Cookery — Hands-on experience in all facets of short-order cookery. Emphasis on Coordination, speed, presentation, and basic food preparations as well as cooking methods.

Storeroom Procedures — Presents the various storeroom functions and procedures. Acquaints the student with principles and practices relating to purchasing food and supplies.

CUAR 115 Applied Sanitation & Safety 2 credits. A study of the basic sanitary regulation practices for the proper preparation and service of food. Students see how to keep guest satisfaction and profits high through effective quality-control and cost-control management.

Students learn how to maintain compliance with the FDA Food Code and Unicodes through the use of the Hazard Analysis Critical Control Point (HACCP) approach. F, S

CUAR 117 Food Service Math 2 credits. In this course the student will be introduced to the math that food service operations use in their day-to-day operations. This will include applying basic math principles to kitchen procedures.

CUAR 121 Culinary Skill Development II 8 credits. Continues to advance the student’s baking and food preparation skills through the different station rotations. F, S

CUAR 125 Food Service Operations 3 credits. This course lays the groundwork that will help students make smart decisions in commercial and institutional food and beverage operations. Students will learn the principles and practices to increase profits by maximizing service, efficiency, productivity, technology, and how to build business through effective marketing strategies.

CUAR 127 Dining Room, Banquet, & Catering Operations 3 credits. This course covers principles of dining room, banquet and catering operations. This course is designed to demonstrate proper methods of managing service in an a la carte restaurant and how to effectively manage banquet and catering functions.

The course is designed to emphasize the history, importance and proper guidelines of service along with the appearance and sanitation of the restaurant and its staff. The course covers menu development, cost controls, purchasing, and planning as they relate to catering and banquet functions. F, S

CUAR 129 Job Portfolio 1 credit. This course is a technical writing course designed to give the student the guidelines for creating a portfolio and how to use a portfolio to pull together the student’s many skills and competencies. F, S

CUAR 131 Culinary Skill Development II 4 credits. Continues to advance the student’s baking and food preparation skills through the different station relations. F, S

CUAR 135 Menu Mechanics 2 credit. This course equips the student with the techniques and knowledge to develop menus that are compatible with the various types of food operations. The study of the menu layout includes physical characteristics, merchandising, appearance, and promotional value with emphasis placed on the menu being the foundation for the facility designed and concept. Su.

CUAR 137 Nutrition in Food Service Operations 2 credits. This course addresses the fundamental nutritional concepts for food service professionals. Uses non-technical language to demonstrate how to apply nutritional information to a food service operation. Su.

CUAR 199 Industry Practicum (variable 1-8 credits. In this course students may be directed to work in one or more sites in the culinary or related industry to pick up additional job experience. Students must have instructor approval to enroll in this course.

CUAR 211 Advanced Grill/Short-Order Cookery 3 credit. Advanced hands-on experience in all facets of short-order cookery. Emphasis on coordination, speed, presentation, and basic food preparations as well as cooking methods. F, S

CUAR 212 Advanced Garde-Manager 3 credits. Advanced hands-on preparations of salads, cold sauces, appetizers, and garnishes and their applications. Emphasis on color, texture, and temperature in preparation and presentation. F, S

CUAR 215 Interpersonal Relations 3 credits. This course is designed to encourage and prepare the student to use basic human-relations skills. This course is the study of the motivation and behavior of people. Case problems and student experiences are discussed, alternatives are considered and probable outcomes are determined. This is done for two reasons: (1) to demonstrate to students that there are specific human-relations skills, and that, like other skills, they can be learned; and (2) to provide students with a constant reminder that these are the skills they must master to become successful workers and supervisors. A study of behavior, personal- ity, self-management, self-development, and elementary business psychology as an aid to furthering the student’s business advancement and lifelong learning. Again, classroom focus is on the student’s understanding of intrapersonal and interpersonal effectiveness with emphasis on communication, motivation, leadership and personal attitude. F

CUAR 221 Advanced Entree Preparation 3 credits. Advanced hands-on preparation of vegetables, starches, stocks, soups, sauces, and various types of meat, poultry, and seafood dishes; their application will be given to the student in both theory and practice. F, S

CUAR 223 Advanced Baking 3 credits. Advanced hands-on preparation of baked goods, pastries and desserts will be given to the student in both theory and practice. F, S

CUAR 225 Beverage Operations 3 credits. Gives students practical experience and approaches in beverage operations and service. Emphasizes legal and moral responsibilities of serving alcoholic beverages. Teaches understanding, service, and storage of beverages in food service operations. S

CUAR 250 Career Internship 4 credits. This course is designed to provide students the opportunity to gain practical experience in applying their culinary art skills in a practical work setting. Training plans are utilized to ensure maximum training opportunities for the student. F, S, Su

TGE 151 Applied Technical Writing I 2 credits. Course provides instruction in techniques and approaches to written and technical termi- nology/vocabulary building. Meets general education requirement for A.A.S. degree.

TGE 152 Technical Writing II 2 credits. Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.
Dental Laboratory Technology

4½ Semester Program

Program Coordinator and Instructor: G. George
Instructor: Edmunds

One Associate of Applied Science degree and one Bachelor of Applied Technology degree are available.

Associate of Applied Science Degree in Dental Laboratory Technology

(4½ Semesters)

Required courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLT 100</td>
<td>Technical General Education 1-16 cr</td>
</tr>
<tr>
<td>DLT 111</td>
<td>Oral Anatomy and Tooth Morphology 4 cr</td>
</tr>
<tr>
<td>DLT 112</td>
<td>Dental Anatomy Laboratory 4 cr</td>
</tr>
<tr>
<td>DLT 113</td>
<td>Occlusal Concepts 2 cr</td>
</tr>
<tr>
<td>DLT 114</td>
<td>Occlusal Laboratory Practice 3 cr</td>
</tr>
<tr>
<td>DLT 115</td>
<td>Applied Dental Chemistry and Physics 2 cr</td>
</tr>
<tr>
<td>DLT 131</td>
<td>Crown and Bridge Concepts 3 cr</td>
</tr>
<tr>
<td>DLT 132</td>
<td>Crown and Bridge Techniques 4 cr</td>
</tr>
<tr>
<td>DLT 133</td>
<td>Complete Denture Principles 2 cr</td>
</tr>
<tr>
<td>DLT 134</td>
<td>Complete Denture Techniques 3 cr</td>
</tr>
<tr>
<td>DLT 135</td>
<td>Dental Materials 3 cr</td>
</tr>
<tr>
<td>DLT 150</td>
<td>Math 1 cr</td>
</tr>
<tr>
<td>DLT 151</td>
<td>Removable Partial Denture Concepts 2 cr</td>
</tr>
<tr>
<td>DLT 152</td>
<td>Removable Partial Denture Techniques 2 cr</td>
</tr>
<tr>
<td>DLT 153</td>
<td>Concepts of Orthodontic/Pedodontic Treatment Appliances 1 cr</td>
</tr>
<tr>
<td>DLT 154</td>
<td>Orthodontic/Pedodontic Treatment Appliance Techniques 1 cr</td>
</tr>
<tr>
<td>DLT 155</td>
<td>Professional and Industrial Relations 2 cr</td>
</tr>
<tr>
<td>DLT 263</td>
<td>Removable Prostodontics Concepts 2 cr</td>
</tr>
<tr>
<td>DLT 264</td>
<td>Removable Prostodontics Techniques 3 cr</td>
</tr>
<tr>
<td>DLT 267</td>
<td>Dental Laboratory Orientation 1 cr</td>
</tr>
<tr>
<td>DLT 271</td>
<td>Porcelain Fused to Metal Substructure Concepts 3 cr</td>
</tr>
<tr>
<td>DLT 272</td>
<td>Porcelain Fused to Metal Substructure Techniques 3 cr</td>
</tr>
<tr>
<td>DLT 273</td>
<td>Fixed Ceramic Restoration, Porcelain Concepts 3 cr</td>
</tr>
<tr>
<td>DLT 274</td>
<td>Fixed Ceramic Restoration, Porcelain Technique 4 cr</td>
</tr>
<tr>
<td>DLT 277</td>
<td>Dental Lab Clinical Practice 5 cr</td>
</tr>
<tr>
<td>DLT 285</td>
<td>Dental Lab Clinical Praticum 5 cr OR</td>
</tr>
<tr>
<td>DLT 286</td>
<td>Dental Lab Specialty Pract. 5 cr</td>
</tr>
<tr>
<td>DLT 299</td>
<td>Advanced Directed Studies 1-8 cr</td>
</tr>
<tr>
<td>TGE 151</td>
<td>Applied Technical Writing I 2 cr</td>
</tr>
<tr>
<td>TGE 152</td>
<td>Applied Technical Writing II 2 cr</td>
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<td>TGE 153</td>
<td>Applied Technical Speaking 2 cr</td>
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<tr>
<td>TGE 156</td>
<td>Applied Business Principals 2 cr</td>
</tr>
<tr>
<td>TGE 158</td>
<td>Applied Job Search 2 cr</td>
</tr>
<tr>
<td>TGE 160</td>
<td>Applied Human Relations 2 cr</td>
</tr>
</tbody>
</table>

TOTAL: 92 cr

Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for DLT 100 and will not be required to attend this course.

DLT 100 Technical General Education (variable) 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

DLT 111 Oral Anatomy and Tooth Morphology 4 credits. A theoretical study of oral structures, systems and dentition. The student will study the skeletal, muscular, vascular and neural systems of the oral environment as well as terminology, tooth anatomy and general considerations.

DLT 112 Dental Anatomy Laboratory 4 credits. This laboratory course provides the student experience in waxing anatomically correct individual tooth patterns on models with removable dies.

DLT 113 Occlusal Concepts 2 credits. This course is designed to enable the student to become acquainted with various occlusal concepts and theories commonly accepted within the dental field.

DLT 114 Occlusal Laboratory Practice 3 credits. Laboratory exercises provide practice in waxing anatomically correct tooth patterns on casts with removable dies, mounted on semiajustable articulators, so that the patterns interdigitate and occlude.

DLT 115 Applied Dental Chemistry and Physics 4 credits. A lecture/lab class relating basic chemistry and physics applied to materials used in dental laboratories. Topics include, but not limited to, atomic structure, bonding, investments, gypsum materials. Properties of metals: malleability, ductility, electronegativity, stress, strain, elasticity, and thermal properties.

DLT 130 Crown and Bridge Concepts 3 credits. A theory course to study various procedures for model development, waxing, casting, finishing and polishing crowns and bridges. Primarily
crown and bridge and full-cast restorations. PREREQ: Completion of DLT 111 and DLT 113 with a “C” or better.

DLT 132 Crown and Bridge Techniques 4 credits. A laboratory course to introduce students to various techniques in model development, waxing, spinning, investing, casting, finishing and polishing crowns and bridges. PREREQ: Completion of DLT 112 and DLT 114 with a “C” or better.

DLT 133 Complete Denture Principles 2 credits. The theory course introduces the student to the general principles and procedures involved in the fabrication of complete dentures. PREREQ: Completion of DLT 111 and DLT 113 with a “C” or better.

DLT 134 Complete Denture Techniques 3 credits. A laboratory course designed to provide experiences in laboratory procedures used in the fabrication of complete dentures. PREREQ: Completion of DLT 112 and 114 with a “C” or better.

DLT 135 Dental Materials 3 credits. This theory course describes the uses, characteristics, properties, manipulation, reactions and technique variables that affect the desired properties of commonly used dental materials. PREREQ: Completion of DLT 115 with a “C” or better.

DLT 150 Math 1 credit. Provides a background in math through a review of whole numbers, fractions, decimals, percents and ratios. Also included is algebra needed to deal with basic chemistry and physics. PREREQ: Completion of DLT 135 with a “C” or better.

DLT 151 Removable Partial Denture Concepts 2 credits. This lecture course covers the broad aspect of removable partial dentures from identification of parts of frameworks and completed dentures to classifications, concepts of survey and design, duplication, waxing, casting, finishing and polishing using chrome cobalt alloys. In addition, tooth arrangement, processing and other considerations are covered. PREREQ: Completion of DLT 131, 133 and DLT 133 with a “C” or better.

DLT 152 Removable Partial Denture Techniques 2 credits. This laboratory course offers the student experience in surveying, duplication, waxing, casting finishing and polishing frameworks. PREREQ: Completion of DLT 132 and DLT 134 with a “C” or better.

DLT 153 Concepts of Orthodontic/Pedodontic Treatment Appliances 1 credit. This lecture course is designed to enable the student to acquire the knowledge necessary to perform the varied laboratory procedures in the fabrication of orthodontic/pedodontic appliances. PREREQ: Completion of DLT 131, 133 and DLT 133 with a “C” or better.

DLT 154 Orthodontic/Pedodontic Treatment Appliance Techniques 1 credit. This laboratory course will provide experience in wire bending and contouring necessary for the fabrication of removable appliances. PREREQ: Completion of DLT 132 and DLT 134 with a “C” or better.
DLT 155 Professional and Industrial Relations 2 credits. Covers a variety of topics necessary to the understanding and comprehension of the relationships between the dental profession and dental laboratory industry. Topics include history, education, recognition programs, ethical and legal aspects covered as well as the work environment and infection control. The dental health team concept is covered also. PREREQ: Completion of DLT 131, DLT 132, DLT 134 and DLT 135 with a “C” or better.

DLT 199 Special Topics (variable) 1-8 credits. Addresses the specific needs of individuals, enabling students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.

DLT 263 Removable Prosthodontics Concepts 2 credits. This theory class is a continuation of DLT 133 and DLT 151. Topics covered deal with different types of removable prosthodontic appliances, complete denture to partial denture, plastic vs. porcelain teeth, overdentures, and repairs among other topics. PREREQ: Completion of DLT 133, DLT 151, DLT 153, and DLT 155 with a “C” or better.

DLT 264 Removable Prosthetic Techniques 3 credits. This laboratory course covers different types of cases, tooth arrangements, immediate dentures, repairs and relines. PREREQ: Completion of DLT 152, DLT 154, and DLT 155 with a “C” or better.

DLT 267 Dental Laboratory Orientation 1 credit. This course will consist of visits to different laboratories to observe dental technology in the real world, dental lab environment. PREREQ: completion of DLT 111 through DLT 155 with a “C” or better. *Insurance required.

DLT 271 Porcelain Fused to Metal Substructure Concepts 3 credits. A lecture course designed to give the student an understanding of the requirements of porcelain fused to metal substructure design in single copings, bridge construction, combination crown and bridge-porcelain cased, and in the use of stress breakers (semi-precision attachment). PREREQ: completion of DLT 131, DLT 135, and DLT 155 with a “C” or better.

DLT 272 Porcelain Fused To Metal Substructure Techniques 3 credits. Laboratory course designed to give the practical hands-on experience of fabricating P.F.M. substructures of different design requirements. The projects completed in this course will be used to fabricate the P.F.M. projects for DLT 274. PREREQ: Completion of DLT 132, DLT 135, and DLT 55 with a “C” or better.

DLT 273 Fixed Ceramic Restoration, Porcelain Concepts 3 credits. A lecture course in the porcelain phase of porcelain fused to metal restoration and also, all porcelain (no metal) jacket crowns, veneers, inlays and onlays. PREREQ: Completion of DLT 135 and DLT 272 with a “C” or better.

DLT 274 Fixed Ceramic Restoration, Porcelain Technique 4 credits. This is a lab course in the porcelain phase of porcelain fused to metal restoration and also all porcelain (no metal) jacket crowns, veneers, inlays and onlays. PREREQ: Completion of DLT 135 and DLT 272 with a “C” or better.

DLT 277 Dental Implants and Precision Attachments 5 credits. This course covers the different kinds of implants: subperiosteal, transosteal, buccinator, endosseous (osseointegration). Also covered are different parts used: screws, posts, analogs, healing caps, etc. and some of the procedures used with each. The precision attachments covered will be intracoronal and extracoronal for fixed restorations, fixed to removable and fully endentulous, also stud and bar attachments with miscellaneous screws, plungers, and cross arch bracing, etc. PREREQ: DLT 263, DLT 264, DLT 271 and DLT 272 with a “C” or better.

DLT 285 Dental Laboratory Clinical Practice 5 credits. This course is an on-site laboratory experience designed to provide the student with an actual work load and environment. The requirements of this course may also be met through actual employment. All necessary evaluation procedures must be followed. Insurance required! The student must be enrolled and participating in DLT 285 either in a clinical practice environment or as an employee of a dental lab. If the student is not fulfilling the requirement of DLT 285 (240 hours) or not enrolled in DLT 286 a grade of “F” will be given to the respective student. PREREQ: completion of DLT 263, DLT 264, DLT 267, DLT 271, DLT 273, and DLT 274 with a “C” or better.

DLT 286 Dental Laboratory Specialty Practice 5 credits. This course is a practical laboratory experience designed at ISU to provide the student the opportunity to apply the knowledge and skills learned in the formal portion of the program. This course may be taken in lieu of DLT 285 with the instructor’s approval. PREREQ: Completion of DLT 263, 264, 273 and 274 with a “C” or better and permission of the instructor.

DLT 299 Advanced Directed Studies 1-8 credits (variable). Designed to meet specific needs of the student through individual work under faculty guidance. Instructor permission is required.

TGE 151 Applied Technical Writing I 2 credits. Course provides instruction in informal technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology. Meets general education requirement for A.A.S. degree.

TGE 152 Technical Writing II 2 credits. Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.

TGE 156 Applied Business Principles 2 credits. The course provides students with an overview of economic principles related to technical courses of study.

TGE 158 Applied Job Search 2 credits. Course provides techniques and development of employment process skills. Includes instruction in résumé/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

TGE 160 Applied Human Relations 2 credits. Course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership and personal attitude. Meets general education requirement for the A.A.S. degree.

Design Drafting Technology

Program Coordinator and Instructor: Acree
Instructor: Steinbronn

One certificate option, one Associate of Applied Science degree, one Associate of Technology degree, and one Bachelor of Applied Technology degree are available.

Drafting Technology-Machine Drafting

(2½ Semesters)

The following courses are required for a certificate:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEDR 100</td>
<td>6 cr</td>
<td>Technical General Education</td>
</tr>
<tr>
<td>DEDR 111</td>
<td>3 cr</td>
<td>Drafting Technology Theory</td>
</tr>
<tr>
<td>DEDR 113</td>
<td>3 cr</td>
<td>Drafting Technology Laboratory</td>
</tr>
<tr>
<td>DEDR 116</td>
<td>5 cr</td>
<td>Math</td>
</tr>
<tr>
<td>DEDR 121</td>
<td>3 cr</td>
<td>Drafting Technology Theory</td>
</tr>
<tr>
<td>DEDR 123</td>
<td>5 cr</td>
<td>Drafting Technology Laboratory</td>
</tr>
<tr>
<td>DEDR 126</td>
<td>5 cr</td>
<td>Math</td>
</tr>
<tr>
<td>DEDR 127</td>
<td>1 cr</td>
<td>Measurement Laboratory</td>
</tr>
<tr>
<td>DEDR 151</td>
<td>2 cr</td>
<td>Drafting Technology Theory</td>
</tr>
<tr>
<td>DEDR 153</td>
<td>5 cr</td>
<td>Drafting Technology Laboratory</td>
</tr>
<tr>
<td>DEDR 156</td>
<td>2 cr</td>
<td>Drafting Applied Science</td>
</tr>
<tr>
<td>TGE 151</td>
<td>2 cr</td>
<td>Applied Technical Writing I</td>
</tr>
<tr>
<td>TGE 152</td>
<td>2 cr</td>
<td>Applied Technical Writing II</td>
</tr>
<tr>
<td>TGE 153</td>
<td>2 cr</td>
<td>Applied Technical Speaking</td>
</tr>
<tr>
<td>TGE 156</td>
<td>2 cr</td>
<td>Applied Business Principles</td>
</tr>
</tbody>
</table>

TOTAL: 61 cr
Associate of Applied Science Degree in Design Drafting Technology

(4½ Semesters)

The following courses are required in addition to the Drafting Technology - Machine Drafting requirements:

- **DEDR 223 Design Technology** 3 cr
- **DEDR 221 Design Technology Theory** 4 cr
- **DEDR 227 Strength of Materials** 4 cr
- **DEDR 226 Applied Science** 7 cr
- **DEDR 221 Drafting Technology Theory** 3 cr
- **DEDR 227 Drafting Technology Laboratory** 1 cr
- **TGE 158 Drafting Applied Math I** 6 cr
- **TGE 160 Drafting Applied Math II** 5 credits

The courses listed above will be taught in sequential blocks of instruction. Successful completion of a course is required before the student can progress in the program. If the student fails any math, theory, or lab course, then that course must be repeated and a passing grade obtained before the student can advance in the program. The student must exit the program and make up their deficiency through Technical General Education or other appropriate methods. The student will then be allowed to repeat the course at the next available program opening.

Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for DEDR 100 and will not be required to attend the initial semester.

Based on your keyboarding skills, you may be required to take a 1 credit Keyboarding class in order to meet the competencies of the program.

- **DEDR 100 Technical General Education (variable) I-16 credits.** The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.
- **DEDR 111 Drafting Technology Theory I 3 credits.** Basic instruction to help the student gain knowledge and experience necessary to make drawings and learn drafting fundamentals and theory. Includes units in lettering, linework, inking, orthographics, notes, dimensions, tolerances, and working drawings.
- **DEDR 113 Drafting Technology Laboratory I 6 credits.** Puts into practice the knowledge gained in design theory classroom work and lectures. The student becomes familiar with all the lab equipment including drawing boards, drafting instruments, and CAD system.
- **DEDR 116 Math I 5 credits.** Units include a review of basic algebra and continuation to advanced algebra and geometry for trigonometry.
- **DEDR 121 Drafting Technology Theory II 3 credits.** This course is a continuation of DEDR 111. Included will be instruction in the drafting theory of weldments, gearing, true position dimensioning and geometric tolerancing, component part catalog use, axonometric projection, piping and electrical drawings.
- **DEDR 123 Drafting Technology Laboratory II 5 credits.** This course is a continuation of DEDR 113. Included will be instruction relating to weldments, gearing, bearings, dimensioning and tolerancing axonometric projection, electricity and piping. Emphasis will be placed on drawing details, subassemblies, and assemblies. Most drawings will be completed using a CAD system.
- **DEDR 126 Drafting Applied Math II 5 credits.** This course is a continuation of DEDR 116. Subjects covered will include algebra, geometry, and trigonometry. Solutions of problems relating to design drafting will be emphasized.
- **DEDR 127 Measurement Laboratory I 1 credit.** This course is an introduction to measuring devices. Students learn the use of micrometer, calipers and other precision measuring tools.
- **DEDR 151 Drafting Technology Theory III 2 credits.** Descriptive geometry will be presented. The theory of graphical solutions to design problems relating to piping, machinery, and structures will be emphasized. Problems will be solved manually, and using computer aided design techniques.
- **DEDR 153 Drafting Technology Laboratory III 5 credits.** Solving practical design problems using graphical techniques, and stressing logic will be presented. Emphasis will be placed on accuracy, and work quality. Areas of study will include structures, machines, and piping. Both manual and CAD procedures will be presented.
- **DEDR 156 Applied Science I 2 credits.** A review of algebra, geometry and trigonometry is presented. Areas of emphasis will help students transition into physics and statics.
- **DEDR 159 Internship I 1-8 credits (variable at 1 credit/week).** Eight-week industrial work experience via a cooperative program for selected students.
- **DEDR 211 Drafting Technology Theory I 3 credits.** The theory of structural steel detailing and structural design will be presented. Procedures for detailing beams, columns, cross bracing, and stair stringers will be presented.
- **DEDR 213 Drafting Technology Laboratory I 6 credits.** Structural steel detailing and structural design projects will be presented. Steel detailing will include beams, columns, cross bracing, and stair stringers. Structural design will include beams, columns, cross bracing, reinforced concrete footings, and design of timber members. The AISC and the AITC standards will be used.
- **DEDR 216 Design Technology Applied Science II 4 credits.** This course is a continuation of DEDR 156. Strength of materials will be covered. Included will be subjects in stress and deformation, structural and mechanical joints, torsion, centroids and moments of inertia, beam and column design, and combined stresses.
- **DEDR 217 Strength of Materials Laboratory I 1 credit.** Is an introduction to building materials as related to design. Emphasis on steel production, and detailed study of stress/strain curve. Overview of design applications of glass, bituminous materials, plastics, insulating materials and protective and decorative coatings. Plan reading utilized. An associated lab is held.
- **DEDR 221 Drafting Technology Theory II 4 credits.** The fundamentals of architectural design will be presented. Included will be floor plans, elevations, room layout, aesthetic design, site plans, heating and cooling systems, and specification writing. The design of gears, cams, bearing, clutches, and brakes will be included.
- **DEDR 223 Design Technology Laboratory II 6 credits.** Architectural design will be presented. Projects in home design involving complete sets of plans will be covered following industrial standards. Machine design will be presented. Computer-aided solid modeling is studied. Emphasis is placed on creating 2D and 3D drawings of machine parts.
- **DEDR 226 Applied Science II 7 credits.** This course will cover general physics, including energy, dynamics, heat, light, sound, and electricity and magnetism. Information presented will be applied to design projects in progress.
- **DEDR 227 Strength of Materials Laboratory II 1 credit.** Continuation of DEDR 217. Introduction to wood production and applications, concrete testing and design, compaction theory and application; precast concrete, brick and tile and stone uses and design applications. Various laboratory activities.
- **DEDR 289 Directed Studies 1-8 credits.** Individual work under staff guidance. For short, specialized subject areas.
- **TGE 151 Applied Technical Writing I 2 credits.** Course provides instruction in informal technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology/vocabulary building. Meets general education requirement for A.A.S. degree.
TGE 152 Technical Writing II 2 credits. Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.

TGE 156 Applied Business Principles 2 credits. The course provides students with an overview of economic principles related to technical courses of study.

TGE 158 Applied Job Search 2 credits. Course provides techniques and development of employment process skills. Includes instruction in résumé/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

TGE 160 Applied Human Relations 2 credits. Course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership and personal attitude. Meets general education requirement for the A.A.S. degree.

TGE 162 Keyboarding 1 credit. The course enables the development of basic touch keyboarding skill in a minimum of time. Completion should prepare students to (a) input alphabetic, numeric, and symbol information quickly and accurately and (b) understand basic vocabulary and concepts used in keyboarding operations when entering and retrieving information.

Diezel/Diesel Electric Technology

2½ Semesters to 4 Semester Program Options

Program Coordinator and Instructor: Bullock
Instructors: Dixon, Durfee, Green, Huls

Two certificate options and two Associate of Applied Science degrees are available.

Diesel Technology (2½ Semesters)
The following courses are required for a certificate:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title..................</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESL 100</td>
<td>Technical General Education</td>
<td>1-16 cr</td>
</tr>
</tbody>
</table>

Diezel Electric Technology (3 Semesters)
The following courses are required for a certificate:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title..................</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESL 100</td>
<td>Technical General Education</td>
<td>1-16 cr</td>
</tr>
<tr>
<td>DESL 120</td>
<td>Introduction to Diesel Technology</td>
<td>2 cr</td>
</tr>
<tr>
<td>DESL 131</td>
<td>Fundamentals of Electricity</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 132</td>
<td>Batteries and D.C. Charging Systems</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 133</td>
<td>Starting Systems, 12 and 24 Volt</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 134</td>
<td>Ignition Systems</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 135</td>
<td>A.C. Charging Systems, 12 and 24 Volt</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 136</td>
<td>Chassis Wiring</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 140</td>
<td>Hydraulics</td>
<td>3 cr</td>
</tr>
<tr>
<td>DESL 144</td>
<td>Power Shift Transmissions</td>
<td>3 cr</td>
</tr>
<tr>
<td>DESL 150</td>
<td>Brakes Systems</td>
<td>2 cr</td>
</tr>
<tr>
<td>DESL 161</td>
<td>Fuel Systems</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 162</td>
<td>In-Line Fuel Pumps</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 163</td>
<td>Detroit Fuel Systems</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 164</td>
<td>Cummins Fuel Systems</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 165</td>
<td>Distributor Pumps</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 166</td>
<td>Gaseous Fuel System</td>
<td>1 cr</td>
</tr>
</tbody>
</table>

Plus two courses selected from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title..................</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TGE 151</td>
<td>Applied Technical Writing I</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 152</td>
<td>Applied Technical Writing II</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking</td>
<td>2 cr</td>
</tr>
</tbody>
</table>

Diezel Electric Technology (4 Semesters)
The following courses are required in addition to the Diesel Electric Technology certificate requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title..................</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESL 170</td>
<td>Fuel Injectors, Turbo Chargers and Blowers</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 175</td>
<td>Cab Air Conditioning</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 182</td>
<td>Gas Engines</td>
<td>2 cr</td>
</tr>
<tr>
<td>DESL 184</td>
<td>Diesel Engines</td>
<td>6 cr</td>
</tr>
<tr>
<td>DESL 191</td>
<td>Clutches</td>
<td>3 cr</td>
</tr>
<tr>
<td>DESL 192</td>
<td>Light Duty Transmission</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 193</td>
<td>Heavy Duty Standard Truck Transmission</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 194</td>
<td>Farm and Industrial Tractor Transmission</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 195</td>
<td>Truck Axles and Drive Lines</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 196</td>
<td>Farm Axles and Differentials</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 197</td>
<td>Industrial and Construction Equipment</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 198</td>
<td>Steering and Suspension Systems</td>
<td>1 cr</td>
</tr>
<tr>
<td>TGE 151</td>
<td>Applied Technical Writing I</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 152</td>
<td>Applied Technical Writing II</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking</td>
<td>2 cr</td>
</tr>
</tbody>
</table>

Plus two courses selected from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title..................</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TGE 156</td>
<td>Applied Business Principals</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 158</td>
<td>Applied Job Search</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 160</td>
<td>Applied Human Relations</td>
<td>2 cr</td>
</tr>
</tbody>
</table>

TOTAL: 66 cr

Associate of Applied Science Degree in Diesel Electric Technology (3½ Semesters)
The following courses are required in addition to the Diesel Technology certificate requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title..................</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESL 231</td>
<td>Live Work I</td>
<td>8 cr</td>
</tr>
<tr>
<td>DESL 233</td>
<td>Live Work II</td>
<td>8 cr</td>
</tr>
<tr>
<td>DESL 251</td>
<td>Internship</td>
<td>8 cr</td>
</tr>
</tbody>
</table>

Plus one course selected from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title..................</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TGE 156</td>
<td>Applied Business Principals</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 158</td>
<td>Applied Job Search</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 160</td>
<td>Applied Human Relations</td>
<td>2 cr</td>
</tr>
</tbody>
</table>

TOTAL: 70 cr

Associate of Applied Science Degree in Diesel Electric Technology (4 Semesters)
The following courses are required in addition to the Diesel Electric Technology certificate requirements:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title..................</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESL 191</td>
<td>Clutches</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 192</td>
<td>Light Duty Transmission</td>
<td>1 cr</td>
</tr>
<tr>
<td>DESL 193</td>
<td>Heavy Duty Standard Truck Transmission</td>
<td>1 cr</td>
</tr>
</tbody>
</table>

TOTAL: 84 cr
Courses

DESL 101 Technical General Education (variable) 1-6 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

DESL 120 Introduction Of Diesel Technology 2 credits. Survey of the diesel industry and safety policies along with theory and practice, use and care of hand tools, fasteners, precision measuring devices, tubing fabrication, soldering, and applied shop mathematics.

DESL 131 Fundamentals Of Electricity 1 credit. Theory of electricity: voltage, amperage, ohms (motors, switches, lights, etc.). PREREQ: DESL 131 or comparable.

DESL 140 Hydraulics 3 credits. Theory and operation of hydraulics. Theory and lab practice covering repair, troubleshooting techniques and testing to return components to working condition according to manufacturers specifications.

DESL 144 Power Shift Transmissions 3 credits. Theory and operation of power shift transmissions. Lab practice covering repair, troubleshooting techniques and testing to return components to working condition according to manufacturers specifications.

DESL 150 Brakes Systems 2 credits. The theory and lab practice in diagnosis, troubleshooting, repair and testing of air and hydraulic brake systems.

DESL 161 Fuel Systems 1 credit. Theory and operation of basic engine gasoline and diesel fuel systems for 2-cycle and 4-cycle engines.

DESL 162 In-Ling Fuel Pumps 1 credit. Theory and operation of in-line pumps, port and helix fuel control, governor operation. PREREQ: DESL 161 or comparable.

DESL 163 Detroit Fuel Systems 1 credit. Theory and operation of Detroit fuel systems. Includes tune-up and overhaul of fuel system components. PREREQ: DESL 161 or comparable.

DESL 164 Cummins Fuel Systems 1 credit. Theory and operation of Cummins fuel systems. Includes tune-up and overhaul of fuel system components. PREREQ: DESL 161 or comparable.

DESL 165 Distributor Pumps 1 credit. Theory and operation of distributor fuel injection pumps. Includes Stanadyne and Bosch systems. PREREQ: DESL 161 or comparable.

DESL 166 Gaseous Fuels System 1 credit. Theory and operation of gaseous fuel systems. Includes LP, NG, alcohol and carburetion. PREREQ: DESL 161 or comparable.

DESL 170 Fuel Injectors, Turbo Chargers and Boosters 1 credit. Theory and operation of injectors, turbochargers and blowers for engines. Lab practice covering repair, troubleshooting techniques and testing to put components back on equipment.

DESL 175 Cab Air Conditioning 1 credit. Fundamentals of cab air conditioning and the basic concepts of refrigeration used in the diesel industry. Theory and lab practice in the principles of operation, repair and testing of air conditioning systems.

DESL 182 Gas Engines 2 credits. Theory in the fundamentals of the operation of gas engines. The laboratory section consists of overhaul procedure, repair, tune-up diagnosis and testing of operable engines.

DESL 184 Diesel Engines 6 credits. Theory in the fundamentals of the operation of diesel engines. The laboratory section consists of overhaul procedure, repair, tune-up, diagnosis and testing of operable engines. PREREQ: DESL 182 or comparable.

DESL 191 Clutches 1 credit. The study of clutch function, basic components, periodic maintenance, clutch servicing and trouble shooting.

DESL 192 Light Duty Transmission 1 credit. Servicing, repair and trouble shooting the standard transmission, transfer case, transaxle, and power take-off units.

DESL 193 Heavy Duty Standard Truck Transmissions 1 credit. Maintenance, removing, overhauling and troubleshooting of heavy duty truck transmissions.

DESL 194 Farm and Industrial Tractor Transmissions 1 credit. The theory and laboratory practice of diagnosis, trouble shooting, repair and testing of farm, construction and standard transmissions.

DESL 197 Industrial and Construction Truck Transmissions 1 credit. The principles and servicing of axles, drive lines and carrier overhaul.

DESL 198 Truck Transmissions 1 credit. The study and repair practices for final drives, axle shafts and type, and the undercarriage of axle type machines.

DESL 199 Steering and Suspension Systems 1 credit. Steering system component theory, repair and adjustment. Truck suspension system servicing.

DESL 231 Live Work I 8 credits. This course covers the principles of diagnosis, repair and trouble shooting on operable equipment. The classroom portion will include customer relations and shop management techniques.

DESL 232 Live Work II 9 credits. A continuation of DESL 231.

DESL 241 Diesel Electric 18 credits. This course covers the principles, diagnosis, repair and trouble shooting on operable diesel electric equipment.

DESL 243 Diesel Electric II 8 credits. A continuation of DESL 241.

DESL 251 Internship 8 credits. A final phase of training in an actual shop, performing all types of repair work and receiving pay for services performed with the involvement of ISU instructors.

DESL 299 Special Topics 1-8 credits. Addresses the specific needs of individuals, enabling students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time, pre-employment curriculum. Permission of the instructor is required.

TGE 151 Applied Technical Writing I 3 credits. Course provides instruction in informal technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology/vocabulary building. Meets general education requirement for A.A.S. degree.
TGE 153 Applied Technical Speaking 2 credits. Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.

TGE 156 Applied Business Principles 2 credits. The course provides students with an overview of economic principles related to technical courses of study.

TGE 158 Applied Job Search 2 credits. Course provides techniques and development of employment process skills. Includes instruction in résumé/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

TGE 160 Applied Human Relations 2 credits. Course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership and personal attitude. Meets general education requirement for the A.A.S. degree.

**Electrical Technician**

2 Semester Program

Coordinator and Instructor: Weiner

Also see Business Technology for the Associate of Applied Science degree.

The following courses are required for a certificate:

- **ELTY 100** Technical General Education 1-16 cr
- **ELTY 131** Electrical Theory I 4 cr
- **ELTY 132** Electrical Theory II 5 cr
- **ELTY 133** Applied Mathematics I 4 cr
- **ELTY 134** Applied Mathematics II 5 cr
- **ELTY 135** Electrical Laboratory I 4 cr
- **ELTY 136** Electrical Laboratory II 5 cr
- **ELTY 137** Electrical Code I 3 cr
- **ELTY 138** Electrical Code II 3 cr
- **ELTY 139** Print Reading 2 cr
- **ELTY 140** Motor Control Theory 2 cr
- **ELTY 151** Applied Technical Writing 2 cr
- **ELTY 158** Applied Job Search 2 cr

**TOTAL:** 57 cr

Safety Instruction: Electrical and occupational safety will be presented as part of the laboratory instruction. Safe and proper methods of using tools, meters, and equipment in the lab will be presented. Safety instruction as it pertains to the electrical occupation will be presented. Safety films, lectures and demonstrations will be used. Safety instruction will be presented throughout the course.

The courses listed above will be taught in sequential blocks of instruction. Successful completion of a course is required before the student can progress in the program. If the student fails any math, theory, or lab course, then that course must be repeated and a passing grade obtained before the student can advance in the program. The student must exit the program and make up their deficiency through Technical General Education or other appropriate methods. The student will then be allowed to repeat the course at the next available program opening.

**Courses**

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for ELTY 100 and will not be required to attend the initial session.

Based on your keyboarding skills, you may be required to take a 1 credit Keyboarding class in order to meet the competencies of the program.

**ELTY 100 Technical General Education (variable) 1-16 credits.** The basic mathematic skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

**ELTY 131 Electrical Theory I 14 credits.** Electron Theory; Sources of Electromotive force; What is electric current; Effect of Electricity; Magnetism; Electromagnetism; Putting electricity and magnetism to work; The electric circuit; Resistance, Resistors; Ohm’s Law; Power; D-C parallel circuits; Series-parallel circuits; Kirchoff’s laws; Alternating current; A-C characteristics; Inductance; Mutual inductance; Capacitance and the Capacitor; Capacitive A-C circuits; RL circuits; LCR circuits.

**ELTY 132 Electrical Theory II 5 credits.** Types of current meters; D-C generators; A-C generators; D-C motors; D-C starters; D-C motor controllers; A-C motors; types of A-C motors; motor control. PREREQ: ELTY 131.

**ELTY 133 Applied Mathematics I 14 credits.** Course studies electrical measurement, fractions, decimals, electrical formulas, positive and negative numbers, exponents, powers of ten, formula addition and subtraction, square roots, combining terms, solving algebraic equations, percentages, and ratio/proportions.

**ELTY 134 Applied Mathematics II 5 credits.** Course studies trigonometry, graphing, instantaneous values, vectors and phasors, Pythagorean theorem, delta and wye connections, and power factor. PREREQ: ELTY 133.

**ELTY 135 Electrical Laboratory I 14 credits.** Shop safety; hand tools; house, commercial, and industrial wiring; voltage sources and measurements.

**ELTY 136 Electrical Laboratory II 5 credits.** Meters, transformers, electric motor controls, manual motor starters, three-phase systems, magnetic line voltage starters, multi-speed controllers, and motor devices. PREREQ: ELTY 135.

**ELTY 137 Electrical Code I 3 credits.** Introduction; definitions; requirements for electrical installation in residential, commercial and industrial buildings.

**ELTY 138 Electrical Code II 3 credits.** Continuation study of National Electrical Code. PREREQ: ELTY 137.

**ELTY 139 Print Reading 2 credits.** Introduction to basic print reading, materials and specifications, and reading prints for residential and commercial structures.

**ELTY 140 Motor Control Theory 2 credits.** Introduces basic motor control. Includes two-wire and three-wire control using various pilot devices and motor magnetic controllers. Introduces control relays, time relays, solenoid values, latching relays, and motor control centers.

Course of study includes using the computer to draw motor control circuits. PREREQ: ELTY 131 and 135.

**ELTY 199 Special Topics (variable) 1-8 credits.** This course is designed to address the specific needs of individuals, enabling students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.

**TGE 151 Applied Technical Writing I 2 credits.** Course provides instruction in informal technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology/vocabulary building. Meets general education requirement for A.A.S. degree.

**TGE 158 Applied Job Search 2 credits.** Course provides techniques and development of employment process skills. Includes instruction in résumé/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

**TGE 162 Keyboarding I 1 credit.** The course enables the development of basic touch keyboarding skill in a minimum of time. Completion should prepare students to (a) input alphabetic, numeric, and symbol information quickly and accurately and (b) understand basic vocabulary and concepts used in keyboarding operations when entering and retrieving information.
Electromechanical Drafting Technology

Instructors: Hansen & Merrill

One certificate option, one Associate of Applied Science degrees, and one Bachelor of Applied Technology degrees are available. An optional 14-16 week internship is available to selected students as industrial demand allows.

Integrated Circuit Design

(2 Sessions)

The following courses are required for a certificate:

- EMDR 100 Technical General Education 1-16 cr
- EMDR 112 Math I 3 cr
- EMDR 117 Math II 3 cr
- EMDR 280 MOS Design Theory I 3 cr
- EMDR 281 MOS Design Laboratory I 5 cr
- EMDR 284 MOS Design Theory II 3 cr
- EMDR 285 MOS Design Laboratory II 5 cr

TOTAL: 38 cr

Program Policy: Coursework and delivery design.

Math, lab theory, and technical support courses are interrelated and must be taken concurrently during each session. Quantity as well as quality of completed work is a basic requirement for Electromechanical Drafting. Math and theory courses are applied in the drafting lab assignments. Because of this design, students will not be permitted to take technical nor theoretical courses independent of each other.

The courses listed above will be taught in sequential blocks of instruction. If the student fails a theory or lab course, then that course must be repeated and a passing grade obtained before the student can advance in the program. If the student fails a math class, they must exit the program and make up their math deficiency. Then at the next available opening the student will be allowed to reenter the program, repeat the math course and progress in the program.

Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for EMDR 100 and will not be required to attend the initial semester.

Based on your keyboarding skills, you may be required to take a 1 credit Keyboarding class in order to meet the competencies of the program.

EMDR 100 Technical General Education (variable) 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.


EMDR 114 Drafting Theory I 2 credits. Basic instruction to help the student gain knowledge and experience necessary to draft drawings and learn fundamentals of drafting theory. Includes units in linearwork, lettering, inking, geometric constructions, sketching, orthographics, and sectional views. The student will gain a knowledge of CAD systems and their operation.

EMDR 115 Drafting Laboratory I 3 credits.

EMDR 117 Math II 3 credits. Advanced algebraic concepts, equations and applications, factoring, use of quadratic equation, gears and screws, review of plane geometry. Most of the work is in story problem form. PREREQ: EMDR 112.

EMDR 119 Drafting Theory II 2 credits. Instruction in the fundamentals and theory of auxiliary views, revolutions, dimensioning, tolerancing, threads and fasteners, isometrics, oblique drawings, charts, and graphs. PREREQ: EMDR 112, 114, 115.

EMDR 120 Drafting Laboratory II 3 credits. Puts into practice the knowledge gained in the preparation of drawings. The student will produce drawings using a CAD system. PREREQ: EMDR 117, 119.

EMDR 144 Mechanical Drafting Theory I 2 credits. Study of applied geometric tolerancing and working drawings including machines, gears, cams, and welded parts. PREREQ: EMDR 119, 120.

EMDR 145 Mechanical Drafting Laboratory I 3 credits. Preparation of working drawings of simple machines, gears, cams, and welded parts. Some work must be complete on the CAD system. PREREQ: EMDR 119, 120.

EMDR 174 Hardwiring Theory I 2 credits. The course will cover the layout of electrical and electronic drawings. PREREQ: EMDR 117.

EMDR 175 Hardwiring Laboratory I 3 credits. Hands on experience drafting block diagrams, logic diagrams, schematics, highway diagrams, point-to-point and destination wiring diagrams. Electronic hardware drawing packages. All work can be drafted on the CAD system. PREREQ: EMDR 120.

EMDR 242 Trigonometry 3 credits. Major emphasis will be on the practical application of trigonometry in solving industrial problems. This will be accomplished with sketches and triangulation. PREREQ: EMDR 117.

EMDR 248 Mechanical Drafting Theory II 2 credits. Continuation of EMDR 144. Includes the study of metal layout and piping systems, and mechanical power transmission catalogs. PREREQ: EMDR 144, 242.

EMDR 249 Mechanical Drafting Laboratory II 5 credits. Preparation of working drawings involving metal layout and piping systems. Also includes research and layout of mechanical power transmission components drawing. Some work must be completed on the CAD system. PREREQ: EMDR 247, 248.

EMDR 250 Mechanical Drafting Laboratory III 5 credits. Preparation of working drawings of reinforced concrete structures, structural steel members and a residence. The student will decide which projects will be done manually and which will be done on the CAD system. PREREQ: EMDR 247, 248.


EMDR 259 Mechanical Drafting Laboratory III 6 credits. Preparation of working drawings of reinforced concrete structures, structural steel members and a residence. The student will decide which projects will be done manually and which will be done on the CAD system. PREREQ: EMDR 247, 248.


EMDR 266 Mechanical Drafting Laboratory II 5 credits. Preparing of complete chassis and cabinet drawing packages. All work can be drafted on the CAD system. PREREQ: EMDR 247, 248.

EMDR 267 Printed Circuit Theory 2 credits. The theory of printed circuit design, standards, processes, design hints, layout of single, double, and multilayer boards using discrete components and integrated circuits. PREREQ: EMDR 266.

EMDR 268 Printed Circuit Laboratory 6 credits. Preparation of complete printed circuit drawing packages from schematics, logic diagrams, and engineering information sheets. All work will be complete using a CAD system. PREREQ: EMDR 267.

EMDR 270 M.O.S. Design Theory I 3 credits. Lectures and classroom discussion to introduce the new student to the M.O.S./L.S.I. design. Calculation of resistance and capacitance will be demonstrated.

EMDR 281 M.O.S. Design Laboratory I 5 credits. Students will apply the theory from EMDR 280 to draw composite layouts.

EMDR 284 M.O.S. Design Theory II 3 credits. A history of M.O.S. fabrication and processes, and design rules will be covered.

EMDR 285 M.O.S. Design Laboratory II 5 credits. From logic or schematic diagrams student will produce working cells and a small functional chip.

EMDR 288 Wiring-Residential, Commercial 8 credits. The study and layout of electrical drawings for residential and light commercial buildings. All work will be in accord with the National Electrical Code.

EMDR 290 Directed Studies 1-8 credits. Individual work under staff guidance. For short specialized subject areas.

EMDR 292 Internship 1-16 credits. Variable number of weeks of industrial work experience via a cooperative program for selected students.

EMDR 293 Internship 1-16 credits. Variable number of weeks of industrial work experience via a cooperative program for selected students.

EMDR 294 Internship 1-16 credits. Variable number of weeks of industrial work experience via a cooperative program for selected students.

TGE 162 Keyboarding 1 credit. Preparation of complete printed circuit drawing packages from schematics, logic diagrams, and engineering information sheets. All work will be complete using a CAD system. PREREQ: EMDR 247, 248.


TGE 152 Technical Writing II 2 credits. Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides instruction in techniques and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.

TGE 156 Applied Business Principles 2 credits. The course provides students with an overview of business/economic principles related to technical courses of study. Meets general education requirement for the A.A.S. degree.

TGE 158 Applied Job Search 2 credits. Course provides techniques and development of employment process skills. Includes instruction in résumé/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

TGE 160 Applied Human Relations 2 credits. Course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership and personal attitude. Meets general education requirement for the A.A.S. degree.

TGE 162 Keyboarding 1 credit. The course enables the development of basic touch keyboarding skill in a minimum of time. Completion should prepare students to (a) input alphabetic, numeric, and symbol information quickly and accurately and (b) understand basic vocabulary and concepts used in keyboarding operations when entering and retrieving information.

Electromechanical Technology

4½ Semester Program

Program Coordinator and Instructor: Green

Instructors: Fitzen, Davidson, Georgeson, McQuery, Norton, Womack

One Associate of Applied Science Degree, and one Bachelor of Applied Technology degree in Electromechanical Technology are available. All theory classes and laboratory application classes of these theories require concurrent enrollment.

Associate of Applied Science Degree in Electromechanical Technology

(4½ Semesters)

Required courses:

ELTR 100 Technical General Education 1-16 cr
ELTR 141 Applied Mathematics I 4 cr
ELTR 142 Applied Mathematics II 4 cr
ELTR 143 Electronic Theory 5 cr
ELTR 144 Electron Control Devices Theory A 5 cr
ELTR 145 Electronic Laboratory 5 cr
ELTR 146 Electron Control Devices Laboratory A 5 cr
ELTR 147 Applied Science 4 cr
ELTR 161 Digital/Microprocessor Systems Theory 5 cr
ELTR 162 Digital/Microprocessor Systems Application 5 cr
ELMT 269 Electronic Drafting I 2 cr
ELMT 263 EM Digital Devices and Systems Theory 6 cr
ELMT 264 EM Digital Devices and Systems Laboratory 6 cr
ELMT 271 EM Analog Devices and Systems Theory 6 cr
ELMT 272 EM Analog Devices and Systems Laboratory 6 cr
ELMT 290 Internship 1-8 cr
TGE 151 Applied Technical Writing I 2 cr
TGE 152 Applied Technical Writing II 2 cr
TGE 153 Applied Technical Speaking 2 cr
TGE 156 Applied Business Principles 2 cr
TGE 158 Applied Job Search 2 cr
TGE 160 Applied Human Relations 2 cr

TOTAL 96 cr
The courses listed above will be taught in sequential blocks of instruction. Successful completion of a course is required before the student can progress in the program. If the student fails any math, theory, or lab course, then that course must be repeated and a passing grade obtained before the student can advance in the program. The student must exit the program and make up their deficiency through Technical General Education or other appropriate methods. The student will then be allowed to repeat the course at the next available program opening.

Courses

Official articulation agreements have been established with other Idaho post-secondary and secondary schools. Where these agreements exist, the specific block of training (i.e., session/semester/year) will be accepted as equivalent to that at ISU and will count equally toward graduation.

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for ELTR 100 and will not be required to attend the initial semester.

Based on your keyboarding skills, you may be required to take 1 credit Keyboarding class in order to meet the competencies of the program.

ELTR 100 Technical General Education (variable) 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

ELTR 109 Electronic Terminology 1 credit. The study of basic electronic theory vocabulary. This course is to be taken in conjunction with ENGL 101, the first eight weeks of the semester. It is designed for those students who will opt to pursue a Bachelor of Applied Technology degree after earning an Associate of Applied Science degree.

ELTR 110 Electronic Terminology II 1 credit. The study of basic electronic theory vocabulary. This course is to be taken in conjunction with ENGL 101, the second eight weeks of the semester. It is designed for those students who will opt to pursue a Bachelor of Applied Technology degree after earning an Associate of Applied Science degree.

ELTR 111 Applied Mathematics 2 credits. Study of algebraic principles, problems, and concepts. PREREQ: One year of high school algebra or permission of the instructor.

ELTR 112 Applied Mathematics 2 credits. Continuation of ELTR 111.

ELTR 113 Electron Theory 2 credits. Classroom study of AC, DC, and LCR circuits.

ELTR 114 Electron Theory 3 credits. Continuation of ELTR 113.

ELTR 115 Electronic Laboratory 3 credits. Experiments in basic electronic circuits; use of electronic test equipment and tools.

ELTR 116 Electronic Laboratory 2 credits. Continuation of ELTR 115.

ELTR 121 Applied Mathematics 2 credits. Introduction to trigonometry emphasizing the vector solution of AC circuits.

ELTR 122 Applied Mathematics 2 credits. Continuation of ELTR 121.


ELTR 124 Electron Control Devices Theory 3 credits. Continuation of ELTR 123.

ELTR 125 Electron Control Devices Laboratory 3 credits. Lab associated with ELTR 123.

ELTR 126 Electron Control Devices Laboratory 2 credits. Lab associated with ELTR 124.

ELTR 127 Applied Science 2 credits. Study of matter and energy relationships pertaining to motion, mechanics, heat, light, sound, electricity and magnetism and atomic energy. PREREQ: ELTR 111 and 112 or equivalent.

ELTR 128 Applied Science 2 credits. Continuation of ELTR 127.

ELTR 140 Directed Study AC-DC/LCR 8 credits. Condensed coverage of basic electronics theory and laboratory and associated mathematics. Accelerated equivalent of ELTR 141, ELTR 143, ELTR 145. For those who have prior knowledge of basic electronics.

ELTR 141 Applied Mathematics I 4 credits. Basic math as it applies to Electrical Theory. ELTR 143; includes algebraic and trigonometric topics as they relate to AC and AC (sine wave) circuit analysis.

ELTR 142 Applied Mathematics II 4 credits. Continuation of ELTR 141. Selected algebraic and trigonometric topics as related to DC and AC (sine wave) circuit analysis with special emphasis on trigonometric solution and vector analysis.

ELTR 143 Electronic Theory 5 credits. Basic electrical fundamentals, direct and alternating current circuits, LCR networks, electrical circuit components, meter circuits and test equipment.

ELTR 144 Electron Control Devices Theory A 5 credits. Comprehensive study and practical application of semiconductors, power supplies, transistor amplifiers, oscillators, operational amplifiers and test equipment.

ELTR 145 Electronic Laboratory 5 credits. Experiments involving subjects covered in ELTR 143. Student will construct experimental circuits upon which tests and measurements will be made to attain specified objectives.

ELTR 146 Electron Control Devices Laboratory A 5 credits. Practical applications of the topics covered in ELTR 144.

ELTR 147 Applied Science 4 credits. Study of matter and energy relationships pertaining to motion, mechanics, heat, light, sound electricity and magnetism and atomic energy. PREREQ: ELTR 141 or Equivalent. This class will be substituted by PHYS 100.

ELTR 161 Digital/Microprocessor Systems Theory 5 credits. A basic study of electronic logic devices and circuits. Includes a study of Boolean Algebra, basic logic gates, combinational logic circuits, digital registers and counters and basic timing circuitry. An introduction to the basic architecture of the INTEL 8085 (8-bit) microprocessor. A brief introduction to assembly language programming.

ELTR 162 Digital/Microprocessor Systems Application 5 credits. This is a practical application of the theory class. Individual labs provide experience with basic logic gates, their configuration and troubleshooting techniques. Microprocessor labs are centered around the INTEL SDK-85 Microprocessor board. Recognition of key processor signals from a troubleshooting perspective is emphasized.

ELMT 263 EM Digital Devices and Systems Theory 6 credits. A course of study on the theory, application troubleshooting techniques of solid-state devices used in logic-controlled systems. These principles are applicable to microprocessors and industrial measurement/control processes. This will include: computers peripheral devices, interfacing, (Robotic Arms), machine language, and A/D-A conversion methods.

ELMT 264 EM Digital Devices and Systems Laboratory 6 credits. A hands-on experience in the application and troubleshooting of the devices, circuits, and systems studied in ELMT 263. Student projects will be given and will include at least the following areas: research, prototyping, operating unit, with oral presentations and written documentation. Results of circuit and system testing and troubleshooting will be maintained in written log form.

ELTR 269 Electronic Drafting 1 2 credits. Drawing fundamentals, orthographic and isometric drawings, and development of basic wire drawings.

ELMT 271 EM Analog Devices and Systems Theory 6 credits. An integrated study of electronics and electromechanical devices and their interrelationships in complex automated systems. Topics discussed will be: semiconductor devices, transducers, electromagnetic devices, mechanical devices and systems such as control, servo, robotic and electromechanical.
Electronic RF/Telcom Technology

4½ Semester Program

Program Coordinator and Instructor: Parker
Instructors: Fitzen, Davidson, Georgeson, McQuery, Norton, Womack

One Associate of Applied Science Degree and one Bachelor of Applied Technology degree in Electronic RF/Telcom Technology are available.

Associate of Applied Science Degree in Electronic RF/ Telcom Technology

(4½ Semesters)

Required Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELTR 100</td>
<td>Technical General Education</td>
<td>16 cr</td>
</tr>
<tr>
<td>ELTR 141</td>
<td>Applied Mathematics I</td>
<td>4 cr</td>
</tr>
</tbody>
</table>

Program length will vary depending on student's academic qualifications at time of acceptance.

The courses listed above will be taught in sequential blocks of instruction. Successful completion of a course is required before the student can progress in the program. If the student fails any math, theory, or lab course, then that course must be repeated and a passing grade obtained before the student can advance in the program. The student must exit the program and make up their deficiency through Technical General Education or other appropriate methods. The student will then be allowed to repeat the course at the next available program opening.

Courses

Official articulation agreements have been established with other post-secondary and secondary schools. Where these agreements exist, the specific block of training (i.e. session/semester/year) will be accepted as equivalent to that at ISU and will count equally toward graduation.

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for ELTR 100, and will not be required to attend the initial semester.

Based on your keyboarding skills, you may be required to take a 1 credit Keyboarding class in order to meet the competencies of the program.

ELTR 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

ELTR 109 Electronic Terminology I credit.

The study of basic electronic theory vocabulary. This course is to be taken in conjunction with ENGL 101, the first eight weeks of the semester. It is designed for those students who will opt to pursue a Bachelor of Applied Technology degree after earning an Associate of Applied Science degree.

ELTR 110 Electronic Terminology II credit.

The study of basic electronic theory vocabulary. This course is to be taken in conjunction with ENGL 101, the second eight weeks of the semester. It is designed for those students who will opt to pursue a Bachelor of Applied Technology degree after earning an Associate of Applied Science degree.

ELTR 140 Directed Study AC-DC/LCR 1-16 credits. Condensed coverage of basic electronics theory and laboratory and associated mathematics. Accelerated equivalent of ELTR 141, ELTR 143, ELTR 145. For those who have prior knowledge of basic electronics.

ELTR 141 Applied Mathematics I 4 credits.

Basic math as it applies to electronics; includes algebraic and trigonometric topics as they relate to DC and AC (sine wave) circuit analysis.

ELTR 142 Applied Mathematics II 4 credits.

Continuation of ELTR 141. Selected algebraic and trigonometric topics as related to DC and AC (sine wave) circuit analysis with special emphasis on trigonometric solution and vector analysis.

ELTR 143 Electronic Theory 5 credits.

Basic electrical fundamentals, direct and alternating current circuits, LCR networks, electrical circuit components, meter circuits and test equipment.

ELTR 144 Electron Control Devices Theory A 5 credits.

Comprehensive study and practical application of semiconductors, power supplies, transistor amplifiers, oscillators, operational amplifiers and test equipment.

ELTR 145 Electronic Laboratory 5 credits.

Experiments involving subjects covered in ELTR 143. Student will construct experimental circuits upon which tests and measurements will be made to attain specified objectives.

ELTR 146 Electron Control Devices Laboratory A 5 credits. Practical applications of the topics covered in ELTR 144.
ELTR 147 Applied Science 4 credits. Study of matter and energy relationships pertaining to motion, mechanics, heat, light, sound, electricity, magnetism and atomic energy. PREREQ: ELTR 141 or Equivalent. This class will be substituted by PHYS 100.

ELTR 161 Digital/Microprocessor Systems Theory 5 credits. A basic study of electronic logic devices and circuits. Includes a study of Boolean Algebra, basic logic circuits, digital registers and counters and basic timing circuitry. An introduction to the basic architecture of the INTEL 8085 (8-bit) microprocessor. A brief introduction to assembly language programming.

ELTR 162 Digital/Microprocessor Systems Application 5 credits. This is a practical application of the theory class. Individual labs provide experience with basic logic gates, their configuration and troubleshooting techniques. Microprocessor labs are centered around the INTEL SDK-85 Microprocessor board. Recognition of key processors from troubleshooting perspective is emphasized.

ELTR 269 Electronic Drafting 1-2 credits. Drawing fundamentals, orthographic and isometric drawings, and development of basic wire drawings.

ERFT 211 Radio Frequency/Telecommunications Systems I 7 credits. Is to address the specific needs of the individuals theoretical study of radio frequency/telecommunications circuits, RF wideband and narrow band amplifiers, electronic switching/programming and digital data communications systems that utilize laboratory information from ERFT 212. RF/telecommunications test equipment, radio frequency generation, reception, amplification, modulation, and radiation at appropriate intervals through the HF, VHF, UHF and SHF radio frequency spectrum. Class to be taken concurrently with ERFT 212 Radio Frequency/Telecommunications Laboratory I.

ERFT 212 Radio Frequency/Telecommunications Laboratory I 17 credits. Is a practical application of radio frequency/telecommunications circuits, RF wideband and narrow band amplifiers, electronic switching/programming and digital data communications systems that utilize theory studied in ERFT 211. RF/telecommunication test equipment, radio frequency generation, reception, amplification, modulation and radiation at appropriate intervals through the HF, VHF, UHF and SHF radio frequency spectrum. Class to be taken concurrently with ERFT 212 Radio Frequency/Telecommunications Laboratory I.

ERFT 221 Radio Frequency/Telecommunications Systems II 6 credits. Is a theoretical application of radio frequency/telecommunications circuits, electronic switching/programming and digital data communications utilizing laboratory experiments developed in ERFT 222. RF/telecommunication test equipment, mobile telephone carrier fundamentals, repeater systems, fiber optic principles, microwave, antennas, and transmission line systems concepts are emphasized. To be taken concurrently with ERFT 222 Radio Frequency/Telecommunications Laboratory II.

ERFT 222 Radio Frequency/Telecommunications Laboratory II 3 credits. Is a practical application of radio frequency/telecommunications utilizing ERFT 221 Radio Frequency/Telecommunications Systems II. RF/Telecommunication test equipment, mobile telephone carrier fundamentals, repeater systems, fiber optic principles, microwave, antennas, and transmission line systems concepts are emphasized. To be taken first 8 weeks of semester concurrently with ERFT 221 Radio Frequency/Telecommunications Systems II.

ERFT 223 Radio Frequency/Telecommunications Laboratory III 3 credits. Continuation of ERFT 222, second 8 weeks of semester, for those not enrolled in ERFT 289 Coop.

ERFT 289 Coop 1-4 credits (variable). Students pursue on the job training in the electronic information systems industry which satisfies competencies in lieu of radio frequency/telecommunications lab. A Coop agreement must be signed by all parties involved, i.e. student, instructor, employer.

ERFT 290 Internship 1-8 credits (variable). On-the-job placement providing work experience for students pursuing careers in radio frequency and/or telecommunications technology. Permission of the instructor is required.

ERFT 294 Directed Studies 1-8 credits (variable). Study tailored to individual assignment and reporting under faculty guidance; permission of instructor required. Students will pursue a unit of activity related to the radio frequency/telecommunications technology field.

ERFT 299 Special Topics 1-8 credits (variable). Addresses specific needs of individuals. Will enable the students to upgrade their technical skills. Addresses specific needs of individuals. Permission of the instructor is required.

TGE 152 Technical Writing II 2 credits. Course provides instruction in informal technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology/vocabulary building. Meets general education requirement for A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.

TGE 156 Applied Business Principles 2 credits. The course provides students with an overview of economic principles related to technical courses of study.

TGE 158 Applied Job Search 2 credits. Course provides techniques and development of employment process skills. Includes instruction in resume/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

TGE 160 Applied Human Relations 2 credits. Course studies the theory of personal behavior in an organizational environment with emphasis on communications, motivation, leadership and personal attitude. Meets general education requirement for the A.A.S. degree.

TGE 162 Keyboarding 1 credit. The course enables the student to type at a basic level with a minimum of time. Completion should improve students' skills in typing.

Electronic Systems Technology

6 Semester Program

Instructors: Davidson, Durschi, Fitzen, Georgeson, McArthur, McQuery, Norton, Rasmussen, Vitteteoe, Womak

One Associate of Applied Science Degree, and one Bachelor of Applied Technology degree in Electronic Systems Technology are available. All theory classes and laboratory application classes of these theories require concurrent enrollment.

Associate of Applied Science Degree in Electronic Systems Technology

(6 Semesters)

Required courses:

ELTR 100 General Education 16 cr
ELTR 141 Applied Mathematics I 4 cr
Courses

Official articulation agreements have been established with other Idaho post-secondary and secondary schools. Where these agreements exist, the specific block of training (i.e., session/semester/year) will be accepted as equivalent to that at ISU and will count equally toward graduation.

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for ELTR 100, and will not be required to attend the initial semester.

Based on your keyboarding skills, you may be required to take a 1 credit Keyboarding class in order to meet the competencies of the program.

ELTR 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and applications of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

ELTR 109 Electronic Terminology 1 credits. The study of basic electronic theory vocabulary. This course is to be taken in conjunction with ENGL 101, their first eight weeks of the semester. It is designed for those students who will opt to pursue a Bachelor of Applied Technology degree after earning an Associate of Applied Science degree.

ELTR 110 Electronic Terminology 1 credit. The study of basic electronic theory vocabulary. This course is to be taken in conjunction with ENGL 101, the second eight weeks of the semester. It is designed for those students who will opt to pursue a Bachelor of Applied Technology degree after earning an Associate of Applied Science degree.

ELTR 140 Directed Study AC-DC/LCR 8 credits. Condensed coverage of basic electronics theory and laboratory and associated mathematics. Accelerated equivalent of ELTR 141, ELTR 143, ELTR 145. For those who have prior knowledge of basic electronics.

ELTR 141 Applied Mathematics I 4 credits. Basic math as it applies to electronics; includes algebraic and trigonometric topics as they relate to DC and AC (sine wave) circuit analysis.

ELTR 142 Algebra and Trigonometry II 4 credits. Continuation of ELTR 141. Selected algebraic and trigonometric topics as related to DC and AC (sine wave) circuit analysis with special emphasis on trigonometric solution and vector analysis.

ELTR 143 Electronic Theory 5 credits. Basic electrical fundamentals, direct and alternating current circuits, LCR networks, electrical circuit components, meter circuits and test equipment.

ELTR 144 Electronic Control Devices Theory A 5 credits. Comprehensive study and practical application of semiconductors, power supplies, transistor amplifiers, oscillators, operational amplifiers and test equipment.

ELTR 145 Electronic Laboratory 5 credits. Experiments involving subjects covered in ELTR 143. Student will construct experimental circuits upon which tests and measurements will be made to attain specified objectives.

ELTR 146 Electronic Control Devices Laboratory A 5 credits. Practical applications of the topics covered in ELTR 144.

ELTR 147 Applied Science 4 credits. Study of matter and energy relationships pertaining to motion, mechanics, heat, light, sound electricity and magnetism and atomic energy. PREREQ: ELTR 141 or Equivalent. This class will be substituted by PHYS 100.

ELTR 269 Electronic Drafting I 2 credits. Drawing fundamentals, orthographic and isometric drawings, and development of basic wire drawings.

ELSY 252 Systems Analog/Digital Theory 7 credits. Study of basic electronics theory and laboratory and associated mathematics. Accelerated equivalent of ELTR 141, 144, and 146 or 151, 155, and 159 with a 2.5 GPA or permission of instructor.

ELSY 253 Systems Analog/Digital Laboratory 5 credits. Emphasizes understanding of Analog and digital circuitry by allowing students to design, construct, test and troubleshoot using proper test equipment. PREREQ: ELTR 146 or 159 and concurrent enrollment in ELSY 261 and 252.

ELTR 256 Internship 1-8 credits (variable). On-the-job placement providing work experience for persons pursuing careers in electronics technology. Permission of the instructor is required.

ELTR 257 Directed Studies 1-8 credits (variable). Individual work under faculty guidance.

ELSY 261 Introductory Calculus 4 credits. Correlations of algebraic, trigonometric, and geometric topics, graphs and functions. Introduction to basic calculus concepts and operations, providing analytical math tools for the analysis and understanding of physical phenomena. PREREQ: ELTR 142 or equivalent and 2.5 GPA.

ELSY 262 Calculus For Intermediate Electronics 4 credits. Studies include logarithms and their applications such as decibels and impedances; high frequency sine wave analysis techniques associated with RF circuit analysis; and algebraic calculus concepts and operation involving differentiation and integration. PREREQ: ELSY 261 or equivalent.

ELSY 267 Radio Frequency Transmission Theory 7 credits. Theory, analysis, and design of devices operating in the radio frequency spectrum. Fundamentals involving the phenomena of radio waves from audio frequencies through light rays.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description and Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELSY 268</td>
<td>Radio Frequency Transmission Laboratory</td>
<td>5 credits</td>
<td>Maintenance, design, and adjustment of RF oscillators, amplifiers, AM, FM and single sideband, mobile and fixed station transmitters; transmission lines and antennas; microwave transmitters and measurement techniques.</td>
</tr>
<tr>
<td>ELSY 270</td>
<td>Electronic Drafting II</td>
<td>2 credits</td>
<td>Continuation of ELSY 269 with emphasis on orthographic and pictorial presentation. Use of computer graphics will also be presented.</td>
</tr>
<tr>
<td>ELSY 299</td>
<td>Special Topics (variable) I-8 credits</td>
<td></td>
<td>Addresses the specific needs of individuals, enabling students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.</td>
</tr>
<tr>
<td>ELSY 332</td>
<td>Laser Systems/Optics Laboratory</td>
<td>4 credits</td>
<td>Practical application of theory and analysis in analyzing laser/optics systems.</td>
</tr>
<tr>
<td>ELSY 371</td>
<td>Advanced Math for Electronics</td>
<td>4 credits</td>
<td>The study of computer programming languages at the machine level, assembler level, and high level, a standard operating system, UNIX, translation of numbers between number systems.</td>
</tr>
<tr>
<td>ELSY 372</td>
<td>Calculus for Advanced Electronics</td>
<td>4 credits</td>
<td>Algebraic, trigonometric, logarithmic and exponential functions, derivatives and integrals with electronic and other physical applications. Also included McClaurin’s, Taylor’s and Fourier’s series and introduction to differential equations. Supports ELSY 374. PREREQ: ELSY 262.</td>
</tr>
<tr>
<td>ELSY 373</td>
<td>Advanced Digital Theory</td>
<td>5 credits</td>
<td>A study of microcomputer operation, programming, interfacing to digital and analog systems, and troubleshooting. Memory and storage systems. System microcontroller integration using a software development system.</td>
</tr>
<tr>
<td>ELSY 374</td>
<td>Advanced Pulse Theory</td>
<td>5 credits</td>
<td>A study of analog/digital circuits used in the video studio, integrated circuit testers and computer systems. Introduction and analysis of a television studio system, modules, and individual analog/digital circuits will be covered. Practical application of circuits used in conjunction with Advanced Pulse Laboratory (ELSY 376). Discussion, lectures, classroom and lab demonstrations are used to help the student gain knowledge and troubleshoot equipment in large system.</td>
</tr>
<tr>
<td>ELSY 375</td>
<td>Advanced Digital Laboratory</td>
<td>5 credits</td>
<td>Practical application of topics covered in ELSY 371 and 373 while building, programming, and troubleshooting microprocessor and microcontroller based systems.</td>
</tr>
<tr>
<td>ELSY 376</td>
<td>Advanced Pulse Laboratory</td>
<td>5 credits</td>
<td>Practical equipment and systems application of analog/digital circuits used in conjunction with Advanced Pulse Theory (ELSY 374). Operation of the lab is by an exploratory method with guides furnished by the instructor. Test results of these explorations will be maintained in written log form and will be presented in verbal form to other student technicians. One major student project is accomplished during the semester, evaluation, troubleshooting, and integration into the existing video studio or, integrated circuit tester or, computer systems. The student must give an oral and written presentation on the project.</td>
</tr>
<tr>
<td>ELSY 384</td>
<td>Advanced Laser Systems/Optics Laboratory</td>
<td>3 credits</td>
<td>Practical application of advanced theory and analysis in analyzing laser/optics systems. PREREQ: ELSY 331, ELSY 332.</td>
</tr>
<tr>
<td>TGE 151</td>
<td>Applied Technical Writing</td>
<td>2 credits</td>
<td>Course provides instruction in informal technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology/vocabulary building. Meets general education requirement for A.A.S. degree.</td>
</tr>
<tr>
<td>TGE 152</td>
<td>Applied Technical Writing</td>
<td>2 credits</td>
<td>Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.</td>
</tr>
<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking</td>
<td>2 credits</td>
<td>Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.</td>
</tr>
<tr>
<td>TGE 156</td>
<td>Business Principles</td>
<td>2 credits</td>
<td>The course provides students with an overview of economic principles related to technical courses of study.</td>
</tr>
<tr>
<td>TGE 158</td>
<td>Applied Job Search</td>
<td>2 credits</td>
<td>Course provides techniques and development of employment process skills. Includes instruction in résumé/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.</td>
</tr>
<tr>
<td>TGE 160</td>
<td>Human Relations</td>
<td>2 credits</td>
<td>Course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership and personal attitude. Meets general education requirement for the A.A.S. degree.</td>
</tr>
<tr>
<td>TGE 162</td>
<td>Keyboarding</td>
<td>1 credit</td>
<td>The course enables the development of basic touch keyboarding skill in a minimum of time. Completion should prepare students to (a) input alphabetic, numeric, and symbol information quickly and accurately and (b) understand basic vocabulary and concepts used in keyboarding operations when entering and retrieving information.</td>
</tr>
</tbody>
</table>

**Farm Business Management**

**5 Month Option**

The following courses are required for a certificate of completion:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBM 175</td>
<td>Farm Business Records I</td>
<td>2 cr</td>
</tr>
<tr>
<td>FBM 176</td>
<td>Farm Business Records II</td>
<td>3 cr</td>
</tr>
<tr>
<td>FBM 177</td>
<td>Farm Business Analysis I</td>
<td>2 cr</td>
</tr>
<tr>
<td>FBM 178</td>
<td>Farm Business Analysis II</td>
<td>3 cr</td>
</tr>
<tr>
<td>FBM 281</td>
<td>Farm Business Organization I</td>
<td>2 cr</td>
</tr>
<tr>
<td>FBM 282</td>
<td>Farm Business Organization II</td>
<td>3 cr</td>
</tr>
<tr>
<td>TOTAL:</td>
<td></td>
<td>15 cr</td>
</tr>
</tbody>
</table>

**15 Month Option**

The following courses are required for a Graduate Seminar certificate:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBM 283</td>
<td>Farm Business Organization III</td>
<td>2 cr</td>
</tr>
<tr>
<td>FBM 284</td>
<td>Farm Business Organization IV</td>
<td>3 cr</td>
</tr>
</tbody>
</table>
Courses

FBM 175 Farm Business Records I 2 credits.
Covers a systematic approach to keeping accurate farm records by enterprise on the farm. This course offers the opportunity to place these records on a microcomputer for general farm use. Includes seminar modules of farm accounting procedures, account structure, enterprise accounting, audit trails, etc.; balance sheet and income statement; tax records; and crop records.

FBM 176 Farm Business Records II 3 credits.
Continues work begun in FBM 175. New seminar modules include livestock records, written communications, word processing, and decision making. PREREQ: FBM 175.

FBM 177 Farm Business Analysis I 2 credits.
Covers a study of records kept by enterprise in the preceding and current year. Analyzes students finances and evaluates current management strengths and weaknesses and develops alternatives to current agricultural practices if the need arises. Seminar modules include business law, electronic spreadsheets, micro-economics, and macroeconomics. PREREQ: FBM 175 and 176.

FBM 178 Farm Business Analysis II 3 credits.
Continues work begun in FBM 177. New seminar modules introduced are financial ratio analysis, strategic planning and goal setting, cash flow budgeting and depreciation. PREREQ: FBM 177.

FBM 281 Farm Business Organization I 2 credits.
Covers an analysis and evaluation of the previous two year’s records and the current year’s records. Students work with partial budgets, risk-taking opportunities, and preparation of various financial statements. Seminar modules include time value of money, insurance, forecasting procedures, and lease or buy decisions. PREREQ: FBM 178.

FBM 282 Farm Business Organization II 3 credits.
Continues work begun in FBM 281. New seminar modules include supervision and motivation; futures, hedging, and options; using credit; and machinery and equipment management. PREREQ: FBM 281.

FBM 283 Farm Business Organization III 2 credits.
Covers accounting concepts of tax depreciation and the lease vs. buy decision. Addresses the application of labor law, OSHA, and estate planning to agriculture. Develops geometry math skill for evaluations of field sizes, and grain bin and potato storage capacities.

FBM 284 Farm Business Organization IV 3 credits.
Covers accounting concept of the Statement of Change in Owner’s Position, economic principles of macro- and micro-economics, and financial principles involved in non-farm investments. Management concepts including time management, stress management, first aid, and fertilizers are presented. Legal issues including employee substance abuse, worker’s compensation laws, and bankruptcy are addressed. Two case studies complement the lecture topics.

Fire Service Technology

Contact: Margaret Phelps

One Associate of Applied Science degree which requires 68 credits is available.

Students must be registered at ISU to apply for graduation.

The Fire Service Technology program is designed to upgrade the fire fighting skills and knowledge of volunteer and paid fire fighters. In some instances a volunteer fire fighter may use this degree as a means to enter the fire service as a paid professional. The program covers all phases of fire fighting. The intent is to provide fire fighters with the skills needed to save lives and protect property in a safe and efficient manner. Special fees apply to this program.

In order to apply for this program you must currently be employed in the fire fighting profession.

The following courses are required for an Associate of Applied Science degree in Fire Service Technology:

Technical Coursework

FBT 100 Orientation I, II, & III 4 cr
FBT 101 Ladders I & II 1 cr
FBT 102 Hose I & II 2 cr
FBT 103 Fire Streams I & II 2 cr
FBT 104 Forcible Entry I & II 2 cr
FBT 105 Ventilation I & II 1 cr
FBT 106 SCBA I, II, & III 3 cr
FBT 107 Salvage & Overhaul I & II 1 cr
FBT 108 First Aid I, II, & III 2 cr
FBT 109 Safety I, II, & III 3 cr
FBT 110 Water Supplies I & II 2 cr
FBT 111 Building Construction I & II 2 cr
FBT 112 Fire Prevention I & II 3 cr
FBT 113 Hazardous Materials I & II 2 cr
FBT 114 Rescue I & II 2 cr
FBT 115 Fire Cause Determination 2 cr
FBT 116 Fire Ground Management 2 cr
FBT 117 Practicum 10 cr

Technical Support Coursework

FBT 118 Fundamentals of Fire 2 cr
Chemistry I & II 4 cr
FBT 119 Fundamentals of Fire I & II 4 cr
Physics I & II 4 cr

General Education Requirements*

English Composition 3 cr
Communications 3 cr

Courses

FST 100 Orientation I, II, & III 4 credits. The purpose, objectives, and scope of Idaho’s Certification program is covered in this course. Organization charts; primary functions of state and national fire service organizations; local department public relations programs; and the cleaning, maintenance, costs and degree of protection of the fire fighters protective clothing and other equipments is a part of the instruction received in this course. In addition, issues involving the fire service on a national level are covered. This course also deals with the student’s opinion, interpretation, and ability to express thoughts into writing often in regard to issues involving the student’s local fire jurisdiction. The student will be able to gain a better understanding of the many facts of the fire service on a national level, how they influence his local jurisdiction, and some of the contemporary issues being addressed by the fire service today.

FST 101 Ladders I & II 1 credit. All types of ladders used in the fire service, their parts and their uses will be covered in this course. Ladder raises, ladder carries, materials used in ladder construction, ladder inspection, care maintenance, and testing are also topics of instruction in this course.

FST 102 Hose I & II 2 credits. All types, sizes, and uses of hoses are covered in this course including the use of nozzles-their attachment to hoses and the advancing of charged dry lines. Inspection, maintenance, cleaning, rolling, and carrying of hose are other topics of instruction within the course.

FST 103 Fire Streams I & II 2 credits. This course will cover different types of fire streams, the characteristics of good fire streams and the proper fire streams to be used for different types of fires. It will also provide instruction in the operations of common foam-making devices, and the use of different foams. Identification of nozzles and tips according to type, design, nozzle pressure, and flow in GPM for proper operation of each is part of this course instruction.

FST 104 Forcible Entry I & II 2 credits. This course provides the necessary knowledge and practical skills applications needed to perform the following forcible entry operations: forcing doors; opening walls and ceilings; opening roofs; and opening floors.

FST 105 Ventilation I & II 1 credit. This course is designed to instruct the student in the use of hand and power tools as they apply to ventilation and forcible entry, and will instruct the student in breaking and clearing windows, forcing windows, breaking walls, proper ventilation methods, and prevention of backdraft and safety precautions to be taken during ventilation.

*Consult the School of Applied Technology for specific offerings

*General Education Requirements*
FST 106 SCBA I, II, & III 3 credits. The course is designed to instruct the fire fighter student in the operational functions of self-contained breathing apparatus (SCBA) and the methods of maintaining it and putting it on. Proper methods for charging air cylinders and the limitations and degree of protection by SCBA is also covered in the course. Many exercises in this course emphasize practical use of the equipment in a variety of simulated fireground situations.

FST 107 Salvage & Overhaul I & II 1 credit. This course will demonstrate the construction and use of a water chute and a water catchall, explain different methods of routing water and its significance before and during fires. The course also includes instruction on target hazards, congestion, local disaster plans and the process of location and notifying agencies. This course also covers recognizing and identifying hazardous materials and to utilize an incident command type system in a hazardous materials incident.

FST 108 First Aid I, II, & III 2 credits. The fire fighter student in this course will receive instruction leading to certification in General First Aid and CPR. Instruction will also be given in the “Heimlich” maneuver, triage, identifying and treating burns, controlling bleeding, applying dressing and bandages, and identifying and treating poisoning.

FST 109 Safety I, II & III 3 credits. This course covers important aspects of safety on the fireground and around the station. It is designed to provide the student with a working knowledge of the following: accident control concepts; safety programs; safe use of facilities; personal protective equipment; safety in training; en route hazards; the emergency scene; special hazards; and inspection safety. This course also examines significant areas of fire fighter fatalities and injuries associated with emergency and non-emergency situations. It addresses causes of fatalities and injuries and recommended solutions and implementation methods. This course also focuses on the problem of fire fighter health and safety and design and implementation of a departmental safety program. Command issues, policies, and programs addressing fire fighter health and safety in emergency situations are examined.

FST 110 Water Supplies I & II 3 credits. In this course, the student will learn to identify properties of water, sources of water supply, parts of a water distribution system, types of hydrants, different types of pressure, and types of water main valves. Instruction will be given in inspecting a fire hydrant, reading and recording flow pressures and determining quantity of water from the openings, identifying water main sizes for residential, business, and industrial districts and identifying causes of increased resistance with water flowing in water mains are topics of instruction.

FST 111 Building Construction I & II 2 credits. This course is designed to provide the student with a thorough background in building construction principles as they relate to firefighting. Included are general construction principles, wood and ordinary construction, mill construction, concrete and steel construction. Concepts of “fire proof” and fire resistance are also covered.

FST 112 Fire Prevention I & II 3 credits. The student will be taught to write inspection reports for multiple-residential, commercial-retail, and service station occupancies demonstrating a knowledge in the following areas: codes and features; public relations; inspection techniques; enforcement procedures; plan checking and public education methods and programs.

FST 113 Hazardous Materials I & II 3 credits. This course is designed to give the fire fighter student information on target hazards, congestion, local disaster plans and the process of location and notifying agencies. This course also covers recognizing and identifying hazardous materials and to utilize an incident command type system in a hazardous materials incident.

FST 114 Rescue I & II 2 credits. This course is designed to instruct the student in the use of ropes in a wide variety of applications, in the use of backboards and stretchers, victim lifts, carries and drags, and in methods for searching for victims in buildings.

FST 115 Fire Cause Determination 2 credits. This course is designed to prepare the student with the knowledge and skills needed in order to correctly determine fire causes, including: the fire department’s responsibility; the fire company’s role; fire behavior; finding the point of origin and determining the cause; fire setters; preserving and documenting evidence for the investigator and courtroom testimony.

FST 116 Fire Ground Management 2 credits. The assuming of command of operation in a fire situation is the main subject of this course, dealing with the specific performances of sizing up, positioning of vehicle equipment and personnel, determining point of attack, type of lay or lays required, type and size of hose and nozzles to be used, and the supervision of personnel in accomplishing forcible entry, rescue and other fire suppression activities.

FST 117 Practicum 10 credits. Students must complete 300 instructional hours worth of course (in addition to those prescribed in the certification program) which may include any National Fire Academy resident or field programs and/or any combination of state or federally sponsored fire classes, course or schools—except those already used for credit toward completion of previous courses in the certification program. Students may use courses that they have attended prior to or any time during enrollment in the certification program. Copies of all course certificates must be on file at the fire department.

FST 118 Fundamentals of Fire Math I & II 2 credits. This course teaches a basic understanding of the fundamental math process, fractions, decimal fractions, measurements and weights, percentages and graphs, ratio, proportion, powers and roots.

FST 119 Fundamentals of Fire Chemistry I & II 4 credits. This course includes: the foundations of chemistry and chemical principles; language of science; chemical world and some of its reactions; physical forces caused by fire and the reactions that take place; heat of fires and its significance before and during fires. The fire fighter student will demonstrate a basic understanding of: the properties of solids and their importance in fire science; common flammable and combustible liquids and gases; flames and fire extinguishment; gas to halon extinguishing agents; fire classification and water to foam agents.

FST 120 Fundamentals of Fire Physics I & II 4 credits. This course includes: the characteristics of matter; motion and force; work and machines; liquids; characteristics of gases; combustion and heat; magnetism; electricity; atomic energy and radiation. This course also includes basic principles and concepts of physical science in: measurement; physical description; applied geometry; matter; mechanical properties of solids; fluids; force and acceleration; static equilibrium; energy and power; friction; simple machines; hydraulic and pneumatic principles; fluid in motion; waves; heat and temperature; heat transfer; heat engines; electricity; magnetism and alternating currents.

Graphic Arts/Printing Technology

4 Semester Program Options

Program Coordinator and Instructor: Isle
Instructor: Hawk
Two Associate of Applied Science degrees and one Bachelor of Applied Technology Degree are available.

Associate of Applied Science Degree in Graphic Arts-Electronic Imaging

(4 Semesters)

Required courses:

- GART 100 Technical General Education 1-16 cr
- GART 121 Introduction to Printing 2 cr
- GART 122 Image Assembly 2 cr
- GART 123 Reproduction Photography 6 cr
- GART 124 Finishing Binding 1 cr
- GART 100 Technical Printing Mathematics 2 cr
for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

GART 121 Introduction To Printing 2 credits. This course will introduce the student that has little or no prior experience to the graphic arts industry. It will introduce students to the procedures and processes that are required to produce a printed job from start to finish.

GART 122 Image Assembly/Reproduction Photography I 6 credits. This course is designed to enable the student to become proficient in the process of precisely positioning and fastening one or more film negatives onto a masking sheet so the film images can be exposed in the desired position on the offset plate for single and multicolor close register printing. The student will also become proficient in the areas of camera and darkroom procedures for the production of line and halftone materials used in the offset printing processes.

GART 123 Finishing Binding 1 credit. This course will introduce the student to the binding and finishing operations that are necessary to prepare the printed job for final delivery. This will include cutting the paper before and after printing, folding, creasing, slitting, scoring, binding and other finishing operations.

GART 124 Printing Mathematics 2 credits. This course applies basic mathematics related to the graphic arts industry. This includes addition, subtraction, multiplication, division, fractions, percentages and appropriate conversions used in the graphic arts industry.

GART 126 Image Assembly/Reproduction Photography II 7 credits. This course is a continuation of Image Assembly/Reproduction Photography I. The students will be introduced to more complex multicolor image assembly operations. The students will be introduced to more complex darkroom procedures including the production of spreads and chokes.

GART 127 Press Operation I 5 credits. This course is designed to train the student who has had little or no experience in offset press operation. At the completion of this course the student will be able to produce single color printed material on small offset presses.

GART 128 Press Operation II 7 credits. This course is a continuation of Press Operation I, providing the student training in more complex, small offset press work. The student will produce multicolor printing requiring close register.

GART 129 Electronic Imaging 6 credits. This course will introduce the student to basic computer operation. The student will become proficient in the basic operation of desktop publishing equipment.

GART 130 Electronic Imaging II 7 credits. This course is designed to enable the student to produce camera-ready typeset jobs utilizing computerized typesetting and desktop publishing equipment.

GART 131 Advanced Press Operation 6 credits. This course is designed to train the student in the operation of larger sheet-fed offset presses. The student will produce single and multicolor close register printing on larger format presses.

GART 132 Advanced Electronic Prepree 6 credits. This course is designed to give the student more advanced training by utilizing more complex desktop publishing and electronic applications.

GART 135 Graphic Arts Production & Credits. This is the final course for students who are working towards an Associate of Applied Science degree in the Graphic Arts/Printing program. This course will enable students to utilize technical skills and knowledge acquired during the previous courses completed throughout the program by completing production jobs including electronic imaging, image assembly and reproduction photography, offset presswork and bindery operations. The student will also be exposed to job estimating and pricing as well as the ordering of paper and supplies. OR students may choose to complete 8 weeks of supervised occupational work experience in the Graphic Arts/Printing industry.

GART 299 Special Topics 1-8 credits. This course is designed to address the specific needs of individuals. It will enable the students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.

TGE 151 Applied Technical Writing I 2 credits. Course provides instruction in formal technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology/vocabulary building. Meets general education requirement for A.A.S. degree.

TGE 152 Technical Writing II 2 credits. Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.

TGE 156 Applied Business Principles 2 credits. The course provides students with an overview of economic principles related to technical courses of study. Meets general education requirement for the A.A.S. degree.

TGE 158 Applied Job Search 2 credits. Course provides techniques and development of employment process skills. Includes instruction in resume/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

Courses

Students who demonstrate adequate academic skill to succeed in the occupational-content courses of the program will be given an “S” grade for GART 100 and will not be required to attend the initial session.

Based on your keyboarding skills, you may be required to take a 1 credit Keyboarding class in order to meet the competencies of the program.

ELTR 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also,
Health Information Technology
Coordinator/Instructor: Young
Instructor: Griffin

The program is accredited by the Commission on Accreditation of Allied Health Educational Programs in conjunction with the American Health Information Management Association’s Council on Accreditation. Graduates of the program are eligible to write the national certification examination for the Accredited Record Technician (ART).

One Associate of Applied Science degree and one Bachelor of Applied Technology degree are available.

Associate of Applied Science Degree in Health Information Technology

(6 Semesters)

Required Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIT 100</td>
<td>1-16 cr</td>
</tr>
<tr>
<td>HIT 105</td>
<td>Introduction to Health Information</td>
</tr>
<tr>
<td>HIT 201</td>
<td>Supervised Professional Practice I</td>
</tr>
<tr>
<td>HIT 202</td>
<td>Documentation, Storage, and Retrieval of Health Information</td>
</tr>
<tr>
<td>HIT 203</td>
<td>Health Statistics and Quality Improvement</td>
</tr>
<tr>
<td>HIT 204</td>
<td>Management Principles for Health Information Professionals</td>
</tr>
<tr>
<td>HIT 206</td>
<td>Computers in Health Information</td>
</tr>
<tr>
<td>HIT 207</td>
<td>Supervised Professional Practice II</td>
</tr>
<tr>
<td>HO 105</td>
<td>Introduction to Allied Health Careers</td>
</tr>
<tr>
<td>HO 106</td>
<td>Medical Terminology</td>
</tr>
<tr>
<td>HO 107</td>
<td>Medical Law and Ethics</td>
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<tr>
<td>HO 201</td>
<td>ICD Coding Laboratory</td>
</tr>
</tbody>
</table>

Elective Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 201</td>
<td>Principles of Accounting I</td>
</tr>
<tr>
<td>ACCT 202</td>
<td>Principles of Accounting II</td>
</tr>
<tr>
<td>ANTH 108</td>
<td>Spanish for Health Care Professionals</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>ENGL 307</td>
<td>Professional Writing</td>
</tr>
<tr>
<td>FIN 315</td>
<td>Corporate Financial Management</td>
</tr>
<tr>
<td>FIN 478</td>
<td>Investments</td>
</tr>
<tr>
<td>HCA 350</td>
<td>Organizational Behavior in Health Care</td>
</tr>
<tr>
<td>HCA 375</td>
<td>Health Care Law</td>
</tr>
<tr>
<td>HCA 383</td>
<td>Epidemiology</td>
</tr>
<tr>
<td>HCA 384</td>
<td>Human Resource Management in Health Care</td>
</tr>
<tr>
<td>HCA 451</td>
<td>Hospital Management</td>
</tr>
<tr>
<td>HCA 452</td>
<td>Long-term Care Management</td>
</tr>
<tr>
<td>HCA 453</td>
<td>Health Care Finance</td>
</tr>
<tr>
<td>HCA 455</td>
<td>Health Care Organization Management</td>
</tr>
<tr>
<td>HCA 473</td>
<td>Marketing for Health Care Organizations</td>
</tr>
<tr>
<td>H E 401</td>
<td>Issues in Health and Wellness</td>
</tr>
<tr>
<td>H E 491</td>
<td>Health Education Workshop</td>
</tr>
<tr>
<td>HO 203</td>
<td>Medical Office Procedures</td>
</tr>
<tr>
<td>MANT 121</td>
<td>Essentials of Management</td>
</tr>
<tr>
<td>MANT 241</td>
<td>Human Resource Management</td>
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<tr>
<td>MATH 253</td>
<td>Introduction to Statistics</td>
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<td>MGT 261</td>
<td>Legal Environment of Organizations</td>
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<td>MGT 329</td>
<td>Operations/Production Management</td>
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<tr>
<td>MKTG 325</td>
<td>Basic Marketing Management</td>
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<tr>
<td>OT 118</td>
<td>Business Communications I</td>
</tr>
<tr>
<td>OT 119</td>
<td>Business Communications II</td>
</tr>
<tr>
<td>OT 173</td>
<td>Spreadsheets, Databases, Graphics</td>
</tr>
<tr>
<td>OT 176</td>
<td>Desktop Publishing/Multimedia</td>
</tr>
</tbody>
</table>

Courses

HIT 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

HIT 105 Introduction To Health Information 2 credits. An introduction to Health Information Technology including the functions of a medical records department, the role and responsibilities of the profession, and the importance of the field.

HIT 201 Supervised Professional Practice I 2 credits. Directed clinical practice in various health information sites under the preceptorship of a practicing professional for 4 hours per week for eight weeks. Pass/fail only. PREREQ: ALL FIRST YEAR COURSES MUST BE COMPLETED.

HIT 202 Documentation, Storage, and Retrieval of Health Information 4 credits. Theory, practice and skills in the assembly, analysis, storage, retrieval and the release of health information adhering to external and legal requirements and standards. PREREQ: HIT 105, HO 107.

HIT 203 Health Statistics and Quality Improvement 3 credits. The calculation, calculation and presentation of routine health data in conjunction with the assessment, monitoring, evaluation and improvement of health care. PREREQ: MATH 107, HIT 105, HIT 201, HIT 202.

HIT 204 Management Principles for Health Information Professionals 4 credits. Theory, practice and skills in managing health information and personnel.

HIT 206 Computers in Health Information 3 credits. Health information department and health care facility systems and the computer-based patient record; their functions, capabilities and external regulations. PREREQ: HIT 105, HIT 202.

HIT 207 Supervised Professional Practice II 3 credits. Directed clinical practice in a health information department under the preceptorship of a practicing professional for 40 hours per week for four weeks. PREREQ: ALL COURSES MUST BE COMPLETED. Graded P/NP.

HO 105 Introduction to Allied Health Careers 2 credits. Introduction to allied health careers emphasizing the interrelationships and the team approach to health care.

HO 106 Medical Terminology 2 credits. Body systems approach to theory and application of medical terms including anatomical, pathological, surgical and diagnostic as well as appropriate abbreviations.

HO 107 Medical Law and Ethics 3 credits. Principles and application of law to health care organizations and personnel, standards of care and liability; covers tort, contract and statutory law.

HO 201 ICD Coding Laboratory 2 credits. Practical application ICD Coding utilizing software and actual patient records. PREREQ: In conjunction with HO 202.

HO 202 ICD-9-CM Coding 3 cr. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

HO 207 ICD Coding Laboratory 2 cr. Practical application ICD Coding utilizing software and actual patient records. PREREQ: In conjunction with HO 202.

HO 209 Medical Terminology 2 credits. Body systems approach to theory and application of medical terms including anatomical, pathological, surgical and diagnostic as well as appropriate abbreviations.

HO 210 Medical Law and Ethics 3 credits. Principles and application of law to health care organizations and personnel, standards of care and liability; covers tort, contract and statutory law.
ELTR 142 Applied Mathematics II 4 cr
ELTR 143 Electronic Theory 5 cr
ELTR 144 Electron Control Devices Theory 5 cr
ELTR 145 Electronic Laboratory 5 cr
ELTR 146 Electron Control Devices Laboratory A 5 cr
ELTR 147 Applied Science 4 cr
ELTR 161 Digital/Microprocessor Theory 5 cr
ELTR 162 Digital/Microprocessor Systems Application 5 cr
ELTR 269 Electronic Drafting I 2 cr
INST 281 Electrical Automation Laboratory 5 cr
INST 296 Process Measurement and Control Theory 10 cr
INST 297 Process Measurement and Control Laboratory 5 cr
TGE 151 Applied Technical Writing I 2 cr
TGE 152 Applied Technical Writing II 2 cr
TGE 153 Applied Technical Speaking 2 cr
TGE 156 Applied Business Principles 2 cr
TGE 158 Applied Job Search 2 cr
TGE 160 Applied Human Relations
TOTAL: 100 cr

Associate of Applied Science Degree in Instrumentation Technology

(4½ Semesters)

Required courses:

ELTR 100 Technical General Education 1-16 cr
ELTR 141 Applied Mathematics I 4 cr
ELTR 142 Applied Mathematics II 4 cr
ELTR 143 Electronic Theory 5 cr
ELTR 144 Electron Control Devices Theory 5 cr
ELTR 145 Electronic Laboratory 5 cr
ELTR 146 Electron Control Devices Laboratory A 5 cr
ELTR 147 Applied Science 4 cr
ELTR 161 Digital/Microprocessor Theory 5 cr
ELTR 162 Digital/Microprocessor Systems Application 5 cr
ELTR 269 Electronic Drafting I 2 cr


HO 206 CPT Coding Lab 2 credits. Practical application of CPT Coding utilizing software and actual patient records. PREREQ: In Conjunction with HO 205.

Hospitality Management Technology

(See Marketing and Management Occupations)

Instrumentation Technology

4½ Semester Program

Program Coordinator and Instructor: Snarr
Instructors: Davidson, Fitzen, Georgeson, McQuery, Norton, Womak

One Associate of Applied Science Degree, and one Bachelor of Applied Technology degree in Instrumentation Technology are available. All theory classes and laboratory application classes of these theories require concurrent enrollment.

Official articulation agreements have been established with other post-secondary and secondary schools. Where these agreements exist, the specific block of training (i.e., session/semester/year) will be accepted as equivalent to that taught at ISU and will count equally toward graduation.

The courses listed above will be taught in sequential blocks of instruction. Successful completion of a course is required before the student can progress in the program. If the student fails any math, theory, or lab course, then that course must be repeated and a passing grade obtained before the student can advance in the program. The student must exit the program and make up their deficiency through Technical General Education or other appropriate methods. The student will then be allowed to repeat the course at the next available program opening.

Courses

ELTR 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical reading are stressed.

ELTR 109 Electronic Terminology 1 credit. The study of basic electronic theory vocabulary. This course is to be taken in conjunction with ENGL 101, the first eight week of the semester. It is designed for those students who will opt to pursue a Bachelor of Applied Technology degree after earning an Associate of Applied Science degree.

ELTR 110 Electronic Terminology I 1 credit. The study of basic electronic theory vocabulary. This course is to be taken in conjunction with ENGL 101, the second eight weeks of the semester. It is designed for those students who will opt to pursue a Bachelor of Applied Technology degree after earning an Associate of Applied Science degree.

ELTR 141 Applied Mathematics I 4 credits. Basic math as it applies to Electrical Theory. ELTR 143; includes algebraic and trigonometric topics as they relate to DC and AC (sinusoidal) circuit analysis.

ELTR 142 Applied Mathematics II 4 credits. Continuation of ELTR 141. Selected algebraic and trigonometric topics as related to DC and AC (sinusoidal) circuit analysis with special emphasis on trigonometric solution and vector analysis.

ELTR 143 Electronic Theory 5 credits. Basic electrical fundamentals, direct and alternating current circuits, LCR networks, electrical circuit components, meter circuits and test equipment.

ELTR 144 Electron Control Devices Theory A 5 credits. Comprehensive study and practical application of semiconductors, power supplies, transistor amplifiers, oscillators, operational amplifiers and test equipment.

ELTR 145 Electronic Laboratory 5 credits. Experiments involving subjects covered in ELTR 143. Student will construct experimental circuits upon which tests and measurements will be made to attain specified objectives.

ELTR 146 Electron Control Devices Laboratory 5 credits. Practical applications of the topics covered in ELTR 144.

ELTR 147 Applied Science 4 credits. Study of matter and energy relationships pertaining to motion, mechanics, heat, light, sound, electricity and magnetism and atomic energy. PREREQ: ENGL 101 or equivalent. This class will be substituted by PHYS 100.

ELTR 161 Digital/Microprocessor Systems Theory 5 credits. A basic study of electronic logic devices and circuits. Includes a study of Boolean Algebra, basic logic gates, combinational logic circuits, digital registers and counters and basic timing circuitry. An introduction to the basic architecture of the INTEL 8085 (8-bit) microprocessor. A brief introduction to assembly language programming.

ELTR 162 Digital/Microprocessor Systems Application 5 credits. This is a practical application of the theory class. Individual labs provide experience with basic logic gates, their configuration and troubleshooting techniques. Microprocessor labs are centered around the INTEL SDK-85 Microprocessor board. Recognition of key processor signals from a troubleshooting perspective is emphasized.

ELTR 269 Electronic Drafting I 2 credits. Drawing fundamentals, orthographic and isometric drawings, and development of basic wire drawings.
INST 220 Theory 3 credits. Introduction to programmable controllers. Ladder format, I-O instructions, external I-O devices, operating cycle, relays, timers, counters, sequencers, cascading, reversing, skip step sequencing, shift registers, finite time, troubleshooting, program initialization, and analog inputs.

INST 240 Theory 2 credits. Basic concepts of process control devices, calibration and test equipment, diagram symbols.

INST 241 Theory 2 credits. Measurement errors, pneumatic-sensors, indicators, transmitters, air supplies, regulators, control valves, actuators, positioners, introduction to controllers, pneumatic controllers.

INST 242 Theory 2 credits. Electronic instruments-sensors, indicators, transmitters, computing relays, electro-optics, electronic controllers, ratio control, cascade control, recorders, analytical equipment, troubleshooting.

INST 243 Theory 2 credits. Digital systems, digital control, analog to digital and digital to analog interfacing, signal conditioning, programmable controllers, computer application.

INST 244 Theory 2 credits. Calibration calculations, pressure scales, level considerations, specific gravity, elevation suppression, closed and open systems, temperature scales, thermocouple and RTD values, bulb and capillary devices, heat transfer, flow with square root linearization, gas flow measurement calculations, mass flow, humidity measurements, PH measurements.

INST 250 Laboratory 1 credit. Use of test equipment, power supplies, current and volt measurements, use of oscilloscope, capacitor checker, decade box, wheatstone bridge, transmitter simulator, manometers, pressure calibration devices.

INST 251 Laboratory 1 credit. Set up, maintenance, and troubleshooting of pneumatic control systems, air supply, air regulators, pressure gauges pneumatic transducer calibration, control valve operation with and without positioner, controller operation set point, measurement error, offset, proportional band, reset, derivative, reverse and direct acting.

INST 252 Laboratory 1 credit. Set up, maintenance and troubleshooting of electronic sensors, indicators, transmitters, relays recorders, and controllers, transmission with twisted pair, fiber optics, smart systems, analytical equipment.

INST 253 Laboratory 1 credit. Computer and programmable controller interfacing with transmitters and final elements, PID loops, auto tuning, set up to complete control loops, computer graphics.

INST 254 Laboratory 1 credit. Calibration of transmitters, simulation of process variables, temperature, pressure, level flow, and humidity control loops.

INST 281 Electrical Automation Theory 3 credits. Theory in application of control devices, sensors, timers, relays, electrical code, programmable controllers, interfacing with on-off control devices used in automated manufacturing and processing facilities. Instruction in print reading, phase control, variable frequency control, reduced voltage starting, single phase, split phase, three phase and DC motor control. Generator theory, uninterruptable power supplies.

INST 282 Electrical Automation Laboratory 5 credits. Experiments in motor control circuits, relay and ladder logic circuits, computer interfacing with programmable controllers, transformers, timers, sensors, variable frequency controllers, thyristor circuits, troubleshooting electrical devices, adapting relay logic circuits to programmable controllers.

INST 296 Process Measurement and Control Theory 10 credits. Theory in the application of transducers and control devices that measure and regulate variables such as: pressure, temperature, level, flow, humidity, PH, viscosity, velocity, volume, density, conductivity and composition. Continuous and batch control, distributive control and transmission methods. Instruction in calibration and test procedures used to install, maintain, and troubleshoot components common to industrial facilities. Analog digital and digital analog interfacing to PLCs and computer.

INST 297 Process Measurement and Control Laboratory 5 credits. Application of INST 296; Calibration of transmitters, recorders, indicators, and controllers. Interfacing pneumatic, electrical, electronic, hydraulic, programmable controllers, and computer devices. PID control loop tuning, installation and troubleshooting of working systems.

INST 299 Special Topics (variable) 1-8 credits. Addresses the specific needs of individuals, enabling students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.


TGE 152 Technical Writing II 2 credits. Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.

TGE 156 Applied Business Principles 2 credits. The course provides students with an overview of economic principles related to technical courses of study. Meets general education requirement for the A.A.S. degree.

TGE 158 Applied Job Search 2 credits. Course provides techniques and development of employment process skills. Includes instruction in résumé/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

TGE 160 Applied Human Relations 2 credits. Course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership and personal attitude. Meets general education requirement for the A.A.S. degree.

TGE 162 Keyboarding 1 credit. The course enables the development of basic touch keyboarding skill in a minimum of time. Completion should prepare students to (a) input alphabetic, numeric, and symbol information quickly and accurately and (b) understand basic vocabulary and concepts used in keyboarding operations when entering and retrieving information.

**Laser/Electro-Optics Technology**

**4½ Semester Program**

Coordinator: Christensen

Instructors: Davidson, Fitzen, Georgeson, McQuery, Norton, Womak

One Associate of Applied Science Degree, and one Bachelor of Applied Technology degree in Laser/Electro-Optics Technology are available. All theory classes and laboratory application classes of these theories require concurrent enrollment.

**Associate of Applied Science Degree in Laser/Electro-Optics Technology**

(4½ Semesters)

**Required courses:**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ELTR 100</td>
<td>Technical General Education</td>
<td>1-16 cr</td>
</tr>
<tr>
<td>ELTR 141</td>
<td>Applied Mathematics I</td>
<td>4 cr</td>
</tr>
<tr>
<td>ELTR 142</td>
<td>Applied Mathematics II</td>
<td>4 cr</td>
</tr>
<tr>
<td>ELTR 143</td>
<td>Electronic Theory</td>
<td>5 cr</td>
</tr>
<tr>
<td>ELTR 144</td>
<td>Electron Control Devices</td>
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</tbody>
</table>
The courses listed above will be taught in sequential blocks of instruction. Successful completion of a course is required before the student can progress in the program. If the student fails any math, theory, or lab course, then that course must be repeated and a passing grade obtained before the student can advance in the program. The student must exit the program and make up their deficiency through Technical General Education or other appropriate methods. The student will then be allowed to repeat the course at the next available program opening.

Courses

Official articulation agreements have been established with other Idaho post-secondary and secondary schools. Where these agreements exist, the specific block of training (i.e., session/semester/year) will be accepted as equivalent to that at ISU and will count equally toward graduation.

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for ELTR 100, and will not be required to attend the initial semester.

Based on your keyboarding skills, you may be required to take a 1 credit Keyboarding class in order to meet the competency of the program.

ELTR 100 Technical General Education 1-16 credits.

ELTR 109 Electronic Terminology 1 credit.

The study of basic electronic theory vocabulary. This course is to be taken in conjunction with ENGL 101, the first eight weeks of the semester. It is designed for those students who will opt to pursue a Bachelor of Applied Technology degree after earning an Associate of Applied Science degree.

ELTR 110 Electronic Terminology 1 credit.

The study of basic electronic theory vocabulary. This course is to be taken in conjunction with ENGL 101, the second eight weeks of the semester. It is designed for those students who will opt to pursue a Bachelor of Applied Technology degree after earning an Associate of Applied Science degree.

ELTR 140 Directed Study AC-DC/LCR 8 credits.

Condensed coverage of basic electronics theory and laboratory and associated mathematics. Accelerated equivalent of ELTR 141, ELTR 143, ELTR 145. For those who have prior knowledge of basic electronics.

ELTR 141 Applied Mathematics I 4 credits.

Basic math as it applies to electronics; includes algebraic and trigonometric topics as they relate to DC and AC (sine wave) circuit analysis.

ELTR 142 Applied Mathematics II 4 credits.

Continuation of ELTR 141. Selected algebraic and trigonometric topics as related to DC and AC (sine wave) circuit analysis with special emphasis on trigonometric solution and vector analysis.

ELTR 143 Electronic Theory 5 credits.

Basic electrical fundamentals, direct and alternating current circuits, LCR networks, electrical circuit components, meter circuits and test equipment.

ELTR 144 Electron Control Devices Theory A 5 credits.

Comprehensive study and practical application of semiconductors, power supplies, transistor amplifiers, oscillators, operational amplifiers and test equipment.

ELTR 145 Electronic Laboratory 5 credits.

Experiments involving subjects covered in ELTR 143. Student will construct experimental circuits upon which tests and measurements will be made to attain specified objectives.

ELTR 146 Electron Control Devices Laboratory A 5 credits.

Practical applications of the topics covered in ELTR 144.

ELTR 147 Applied Science 4 credits.

Study of matter and energy relationships pertaining to motion, mechanics, heat, light, sound electricity and magnetism and atomic energy. PREREQ: ELTR 141 or Equivalent. This class will be substituted by PHYS 100.

ELTR 161 Digital/Microprocessor Systems Theory 5 credits.

A basic study of electronic logic devices and circuits. Includes a study of Boolean Algebra, basic logic gates, combinational logic circuits, digital registers and counters and basic timing circuitry. An introduction to the basic architecture of the INTEL 8085 (8-bit) microprocessor. A brief introduction to assembly language programming.

ELTR 162 Digital/Microprocessor Systems Application 5 credits.

This is a practical application of the theory class. Individual labs provide experience with basic logic gates, their configuration and troubleshooting techniques. Microprocessor labs are centered around the INTEL SDK-85 Microprocessor board. Recognition of key processor signals from a troubleshooting perspective is emphasized.

ELEO 235 LEO Optoelectronics Theory 6 credits.


ELEO 236 LEO Optoelectronics Laboratory 6 credits.

Experiments developed to enhance and supply practical hands-on experience of theory covered in ELEO 235.

ELEO 237 Laser/Electro-Optics Theory 6 credits.

Properties of high frequency radiation in the infrared, visible and ultraviolet regions of the spectrum. Topics include spectral considerations, reflection, refraction, absorption, scattering, interference, diffraction and polarization related to optical devices and media. Physical and chemical properties of lasers including laser safety, absorption, population inversion, pumping, coherence, interference, mode locking, cavity dumping, laser beam manipulators, modulator devices, Q-switches and holography.

ELEO 238 Laser/Electro-Optics Laboratory 6 credits.

Hands-on operation of low and medium power lasers and associated optical and beam manipulating components. Also experiments in wave interference including interferometers, optical flat measurements and holography.

ELTR 256 Internship 1-8 credits (variable). On-the-job placement providing work experience for persons pursuing careers in electronics technology. Permission of the instructor is required.

ELTR 257 Directed Studies 1-8 credits (variable). Individual work under faculty guidance.

ELTR 269 Electronic Drafting I 2 credits.

Drawing fundamentals, orthographic and isometric drawings, and development of basic wire drawings.

ELEO 299 Special Topics (variable) 1-8 credits.

Addresses the specific needs of individuals, enabling students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.

TGE 151 Applied Technical Writing 12 credits.

Course provides instruction in informal technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology/vocabulary building. Meets general education requirement for A.A.S. degree.
TGE 152 Technical Writing II 2 credits. Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.

TGE 156 Applied Business Principles 2 credits. The course provides students with an overview of economic principles related to technical courses of study. Meets general education requirement for the A.A.S. degree.

TGE 158 Applied Job Search 2 credits. Course provides techniques and development of employment process skills. Includes instruction in résumé/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

TGE 160 Applied Human Relations 2 credits. Course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership, and personal attitude. Meets general education requirement for the A.A.S. degree.

TGE 162 Keyboarding 1 credit. The course enables the development of basic touch keyboarding skill in a minimum of time. Completion should prepare students to (a) input alphabetic, numeric, and symbol information quickly and accurately and (b) understand basic vocabulary and concepts used in keyboarding operations when entering and retrieving information.

Thus eliminating the graduates’ need to attend the basic police academy before taking the certification exam. Because the Law Enforcement Program is driven by POST standards for certification into the law enforcement field, applicants to the program must meet POST standards for admission. These admission standards include a background check into the applicants’ criminal, driving and psychological record.

Applicants must meet the general ISU School of Applied Technology requirements for entry into the first semester's course of studies. Prerequisite for entry into the second semester of training (LAWE 193 and LAWE 194) is successful completion of LAWE 100, LAWE 191 and LAWE 192; and acceptance into the cadet practicum by the program's Advisory Committee Board. This board is composed of participating agency representatives and applies the minimum standards for employment as listed by the Idaho Police Officers Standards and Training (POST) Counsel.

Law Enforcement Certificate

Required courses:

- LAWE 100 Technical General Education 1-16 cr
- LAWE 191 Basic Law Enforcement I 9 cr
- LAWE 192 Basic Law Enforcement II 9 cr
- LAWE 193 Advanced Law Enforcement I 9 cr
- LAWE 194 Advanced Law Enforcement II 9 cr

TOTAL: 44 cr

Courses

Students who demonstrate adequate academic skill to succeed in the occupational-content courses of the program will be given an "S" grade for LAWE 100 and will not be required to attend the initial session.

Based on your keyboarding skills, you may be required to take a 1 credit Keyboarding class in order to meet the competencies of the program.

LAWE 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experimental science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

LAWE 191 Basic Law Enforcement I 9 credits. Introduction to law enforcement, laws of arrest, search and seizure, patrol techniques, police practices and procedures, arrest techniques, criminal law, criminal investigation, safety and emergency procedures, jail procedures, police photography, human relations, state and local government, physical education, hazardous materials, and firearms.

LAWE 192 Basic Law Enforcement II 9 credits. A continuation of LAWE 191, including traffic laws and POST tests pertaining to physical fitness and firearms.

LAWE 193 Advanced Law Enforcement I 9 credits. Accident and criminal investigation, patrol procedures, juvenile procedures, emergency vehicle operation, traffic, fish and game, drug and alcohol laws, criminal evidence. Cadet practicum.

LAWE 194 Advanced Law Enforcement II 9 credits. A continuation of LAWE 193 and POST tests pertaining to certification and firearms qualification.

LAWE 199 Special Topics (variable) 1-8 credits. Addresses the specific needs of individuals, enabling students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.

Grading System: Each module within a session must be successfully completed with a minimum grade of ‘C’ to continue to the next session. The 8-week sessions are taken in successive order with successful completion of each module being a prerequisite for continuation.

Machining Technology

2½ to 4 Semester Program

Program Coordinator and Instructor: Feige

Instructors: Kerns, Gibbs

One certificate, one Associate of Applied Science degree, and one Bachelor of Applied Technology degree are available.

Machine Tool Operator

(2½ Semesters)

The following courses are required for a certificate and must be completed with a 2.0 GPA:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MACH 100</td>
<td>Technical General Education</td>
<td>1-16 cr</td>
</tr>
<tr>
<td>MACH 110</td>
<td>Engine Lathe Practices I</td>
<td>5 cr</td>
</tr>
<tr>
<td>MACH 111</td>
<td>Engine Lathe Theory I</td>
<td>2 cr</td>
</tr>
<tr>
<td>MACH 112</td>
<td>Machine Math I</td>
<td>2 cr</td>
</tr>
<tr>
<td>MACH 120</td>
<td>Milling Practice I</td>
<td>5 cr</td>
</tr>
<tr>
<td>MACH 121</td>
<td>Milling Theory I</td>
<td>2 cr</td>
</tr>
<tr>
<td>MACH 122</td>
<td>Machine Math II</td>
<td>2 cr</td>
</tr>
<tr>
<td>MACH 130</td>
<td>Engine Lathe Practice II</td>
<td>5 cr</td>
</tr>
<tr>
<td>MACH 131</td>
<td>Blueprint Reading</td>
<td>2 cr</td>
</tr>
<tr>
<td>MACH 140</td>
<td>Milling Practice II</td>
<td>6 cr</td>
</tr>
<tr>
<td>MACH 141</td>
<td>Materials Science</td>
<td>2 cr</td>
</tr>
<tr>
<td>MACH 150</td>
<td>Advanced Machine Operation</td>
<td>8 cr</td>
</tr>
<tr>
<td>MACH 176</td>
<td>Geometric Dimensioning and Tolerancing</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 151</td>
<td>Applied Technical Writing I</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 152</td>
<td>Applied Technical Writing II</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 156</td>
<td>Applied Business Principals</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 158</td>
<td>Applied Job Search</td>
<td>2 cr</td>
</tr>
<tr>
<td>TOTAL:</td>
<td></td>
<td>69 cr</td>
</tr>
</tbody>
</table>

**Courses**

Students who demonstrate adequate academic skill to succeed in the occupational-content courses of the program will be given an “S” grade for MACH 100 and will not be required to attend the initial session.

Based on your keyboarding skills, you may be required to take a 1 credit Keyboarding class in order to meet the competencies of the program.

MACH 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

MACH 110 Engine Lathe Practice I 5 credits. Basic engine lathe cutting operations of turning, facing, boring, tapering and threading as required when producing machined parts.

MACH 111 Engine Lathe Theory I 2 credits. A basic theory course dealing with engine lathe terminology, uses, functions, tooling and concepts. Emphasis is placed on study habits and class participation.

MACH 120 Milling Practice I 5 credits. Basic milling cutting operations of end milling, fly cutting, drilling and boring performed on the vertical mill. Also includes shaper, surface grinder, and benchworking practices as scheduling permits.

MACH 121 Milling Theory I 2 credits. A continuation of MACH 120 on horizontal and vertical milling machines, performed to closer tolerances and time limits. Also includes grinding, layout, and drilling operations as scheduling permits. PREREQ: MACH 120.

MACH 141 Materials Science 2 credits. A study of ferrous and nonferrous metals, heat treating, hardness testing, alloys, machinability and strength pertaining to the machinist trade.

MACH 150 Advanced Machine Operation 1-8 credits. A course which provides students with introductory training on specialized machine tools and advanced training for operation of machine tools.

MACH 176 Geometric Dimensioning and Tolerancing 2 credits. A study of geometric symbols and their application to modern blueprints. Also includes dimensioning to geometric tolerancing parameters.

MACH 250 Advanced Machine Practice I 6 credits. Advanced machining practices on lathes, milling machines, grinders, drill press, inspection, and metal layout. Tasks are performed in an industrial shop atmosphere, working to close tolerances and time limits. PREREQ: MACH 122, MACH 130, MACH 131, and MACH 140.

MACH 260 Advanced Machine Practice II 6 credits. A continuation of MACH 250 with an emphasis on tool cutter grinding, jig boring, and those machines not covered in the previous course. PREREQ: MACH 250.

MACH 261 Advanced Machine/Math I 2 credits. An advanced math course requiring the use of geometric/trigonometric principles for identifying and solving Machine Shop triangulation problems for the purpose of manufacturing metal parts on conventional and NC machines. PREREQ: MACH 122.

MACH 262 Electronic Discharge Machining 2 credits. A course designed to familiarize the student with applications, theory, setup and operation of the Electric Discharge Machine. Also includes electrode materials, electrode manufacturing and cost effective uses of the EDM in modern manufacturing. PREREQ: MACH 122, MACH 130, and MACH 140.

MACH 275 NC Programming/Machining 6 credits. An introductory course in the programming, setup, and operation of numerically controlled machine tools. PREREQ: MACH 111, MACH 121, MACH 131, MACH 141, MACH 250, MACH 260, and MACH 261.

MACH 281 Advanced Machine Math II 2 credits. PREREQ: Machine Shop math pertaining to NCCNC lathe and milling programming. MACH 261.

MACH 285 CNC Machining 7 credits. A course in the programming, setup, and operation of the computer numerically controlled lathe and mill. PREREQ: MACH 275.

MACH 286 CNC Programming Theory 2 credits. This course prepares the student in programming of computer numerically controlled machine tools. The course includes
computer applications of programming in absolute/incremental and conversational address systems. PREREQ: MACH 285.

MACH 287 CAD/CAM 2 credits. Entails programming CNC machines utilizing CAD/CAM systems. Course familiarizes the student with applications, theory, and operation of CAD/CAM. PREREQ: MACH 275, MACH 281, and MACH 286.

MACH 299 Special Topics (variable) 1-8 credits. Addresses the specific needs of individuals, enabling students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.

TGE 151 Applied Technical Writing I 2 credits. Course provides instruction in informal technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology/vocabulary building. Meets general education requirement for A.A.S. degree.

TGE 152 Technical Writing II 2 credits. Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides principles of technical and business speech communication. Includes informative and persuasive presentations, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.

TGE 154 Applied Business Principles 2 credits. The course provides students with an overview of economic principles related to technical courses of study. Meets general education requirement for A.A.S. degree.

TGE 155 Applied Job Search 2 credits. Course provides instruction in techniques and development of employment process skills. Includes instruction in résumé/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

TGE 156 Applied Human Relations 2 credits. Course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership and personal attitude. Meets general education requirement for the A.A.S. degree.

Marketing Technology
(See Marketing and Management Occupations)

Marketing and Management Occupations

4½ Semester Program Options
Program Coordinator and Instructor: Dando
Instructors: Anderson, Davis, & Hanson

Four Associate of Applied Science Degrees which require 38-70 credits as listed below are available.

Business Technology
(2 Semester Program)
One Associate of Applied Science degree is required for the Associate of Applied Science degree and must be completed with a “C” or better in each identified course.

Management Technology
(See Marketing and Management Occupations)

Hospitality Management Technology
(4½ Semester Option)
One Associate of Applied Science degree is required for the Associate of Applied Science degree and must be completed with a “C” or better in each identified course.

ENGL 101  English Composition 3 cr
MANT 120  Concepts of Accounting 3 cr
MANT 121  Essentials of Management 3 cr
MANT 130  Business Communications 4 cr
MANT 252  Employment Seminar 1 cr
MART 110  Interpersonal Relations 2 cr
MART 111  Economic Essentials 2 cr
MART 112  Essentials of Marketing 2 cr
MART 113  Marketing Mathematics 2 cr
MART 114  Principles of Retail Selling 2 cr
MART 115  Business Concepts 1 cr
MART 121  Marketing Applications 3 cr
MART 120  Business Relationships 2 cr
MART 121  Marketing Applications 3 cr
MART 130  Promotion Concepts 4 cr
MART 240  Professional Selling 3 cr
COMM 101  Principles of Speech 2 cr
TGE 100  Technical General Education 1-16 cr
TOTAL 90 cr

One Associate of Applied Science degree is required for the Associate of Applied Science degree and must be completed with a “C” or better in each identified course.

TGE 100  Technical General Education 1-16 cr
plus earned Technical Certificate of 38 credits or more
TOTAL 85 cr

One Associate of Applied Science degree is required for the Associate of Applied Science degree and must be completed with a “C” or better in each identified course.

TGE 100  Technical General Education 1-16 cr
plus earned Technical Certificate of 38 credits or more
TOTAL 85 cr

One Associate of Applied Science degree is required for the Associate of Applied Science degree and must be completed with a “C” or better in each identified course.

TGE 100  Technical General Education 1-16 cr
plus earned Technical Certificate of 38 credits or more
TOTAL 85 cr
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<tr>
<th>Course Code</th>
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<tr>
<td>CIS 101</td>
<td>Introduction to Computer Systems Lab</td>
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<td>MANT 251</td>
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<td>TGE 100</td>
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**Marketing Technology (4½ Semester Option)**

One Associate of Applied Science degree.

The following courses are required for the Associate of Applied Science degree and must be completed with a “C” or better in each identified course.

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<td>MART 242</td>
<td>Business Marketing</td>
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<tr>
<td>MART 250</td>
<td>Retail Technology</td>
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<td>MART 259</td>
<td>Career Internship</td>
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<td>TOTAL: 85 cr</td>
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**Marketing Technology (4½ Semester Option)**

One Associate of Applied Science degree.

The following courses are required for the Associate of Applied Science degree and must be completed with a “C” or better in each identified course.

Every student must be a technical skill to succeed in the occupational content courses of the program will be given an “S” grade for TGE 100 and will not be required to attend the initial session.

Based on your keyboarding skills, you may be required to take a 1 credit Keyboarding class (TGE 162) in order to meet the competencies of the program.

**Courses**

**HOST 240 Rooms Division Operations 3 credits.** This course presents a systematic approach to rooms division management. This includes the management operations of the housekeeping and front office departments. PREREQ: MANT 121. **HOST 241 Human Resource Management 3 credits.** A Human Resource Manager, his/her duties and responsibilities are the core of this course. Beginning with a look at the environments of human resource management and the planning process; the process of job analysis, recruitment, hiring, motivating, compensating, appraising, and providing effective working relationships are discussed. Additionally, the basics of labor law, conflict management and discipline programs are included. PREREQ: MANT 121.

**HOST 244 Introduction to Finance 3 credits.** Broad survey of financial markets, the place of finance in the business economy, the role of the financial manager, the organization of financial intermediaries, and the basic techniques of financial analysis. PREREQ: MANT 120.

**HOST 250 Front Line Supervision 3 credits.** Course in the practical use of supervisory skills. This course provides the students with an opportunity to apply their knowledge in a controlled environment where immediate feedback and opportunity for correction is possible. The students will make decisions and practice handling a variety of supervisory problems including conflict, and discipline, grievance, tardiness, motivation, and counseling. PREREQ: MANT 121.

**HOST 251 Small Business Management 3 credits.** The course presents a systematic approach to rooms division management. This includes the management operations of the housekeeping and front office departments. PREREQ: MANT 121.

**HOST 252 Food and Beverage Management 3 credits.** Provides a basis for understanding the various challenges and responsibilities involved in managing a food and beverage operation. PREREQ: MANT 121.

**HOST 259 Career Internship 4 credits.** This course is designed to provide students an opportunity to gain practical experience in applying their hospitality management skills in a practical work setting. Training plans are utilized to insure maximum training opportunities for the student. This is a non-paid training situation which can only be completed during their last semester enrolled. Must be taken concurrently with MANT 252.

**MANT 115 Business Concepts 1 credit.** This course is designed as an overview to lay the foundation for later advanced work in management. Simultaneously, the course is sufficiently broad in scope to meet the requirements of students who desire to gain only a casual acquaintance with management and intend to branch in other fields of study.

**MANT 121 Essentials of Management 3 credits.** This is an introductory course in management theory and practice. Management is presented as a discipline as well as a process. Major topic areas will include the evolution and scope of management, decision-making, planning, organizing, leading, and controlling. The international aspects of management will also be considered. PREREQ: MANT 110, MANT 111, MANT 112, MANT 113, MANT 114 or permission of instructor. (Course may be taken via the Internet. Contact Student Services at 236-2622.)

**MANT 130 Business Communications 4 credits.** Master effective communication in business letters, memos, reports, meetings, and interpersonal relationships. Learn strategies in writing direct requests, neutral and good-news messages, letters of recommendation, bad-news messages, persuasive requests, job applications, and short reports; strategies in communicating ideas verbally; strategies in communicating ideas interpersonally. PREREQ: ENGL 101 and CIS 120.

**MANT 131 Quality Management Techniques 3 credits.** This course equips the student to succeed in today’s business leadership positions. Understand all aspects of management responsibilities and services concepts. PREREQ: MANT 110, MANT 111, MANT 112, MANT 113, and MANT 114.

**MANT 240 Legal Environment 3 credits.** This course IS NOT designed to make anyone a lawyer nor is it designed to make anyone a legal expert. This course proposes to make people in all areas of business aware of the dangers that exist and to help them to know when competent legal advice becomes necessary.

**MANT 241 Human Resource Management 3 credits.** A Human Resource Manager, his/her duties and responsibilities are the core of this course. Beginning with a look at the environments of human resource management and the planning process; the process of job analysis, recruitment, hiring, motivating, compensating, appraising, and providing effective working relationships are discussed. Additionally, the basics of labor law, conflict management and discipline programs are included. PREREQ: MANT 121.

**MANT 244 Introduction to Finance 3 credits.** Broad survey of financial markets, the place of finance in the business economy, the role of the financial manager, the organization of financial intermediaries, and the basic techniques of financial analysis. PREREQ: MANT 120.

**MANT 250 Front Line Supervision 3 credits.** Course in the practical use of supervisory skills. This course provides the students with an opportunity to apply their knowledge in a controlled environment where immediate feedback and opportunity for correction is possible. The students will make decisions and practice handling a variety of supervisory problems including conflict, and discipline, grievance, tardiness, motivation, and counseling. PREREQ: MANT 121.

**MANT 251 Small Business Management 3 credits.** Course concerns the planning, organizing, controlling, and directing of a small business firm. The course will cover all facets of understanding and developing a small business which includes the ability to recognize the major areas of error that can result in a new business failure. The class is designed to develop entrepreneurial and managerial skills. The students will develop their own business plan. PREREQ: MANT 120, MANT 121 and MANT 121.

**MANT 252 Employment Seminar 1 credit.** This course discusses career planning, the job search, cover letter, résumé application, job interview skills, professional dress and business etiquette. (Students must complete this course during their last semester enrolled).
MANT 253 Ethics 3 credits. The primary objective of this course is to increase the students’ awareness of their individual value systems as they relate to decision-making in future business endeavors. While not intended to change or alter the students’ moral or ethical standards, the course will be structured to examine, in an unbiased setting, both sides of past and present ethical issues facing the business world. Specific areas that will be addressed are individual decision-making, corporate policy, and government control.

MANT 255 Management Applications 3 credits. Upon completion of this course the student will understand the concepts of applying management skills to specific technical areas such as managing a sales force, managing an administrative office and managing a hotel.

MANT 259 Career Internship 4 credits. This course is designed to provide students an opportunity to gain practical experience in applying their management skills in a practical work setting. Training plans are utilized to insure maximum training opportunities for the student. This is a non-paid training situation which can only be completed during their last semester enrolled. Must be taken concurrently with MANT 252.

MART 110 Interpersonal Relations 2 credits. Study of the motivation and behavior of people. Case problems and student experiences are discussed, alternatives are considered and probable outcomes are determined. Taken concurrently with MART 111, MART 112, MART 113, and MART 114.

MART 111 Economic Essentials 2 credits. Exploration and examination of macro and micro economic systems, study of business cycles, supply and demand, fiscal and monetary policy, the banking system, and their effects on the individual as well as the business world. Taken concurrently with MART 110, MART 112, MART 113, and MART 114.

MART 112 Essentials of Marketing 3 credits. Designed to provide a basic overview of economic strategies, pricing, consumerism, advertising strategies and publicity, and marketing research. Taken concurrently with MART 110, MART 111, MART 113 and MART 114.

MART 113 Marketing Mathematics 2 credits. An understanding of basic math as it relates to marketing and management occupations. Survey of basic math skills and development of technical math skills and development of technical math applications. Taken concurrently with MART 110, MART 111, MART 112 and MART 114.

MART 114 Principles of Retail Selling 2 credits. The process and techniques of retail selling are explored. Students develop competencies through classroom and role play situations as they relate to professional retail selling. Taken concurrently with MART 110, MART 111, MART 112, and MART 113.

MART 115 Business Concepts 1 credit. This course explores and defines the relationships of the external customer. Specifically, the need for effective customer service and the buyer/seller relationship. It is the purpose of this course to show that there are practical and cost-effective methods that can be used in business relationship management through the use of qualitative and quantitative techniques. It will also show how these same qualitative and quantitative techniques can be applied for use within other areas of marketing and management. PREREQ: MATH 110, MART 111, MART 112, MART 113 and MART 114.

MART 121 Marketing Applications 3 credits. Upon completion of this course the student will be able to: Effectively analyze a case study, utilizing an acceptable method of case analysis. Solidify decision-making, analytical, and communication skills. Understand, appreciate, and apply the role of a marketing manager. Develop and utilize creativity in the decision-making process. Develop an appreciation for and demonstration of effective teamwork.

MART 130 Promotion Concepts 4 credits. An introductory course in advertising and promotion principles including planning an advertising program; selection of media; copy and layout elements; ethics and regulations; strategies; agencies; budgets; measurement of effectiveness; and coordination of advertising with other promotional tools. PREREQ: MART 110, MART 111, MART 112, MART 113 and MART 114.

MART 240 Professional Selling 3 credits. This course provides the methods and principles of effective salesmanship. Role-play situations are incorporated to enhance students’ skill development. PREREQ: MART 121 and SPCH 101.

MART 242 Business Marketing 3 credits. This course applies the marketing mix in a business-to-business environment. Emphasis is on the marketing of products and services to organizations rather than to households or ultimate consumers. PREREQ: MART 121.

MART 250 Retail Technology 4 credits. A survey course covering the principles of retailing including store location, design, and organization, merchandising, sales promotion, personnel, services, and control; and exposure to career options; and an exploration of trends in retailing as related to social, technological, and economic changes. PREREQ: MART 121 and MART 121.

MART 259 Career Internship 4 credits. This course is designed to provide students an opportunity to gain practical experience in applying their marketing skills in a practical work setting. Training plans are utilized to insure maximum training opportunities for the student. This is a non-paid training situation which can only be completed during their last semester enrolled. Must be taken concurrently with MANT 252.

MART 299 Special Topics (variable) 1-8 credits. This course is designed to address the specific needs of individuals. It will enable the students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.

MMO 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experimental-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

Medical Assisting

4½ Semester Program
Coordinator/Instructor: Bird
Instructor: Layton
One Associate of Applied Science degree and one Bachelor of Applied Technology degree are available.

The program is seeking accreditation by the Commission on Accreditation of Allied Health Educational Programs in conjunction with the American Association of Medical Assistants’ Curriculum Review Board. Should the program be granted accreditation, graduates will be eligible to write the National Certification Exam for the Certified Medical Assistant (CMA).

The following courses are required for an Associate of Applied Science degree and must completed with a “C” or better in each identified course.

MA 100 Technical General Education 1-16 cr
MA 104 Intro to Medical Assisting 3 cr
MA 200 Clinical Medical Assisting 4 cr
MA 201 Pharmacology for Allied Health 2 cr
MA 202 Administration of Medications 2 cr
MA 204 Clinical Practice 8 cr
MA 205 Clinical Medical Assisting II 4 cr
MA 206 Administrative Practice 4 cr
OT 120 Bookkeeping 3 cr
HO 105 Introduction to Allied Health Careers 2 cr
HO 106 Medical Terminology 2 cr
HO 107 Medical Law and Ethics 3 cr
HO 201 ICD CM Coding Lab 2 cr
HO 202 ICD9-CM Coding 3 cr
HO 203 Medical Office Procedures 3 cr
HO 204 Medical Transcription 4 cr
HO 205 CPT Coding and Alternative Care Records 3 cr
HO 206 CPT Coding Lab 2 cr
BIOL 202 General Zoology 3 cr
BIOS g301 Anatomy and Physiology 4 cr
BIOS g302 Anatomy and Physiology 4 cr
CIS 120 Introduction to Computer Systems 3 cr
ENGL 101 English Composition 3 cr
ENGL 201 Critical Reading and Writing 3 cr
MATH 107 Intermediate Algebra 4 cr
PSYC 101 Introductory Psychology I 3 cr
Elective Courses:

- OT 118 Business Communication I 3 cr
- OT 119 Business Communications II 3 cr
- OT 173 Spreadsheets, Database, Graphics 3 cr
- OT 176 Desktop Publishing/Multimedia 1-3 cr
- MANT 121 Essentials of Management 3 cr
- MANT 241 Human Resource Management 3 cr
- MATH 253 Introduction to Statistics 3 cr
- ECON 201 Principles of Macroeconomics 3 cr
- ENGL 307 Professional Writing 3 cr
- ACCT 201 Principals of Accounting I 3 cr
- ACCT 202 Principals of Accounting II 3 cr
- ANTH 108 Spanish for Health Care Professionals 1 cr
- FIN 315 Corporate Financial Management 3 cr
- FIN 478 Investments 3 cr
- MGT 261 Legal Environment of Organizations 3 cr
- MGT 329 Operations/Production Management 3 cr
- MKTG 235 Basic Marketing Management 3 cr
- HCA 350 Organizational Behavior in Health Care 3 cr
- HCA 375 Health Care Law 3 cr
- HCA 383 Epidemiology 3 cr
- HCA 384 Human Resource Management in Health Care 3 cr
- HCA 451 Hospital Management 2 cr
- HCA 452 Long Term Care Management 2 cr
- HCA 453 Health Care Finance 3 cr
- HCA 455 Health Care Organization Management 3 cr
- HE 401 Issues in Health & Wellness 3 cr
- HE 491 Health Education Workshop 3 cr

Courses

For course descriptions of the academic courses required by the Medical Assistant A.A.S. degree, see the College of Arts and Sciences.

MA 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

MA 104 Introduction to Medical Assisting 3 credits. An introduction to Medical Assisting including the functions of a physician’s office; the role and responsibilities of the profession, and the importance of the field.

MA 200 Clinical Medical Assisting 4 credits. Clinical assisting including vital signs; assisting with minor surgery; asepsis; health maintenance; disinfection and sterilization; data collection; assisting with the physical examination; application of bandages, dressing, splints and casts; emergency care; and specimen collection. Diagnostic tests, laboratory examinations and treatment modalities are covered.

MA 201 Pharmacology For Allied Health 2 credits. This course is designed for the health professional working outside of the hospital setting. This course reviews mathematical computations used in computing dosages. It introduces legislation relating to drugs, drug references, drug classifications and actions. The function of vitamins and minerals is covered as well as the subject of substance abuse. The effects of medications in the body systems details how specific drugs act on the body system.

MA 202 Administration of Medications 2 credits. The course covers the routes of administration and the proper methods of delivery of medication by those routes. Various types of medication are discussed as well as the absolute rules concerning medication administration.

MA 204 Medical Transcription 4 credits. Application of the principals and practice of medical assisting in an internship/externship environment of a medical practice under the supervision of a physician and the medical practice staff.

MA 205 Clinical Medical Assisting II 4 credits. Clinical assisting including specialty exams and procedures, radiology and diagnostic imaging, electrocardiography, urinalysis specimen collection and preparation, patient instruction, venipuncture, OSHA, and clinical laboratory.

MA 206 Administrative Practice 4 credits. Application of the principles and practice of the business and management of a medical office in an internship/externship environment under the supervision of a physician and the management staff.

MA 207 Professional Development 1 credit. Principles and applied techniques for Medical Assisting professional career development. Preparation for transition from school to the work place.

HO 105 Introduction to Allied Health Careers 2 credits. Introduction to allied health careers emphasizing the interpersonal relationships and the team approach to health care.

HO 106 Medical Terminology 2 credits. Body systems approach to theory and application of medical terms including anatomical, pathological, surgical and diagnostic as well as appropriate abbreviations.

HO 107 Medical Law and Ethics 3 credits. Principles and application of law to health care organizations and personnel, standards of care and liability; covers tort, contract and statutory law.

HO 201 ICD CM Coding Lab 2 credits. Practical application ICD Coding utilizing software and actual patient records. PREREQ: In conjunction with HO 202.


HO 203 Medical Office Procedures 4 credits. Specialized preparation for work in medical offices, hospitals, clinics, insurance offices and public health agencies. Theory as well as manual and computer applications for scheduling, insurance form preparation and review, day sheets and periodic reports.

Office Technology

3 to 4 credits. Program options vary depending on the student’s academic qualifications at time of acceptance.

A grade of “C” or better in all courses of a chosen option is required for graduation. If a “C” or better is not achieved in a required class, the student may repeat the class only one time.

Accounting Clerk

(3 Semesters)

Required Courses:

- OT 100 Technical General Education 1-16 cr
- OT 118 Business Communications I 3 cr
- OT 119 Business Communications II 3 cr
- OT 120 Bookkeeping 3 cr
School of Applied Technology

OT 123 Applied Business Mathematics 3 cr
OT 140 Keyboarding Skillbuilding 1 cr
OT 141 Keyboarding 3 cr
OT 144 Document Processing 3 cr
OT 149 Accounting Clerk Office Applications 2 cr
OT 151 Office Procedures and Interpersonal Skills 3 cr
OT 170 Introduction to Computers 3 cr
OT 171 Computerized Bookkeeping 3 cr
OT 173 Spreadsheets, Database, Graphics 3 cr
OT 174 Records Management 3 cr
Total 52 cr

Medical Office Technology

(3 Semesters)

Required courses:

OT 100 Technical General Education 1-16 cr
OT 118 Business Communications I 3 cr
OT 119 Business Communications II 3 cr
OT 120 Bookkeeping 3 cr
OT 122 Machine Transcription 3 cr
OT 123 Applied Business Mathematics 3 cr
OT 140 Keyboarding Skillbuilding 1 cr
OT 144 Document Processing 3 cr
OT 145 Advanced Document Processing 3 cr
OT 170 Introduction to Computers 3 cr
OT 171 Computerized Bookkeeping 3 cr
OT 174 Records Management 3 cr
Total 57 cr

Administrative Office Technology

(3 Semesters)

Required Courses:

OT 100 Technical General Education 1-16 cr
OT 118 Business Communications I 3 cr
OT 119 Business Communications II 3 cr
OT 120 Bookkeeping 3 cr
OT 122 Machine Transcription 3 cr
OT 123 Applied Business Mathematics 3 cr
OT 140 Keyboarding Skillbuilding 1 cr
OT 144 Document Processing 3 cr
OT 145 Advanced Document Processing 3 cr
OT 170 Introduction to Computers 3 cr
OT 171 Computerized Bookkeeping 3 cr
OT 174 Records Management 3 cr
Total 57 cr

Legal Office Technology

(2 to 3 Semesters)

Required courses:

OT 100 Technical General Education 1-16 cr
OT 118 Business Communications I 3 cr
OT 119 Business Communications II 3 cr
OT 120 Bookkeeping 3 cr
OT 122 Machine Transcription 3 cr
OT 123 Applied Business Mathematics 3 cr
OT 140 Keyboarding Skillbuilding 1 cr
OT 144 Document Processing 3 cr
OT 145 Advanced Document Processing 3 cr
OT 170 Introduction to Computers 3 cr
OT 171 Computerized Bookkeeping 3 cr
OT 174 Records Management 3 cr
HO 106 Medical Terminology 2 cr
HO 202 ICD9-CM Coding 3 cr
HO 203 Medical Office Procedures 4 cr
HO 204 Medical Transcriptions 4 cr
HO 205 CPT and Alternative Care Records 3 cr
Total 57 cr

Associate of Applied Science Degree in Administrative Office Technology

(4 to 4½ Semesters)

Required Courses:

OT 100 Technical General Education 1-16 cr
OT 115 Practicum 1-3 cr
OT 118 Business Communications I 3 cr
OT 119 Business Communications II 3 cr
OT 120 Bookkeeping 3 cr
OT 122 Machine Transcription 3 cr
OT 123 Applied Business Mathematics 3 cr
OT 140 Keyboarding Skillbuilding 1 cr
OT 144 Document Processing 3 cr
OT 145 Advanced Document Processing 3 cr
OT 170 Introduction to Computers 3 cr
OT 171 Computerized Bookkeeping 3 cr
OT 173 Spreadsheets, Database, Graphics 3 cr
OT 174 Records Management 3 cr
OT 202 Introduction to Legal Research and Writing 3 cr
MANT 121 Essentials of Management 3 cr
MANT 240 Legal Environment 3 cr
ENGL 101 English Composition 3 cr
ENGL 201 Critical Reading and Writing 3 cr
PSYC 101 Introductory Psychology I 3 cr
POLS 101 Introduction to American Government 3 cr
COMM 101 Principles of Speech 2 cr
ECON 100 Economic Issues 3 cr
Total 86 cr

Associate of Applied Science Degree in Legal Office Technology

(4½ Semesters)

Required courses:

OT 100 Technical General Education 1-16 cr
OT 115 Practicum 1-3 cr
OT 118 Business Communications I 3 cr
OT 119 Business Communications II 3 cr
OT 120 Bookkeeping 3 cr
OT 122 Machine Transcription 3 cr
OT 123 Applied Business Mathematics 3 cr
OT 140 Keyboarding Skillbuilding 1 cr
OT 144 Document Processing 3 cr
OT 145 Advanced Document Processing 3 cr
OT 152 Legal Terminology and Office Procedures 7 cr
OT 170 Introduction to Computers 3 cr
OT 171 Computerized Bookkeeping 3 cr
MANT 121 Essentials of Management 3 cr
MANT 240 Legal Environment 3 cr
ENGL 101 English Composition 3 cr
ENGL 201 Critical Reading and Writing 3 cr
PSYC 101 Introductory Psychology I 3 cr
POLS 101 Introduction to American Government 3 cr
COMM 101 Principles of Speech 2 cr
ECON 100 Economic Issues 3 cr
Total 86 cr

Legal Office Technology (Continued)

(4 to 4½ Semesters)

Required Courses:

OT 100 Technical General Education 1-16 cr
OT 115 Practicum 1-3 cr
OT 118 Business Communications I 3 cr
OT 119 Business Communications II 3 cr
OT 120 Bookkeeping 3 cr
OT 122 Machine Transcription 3 cr
OT 123 Applied Business Mathematics 3 cr
OT 140 Keyboarding Skillbuilding 1 cr
OT 144 Document Processing 3 cr
OT 145 Advanced Document Processing 3 cr
OT 152 Legal Terminology and Office Procedures 7 cr
OT 170 Introduction to Computers 3 cr
OT 171 Computerized Bookkeeping 3 cr
MANT 121 Essentials of Management 3 cr
MANT 240 Legal Environment 3 cr
ENGL 101 English Composition 3 cr
ENGL 201 Critical Reading and Writing 3 cr
PSYC 101 Introductory Psychology I 3 cr
POLS 101 Introduction to American Government 3 cr
COMM 101 Principles of Speech 2 cr
ECON 100 Economic Issues 3 cr
Total 86 cr
Associate of Applied Science Degree in Medical Office Technology
(4½ Semesters)

Required courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<td>OT 100</td>
<td>Technical General Education</td>
<td>1-16 cr</td>
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<tr>
<td>OT 115</td>
<td>Practicum</td>
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<td>OT 170</td>
<td>Introduction to Computers</td>
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<td>OT 171</td>
<td>Computerized Bookkeeping</td>
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<tr>
<td>OT 173</td>
<td>Spreadsheets, Database, Graphics</td>
<td>3 cr</td>
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<tr>
<td>OT 174</td>
<td>Records Management</td>
<td>3 cr</td>
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<tr>
<td>HO 105</td>
<td>Introduction to Allied Health Careers</td>
<td>2 cr</td>
</tr>
<tr>
<td>HO 106</td>
<td>Medical Terminology</td>
<td>2 cr</td>
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<tr>
<td>HO 107</td>
<td>Medical Law and Ethics</td>
<td>3 cr</td>
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<td>HO 202</td>
<td>ICD-9-CM Coding</td>
<td>3 cr</td>
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<td>HO 203</td>
<td>Medical Office Procedures</td>
<td>4 cr</td>
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<td>HO 204</td>
<td>Medical Transcriptions</td>
<td>4 cr</td>
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<tr>
<td>HO 205</td>
<td>CPT &amp; Alternative Care Records</td>
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<td>ENGL 101</td>
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<td>ENGL 201</td>
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<td>PSYC 101</td>
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<td>3 cr</td>
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<td>COMM 101</td>
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<td>ECON 100</td>
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<td>3 cr</td>
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Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for OT 100 and OT 101 and will not be required to attend the initial semester.

For course descriptions of the academic course required A.A.S. degrees see the College of Arts and Sciences.

OT 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

OT 115 Practicum 1-3 credits (variable). This is a pass/no pass course designed to offer students on-the-job experience through internships, cooperative training, externships, workstudy, or other on-site work experience modalities. Permission by instructor is required.

OT 118 Business Communications 1-3 credits. This course is designed to provide the foundation for effective business communications. The focus will be on spelling, grammar, punctuation, and the established standards of usage while emphasizing their importance in the business world.

OT 119 Business Communications II 3 credits. This course is designed to provide communication skills necessary to speak and write clearly in business environment. The course will focus on proofreading, editing, composition, oral and listening communications, basic research, and employment methods. PREREQ: OT 118 must be completed with a “C” grade or better.

OT 120 Bookkeeping 3 credits. Covers the entire bookkeeping cycle for sole proprietor bookkeeping. Includes journalizing, posting, financial statements, payroll and closing procedures.

OT 122 Machine Transcription 3 credits. Concentrated use of transcribing unit; advanced transcription from recorded media on all types of business correspondence, forms and reports. Composition of business documents. PREREQ: OT 118, 119 and 144.

OT 123 Applied Business Mathematics 3 credits. Review of basic mathematics with emphasis on application of basic mathematical models to assist in business decision-making. PREREQ: OT 118, 119, and 144.

OT 125 Computer Applications I 3 credits. This course is designed to offer the student the opportunity to experience hands-on microcomputer bookkeeping procedures, generate reports, and analyze financial statements. PREREQ: OT 120 and 144 or permission of instructor.

OT 131 Shorthand I 3 credits. Introduction to the principles of shorthand, including the shorthand alphabet, brief forms and phrasing. Develops the student’s ability to read shorthand and to take dictation at a minimum of 50 words per minute. PREREQ: OT 131 and OT 151.

OT 132 Shorthand II 3 credits. Puts shorthand theory to work to build speed and accuracy in dictation and transcription. Student should achieve a minimum speed of 80 words per minute. PREREQ: OT 131. Student must have completed or be enrolled in OT 144.

OT 140 Keyboard Skill Building 1 credit. This is a Pass/No Pass class designed to enhance student’s keyboarding skills. Emphasis is on mastering the keyboard, developing good keyboarding techniques, and building speed and accuracy. PREREQ: 25 nwm.

OT 141 Keyboarding 3 credits. This is a Pass/No Pass tutorial class covering the keyboard and basic typing skills. Develops the student’s ability to type at a minimum rate of 35 net words a minute.

OT 144 Document Processing 3 credits. This course builds basic word processing competencies. Emphasis is placed on learning word processing functions, developing basic formatting skills, and learning document production such as letters, memos, reports, and table functions. Participants will develop competency with hands-on experience utilizing word processing software. PREREQ: 25 nwm.

OT 145 Advanced Document Processing 3 credits. This course emphasizes advanced word processing proficiency and focuses on productivity and mailability in document production. Emphasis is also placed on work habits and communication skills. PREREQ: OT 144.

OT 149 Accounting Clerk Office Applications 2 credits. Course in which student creates and prepares financial documents covering payroll, accounts receivable, accounts payable, and financial statements. Applies job search techniques. PREREQ: OT 118 must be completed with a “C” grade or better; 120, 123, 144 and 170. Student must have completed or be enrolled in OT 131 and OT 151.

OT 151 Office Procedures and Interpersonal Skills 3 credits. This course prepares student for office duties and responsibilities, develops interpersonal skills, and explores career opportunities. PREREQ: OT 118 must be completed with a “C” grade or better. PREREQ: OT 144.

OT 152 Legal Terminology and Office Procedures 7 credits. Prepares students to handle legal dictation and transcription, to set up legal files and business records, to execute legal forms and to follow through on procedures relating to a wide variety of actions. This course is offered in the spring semester only. PREREQ: OT 118 must be completed with a grade of “C” or better; and OT 131. Student must have completed or be enrolled in OT 119, 122, and 145.

OT 170 Introduction to Computers 3 credit. This course is designed to provide the student with basic concepts, vocabulary, and working knowledge required to use a computer. The class will consist of weekly lectures/labs utilizing computers to understand concepts, operating systems, and software application such as word processing, database, spreadsheets, E-mail, internet, and integrated projects that are used in the business environment. PREREQ: 25 nwm.

OT 171 Computerized Bookkeeping 3 credits. This course is designed to give the student the opportunity to experience hands-on microcomputer bookkeeping procedures, generate reports, and analyze financial statements. PREREQ: OT 120 and 144 or permission of instructor.

OT 173 Spreadsheets, Database, Graphics 3 credits. This course is designed to acquaint users with the process of using personal computers to utilize spreadsheet analysis, graphics, and database management. PREREQ: OT 170 and 144.

OT 174 Records Management 3 credits. This course covers basic filing methods and the storage, protection, retrieval, use, and disposal of records in the form of paper documents, computer disks or tapes, or microforms. PREREQ: OT 144 and 170.

OT 175 Computer Applications 3 credits. This course is designed to allow students to complete simulated projects utilizing a variety of computer applications. Permission of instructor is required.
OT 176 Desktop Publishing/Multimedia 1-3 credits (variable). This course introduces the student to the use of presentation software to format documents including brochures, catalogs, newsletters, advertisements, forms, and to make multimedia presentations, etc. Student must have completed or be enrolled in OT 145.

OT 199 Special Topics 1-8 credits. This course is designed to address the specific needs of individuals. It will enable the students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time employment curriculum. Permission of the instructor is required.

OT 201 Office Resources Management 3 credits. This course will provide students with tools for supervising people and technology in the rapidly changing office. This course is intended to improve students’ promotability in the office environment and will cover the use of management and presentation software. Other areas of focus will be on the selection of software and hardware, troubleshooting and basic computer/network maintenance, and improving quality and productivity in the office. PREREQ: OT 151 or permission of instructor.

OT 202 Introduction to Legal Research and Writing 3 credits. This course will utilize the use of law references and computerized research tools to develop research skills for the legal office assistant in the preparation of briefs, memoranda, and other documents relative to the law office environment. PREREQ: OT 152 or permission of instructor.

HO 105 Introduction to Allied Health Careers 2 credits. Introduction to allied health careers emphasizing the interrelationships and the team approach to health care.

HO 106 Medical Terminology 2 credits. Body systems approach to theory and application of medical terms including anatomical, pathological, surgical and diagnostic as well as appropriate abbreviations.

HO 107 Medical Law and Ethics 3 credits. Principles and application of law to health care organizations and personnel, standards of care and liability; covers tort, contract and statutory law.

HO 202 ICD9-CM Coding 3 credits. Principles and application of coding for statistical and reimbursement purposes utilizing the International Classification of Diseases. PREREQ: HO 106.

Physical Therapist Assistant

4½ Semester Program

Coordinator: Beck
Instructor: Spradlin

An Associate of Applied Science degree requiring 93 credits as listed below, and a Bachelor of Applied Technology degree, are available. The Physical Therapist Assistant program is awaiting accreditation review by the Commission on Accreditation in Physical Therapy Education (CAPTE). Provided the program is awarded Accreditation, Graduates of the program will be eligible to sit for the national examination for registration/licensure for Physical Therapist Assistants.

Every course must be completed with a “C” or better. If a student receives a grade lower than a “C” they will be dismissed from the program. They will be offered the opportunity to petition for re-entry into the program for the following year, however, re-entry is not guaranteed and is up to the discretion of the program coordinator.

Required Courses:

- BIOL 202 General Zoology 3 cr
- BIOS 301 Anatomy & Physiology 4 cr
- BIOS 302 Anatomy & Physiology 4 cr
- ENGL 101 English Composition 3 cr
- ENGL 201 Critical Reading & Writing 3 cr
- HO 106 Medical Terminology 2 cr
- HO 107 Medical Law & Ethics 3 cr
- MATH 143 College Algebra 3 cr
- MATH 167 College Trigonometry 3 cr
- PHYS 111 General Physics I 4 cr
- PHYS 112 General Physics II 3 cr
- PHYS 113-114 General Physics Lab 1 cr
- PSYC 211 Personality and Adjustment 3 cr
- PSYC 225 Child Psychology 3 cr
- PSYC 301 Abnormal Psychology I 3 cr
Courses

For course descriptions of the academic courses required by the Physical Therapist Assistant A.A.S. degree, see the College of Arts and Sciences.

HO 106 Medical Terminology 2 credits. Body systems approach to theory and application of medical terms including anatomical, pathological, surgical and diagnostic as well as appropriate abbreviations.

HO 107 Medical Law & Ethics 3 credits. Principles and application of law to health care organizations and personnel, standards of care and liability; covers tort, contract and statutory law.

PTA 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

PTA 105 Introduction to Physical Therapy 3 credits. Roles and responsibilities of physical therapists and physical therapist assistants will be explored, as well as, the history of physical therapy. Includes patient care, legal issues, principles of physical therapy treatment, education requirements, and functions of the American Physical Therapy Association (APTA). Local physical therapy facilities visited. PREREQ: Admission to the PTA program.

PTA 106 Applied Kinesiology 4 credits. Studies the human anatomy with an emphasis on the musculoskeletal system, identification of structures and relationship to function, normal and abnormal biomechanical principles of joint motion and gait patterns. PREREQ: PTA 105, BIOL 202, BIOS 301.

PTA 107 Procedures I 5 credits. Procedures related to physical therapy treatment, including, universal precautions, principles of physics, anatomy, kinesiology, heat, cold, sound and their use in therapeutics. Also, transfer training, ROM, ultrasound, wheelchair, and wound management. PREREQ: *Must be a second year student in good standing. PTA 106, PTA 107.

PTA 200 Clinical Pathology 3 credits. An overview of basic disease processes and classification with special emphasis on musculoskeletal and nervous system pathologies which are treated with Physical Therapy. PREREQ: *Must be a second year student in good standing. PTA 106, PTA 107, BIOL 202, BIOS 301.

PTA 201 Procedures II 5 credits. A continuation of Procedures I, including electrical stimulation theory and techniques for applying variations of electrical current, biofeedback, traction, intermittent venous compression prosthetics and orthotics. PREREQ: PTA 107, PTA 200, PTA 202, PTA 210.

PTA 202 Physical Therapy Assessment 4 credits. Observation skills, tests and measurements in physical therapy including manual muscle testing, goniometry, balance, gait and posture assessment as related to patient progress. PREREQ: PTA 105, BIOL 202, BIOS 301.

PTA 203 Therapeutic Exercise 5 credits. Therapeutic exercise principles and practices related to patient treatment. Includes stretching, proprioceptive neuromuscular facilitation, other rehab techniques like NDT, Rood, Brunnstrom, cardiopulmonary rehab, and exercise equipment. PREREQ: *Must be second year student in good standing. PTA 106, PTA 107.

PTA 204 Seminar 3 credits. Current practices and issues in physical therapy. Includes clinical problem solving, ethics, legal aspects, reimbursement, case management, research, and employment issues. PREREQ: *Must be a second year student in good standing. PTA 200, PTA 201, PTA 202, and PTA 210.

PTA 210 Clinical Affiliation 13 credits. Clinical instructor supervised, four-week clinical experience in the Fall of the second year. Experience will focus on Physical Therapy Aide Skills. PREREQ: *Must be a second year student in good standing. PTA 106, PTA 107.

PTA 211 Clinical Affiliation II 7 credits. Clinical instructor supervised, eight-week clinical experience starting in February of the second year. Experience will focus on enhancing Physical Therapist Assistant skills in the treatment setting. PREREQ: *Must be a second year student in good standing. PTA 107, PTA 200, PTA 202, PTA 210.

PTA 212 Clinical Affiliation III 7 credits. Clinical instructor supervised, eight-week clinical experience starting in late May of the second year. Experience will focus on performing Physical Therapist Assistant skills at a professional level in preparation for entering the workforce. PREREQ: *Must be a second year student in good standing. PTA 203, PTA 204, PTA 210, PTA 211.

PTA 299 Special Topics (variable) 1-8 credits. This course is designed to address the specific needs of individuals. It will enable the students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.

PNUR 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

PNUR 110 Basic Foundations of Nursing 3 credits. A study of the normal structure and function of body cells, tissues, organs and systems. Also see Business Technology for the Associate of Applied Science degree.

The Practical Nursing Program provides classroom, laboratory, and student nurse practicum instruction which prepare graduates for entry into the nursing profession. The graduates are prepared to take the State Board examination for Practical Nurses. Successful completion of the exam results in licensure as a Practical Nurse.

The following courses are required for a certificate:

pnur 100 Technical General Education 1-16 cr
pnur 110 Basic Foundations of Nursing 3 cr
pnur 111 Anatomy and Physiology for Practical Nurse 3 cr
pnur 112 Geriatric Nursing 3 cr
pnur 114 Clinical Foundations of Nursing I 2 cr
pnur 116 Mental Health Nursing 2 cr
pnur 120 Medical/Surgical Nursing Theory 4 cr
pnur 121 Clinical Foundations of Nursing II 4 cr
pnur 122 Nursing of Children 3 cr
pnur 123 Drug Therapy for the Practical Nurse 3 cr
pnur 124 Nutrition and Diet Therapy for the Practical Nurse 2 cr
pnur 125 Maternal Nursing 2 cr
pnur 130 Advanced Medical/Surgical Nursing Theory 3 cr
pnur 131 Clinical Foundations of Nursing III 4 cr
pnur 132 Newborn Nursing 2 cr
pnur 199 Special Topics 1-8 cr
ho 106 Medical Terminology 3 cr
TOTAL: 59 cr

Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for PNUR 100 and will not be required to attend the initial session. Every student is required to earn a grade of “C” or better in every class to be eligible for a certificate.

PNUR 100 Technical General Education 1-16 credits. The basic mathematical skills of fractions, decimals, percents, proportions are reviewed. Also, for technical fields, beginning algebra through the application of the quadratic equation is studied. An experiment-based science class that emphasizes development and application of equations and problem-solving techniques is taught. Communication skills, critical thinking and basic technical writing are stressed.

PNUR 110 Basic Foundations of Nursing 4 credits. A study of the principles of disease transmission; therapeutic communication; patient teaching, medication administration, the nursing process and basic clinical skills which provide the foundation for nursing practice.

PNUR 111 Anatomy and Physiology for Practical Nurse 3 credits. A study of the normal structure and function of body cells, tissues, organs and systems.

Practical Nursing

2½ Semester Program
Program Coordinator and Instructor: LaHann
Instructors: DenHartog, Poelvoorde, Rosenkranz

Also see Business Technology for the Associate of Applied Science degree.
PNUR 112 Geriatric Nursing 3 credits. A study of the normal and abnormal aging in the older adult.

PNUR 114 Clinical Foundations of Nursing 2 credits. Through hands on clinical experience in a variety of settings the student nurse will be exposed to the skills basic to nursing practice.

PNUR 116 Mental Health Nursing 2 credits. The theory of psychiatric disorders and principles of nursing the mentally ill patient are presented.

PNUR 120 Medical/Surgical Nursing Theory 4 credits. Introduction to various disease processes and how they affect the adult client. The theory of nursing care is provided.

PNUR 121 Clinical Foundations of Nursing II 4 credits. Introduction to the basic physical and emotional needs of clients (children and adults) in a variety of health care facilities. Students can apply the nursing process in patient situations, beginning with basic nursing care and moving to more complex patient situations. This includes nursing care and application of drug therapy.

PNUR 122 Nursing of Children 3 credits. The disorders of childhood and the principles of pediatric nursing will be presented. Normal growth and development of the child will be incorporated throughout.

PNUR 123 Drug Therapy for the Practical Nurse 3 credits. The study of drugs and their actions as related to patient care in nursing practice.

PNUR 124 Nutrition and Diet Therapy for the Practical Nurse 2 credits. The principles of basic nutrition and the application of diet therapy for the ill patient.

PNUR 125 Maternal Nursing 2 credits. The theory and principles of the nursing care of the pregnant client.

PNUR 130 Advanced Medical/Surgical Nursing Theory 3 credits. The theory and principles of the nursing care of the critically ill adult client.

PNUR 131 Clinical Foundations of Nursing III 4 credits. The theory and principles of the nursing care of the critically ill in real situations.

PNUR 132 Newborn Nursing 2 credits. The theory and principles of the nursing care of the newborn.

PNUR 199 Special Topics (variable) 1-8 credits. This course is designed to address the specific needs of individuals. It will enable the students to upgrade their technical skills through part-time enrollment in units of instruction that are currently available through the program’s full-time pre-employment curriculum. Permission of the instructor is required.

HO 106 Medical Terminology 2 credits. Body systems approach to theory and application of medical terms including anatomical, pathological, surgical and diagnostics as well as appropriate abbreviations.

Welding

2 Semester and 4 Semester Program Options

Program Coordinator and Instructor: Rost
Instructors: Humpherys, Treasure, and Staff

Weldor General

(2 Semesters)

The following courses are required for a certificate:

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<th>Title</th>
<th>Credits</th>
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<tr>
<td>WELD 100</td>
<td>Technical General Education</td>
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<tr>
<td>WELD 131</td>
<td>Welding Practice I</td>
<td>12 cr</td>
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<td>WELD 132</td>
<td>Welding Practice II</td>
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<td>WELD 140</td>
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<td>WELD 141</td>
<td>Mechanical Drawing</td>
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<td>WELD 142</td>
<td>Blueprint Reading</td>
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<td>WELD 143</td>
<td>Shop Math</td>
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Weldor-Fitter

(4 Semesters)

The following courses are required in addition to the Weldor General requirements for a certificate:

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<td>Welding Practice III</td>
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<td>WELD 232</td>
<td>Welding Practice IV</td>
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<td>WELD 241</td>
<td>Metal Layout</td>
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<tr>
<td>WELD 243</td>
<td>Shop Math II</td>
<td>3 cr</td>
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Associate of Applied Science Degree in Weldor-Fitter

The following courses are required in addition to the Weldor-Fitter requirements:

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<td>TGE 151</td>
<td>Applied Technical Writing I</td>
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<tr>
<td>TGE 152</td>
<td>Applied Technical Writing II</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 153</td>
<td>Applied Technical Speaking</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 156</td>
<td>Applied Business Principles</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 158</td>
<td>Applied Job Search</td>
<td>2 cr</td>
</tr>
<tr>
<td>TGE 160</td>
<td>Applied Human Relations</td>
<td>2 cr</td>
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<tr>
<td>TOTAL</td>
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<td>92 cr</td>
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</table>

Courses

Students who demonstrate adequate academic skill to succeed in the occupational content courses of the program will be given an “S” grade for WELD 100 and will not be required to attend the initial session.
TGE 151 Applied Technical Writing I 2 credits. Course provides instruction in informal technical report writing and business correspondence. Includes grammar/punctuation review, introduction to word processing and technical terminology/vocabulary building. Meets general education requirement for A.A.S. degree.

TGE 152 Technical Writing II 2 credits. Course provides instruction in techniques and application of formal technical report writing and fundamentals of research and development. Meets general education requirement for the A.A.S. degree.

TGE 153 Applied Technical Speaking 2 credits. Course provides principle of technical and business speech communication. Includes informative and persuasive presentation, effective meeting organization and listening skill development. Meets general education requirement for the A.A.S. degree.


TGE 158 Applied Job Search 2 credits. Course provides techniques and development of employment process skills. Includes instruction in résumé/cover letter writing, interviewing, company research, and portfolio preparation. Meets general education requirement for the A.A.S. degree.

TGE 160 Applied Human Relations 2 credits. Course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership and personal attitude. Meets general education requirement for the A.A.S. degree.

VIEW (English as a Second Language). Non-English speakers can learn to speak, read, and write English whether or not they can read or write in their native language. Classes stress conversation and survival skills.

GED (General Educational Development). High school equivalency training designed for people who didn’t receive a high school diploma. The students work on coursework independently and at their own rate. Courses include audio tapes, video cassettes, books, tutors, and computers. Practice tests for the GED are offered. The GED may be combined with the government course taken at the center to obtain a diploma from the state.

Resource Center. This program provides tutoring for students within each of the School of Applied Technology programs. Students should contact their instructors to request help.

Post-Secondary Short-Term Training

Post-Secondary Short-Term Education offerings include specialized vocational courses during non-traditional hours. Classes (including short-term workshops) are offered both on- and off-campus during afternoons, weekdays, evenings, and Saturdays. The purpose of these classes is to offer training and/or retraining for persons who have already entered the labor market and who desire to achieve stability or advancement in gainful employment. Instruction may include laboratory, shop and related classroom instruction appropriate for the specific group being served.

Course offerings are announced each semester through the press, radio, and special bulletins. More than 300 courses ranging in length from one week to two years are offered and start at varying times throughout the year. If there is interest shown or a need determined, special workshops and classes are also presented to businesses, industries, and groups of individuals.

Classes in the following general areas are offered each year:

- Agriculture
- Electronics
- Office Practices
- Automotive
- General Trades
- Real Estate
- Business Mgt
- Health
- Supervision
- Computers
- Home Economics
- Welding
- Drafting Related
- Industrial
- Electrical
- Insurance

Because of the constant demand for classes of this nature, people are encouraged to register for classes as early as possible. Persons interested in enrolling in any of these offerings may do so by coming to the Special Programs Office located in the RFC Building of the School of Applied Technology or by writing to the address or calling the telephone number listed below:

Special Programs
School of Applied Technology
Box 8380
Idaho State University
Pocatello, ID 83209
(208) 236-3372

Center for New Directions

Center for New Directions Top Floor, Roy F. Christensen Building
Idaho State University
School of Applied Technology
Box 8380
Pocatello ID 83209
(208) 236-2454
Director: Liz Shanahan

This center provides support services designed to help in the transition to financial and personal independence. The Center works to help each individual receive personal counseling, workshops, support groups and classes which will meet his or her needs. The Center has JTFA funds to assist eligible individuals with classroom training and on the job training. The Center also has scholarships for women entering non-traditional programs. Students are encouraged to contact the office for further information.

Southeast Idaho Region 5 Tech Prep

Coordinator: Fred Ball

Southeast Idaho Region 5 Tech Prep
School of Applied Technology
Idaho State University
Box 8380
Pocatello ID 83209
(208) 236-4663

The Tech Prep office provides support services designed to assist high school students in articulating credits from high school to the School of Applied Technology. The Tech Prep office works to provide students with a seamless, non-duplicated...
course of study through enhanced education based on career pathways. Tech Prep programs are business/industry driven with opportunities for students to participate in work-based learning at both the high school and the post-secondary levels. Students are encouraged to contact the office for further information.