School of Applied Technology 1997-1998 Calendar

Fall Semester 1997 (42 Days)

Fee Deadline ..... August 22
Classes begin ..... August 25
Labor Day Holiday ..... September 1
Last date to file application for graduation in December ..... September 8
Last date to withdraw from 1st eight week classes ..... September 26
Classes end for 1st eight weeks ..... October 17

Second Eight Week Classes for Fall Semester 1997 (38 Days)

Classes begin ..... October 20
Fee Deadline ..... October 20
Last date to withdraw from semester classes ..... November 14
Last date to withdraw from 2nd eight week classes ..... November 21
Thanksgiving Holiday ..... November 26-28
Last date to completely withdraw from school ..... December 5
Classes end for 2nd eight weeks ..... December 19

Spring Semester 1998 (40 Days)

Fee deadline ..... January 9
Classes begin ..... January 12
Martin Luther King Day/Idaho Human Rights Day ..... January 19
Last date to file application for graduation in May ..... January 26
Last date to withdraw from 1st eight week classes ..... February 13
Presidents Day Holiday ..... February 20
Classes end for 1st eight weeks ..... March 6
Spring Break ..... March 9-13

Second Eight Week Classes for Spring Semester 1998 (40 Days)

Classes begin ..... March 16
Fee deadline ..... March 16
Last date to withdraw from semester classes ..... April 10
Last date to withdraw from 2nd eight week classes ..... April 17
Last date to completely withdraw from school ..... May 1
Last date to file application for graduation in August ..... May 8
Classes end for 2nd eight weeks ..... May 15
Commencement ..... May 16

Summer Session 1998 (39 Days)

Memorial Day Holiday ..... May 25
Classes begin ..... May 26
Fee deadline ..... May 26
Last date to withdraw (Summer) ..... June 20
Last date to withdraw from school ..... June 26
Independence day Holiday ..... July 3
Classes end for Session 5 ..... July 17
Commencement ..... August 7

School of Applied Technology

Ranaye J. Marsh, Ph.D., Dean
Deb 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.

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 or toll free 1-800-999-4781.

Part-time enrollment in regular preparatory programs is possible. Contact the office of Student Services and a counselor will assist you in developing a petition to be submitted to the Associate Dean of the Idaho State University School of Applied Technology.

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 gradu-

ation, 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 form 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.

Subject Area	H.S. Cr. Requirement	Select from these Subject Areas
Mathematics	4 cr	Algebra I & II, Geometry, Analytical Geometry, Applied Math I & II, Trigonometry, Discrete Math, Statistics, Calculus.
Natural Science	4 cr	Applied Biology/Chemistry, Principles of Technology (Applied Physics), Anatomy, Biology, Earth Science, Geology, Physiology, Physical Science, Zoology, Physics, Chemistry, Agricultural Science, 500 level and above Technology.
English	8 cr	Composition, Literature, Applied English in the workplace.

All forms must be completed and returned to respective offices as early as possible. If applications are late, processing may be delayed. Because some programs fill several months in advance, any interested applicant should contact the School of Applied Technology Student Services Office as early as possible.

Readmission

Former School of Applied Technology students who have been out of school one session or more must complete the necessary forms in the Student Services office before returning to the program.

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. Fees may vary depending on the student's entrance date.

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

Type of Expense	Per Semester
Resident student	$863
Non-resident student	$2,837
Housing, meals (See the university's "Expenses" section of this catalog)	
Credit hour	$86.00
Student Insurance Fee - Semester mandatory (included in fees)	$199.50
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.

General Information

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%
(less registration processing fee of $10)	
During 2nd week of classes	75%
During 3rd & 4th weeks of classes	50%
After 4th week:	NO REFUNDS

This policy also pertains to part-time students. No special consideration is given to late registrants in extending the refund policy and there is no refund on any portion of the late-processing fee.

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.

Credit

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 comple-

tion. 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.

Semester Withdrawal

Students may withdraw from class/es or from a program within the first eleven 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 twelfth week of classes, students may withdraw for medical or hardship reasons only. Beginning the second week prior to the end of the semester no hardship withdrawals are accepted.

Any student who leaves school without officially withdrawing, will be considered an unofficial withdrawal and will receive an "F" grade in all course work not completed. The student's name will appear on the grade sheet and instructor must enter an "F" grade on the grade sheet.

Second 8 Week Withdrawal

Students may withdraw from class/es or from a program within the first five weeks of a session. To initiate a withdrawal from 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 sixth 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

A student will be placed on probation when his/her cumulative grade point average drops below a 2.0 in his/her current program. A student on probation will be dismissed at the end of any probationary semester in which the student obtains a grade point average of less than 2.0.

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.

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, division 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. Associate of Applied Science degrees may be earned in Aircraft Maintenance Technology, Automotive Collision Repair and Refinishing, Diesel/Diesel Electric Technology, Fire Technology, Graphic Arts/ Printing Technology, Health Information Technology, Machining Technology, Marketing and Management Occupations, Medical Assistant, Office Technology, and Welding. 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 (AAS) degree approved by the Idaho State Board of Education. All AAS programs at ISU are approved. If students wish to coordinate the option of using the AAS to apply toward a BAT degree, they should consult with their AAS program advisor about which University general education courses can be used to fulfill requirements for both the AAS 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 or call toll free 1-800-999-4781.

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 session (eight weeks) emphasizing technical general education is incorporated into each vocationally oriented program curriculum. One semester stressing technical general education is included in program curriculum having a technical base. 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

Two Semesters and One Summer Session and Four Semesters and One Summer Session Program

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

(Two Semesters and One Summer Session)

The following courses are required for a certificate:

AIRM 100	Technical General Education	8 cr
AIRM 101	Mathematics	3 cr
AIRM 102	Aircraft Drawing	1 cr
AIRM 103	Truss Structures	3 cr
AIRM 104	Materials and Processes	7 cr
AIRM 105	Sheetmetal Structure	6 cr
AIRM 107	Forms and Regulations	3 cr
AIRM 108	Basic Electricity	3 cr
AIRM 109	Fluid Systems	5 cr
AIRM 110	Landing Gear Systems	4 cr
AIRM 111	Utility Systems	3 cr
AIRM 112	Electrical Systems	5 cr
AIRM 120	Structural Welding	2 cr
AIRM 170	Report Writing I	1 cr
	TOTAL:	54 cr

Power Plant Option

(Four Semesters and One Summer Session)

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

AIRM 221	Basic Reciprocating Engines	3 cr
AIRM 222	Advanced Reciprocating Engines	2 cr
AIRM 223	Basic Turbine Engines	3 cr
AIRM 224	Advanced Turbine Engines	2 cr
AIRM 225	Engine Lubrication Systems	2 cr
AIRM 226	Induction and Exhaust Systems	2 cr
AIRM 227	Engine Fuel Systems	3 cr
AIRM 228	Ignition and Cooling Systems	5 cr
AIRM 229	Engine Electrical and Instrument Systems	4 cr
AIRM 230	Engine Propellers	4 cr
AIRM 270	Report Writing II	2 cr
	TOTAL:	86 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:

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 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) 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions and science. Study of oral and written communications.

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 principles and uses of electricity in the various circuits and controls of the 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 radials, opposed-vu, and in-line 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 2 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.

AIRM 230 Engine Propellers 4 credits. Design, operation, overhaul, and installation of propellers and components.

AIRM 270 Report Writing II 2 credits. Continuation of AIRM 170 with emphasis on engine analysis and documentation.

AIRM 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 156 Applied Business Principles 2 credits. Course provides an overview of business/economic principles related to technical courses of study. Meets general education requirement for the AAS degree.

TGE 158 Applied Job Search 2 credits. The course provides students with knowledge and abilities in the areas of employment process

skills. Job acquisition and maintenance skills and job market analysis are the core of this course. Meets general education requirement for the A.A.S. degree.

TGE 160 Occupational/Human Relations 2 credits. The 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.

Automotive Collision Repair and Refinishing

Three semester to four semester* and one summer session program.

Program Coordinator and Instructor: Gravatt
Instructor: Butler

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

(3 Semesters)

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

ACRR 100	Technical General Education	1-8 cr
ACRR 146	Introduction to Collision and Refinishing	8 cr
ACRR 147	Minor Collision Repair and Refinishing	8 cr
ACRR 148	Basic Collision Repair and Refinishing	8 cr
ACRR 210	Advanced Collision Repair I	8 cr
ACRR 211	Advanced Collision Repair II	8 cr
ACRR 212	Advanced Collision Repair III	8 cr

Automotive Refinishing

(3 Semesters)

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

ACRR 100	Technical General Education	1-8 cr
ACRR 146	Introduction to Collision and Refinishing	8 cr
ACRR 147	Minor Collision Repair and Refinishing	8 cr
ACRR 148	Basic Collision Repair and Refinishing	8 cr
ACRR 160	Advanced Refinishing I	8 cr
ACRR 161	Advanced Refinishing II	8 cr
ACRR 162	Advanced Refinishing III	8 cr

Automotive Collision Repair and Refinishing

(4 1/2 Semesters)

A minimum of 80 credits is required for a certificate in Automotive Collision Repair and Refinishing. Required courses:

ACRR 100	Technical General Education	1-8 cr
ACRR 146	Introduction to Collision and Refinishing	8 cr
ACRR 147	Minor Collision Repair and Refinishing	8 cr
ACRR 148	Basic Collision Repair and Refinishing	8 cr
ACRR 160	Advanced Refinishing I	8 cr
ACRR 161	Advanced Refinishing II	8 cr
ACRR 162	Advanced Refinishing III	8 cr
	OR	
ACRR 252	Cooperative Work Experience	8 cr
ACRR 210	Advanced Collision Repair I	8 cr
ACRR 211	Advanced Collision Repair II	8 cr
ACRR 212	Advanced Collision Repair III	8 cr
	OR	
ACRR 252	Cooperative Work Experience	8 cr

Associate of Applied Science Degree in Automotive Collision Repair and Refinishing

(4 1/2 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	2 cr
TGE 152	Applied Technical Speaking	2 cr
TGE 153	Applied Business Principles	2 cr
TGE 156	Applied Business Principles	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 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 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

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 mig welding equipment including brazing and cutting . Also, the fundamentals of basic metal finishing including the use of plastic filler. Safety rules and procedures, especially in dealing with hazardous materials, will be emphasized.

ACRR 147 Minor Collision Repair and Refinishing 8 credits. The metal finishing with fillers is continued. Refinishing fundamentals are taught and practiced, including prepping vehicles for refinishing from washing the vehicle to the final top color or clear coat. Projects will be both component and customer vehicles. Systems application is taught. PREREQ: ACRR 146.

ACRR 148 Basic Collision Repair and Refinishing 8 credits. Training will be focused on the areas of basic fundamentals already taught in welding, metal repair, and refinishing. Projects will be on both components and customer vehicles. Detailing a vehicle is included. PREREQ: ACRR 147.

ACRR 160 Advanced Refinishing I 8 credits. Advanced technical refinishing term 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. PREREQ: ACRR 148.

ACRR 161 Advanced Refinishing II 8 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 studied, and new products and techniques will be introduced. PREREQ: ACRR 160.

ACRR 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 I 8 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 148.

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 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 Applied 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 Economics 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.

Automotive Technology

Three Semester 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:

AUTM 100	Technical General Education	8 cr
AUTM 101	Vehicle Controls	8 cr
AUTM 102	Power Train	8 cr
AUTM 103	Automotive Engines	8 cr
AUTM 104	Auto Electrical Units	8 cr
AUTM 105	Live Work I	8 cr
AUTM 106	Live Work II	8 cr
		TOTAL: 56 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 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

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 102 Power Train 8 credits. (Theory and Laboratory) (Domestic and Foreign) Car and pickup truck clutches, car and pickup truck 3, 4, and 5 speed manual transmissions. Manual transmissions with overdrives. Manual transaxles 3, 4, and 5 speeds. Transfer cases, converters, automatic transmissions 3 and 4 speeds, automatic with overdrives, automatic transmissions, transaxles and final drives.

AUTM 103 Automotive Engines 8 credits. (Theory and Laboratory) (Domestic and Foreign) Engine overhaul procedures, electrical theory and test meters, soldering and constructing test leads. Batteries, theory and testing procedures. Electrical symbols and glossary. Engine tune-up, standard and electronic. Ignition systems, standard and electronic and air conditioning.

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 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

(Four and one half semester program)

Five certificate options and one Associate of Applied Science degree are available.

Certificates:

Cabinet Setting - 1/2 semester

Dry Wall & Taping/Wall Covering Application - 1/2 Semester

Floor Covering Installation - 1/2 semester

Interior Trim - 1/2 semester

Residential Carpentry - 2 semesters

Associate of Applied Science degree:

Building Construction Technology -

4 semesters

This is a new program and at the time of publication, final curriculum had not been completed. Contact the School of Applied technology Student Services office for more information.

Business Equipment/ Computer Technician

Length of Program: 11 months

Program Coordinator and Instructor:
Sweat

A Technical Certificate and an Associate of Applied Science degree (see Business Technology) are available.

Technical Certificate

Prerequisites: (Waived if scores on CPT indicate competence)

BECT 100	Technical General Education	8 cr

First Semester

(Students attend the first semester 7 hours a day for 16 weeks.)

BECT 110	Typewriters	4 cr
BECT 111	Keyboarding/Operating System	4 cr
BECT 113	Customer Relations	2 cr
BECT 115	Basic Electrical Theory	3 cr
BECT 117	Basic Computer Servicing	5 cr
TGE 151	Applied Technical Writing I	2 cr

Second Semester

BECT 122	Basic Electronics	5 cr
BECT 124	Electronic Cash Registers/Calculators	6 cr
BECT 126	Bond Copiers/Laser Printers	6 cr
TGE 158	Applied Job Search	2 cr

Third Semester

BECT 132	Product Sales	1 cr
BECT 134	Advanced Computer Service/Network	7 cr
	TOTAL:	47 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 BECT 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.

BECT 100 Technical General Education 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions and science. Study of oral and written communications.

BECT 110 Typewriters 4 credits. Proper use of a typewriter and its care will be discussed. 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 prepared. Instruction in hand tools, power tools, mechanical parts and lubrication of parts will occur.

BECT 111 Keyboarding/Operating System 5 credits. Prepares the student with keyboarding skills, operating systems, their commands and functions. Basic word processing, disk formatting, basic software installation and computer terms will be covered.

BECT 113 Customer Relations 2 credits. Prepares the student to meet the public and communicate orally. Introduces maintenance agreements, telephone etiquette, dress standards, personal hygiene, work standards and human relations.

BECT 115 Basic Electrical Theory 3 credits. Course introduces the student to electricity and electronics. Simple DC circuits, use of a Volt Ohm Meter, how to solder, resistors, capacitors, conductors, insulators, Ohm's law, Diodes, transistors, and motors will be covered. Math applications covering positive and negative numbers related to basic electronics. Decimals, metrics and algebra formulas will also be covered.

BECT 117 Basic Computer Servicing 4 credits. Introduces the student to the 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.

BECT 122 Basic Electronics 5 credits. Electronic terms, schematics, oscilloscopes will be utilized. Power supplies, inductance, capacitance, AC circuits, integrated circuits, logic gates and basic digital electronics will be explored. Math for digital binary, and mathematical formulas will be discussed.

BECT 124 Electronic Cash Register/Calculator 5 credits. The theoretical operation of electronic calculators and electronic cash registers will be discussed. Disassembly, reassembly, adjustments and checkout procedures demonstrated. Basic programming, troubleshooting, safety and hookup of cash registers to computers performed.

BECT 126 Bond Copier/Laser Printer 6 credits. Operate bond copiers and laser printers. The hookups, theory of electronics, basics of xerography, supplies, disassembly, assembly, troubleshooting, adjustments, cleaning methods and safety will be covered. Fax machine operation and servicing will also be covered.

BECT 132 Product Sales 1 credits. Prepares the student with an introduction to sales techniques, selling office equipment, percentage marks ups, discounts and invoices. How sales are an important part of business systems/ computer technology and retail sales. The term effort will be emphasized.

BECT 134 Advanced Computer Service/ Network 7 credits. Course introduces the student to the servicing of computers. Includes training in disk drives, power supplies, modems, printers, keyboards, monitors and hook ups. The use of word processing, spread sheets, diagnostic troubleshooting methods and utility programs will be explored.

BECT 199 Special Topics (variable) 1-8 credits. Addresses the specific needs of individuals who may be part-time, to upgrade their technical skills through 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 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 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.

Business Technology

(See Marketing and Management Occupations)

Child Development

Two Semester Program

Program Coordinator and Instructor: Beitia

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

A minimum of 46 credits is required for a certificate in the Child Care Provider option. Required courses:

CHLD 100	Technical General Education	8 cr
CHLD 105	Professionalism	3 cr
CHLD 110	Child Health, Safety and Environment	4 cr
CHLD 120	Early Childhood	6 cr
CHLD 125	Guidance In Early Childhood Education	3 cr
CHLD 130	Early Childhood Physical and Cognitive Development	6 cr
CHLD 135	Fostering Creativity	2 cr
CHLD 140	Curriculum Implementation	4 cr
CHLD 150	Parent Involvement and Program Management	3 cr
Optional:		
CHLD 113	Child Care Laboratory I	2 cr
CHLD 199	Child Development Special Topic Workshops	1-12 cr
	TOTAL:	46 cr

Optional Evening Courses:		
CHLD 160	Professionalism in Family Child Care	1 cr
CHLD 161	Child Health and Safety	1 cr
CHLD 162	Environments in Family Child Care	1 cr
CHLD 164	Early Childhood Social and Emotional Development	2 cr
CHLD 166	Guidance in Early Childhood Education	1 cr
CHLD 168	Early Childhood Physical and Cognitive Development	2 cr
CHLD 170	Fostering Creativity	1 cr
CHLD 172	Curriculum Implementation	2 cr
CHLD 174	Parent Involvement and Program Management	1 cr

Courses

CHLD 100 Technical General Education I 1-8 credits. A review of mathematical skills in addition, subtraction, multiplication, division, fractions, decimals, percents and proportions. Written and oral communications with an emphasis on spelling and grammar.

CHLD 101 Technical General Education II 1-8 credits. Continuation of review of mathematical skills including elementary algebra. Written and oral communications.

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, and lab.

CHLD 113 Child Care Laboratory I 2 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 lab.

CHLD 125 Guidance In Early Childhood Education 3 credits. This course provides students with information on positive guidance techniques. Learning include supporting social and emotional development by helping children to learn and practice appropriate and acceptable behaviors as individuals and as a group. Includes classroom lectures, individualized instruction, and lab.

CHLD 130 Early Childhood Physical and Cognitive Development 6 credits. Introduction to children's physical and cognitive development. 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 lab.

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 lab.

CHLD 140 Curriculum Implementation 3 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, individual instruction, and lab.

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: patenting styles and strategies, family communication, discipline, stress management, functional and dysfunctional families, family structures, team building, time management, job interviews, resume development, professional image, and professional development. Includes classroom lectures and individualized instruction.

CHLD 160 Professionalism in Family Child Care 1 credit. 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 and individualized instruction.

CHLD 161 Child Health and Safety 1 credit. This course covers information on safe and healthy environment for young children. Students receive information concerning health and safety practices in day care and preschool. Students will be taught how to assess and ensure safe indoor and outdoor areas. Includes mental health and personal safety, classroom lectures, and individualized instruction.

CHLD 162 Environments in Family Child Care 1 credit. Students will be taught how to assess, develop and implement stimulating learning environments for preschool children. Includes classroom lectures and individualized instruction.

CHLD 164 Early Childhood Social and Emotional Development 2 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 and individualized instruction.

CHLD 168 Early Childhood Physical and Cognitive Development 2 credits. Introduction to children's physical and cognitive development. 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 and individualized instruction.

CHLD 170 Fostering Creativity 1 credit. An introductory course which includes the value of play for children and methods to advance emotional, physical and intellec-

tual 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 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 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, resume' 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

Four Semester Program

Program Coordinator and Instructor: Merrill
Instructor: Wissa
Adjunct Faculty: Wilson

One Associate of Applied Science Degree, one Associate of Technology 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:

CIVT 100	Technical General Edu I	8 cr
CIVT 101	Technical General Edu II	8 cr
CIVT 121	Mathematics I	6 cr
CIVT 122	Mathematics II	3 cr
CIVT 123	Drawing Laboratory I	4 cr
CIVT 124	Drawing Laboratory II	4 cr
CIVT 125	Surveying I	4 cr
CIVT 126	Surveying II	5 cr
CIVT 130	Materials Testing and Specifications I	2 cr
CIVT 241	General Physics	4 cr
CIVT 242	Engineering Mechanics	4 cr
CIVT 243	Materials Testing and Specifications II	4 cr
CIVT 244	Materials Testing and Specifications III	3 cr
CIVT 245	Route Survey and Design	10 cr
CIVT 246	Land and Construction Surveys	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 courses 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, 101 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 I 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and beginning algebra. A review of oral and written communications.

CIVT 101 Technical General Education II 1-8 credits. A continuation of Technical General Education I. An in-depth review of introductory algebra consisting of signed numbers, equations, polynomials, graphing and systems of equations. Also emphasized are communication skills, problem solving, and prep for technical writing. An experiment based science class is taught that emphasizes development of, and application of equations and problem solving techniques. The scientific calculator is emphasized in this science class.

CIVT 121 Mathematics I 6 credits. A basic study of technical mathematics including numbers and order of operations, algebra, functions, trigonometry, factoring, rational expressions, equations, quadratic equations and functions, higher degree equations, inequalities and analytic geometry. 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, graphing of trigonometric functions, exponents and radicals, exponential functions, sequences and series, systems of equations, and statistics. Emphasis will be on placed in areas relating to Civil Engineering Technology when possible. PREREQ: CIVT 121.

CIVT 123 Drawing Laboratory I 4 credits. Introduction and use of drafting equipment. Alphabet of lines, multiview projection, sectional views, auxiliary views, dimensioning, and working drawings. Basic ACAD is taught and some drawing is made by computer aided design. Taught the second eight weeks of the first 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, earthworks and other details relating to Civil Engineering Technology drawings. ACAD is used for some of the drawings.

CIVT 125 Surveying I 4 credits. Introduction and field use of surveying equipment. Theory and use of transit, theodolite, level, chaining or taping, hand levels and rodding. Field projects: simple traverse, chaining (land measurement), differential leveling, profile leveling, and applications to basic trigonometry in surveying. Taught the first eight weeks of the first semester.

CIVT 126 Surveying II 5 credits. Continuation of Surveying I. Survey of land, traverses and closures, bearings, and coordinates. Solar observation for land measurement control, topography surveying and maps. Use of calculators to solve surveying problems. Introduction and use of the electronic distance measuring theodolites. Application of mathematics and survey drawing emphasized.

CIVT 130 Materials Testing and Specifications 2 credits. Introduction to basic lab equipment, test procedures, and specifications. Learn tests used for soils classification in preparation for soils survey accomplished in the 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 principle 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, force analysis of structures, friction, fluid statics, kinematics, and kinetics to plane motion. Computation of bending and shear forces and design of structural beams.

CIVT 243 Materials Testing and Specifications II 4 credits. Introduction to soils theory, soils types, soils classification and terminology. Do actual soils survey in conjunction with route survey and design, culminating with an Autocad soils survey/profile drawing. Theory and practical application of compaction of soils and asphalt with related specifications. Nuclear dens-o-meter theory and training. Anticipated field trips to conduct compaction tests at actual construction sites. Asphalt theory and design.

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.

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 minicomputer. 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 and global positioning systems (GPS). 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. Addresses the specific needs of individuals, enabling 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 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 Economics 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.

Computer Software Engineering Technology

Two and One-Half to Four and One-Half Semesters

Program Coordinator and Instructor: Call

Instructors: Lance, Naas, Volkers

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

Microcomputer Specialist

(Two and One-Half Semesters)

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
CSET 187	Microcomputer Networking and Connectivity	3 cr
CSET 189	Microcomputer Software Development	3 cr

Courses required for the Microcomputer Specialist Option are only offered in the evening.

Computer Operator

(Two and One-Half Semesters)

The following courses are required for a certificate:

CSET 100	Technical General Education I	8 cr
CSET 101	Technical General Education II	8 cr
CSET 111	Business Math	3 cr
CSET 117	COBOL Programming I	4 cr
CSET 118	COBOL Programming II	4 cr
CSET 135	Accounting	3 cr
CSET 181	Microcomputer Applications	3 cr
CSET 183	Microcomputer Operating Systems	3 cr
CSET 217	Visual Basic Programming	4 cr
TGE 151	Applied Technical Writing I	2 cr
TGE 153	Applied Technical Speaking	2 cr
TGE 156	Applied Business Principles	2 cr
	TOTAL:	40 cr

Computer Programmer

(Three and One-Half Semesters)

The following courses are required for a certificate:

CSET 100	Technical General Education I	8 cr
CSET 101	Technical General Education II	8 cr
CSET 111	Business Math	3 cr
CSET 117	COBOL Programming I	4 cr
CSET 118	COBOL Programming II	4 cr
CSET 135	Accounting	3 cr
CSET 181	Microcomputer Applications	3 cr
CSET 183	Microcomputer Operating Systems	3 cr
CSET 187	Microcomputer Network and Connectivity	3 cr
CSET 217	Visual Basic Programming	4 cr
CSET 218	Visual Basic Programming Advanced	3 cr
CSET 219	C++ Programming	4 cr
CSET 278	Interactive Programming I	3 cr
CSET 284	Oracle	3 cr
CSET 286	Database Management and Design	4 cr
CSET 288	Interactive Programming II	3 cr
TGE 151	Applied Communications I	2 cr
TGE 153	Applied Technical Speaking	2 cr
TGE 156	Applied Business Economics	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr

Associate of Applied Science in Computer Software Engineering/ Language Specialist

(Four and One-Half Semesters)

The following courses are required:

CSET 100	Technical General Educ I	8 cr
CSET 101	Technical General Edu II	8 cr
CSET 111	Business Math	3 cr
CSET 117	COBOL Programming I	4 cr
CSET 118	COBOL Programming II	4 cr
CSET 135	Accounting	3 cr
CSET 181	Microcomputer Applications	3 cr
CSET 183	Microcomputer Operating Systems	3 cr
CSET 187	Microcomputer Networking and Connectivity	3 cr
CSET 217	Visual Basic Programming	4 cr
CSET 218	Visual Basic Programming Advanced	3 cr
CSET 219	C++ Programming	4 cr
CSET 242	UNIX and Internet	3 cr
CSET 278	Interactive Programming I	3 cr
CSET 284	Oracle	3 cr
CSET 286	Database Management and Design	4 cr
CSET 287	Systems Analysis and Design	4 cr
CSET 288	Interactive Programming II	3 cr
CSET 290	Systems Development and Implementation	3 cr
CSET 293	4th Generation Language Advanced	3 cr
TGE 151	Applied Technical Writing I	2 cr
TGE 152	Applied Communications II	2 cr
TGE 153	Applied Communications III	2 cr
TGE 156	Applied Business Principles	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr

Associate of Applied Science in Computer Software Engineering/ Network Specialist

(Four and One-Half Semesters)

The following courses are required:

CSET 100	Technical General Edu I	8 cr
CSET 101	Technical General Edu II	8 cr
CSET 111	Business Math	3 cr
CSET 117	COBOL Programming I	4 cr
CSET 118	COBOL Programming II	4 cr
CSET 135	Accounting	3 cr
CSET 181	Microcomputer Applications	3 cr
CSET 183	Microcomputer Operating Systems	3 cr
CSET 187	Microcomputer Networking and Connectivity	3 cr
CSET 217	Visual Basic Programming	4 cr
CSET 218	Visual Basic Programming Advanced	3 cr
CSET 219	C++ Programming	4 cr
CSET 242	UNIX and Internet	3 cr
CSET 278	Interactive Programming I	3 cr
CSET 284	Oracle	3 cr
CSET 286	Database Management and Design	4 cr
CSET 287	Systems Analysis and Design	3 cr
CSET 288	Interactive Programming II	3 cr
CSET 290	Systems Development and Implementation	4 cr
CSET 293	4th Generation Language Advanced	3 cr
CSET 295	Network Management	3 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

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, 101 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 I 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

CSET 101 Technical General Education II 1-8 credits. A continuation of Technical General Education I. An in-depth review of introductory algebra consisting of signed numbers, equations, polynomials, graphing and systems of equations. Also emphasized are communication skills, problem solving and prep for technical writing.

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 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.

CSET 118 COBOL Advanced Programming 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 III 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. Stressing 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 Microcomputer 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 optimum systems to use for a given application. Student will learn how to present jobs for both foreground and background processing.

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 system 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.

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.

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.

CSET 217 Visual Basic Programming 4 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 cr. Students learn to use Visual Basic Database Object to access Microsoft and Oracle databases. Object linking and imbedding 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, friends, 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. A final grade of "C" or better is required to receive a certificate or AAS degree.

CSET 284 Oracle 3 credits. Programming in Oracle on the personal computers. The course includes design, development, and testing using Oracle. Evaluate the differences between procedural and nonprocedural languages.

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 online applications using CICS/VS. A simple high level programming 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 applicator programs.

CSET 289 Systems Analysis and Design - Advanced 3 credits. Students will learn to use Computer Assisted Software Engineering (CASE) tools to assist in the design and development of applications. 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 in 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 netware basics, netware 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 data processing technology; permission of instructor 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 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 Economics 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.

Cosmetology

One Session and Seven Session Program Options

Program Coordinator and Instructor: Ruska

Instructors: Bledsoe, Branson, Haddenham

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

Nail Technology Option

(One Session—Summer Only)

The following courses are required for a certificate. Successful completion of the 16 credits is required to be eligible to take the State Board Examination.

COSM 100	Technical General Education	8 cr
COSM 150	Principles and Science of Manicuring	2 cr
COSM 151	Practice and Art of Nail Design	6 cr
	TOTAL:	16 cr

Cosmetology Option

(3 1/2 Semesters)

The following courses are required for a certificate. Successful completion of the 64 credits is required to be eligible to take the State Board Examination.

COSM 100	Technical General Education	8 cr
COSM 116	Introduction Principles of Cosmetology I	8 cr
COSM 127	Beginning Principles and Practice of Cosmetology II	8 cr
COSM 136	Fundamental Principles of Cosmetology I	2 cr
COSM 137	Fundamental Practice of Cosmetology I	6 cr
COSM 146	Fundamental Principles of Cosmetology II	2 cr
COSM 147	Fundamental Practice of Cosmetology II	6 cr
COSM 156	Fundamental Principles of Cosmetology III	2 cr
COSM 157	Fundamental Practice of Cosmetology III	6 cr
COSM 266	Advanced Principles of Cosmetology I	2 cr
COSM 267	Advanced Practice of Cosmetology I	6 cr
COSM 270	Advanced Principles of Cosmetology II	2 cr
COSM 277	Advanced Practice of Cosmetology II	3 cr
	TOTAL:	56 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 COSM 100 and will not be required to attend the initial session.

COSM 100 Technical General Education 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

COSM 116 Introduction to Principles of Cosmetology I 8 credits. This course is designed to provide the student with basic knowledge of the fundamentals of hair chemistry and biologies, introduction to basic permanent waving chemistry, hair cutting and styling. The student will perform and demonstrate application of the basic principles of the physical application on a mannequin. Interpersonal skills, professional development, the dynamics of the salon industry will be introduced. This course requires critical thinking, writing and communication skills pertaining to the field of Cosmetology. Role playing and mock situations will be utilized.

COSM 127 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, chemical reformation, and interpersonal skills. Classroom and lab will be utilized interchangeably.

COSM 136 Fundamental Principles of Cosmetology I 2 credits. Builds upon concepts taught in COSM 127. Course will focus on creative concepts in hair color and chemical reformation of the hair. Prereq: COSM 127

COSM 137 Fundamental Practice of Cosmetology I 6 credits. Builds upon practices taught in COSM 127. Lab and live work. Students will perform services on clientele, retailing and building a clientele. Prereq: COSM 127.

COSM 146 Fundamental Principles of Cosmetology II 2 credits. Builds upon concepts taught in COSM 136. Lab and live work. Students will perform services on clientele, retailing, building a clientele, and scheduling appointments, dispensary duties. Prereq: COSM 136.

COSM 147 Fundamental Practice of Cosmetology II 6 credits. Builds upon practices taught in COSM 137. Lab and live work. Students will perform services on clientele, retailing, building a clientele and scheduling appointments, dispensary duties. Prereq: COSM 137.

COSM 156 Fundamental Principles of Cosmetology III 2 credits. Builds upon concepts taught in COSM 146. Prereq: COSM 146.

COSM 157 Fundamental Practice of Cosmetology III 6 credits. Builds upon practices taught in COSM 147. Lab and live work. Students will perform services on clientele, retailing, building a clientele and scheduling appointments, dispensary duties. Prereq: COSM 147.

COSM 266 Advanced Principles of Cosmetology I 2 credits. Builds upon concepts taught in COSM 156. Study of advanced techniques and principles of Cosmetology. Prereq: COSM 156.

COSM 267 Advanced Practice of Cosmetology I 6 credits. Builds upon practices taught in COSM 157. Lab and live work. Students will perform services on clientele, retailing, building a clientele and scheduling appointments, dispensary duties. Prereq: COSM 157.

COSM 270 Advanced Principles of Cosmetology II 2 credits. Builds upon concepts taught in COSM 266. This course will prepare the student for the State Board Exam, salon visitations, salon design and industry contacts.

COSM 277 Advanced Practice of Cosmetology II 6 credits. Builds upon practices taught in COSM 267. Prereq: COSM 267.

COSM 279 Seminar 1-16 credits (variable). Includes review for students preparing for re-examination or as a brush-up course for licensed operators from Idaho and other states in preparation for taking Idaho State Board Examination or learning new techniques.

COSM 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.

Culinary Arts Technology

(2 Semesters)

Program Coordinator and Instructor: Edwards
Instructors: 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:

CUAR 100	Technical General Education	1-8 cr
CUAR 105	Applied Mathematics I	1 cr
CUAR 111	Food Preparation and Service I	4 cr
CUAR 114	Applied Sanitation	1 cr
CUAR 121	Food Preparation and Service II	4 cr
CUAR 124	Nutritional Meal Planning	1 cr
CUAR 125	Applied Mathematics II	1 cr
CUAR 131	Food Preparation and Service III	4 cr
CUAR 133	Applied Customer Relations	1 cr
CUAR 134	Purchasing	1 cr
CUAR 141	Food Preparation and Service IV	4 cr
CUAR 144	Facility and Personnel Organization	1 cr
CUAR 145	Applied Mathematics III	1 cr
TGE 151	Applied Technical Writing I	2 cr
TGE 152	Applied Technical Writing II	2 cr
TGE 160	Applied Human Relations	2 cr
		TOTAL: 32 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 CUAR 100 and will not be required to attend the initial session.

CUAR 100 Technical General Education 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

CUAR 105 Applied Math 1 credit. A review of basic arithmetic principles, fractions, decimals and percentages.

CUAR 111 Food Preparation and Service I 4 credits. Acquaints students with basic principles of beverage, sandwich and salad preparation and service as it applies to commercial and institutional food service. Use of basic equipment will be covered.

CUAR 114 Applied Sanitation 1 credit. A study of the basic sanitary regulations and practices for the proper preparation and service of food in commercial and institutional establishments.

CUAR 121 Food Preparation and Service II 4 credits. Commercial and institutional food preparation techniques of soups, sauces, and vegetable cookery.

CUAR 124 Nutritional Meal Planning 1 credit. Basic principles of nutrition and how to apply them to meal planning for commercial and institutional food service.

CUAR 125 Applied Math II 1 credit. This course is designed to teach students to apply basic math principles to kitchen procedures; i.e., measuring, weighing, figuring quantities and food costs and forecasting.

CUAR 131 Food Preparation and Service III 4 credits. Principles of main dish preparation and service. Covered will be fish, poultry and meat cutting and cookery. Basic baking techniques will be presented.

CUAR 133 Applied Customer Relations 1 credit. This course is designed to teach students to give customer service to patrons of a food service establishment. Included will be dining room service and handling the business end of restaurant service.

CUAR 134 Purchasing 1 credit. This course is designed to teach students to buy accurate quantities and qualities of food and to use production records for commercial and institutional food establishments.

CUAR 141 Food Preparation and Service IV 4 credits. Advanced and specialty techniques of food preparation and baking.

CUAR 144 Facility and Personnel Organization 1 credit. This course is designed to instruct the student how to plan for the purchase and maintenance of equipment. It will teach the principles of personnel management.

CUAR 145 Applied Math III 1 credit. This course will give students the skills to apply business skills for the food service industry.

CUAR 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. PREREQ: PERMISSION OF INSTRUCTOR.

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 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.

Dental Laboratory Technology

Four and One-Half Semester Program

Program Coordinator and Instructor: G.S. George

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

Associate of Applied Science Degree in Dental Laboratory Technology

(Four and One-Half Semesters)

The following courses are required for the Associate of Applied Science degree in Dental Laboratory Technology.

DLT 100	Technical General Education	1-8 cr
DLT 111	Oral Anatomy and Tooth Morphology	4 cr
DLT 112	Dental Anatomy Laboratory	4 cr
DLT 113	Occlusal Concepts	2 cr
DLT 114	Occlusal Laboratory Practice	3 cr
DLT 115	Applied Dental Chemistry and Physics	2 cr
DLT 131	Crown and Bridge Concepts	3 cr
DLT 132	Crown and Bridge Techniques	3 cr
DLT 133	Complete Denture Principles	2 cr
DLT 134	Complete Denture Techniques	3 cr
DLT 135	Dental Materials	3 cr
DLT 150	Math	1 cr
DLT 151	Removable Partial Denture Concepts	2 cr
DLT 152	Removable Partial Denture Techniques	2 cr
DLT 153	Concepts of Orthodontic/Pedodontic Treatment Appliances	1 cr
DLT 154	Orthodontic/Pedodontic Treatment Appliance Techniques	1 cr
DLT 155	Professional and Industrial Relations	2 cr
DLT 261	F.R. Rest. Pros.	3 cr
DLT 262	F.R. Rest. Techniques	4 cr

DLT 263	Removable Pros. Concepts	2 cr
DLT 264	Removable Pros. Tech	3 cr
DLT 282	Dental Laboratory Or.	10 cr
DLT 271	Porcelain Fused to Metal Substructure Concepts	3 cr
DLT 272	Porcelain Fused to Metal Substructure Techniques	3 cr
DLT 273	Fixed Ceramic Restoration, Porcelain Concepts	3 cr
DLT 274	Fixed Ceramic Restoration, Porcelain Technique	4 cr
DLT 284	Dental lab Practicum	10 cr
DLT 285	Dental Lab Clinical Pract.	5 cr
DLT 286	Dental Lab Specialty Pract.	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 Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr
	TOTAL: 83	1 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 1-8 Credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

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. Acquaints student with various occlusal concepts and theories commonly accepted within the dental field.

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

DLT 115 Applied Dental Chemistry and Physics 2 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 131 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, spruing, 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 are 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 261 Fixed Ceramic Restoration Concepts 3 credits. A theory course to instruct the students to various procedures for the fabrication of porcelain fused to metal restoration. Also, the procedures used to fabricate all porcelain (no metal) restorations, crowns, inlays, onlays and veneers. Prereq: DLT 131, DLT 132, DLT 151, DLT 153, DLT 155 with a "C" or better.

DLT 262 Fixed Ceramic Restoration Techniques 4 credits. A laboratory course designed to instruct the student to the various procedures used in the fabrication of porcelain fused to metal restoratives. Also, the procedures necessary for the fabrication of all porcelain restoration using a refractory system. Prereq: DLT 131, DLT 132, DLT 152, DLT 154 and DLT 155 with a "C" or better.

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 Prosthodontic 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 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/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 Economics 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.

Diesel/Diesel Electric Technology

Two and 1/2 Semesters to Four Semester Program Options

Program Coordinator and Instructor: Green

Instructors: Brown, Bullock, Dixon, Durfee, Huls

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

Diesel Technology

(Two and 1/2 Semesters)

The following courses are required for a certificate:

DESL 100	Technical General Education	8 cr
DESL 120	Introduction to Diesel Technology	2 cr
DESL 131	Fundamentals of Electricity	1 cr
DESL 132	Batteries and D.C. Charging Systems	1 cr
DESL 133	Starting Systems, 12 and 24 Volt	1 cr
DESL 134	Ignition Systems	1 cr
DESL 135	A.C. Charging Systems, 12 and 24 Volt	1 cr
DESL 136	Chassis Wiring	1 cr
DESL 140	Hydraulics	3 cr
DESL 144	Power Shift Transmissions	3 cr
DESL 150	Brakes Systems	2 cr
DESL 161	Fuel Systems	1 cr
DESL 162	In-Line Fuel Pumps	1 cr
DESL 163	Detroit Fuel Systems	1 cr
DESL 164	Cummins Fuel Systems	1 cr
DESL 165	Distributor Pumps	1 cr
DESL 166	Gaseous Fuel System	1 cr
DESL 170	Fuel Injectors, Turbo Chargers and Blowers	1 cr
DESL 175	Cab Air Conditioning	1 cr
DESL 182	Gas Engines	2 cr
DESL 184	Diesel Engines	6 cr
DESL 191	Clutches	1 cr
DESL 192	Light Duty Transmission	1 cr
DESL 193	Heavy Duty Standard Truck Transmission	1 cr
DESL 194	Farm and Industrial Tractor Transmission	1 cr
DESL 195	Truck Axles and Drive Lines	1 cr
DESL 196	Farm Axles and Differentials	1 cr
DESL 197	Industrial and Construction Equipment	1 cr
DESL 198	Steering and Suspension Systems	1 cr
TGE 151	Applied Technical Writing I	2 cr
TGE 152	Applied Technical Writing II	2 cr
TGE 153	Applied Technical Speaking	2 cr

Plus two courses selected from the following:

TGE 156	Applied Business Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr

TOTAL: 50 cr

Diesel Electric Technology

(Three Semesters)

The following courses are required for a certificate:

DESL 100	Technical General Education	8 cr
DESL 120	Introduction to Diesel Technology	2 cr
DESL 131	Fundamentals of Electricity	1 cr
DESL 132	Batteries and D.C. Charging Systems	1 cr
DESL 133	Starting Systems, 12 and 24 Volt	1 cr
DESL 134	Ignition Systems	1 cr
DESL 135	A.C. Charging Systems, 12 and 24 Volt	1 cr
DESL 136	Chassis Wiring	1 cr
DESL 140	Hydraulics	3 cr
DESL 144	Power Shift Transmissions	3 cr
DESL 150	Brakes Systems	2 cr
DESL 161	Fuel Systems	1 cr
DESL 162	In-Line Fuel Pumps	1 cr
DESL 163	Detroit Fuel Systems	1 cr
DESL 164	Cummins Fuel Systems	1 cr
DESL 165	Distributor Pumps	1 cr
DESL 166	Gaseous Fuel System	1 cr
DESL 170	Fuel Injectors, Turbo Chargers and Blowers	1 cr
DESL 175	Cab Air Conditioning	1 cr
DESL 182	Gas Engines	2 cr
DESL 184	Diesel Engines	6 cr
DESL 241	Diesel Electric I	8 cr
DESL 243	Diesel Electric II	8 cr

Plus two courses selected from the following:

TGE 151	Applied Technical Writing I	2 cr
TGE 152	Applied Technical Writing II	2 cr
TGE 153	Applied Technical Speaking	2 cr

Plus one course selected from the following:

TGE 156	Applied Business Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr

TOTAL: 54 cr

Associate of Applied Science Degree in Diesel Technology

(Three and 1/2 Semesters)

The following courses are required in addition to the Diesel Technology certificate requirements:

DESL 231	Live Work I	8 cr
DESL 233	Live Work II	8 cr
	OR	
DESL 251	Internship	8 cr

Plus one course selected from the following:

TGE 156	Applied Business Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr
	TOTAL:	68 cr

Associate of Applied Science Degree in Diesel Electric Technology

(Four Semesters)

The following courses are required in addition to the Diesel Electric Technology certificate requirements:

DESL 191	Clutches	1 cr
DESL 192	Light Duty Transmission	1 cr
DESL 193	Heavy Duty Standard Truck Transmission	1 cr
DESL 194	Farm and Industrial Tractor Transmission	1 cr
DESL 195	Truck Axles and Drive Lines	1 cr
DESL 196	Farm Axles and Differentials	1 cr
DESL 197	Industrial and Construction Equipment	1 cr
DESL 198	Steering and Suspension Systems	1 cr
DESL 231	Live Work I	8 cr

Plus one additional courses selected from the following:

TGE 151	Applied Technical Writing I	2 cr
TGE 152	Applied Technical Writing II	2 cr
TGE 153	Applied Technical Speaking	2 cr

Plus two additional courses selected from the following:

TGE 156	Applied Business Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr
	TOTAL:	76 cr

Courses

DESL 100 Technical General Education 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

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 and magnetism. Types of circuits, proper use and function of volt, amp and ohm meters.

DESL 132 Batteries and D.C. Charging Systems 1 credit. Theory and operation of batteries, proper testing and servicing of batteries. Function, operation, and testing of generators and regulators, using proper test equipment. PREREQUISITE: DESL 131 or comparable.

DESL 133 Starting Systems, 12 and 24 Volt 1 credit. Theory and operation of starting systems, solenoid, and relay types. Testing and repairing of starting components using proper tools and testing equipment. PREREQUISITE: DESL 131 or comparable.

DESL 134 Ignition Systems 1 credit. Theory and operation of points and condenser, and electronic ignitions. Proper testing and servicing of ignition system components. PREREQUISITE: DESL 131 or comparable.

DESL 135 A.C. Charging Systems, 12 and 24 Volt 1 credit. Theory and operation of alternators and regulators. Testing and servicing using proper tools and meters. PREREQUISITE: DESL 131 or comparable.

DESL 136 Chassis Wiring 1 credit. Learn how to read and use wiring diagram. Theory and testing of electrical components on a vehicle (motors, switches, lights, etc.). PREREQUISITE: 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, trouble shooting, 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. PREREQUISITE: 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. PREREQUISITE: 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. PREREQUISITE: DESL 161 or comparable.

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

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

DESL 170 Fuel Injectors, Turbo Chargers and Blowers 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. PREREQUISITE: 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 195 Truck Axles and Drive Lines 1 credit. The principals and servicing of axles, drive lines and carrier overhaul.

DESL 196 Farm Axles and Differentials 1 credit. The principals, diagnosis and repair of differentials and final drives.

DESL 197 Industrial and Construction Equipment 1 credit. The study and repair practices for final drives, wheel and track type, and the undercarriage of track type machines.

DESL 198 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 233 Live Work II 8 credits. A continuation of DESL 231.

DESL 241 Diesel Electric I 8 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 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 Economics 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: Burstedt
Instructor: Stites
Adjunct Faculty: Acree

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

(Two and One-Half Semesters)

The following courses are required for a certificate:

DEDR 100	Technical General Education I	8 cr
DEDR 101	Technical General Education II	8 cr
DEDR 111	Drafting Technology Theory	3 cr
DEDR 113	Drafting Technology Laboratory	6 cr
DEDR 116	Math	5 cr
DEDR 121	Drafting Technology Theory	3 cr
DEDR 123	Drafting Technology Laboratory	5 cr
DEDR 126	Math	5 cr
DEDR 127	Measurement Laboratory	1 cr
DEDR 151	Drafting Technology Theory	2 cr
DEDR 153	Drafting Technology Laboratory	5 cr
DEDR 156	Applied Science	2 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 Principals	2 cr
	TOTAL:	61 cr

Associate of Applied Science Degree in Design Drafting Technology

(Four and One-Half Semesters)

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

DEDR 211	Design Technology Theory	3 cr
DEDR 213	Design Technology Laboratory	6 cr
DEDR 216	Applied Science	4 cr
DEDR 217	Strength of Materials Laboratory	1 cr
DEDR 221	Design Technology Theory	4 cr
DEDR 223	Design Technology Laboratory	6 cr
DEDR 226	Applied Science	7 cr
DEDR 227	Strength of Materials Laboratory	1 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr
	TOTAL:	97 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

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, 101 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 I 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and beginning algebra. Review of oral and written communications.

DEDR 101 Technical General Education II 1-8 credits. A continuation of Technical General Education I. An in-depth review of introductory algebra consisting of signed numbers, equations, polynomials, graphing and systems

of equations. Also emphasized are communication skills, problem solving and prep for technical writing. An experiment based science class is taught that emphasizes development of, and application of equations and problem solving techniques. The scientific calculator is emphasized in this science class.

DEDR 111 Drafting Technology Theory 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 mentioned in drafting theory.

DEDR 116 Math I 5 credits. Units include a review of basic algebra and continuation to advanced algebra and geometry to lay the groundwork 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 toleranc-ing, 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 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 1 credit. This course is an introduction to measuring devices. Students learn the use of micrometer and calipers. Introduction to plan reading, stress/strain curve, and design and drawing of basic building footing with associated lab work.

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 2 credits. An introduction to statics will be presented. Areas of emphasis will be the basic disciplines of static force systems stressing mathematical and graphical solutions to problems.

DEDR 159 Internship 1-8 credits (variable at 1 credit/week). Eight-week industrial work experience via a cooperative program for selected students.

DEDR 211 Design 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 during the first eight weeks. Procedures for designing structural components such as beams, columns, and reinforced concrete footings will be presented during the second eight weeks.

DEDR 213 Design 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 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, types 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 Design Technology Theory II 4 credits. The fundamentals of architectural design will be presented during the first eight weeks. Included will be floor plans, elevations, room layout, aesthetic design, site plans, heating and cooling systems, and specification writing. During the second eight weeks basic machine design will be presented. The design of gears, cams, bearing, clutches, and brakes will be included.

DEDR 223 Design Technology Laboratory II 6 credits. During the first eight weeks 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 during the second eight weeks. Instruction will be given in the design of basic machine elements. Solid modeling will be included.

DEDR 226 Applied Science III 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. 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 Economics 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.

Electrical Technician

Two Semester Program

Coordinator and Instructor: Weimer

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

The following courses are required for a certificate:

ELTY 100	Technical General Education	8 cr
ELTY 131	Electrical Theory I	4 cr
ELTY 132	Electrical Theory II	6 cr
ELTY 133	Applied Math I	4 cr
ELTY 134	Applied Math II	6 cr
ELTY 135	Electrical Laboratory I	4 cr
ELTY 136	Electrical Laboratory II	4 cr
ELTY 137	Electrical Code	3 cr
ELTY 138	Electrical Code	3 cr
ELTY 139	Electrical Drawings	1 cr
TGE 151	Applied Communications	2 cr
TGE 158	Occupational Job Search	2 cr
	TOTAL:	47 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 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

ELTY 131 Electrical Theory I 4 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; Kirchhoff'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 6 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 Math I 4 credits. Algebraic terms, general numbers, and definitions; Addition and Subtraction; Multiplication and Division; Equations; Powers of 10: Special Products and Factoring; Algebraic Fractions; Fractional Equations; Graphs; Simultaneous equations.

ELTY 134 Applied Math II 6 credits. Exponents and radicals; quadratic equations; batteries; angles; trigonometry; elementary vectors; alternating current. PREREQ: ELTY 133.

ELTY 135 Electrical Laboratory I 4 credits. Shop safety; hand tools; house, commercial, and industrial wiring; voltage sources and measurements.

ELTY 136 Electrical Laboratory II 4 credits. Meters; Transformers; Electric motor controls; Manual motor starters; Three phase systems; Magnetic line voltage starters; Multi-speed controllers; DC controllers; motor devices; Static control. PREREQ: ELTY 135.

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

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

ELTY 139 Electrical Drawings 1 credit. Fundamentals of drawing; basic wiring drawing; Schematic diagrams.

ELTY 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.

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 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.

Electro-mechanical Drafting Technology

Instructors: Hansen, Merrill

One certificate options, one Associate of Applied Science degrees, one Associate of Technology 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

(Two Sessions)

The following courses are required for a certificate:

EMDR 100	Technical General Education I	8 cr
EMDR 101	Technical General Education II	8 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

Associate of Applied Science Degree in Electro-mechanical Drafting Technology

(Eight Sessions)

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

EMDR 100	Technical General Edu	8 cr
EMDR 101	Technical General Edu II	8 cr
EMDR 112	Math I	3 cr
EMDR 114	Drafting Theory I	2 cr
EMDR 115	Drafting Laboratory I	3 cr
EMDR 117	Math II	3 cr
EMDR 119	Drafting Theory II	3 cr
EMDR 120	Drafting Laboratory II	4 cr
EMDR 144	Mechanical Drafting Theory I	2 cr
EMDR 145	Mechanical Drafting Lab I	3 cr
EMDR 174	Hardwiring Theory I	2 cr
EMDR 175	Hardwiring Laboratory I	3 cr
EMDR 242	Trigonometry	3 cr
EMDR 247	Strength of Materials	3 cr
EMDR 248	Mechanical Drafting Theory II	2 cr
EMDR 249	Mechanical Drafting Laboratory II	5 cr
EMDR 268	Mechanical Drafting Theory III	2 cr
EMDR 269	Mechanical Drafting Laboratory III	6 cr
EMDR 276	Hardwiring Theory II	2 cr
EMDR 277	Hardwiring Laboratory II	5 cr
EMDR 278	Printed Circuit Theory	2 cr
EMDR 279	Printed Circuit Laboratory	6 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 Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr
	TOTAL:	90 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 technical support 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, 101 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 I 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions and beginning algebra. A review of oral and written communications.

EMDR 101 Technical General Education II 1-8 credits. A continuation of Technical General Education I. An in-depth review of introductory algebra consisting of signed numbers, equations, polynomials, graphing and systems of equations. Also emphasized are communication skills, problem solving and prep for technical writing. An experiment based science class is taught that emphasizes development of, and application of equations and problem solving techniques. The scientific calculator is emphasized in this science class.

EMDR 112 Math I 3 credits. Review of complex fractions and story problem solutions followed by a study of percentage, ratio-proportion, weights-measures, and powers. Study of algebra through equations with three unknowns. Strong on story problems.

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 linework, 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. Puts into practice the knowledge gained in the preparation of drawings. The student will produce drawings using a CAD system.

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 and theory gained in EMDR 119 by preparing drawings manually and on the CAD system. PREREQ: EMDR 112, 114, 115.

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. This theory course will cover the layout of electrical and electronic drawings. PREREQ: EMDR 119

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 247 Strength of Materials 3 credits. Introduction to statics principles and strength of materials. Includes calculation of reactions, analysis of force systems, stress-strain behavior, Poisson's ratio, temperature effects, shear and moment diagrams, welded joints, stress in beams, and beam size determination. PREREQ: EMDR 242.

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 145, 242.

EMDR 268 Mechanical Drafting Theory III 2 credits. Theory of working drawings including reinforced concrete, architectural and the elements of structural steel detailing. PREREQ: EMDR 247, 248.

EMDR 269 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, 249.

EMDR 276 Hardwiring Theory II 2 credits. Electronic and electrical packaging concepts and standards. PREREQ: EMDR 174.

EMDR 277 Hardwiring Laboratory II 5 credits. Drafting of complete chassis and cabinet drawing packages. All work can be drafted on the CAD system. PREREQ: EMDR 175.

EMDR 278 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 276.

EMDR 279 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 277.

EMDR 280 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 weeks of industrial work experience via a cooperative program for selected students.

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

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

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 Economics 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.

Electro-mechanical Technology

Four and One-Half Semester Program

Program Coordinator and Instructor: Green

Instructors: Christensen, Fitzen, M. Lyons, McArthur

One Associate of Applied Science Degree, one Associate of Technology 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 Electro-mechanical Technology

(Four and One-Half Semesters)

The following courses are required:

ELTR 100	Technical General Edu I	8 cr
ELTR 101	Technical General Edu II	8 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
ELTR 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 Principals	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 101, 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 I 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions and beginning algebra. A review of oral and written communications.

ELTR 101 Technical General Education II 1-8 credits. A continuation of Technical General Education I. An in-depth review of introductory algebra consisting of signed numbers, equations, polynomials, graphing and systems of equations. Also emphasized are communication skills, problem solving, and prep for technical writing. An experiment based science class is taught that emphasizes development of, and application of equations and problem solving techniques. The scientific calculator is emphasized in this science class.

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 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 123 Electron Control Devices Theory 2 credits. Comprehensive study of electronic control devices and circuit applications.

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 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.

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, 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 I 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.

ELMT 272 EM Analog Devices and Systems Laboratory 6 credits. This is a practical application of the theory class, ELMT 271. Assignments in lab will cover the electronic and/or mechanical adjustment, calibration, troubleshooting and repair of automated systems. Each student will prototype and analyze components, sub-systems and complete automated electromechanical systems. All results of experiments will be recorded in written log form in the student's log notebook.

ELMT 290 Internship 1-8 credits. On-the-job placement providing work experience for students pursuing careers in Electromechanical Technology. Permission of the instructor is required.

ELMT 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 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 Economics 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.

Electronic RF/Telcom Technology

Four and 1/2 Semester Program

Program Coordinator and Instructor: Parker

Instructors: Christensen, Fitzen, M. Lyons, McArthur

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

(Four and 1/2 Semesters)

A minimum of 98 credits is required for an Associate of Applied Science degree in Electronic RF/Telcom Technology. Required Courses:

ELTR 100	Technical General Education I	8 cr
ELTR 101	Technical General Education II	8 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
ELTR 269	Electronic Drafting I	2 cr
ERFT 211	Radio Frequency/ Telecommunications Systems I	7 cr
ERFT 212	Radio Frequency/ Telecommunications Laboratory I	7 cr
ERFT 221	Radio Frequency/ Telecommunications Systems II	6 cr
ERFT 222	Radio Frequency/ Telecommunications Laboratory II	3 cr
ERFT 223	Radio Frequency/ Telecommunications Laboratory II	3 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 Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr
	TOTAL:	98 cr

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.

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 technical support 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

Official articulation agreements have been established with other post-secondary and secondary schools. Where these agreements exits, 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 101, 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 I 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions and beginning algebra. A review of oral and written communications.

ELTR 101 Technical General Education II 1-8 credits. A continuation of Technical General Education I. An in-depth review of introductory algebra consisting of signed numbers, equations, polynomials, graphing and systems of equations. Also emphasized are

communication skills, problem solving, and prep for technical writing. An experiment based science class is taught that emphasizes development of, and application of equations and problem solving techniques. The scientific calculator is emphasized in this science class.

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.

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 processor signals from troubleshooting perspective is emphasized.

ELTR 269 Electronic Drafting I 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 utilizes 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 7 credits. Is a practical application of radio frequency/telecommunications circuits, RF wideband and narrow band amplifiers, electronic switching/programming and digital data communications that utilizes 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 211 Radio Frequency/Telecommunications Systems 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 system 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 II 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 pursues 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 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 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 Economics 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.

Electronic Systems Technology

Six Semester Program

Instructors: Christensen, DiViesti, Durtschi, Fitzen, M. Lyons, McArthur, Rasmussen, Vittetoe, Winton

One Associate of Applied Science Degree, one Associate of Technology 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

(Six Semesters)

The following courses are required:

ELTR 100	Technical General Edu I	8 cr
ELTR 101	Technical General Edu II	8 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
ELSY 252	Systems Analog/Digital Theory	7 cr
ELSY 253	Systems Analog/ Digital Laboratory	5 cr
ELSY 261	Introductory Calculus	4 cr
ELSY 262	Calculus For Intermediate Electronics	4 cr
ELSY 267	Radio Frequency Transmission Theory	7 cr
ELSY 268	Radio Frequency Transmission Laboratory	5 cr
ELTR 269	Electronic Drafting I	2 cr
ELSY 270	Electronic Drafting II	2 cr
ELSY 371	Advanced Math for Electronics	4 cr
ELSY 372	Calculus for Advanced Electronics	4 cr
ELSY 373	Advanced Digital Theory	5 cr
ELSY 374	Advanced Pulse Theory	5 cr
ELSY 375	Advanced Digital Laboratory	5 cr
ELSY 376	Advanced Pulse 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 Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr
	TOTAL:	124 cr

Laser/Electro-Optics Technology Certificate

The following courses are required in addition to the above courses for a certificate under the Electronic Systems Technology Program:

ELSY 331	Laser Systems/Optics Theory	4 cr
ELSY 332	Laser Systems/Optics Laboratory	4 cr
	TOTAL:	8 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 101, 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 I 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions and beginning algebra. A review of oral and written communications.

ELTR 101 Technical General Education II 1-8 credits. A continuation of Technical General Education I. An in-depth review of introductory algebra consisting of signed numbers, equations, polynomials, graphing and systems of equations. Also emphasized are communication skills, problem solving, and prep for technical writing. An experiment based science class is taught that emphasizes development of, and application of equations and problem solving techniques. The scientific calculator is emphasized in this science class.

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 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.

ELSY 252 Systems Analog/Digital Theory 7 credits. Introduction to digital, including gates, counters, registers, encoding-decoding, and multiplexing. Boolean algebra. Analog circuit analysis applied to power supplies, op-amps, and selected television circuits. PREREQ: 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.

ELSY 268 Radio Frequency Transmission Laboratory 5 credits. 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.

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

ELSY 270 Electronic Drafting II 2 credits. Continuation of ELTR 269 with emphasis on orthographic and pictorial presentation. Use of computer graphics will also be presented.

ELSY 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.

ELSY 331 Laser Systems/Optics Theory 4 credits. Theory and analysis of lasers and associated devices. Covers laser fundamentals, wave and geometric optics, electro-optics devices and components.

ELSY 332 Laser Systems/Optics Laboratory 4 credits. Practical application of theory and analysis in analyzing laser/optics systems.

ELSY 371 Advanced Math for Electronics 4 credits. 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.

ELSY 372 Calculus for Advanced Electronics 4 credits. 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. PREREQ: ELSY 262.

ELSY 373 Advanced Digital Theory 5 credits. 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.

ELSY 374 Advanced Pulse Theory 5 credits. Prepares the student to design, analyze, maintain and install video studio equipment.

ELSY 375 Advanced Digital Laboratory 5 credits. Practical application of topics covered in ELSY 371 and 373 while building, programming, and troubleshooting microprocessor and microcontroller based systems.

ELSY 376 Advanced Pulse Laboratory 5 credits. Application of the topics in ELSY 374.

ELSY 383 Advanced Laser Systems/Optics Theory 5 credits. Advanced theory and analysis of lasers and associated devices. Covers advanced laser topics, wave and geometric optics, electro-optics devices and components. PREREQ: ELSY 331, ELSY 332.

ELSY 384 Advanced Laser Systems/Optics Laboratory 3 credits. Practical application of advanced theory and analysis in analyzing laser/optics systems. PREREQ: ELSY 331, ELSY 332.

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 Economics 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.

Farm Business Management

Six Semester Program

Program Coordinator and Instructor: Jones
Instructor: Geddes

The Farm and Ranch Management Education program is designed to assist farm families to achieve their farm business and family goals through improved

management, organization, and efficiency of farming operation. Emphasis during the first year is on setting up the farming operations record system.

This program is not a production agricultural program, but instead, emphasizes the marketing and management abilities needed to operate a successful farming operation during a widely fluctuating economic cycle. The use of the computer in this program is to aid the farm manager in evaluating and making sound management decisions. Special Fees apply to this program.

Farm Business Management

(Six Semesters)

The following courses are required for a certificate:

FBM 175	Farm Business Records and Accounts I	2 cr
FBM 176	Farm Business Records and Accounts II	3 cr
FBM 177	Farm Business Analysis and Evaluation I	2 cr
FBM 178	Farm Business Analysis and Evaluation II	3 cr
FBM 281	Farm Business Organization I	2 cr
FBM 282	Farm Business Organization II	3 cr
		TOTAL: 15 cr

Courses

FBM 175 Farm Business Records and Accounts 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 and Accounts 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 and Evaluation 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, microeconomics, and macroeconomics. PREREQ: FBM 175 and 176.

FBM 178 Farm Business Analysis and Evaluation 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.

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

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

Technical Support Coursework

FST 118	Fundamentals of Fire Math I & II	2 cr
FST 119	Fundamentals of Fire Chemistry I & II	4 cr
FST 120	Fundamentals of Fire Physics I & II	4 cr

General Education Requirements*

English Composition	3 cr
Communications	3 cr
Introduction to Social Psychology	3 cr
Local Government/International Government Relations	3 cr
TOTAL:	68 cr

**Consult the School of Applied Technology for specific offerings*

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.

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 removing debris from a structure, demonstrate proper methods for folding and spreading salvage covers, explain main reasons for salvage and overhaul operations and precautions to be taken during them towards the prevention of evidence destruction.

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 2 credits. This course is designed to give the fire fighter student information on target hazards, conflagration, 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 stretcher, 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 principle; fluid in motion; waves; heat and temperature; heat transfer; heat engines; electricity; magnetism and alternating currents.

Graphic Arts/ Printing Technology

Four 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

(Eight Sessions)

The following courses are required for a degree:

GART 100	Technical General Education	8 cr
GART 121	Introduction to Printing	2 cr
GART 122	Image Assembly/ Reproduction Photography	6 cr
GART 123	Finishing Binding	1 cr
GART 124	Printing Mathematics	2 cr
GART 126	Image Assembly/ Reproduction Photography II	7 cr
GART 127	Press Operation I	5 cr
GART 128	Press Operation II	7 cr
GART 129	Electronic Imaging	6 cr
GART 130	Electronic Imaging II	7 cr
GART 132	Advanced Electronic Prepress	6 cr
GART 135	Graphic Arts Production	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 Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr
		Total 77 cr

Associate of Applied Science Degree in Graphic Arts-Offset Press

(Four Semesters)

The following courses are required for a degree:

GART 100	Technical General Education	8 cr
GART 121	Introduction to Printing	2 cr
GART 122	Image Assembly/ Reproduction Photography	6 cr
GART 123	Finishing Binding	1 cr
GART 124	Printing Mathematics	2 cr
GART 126	Image Assembly/ Reproduction Photography II	7 cr
GART 127	Press Operation I	5 cr
GART 128	Press Operation II	7 cr
GART 129	Electronic Imaging	6 cr
GART 130	Electronic Imaging II	7 cr
GART 131	Advanced Press Operation	6 cr
GART 135	Graphic Arts Production	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 Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr
		Total 77 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 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.

GART 100 Technical General Education 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

GART 121 Introduction To Printing 2 credits. This course is designed as an introduction to the graphic arts industry for the student who has little or no prior experience. 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 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 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 Prepress 6 credits. This course is designed to give the student more advanced training by utilizing more complex desktop publishing and electronic graphic applications.

GART 135 Graphic Arts Production 8 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 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 Economics 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.

Health Information Technology

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 programs are eligible to write the national certification exam for the Accredited Record Technician (ART).

Six Semester Program

Coordinator/Instructor: Young
Instructor: Griffin

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

Associate of Applied Science Degree in Health Information Technology

(Six Semesters)

A minimum of 79 credits is required for an Associate of Applied Science degree. Required Courses:

HIT 100	Technical General Education	1-8 cr
HIT 101	Technical General Education II	1-8 cr
HIT 105	Intro. to Health Information	2 cr
HIT 201	Clinical Affiliation I	2 cr
HIT 202	Documentation, Storage, and Retrieval of Health Info.	4 cr
HIT 203	Health Statistics and Quality Improvement	3 cr
HIT 204	Management Principles for Health Info. Professionals	4 cr
HIT 206	Computers in Health Information	3 cr
HIT 207	Clinical Affiliation II	3 cr
HO 105	Introduction to Allied Health Careers	2 cr
HO 106	Medical Terminology	3 cr
HO 107	Medical Law and Ethics	3 cr
HO 201	ICD Coding Laboratory	2 cr
HO 202	ICD-CM Coding	3 cr
HO 204	Medical Transcription	4 cr
HO 205	CPT Coding and Alternative Care Records	3 cr
HO 206	CPT Coding Laboratory	2 cr
ENGL 101	English Composition	3 cr
ENGL 201	Critical Reading and Writing	3 cr
BIOL 202	General Zoology	3 cr
BIOS 301	Anatomy and Physiology	4 cr
BIOS 302	Anatomy and Physiology	4 cr
BIOS 305	Introduction to Pathobiology	3 cr
CIS 120	Introduction to Computer Systems	3 cr
ECON 201	Principles of Macroeconomics	3 cr
PSYC 101	Introductory Psychology I	3 cr
MATH 143	College Algebra	4 cr

HIT 100 Technical General Education 1-8 credits. A review of mathematical skills of addition, subtraction, multiplication, division, fractions, decimals, percents and proportions. Written and oral communications with an emphasis on spelling and grammar.

HIT 101 Technical General Education 1-8 credits. Continuation of review of mathematical skills including elementary algebra. Written and oral communications with an emphasis on spelling and grammar.

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 Clinical Affiliation 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 collection, calculation and presentation of routine health data in conjunction with the assessment, monitoring, evaluation and improvement of health care. PREREQ: MATH 143, 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 Clinical Affiliation 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 3 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 ICD-CM Coding 3 credits. Principles and application of coding for statistical and reimbursement purposes utilizing the International Classification of Diseases. PREREQ: HO 106, BIOS 101, BIOS 301, BIOS 302.

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

HO 204 Medical Transcription 4 credits. Transcription of a wide variety of medical reports including History and Physicals, Discharge Summaries, Operative Reports, Consultations, Emergency Room, Obstetrics, Pathology, Autopsy, Radiology and others. PREREQ: HO 106.

HO 205 CPT Coding and Alternative Care Records 3 credits. Principles and application of coding for statistical and reimbursement purposes utilizing Physicians' Current Procedural Terminology in conjunction with documentation standards, format and content of alternative care records. PREREQ: HO 106, BIOS 101, BIOS 301, BIOS 302.

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

Four and One-Half Semester Program

Program Coordinator and Instructor: Snarr

Instructors: Christensen, Fitzen, M. Lyons, McArthur

One Associate of Applied Science Degree, one Associate of Technology 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.

Associate of Applied Science Degree in Instrumentation Technology

(Four and One-Half Semesters)

The following courses are required:

ELTR 100	Technical General Education I	8 cr
ELTR 101	Technical General Education II	8 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
ELTR 269	Electronic Drafting I	2 cr
INST 281	Electrical Automation Theory	8 cr
INST 282	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 Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr
	TOTAL:	100 cr

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

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, 101 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 I 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and beginning algebra. A review of oral and written communications.

ELTR 101 Technical General Education II 1-8 credits. A continuation of Technical General Education I. An in-depth review of introductory algebra consisting of signed numbers, equations, polynomials, graphing and systems of equations. Also emphasized are communication skills, problem solving, and prep for technical writing. An experiment based science class is taught that emphasizes development of, and application of equations and

problem solving techniques. The scientific calculator is emphasized in this science class.

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 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 Electrical Theory, ELTR 143; 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 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.

ELTR 148 Communications and Report Writing I 4 credits. Communicating effectively in writing, speaking and listening. Emphasis on researching and writing technical reports.

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, fine time, troubleshooting, program initialization, and analog inputs.

INST 240 Theory 2 credits. Basic concepts of process control devices, calibration and test equipment, diagrams and 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, wheatshone 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 8 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 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 Economics 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.

Laser/ Electro-Optics Technology

Four and One-Half Semester Program

Coordinator: G. Lyons
Instructors: Christensen, Fitzen, M. Lyons, McArthur

One Associate of Applied Science Degree, one Associate of Technology 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

(Four and One-half Semesters)

The following courses are required:

ELTR 100	Technical General Edu I	8 cr
ELTR 101	Technical General Edu II	8 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
ELTR 269	Electronic Drafting I	2 cr
ELEO 235	LEO Optoelectronics Theory	6 cr
ELEO 236	LEO Optoelectronics Laboratory	6 cr
ELEO 237	Laser/Electro-Optics Theory	6 cr
ELEO 238	Laser/Electro-Optics Lab	6 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 101, 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 I 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions and beginning algebra. A review of oral and written communications.

ELTR 101 Technical General Education II 1-8 credits. A continuation of Technical General Education I. An in-depth review of introductory algebra consisting of signed numbers, equations, polynomials, graphing and systems of equations. Also emphasized are communication skills, problem solving, and prep for technical writing. An experiment based science class is taught that emphasizes development of, and application of equations and problem solving techniques. The scientific calculator is emphasized in this science class.

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.

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. Theoretical and mathematical analysis of optic/electronic/Laser circuits covering: Laser safety, Laser fundamentals, Laser beam handling, switching, nonlinear optics, vacuum systems, optical fibers, Laser bandwidth, regulated power supplies and computer control. PREREQ: ELTR 156

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 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 Economics 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.

Law Enforcement

Two Four Session Program Options

Program Coordinator and Instructor: Taylor

Affiliate Faculty: Bavaro, Capell, Dalley, Fonnesbeck, Harris, Hubbs, Malm

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

The Law Enforcement Training Program provides classroom, laboratory and cadet practicum instruction enabling students to enter the general field of law enforcement.

The Law Enforcement Program is designed to prepare graduates to enter the law enforcement field or the correctional/detention area of Law Enforcement. The Law Enforcement Program has been duly approved by the Idaho Police Officers Standards and Training (POST) Council, thus eliminating the graduates' need to attend the basic police academy or correctional/detention 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 or LAWE 153 and LAWE 154) is successful completion of LAWE 100, LAWE 191 and LAWE 192 or LAWE 151 and LAWE 152; 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) Council.

Each block of study must be successfully completed with a minimum grade point

of 2.0 in each segment of a block; a grade point of less than 2.0 in any segment will be the grade of the entire block of study. The blocks are taken in progressive order with a grade of C or better as a prerequisite for continuation.

Law Enforcement Certificate

The following blocks are required for a certificate in Law Enforcement:

LAWE 100	Technical General Education	8 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

Correctional/ Detention Technology

The following courses are required for a certificate in Correctional/Detention Technology:

LAWE 100	Technical General Education	8 cr
LAWE 151	Basic Correctional/Detention Technology I	9 cr
LAWE 152	Basic Correctional/Detention Technology II	3 cr
LAWE 153	Advanced Correctional/ Detention Technology I	9 cr
LAWE 154	Advanced Correctional/ Detention Technology 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 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

LAWE 151 Basic Correctional/Detention Technology I 9 credits. Introduction to Law Enforcement and Correctional/Jail procedures to include safety education, human relations, criminal procedures, jail/correctional patrol procedures, firearms, report writing, physical fitness, arrest techniques, criminal code, criminal code, criminal investigation, jail/correctional procedures, and philosophy of supervision.

LAWE 152 Basic Correctional/Detention Technology II 9 credits. A continuation of LAWE 151 and including safety education, human relations, criminal procedures, jail/correctional patrol procedures, firearms, report writing, physical fitness, arrest techniques, criminal code, criminal investigation, jail/correctional procedures, and philosophy of supervision, POST tests, and physical fitness and firearms.

LAWE 153 Advanced Correctional/Detention Technology I 9 credits. Students will become acquainted with emergency vehicle operations (E.V.O.), rule of evidence, criminal investigation, jail/correctional patrol procedures, and participate in detention cadet practicum.

LAWE 154 Advanced Correctional/Detention Technology II 9 credits. Students will become acquainted with emergency vehicle operations (E.V.O.), juvenile procedures, criminal investigation, jail/correctional patrol procedures, and participate in detention cadet practicum. Following successful completion of all courses and practicum, students will qualify to sit for the POST Certification Exam.

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.

Machining Technology

Two and 1/2 to Four Semester Program

Program Coordinator and Instructor: Feige
Instructors: Kerns and Staff

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

Machine Tool Operator

(Two and 1/2 Semesters)

The following courses are required for a certificate and must be completed with a 2.0 GPA:

MACH 100	Technical General Education	8 cr
MACH 110	Engine Lathe Practices I	3 cr
MACH 111	Engine Lathe Theory I	2 cr
MACH 112	Machine Math I	3 cr
MACH 120	Mill Practice I	3 cr
MACH 121	Mill Theory I	2 cr
MACH 122	Machine Math II	3 cr
MACH 130	Engine Lathe Practice II	3 cr
MACH 131	Blueprint Reading	3 cr
MACH 140	Mill Practice II	3 cr
MACH 141	Materials Science	2 cr
MACH 150	Advanced Machine Operation	8 cr
MACH 152	Machinery's Handbook	2 cr
MACH 176	Geometric Dimensioning and Tolerancing	2 cr
TGE 151	Applied Technical Writing I	2 cr
TGE 152	Applied Technical Writing II	2 cr
	TOTAL:	51 cr

Associate of Applied Science Degree in Machine Tool Technology

(Four Semesters)

The following courses are required (PREREQ: 2.5 GPA for courses MACH 112 and 122):

MACH 100	Technical General Education	8 cr
MACH 110	Engine Lathe Practice I	3 cr
MACH 111	Engine Lathe Theory I	2 cr
MACH 112	Machine Math I	3 cr
MACH 120	Mill Practice I	3 cr
MACH 121	Mill Theory I	2 cr

MACH 122	Machine Math II	3 cr
MACH 130	Engine Lathe Practice II	3 cr
MACH 131	Blueprint Reading	3 cr
MACH 140	Mill Practice II	3 cr
MACH 141	Materials Science	2 cr
MACH 152	Machinery's Handbook	2 cr
MACH 176	Geometric Dimensioning and Tolerancing	2 cr
MACH 250	Advanced Machine Practice I	5 cr
MACH 260	Advanced Machine Practice II	5 cr
MACH 261	Advanced Machine Math I	2 cr
MACH 262	Electronic Discharge Mach	2 cr
MACH 275	NC Programming/Machining	5 cr
MACH 281	Advanced Machine Math II	2 cr
MACH 285	CNC Machining	5 cr
MACH 286	CNC Programming Theory	3 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 Principals	2 cr
TGE 158	Applied Job Search	2 cr
TGE 160	Applied Human Relations	2 cr
	TOTAL:	80 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 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 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

MACH 110 Engine Lathe Practice I 3 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 requiring written reports defining engine lathe terminology, uses, functions, tooling and concepts. Oral communication of these reports will be delivered within the class periods in Machinist and Manufacturing terminology. Emphasis is placed on study habits, note taking, and notebook organization.

MACH 112 Machine Math I 3 credits. Basic math principles of fractional and decimal numbers as related to machine shop measuring, blueprint reading, taper turning, threading and cutting speeds and feeds.

MACH 120 Mill Practice I 3 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 Mill Theory I 2 credits. A basic theory course requiring written reports defining milling machine terminology, use, functions, tooling, and concepts. Oral communication of these reports will be delivered during class periods in machinist and manufacturing terminology. Emphasis is placed on study habits, note taking and notebook organization.

MACH 122 Machine Math II 3 credits. A more advanced math course requiring the use of formulas, algebra, geometry, and basic right angle trigonometry as required when solving threading, tapering, cords, arcs, areas, dividing head and milling speed/feed problems in a Machine Shop environment.

MACH 130 Engine Lathe Practice II 3 credits. PREREQ: MACH 110, 111, and 112. A continuation of MACH 110 machining more advanced lathe projects.

MACH 131 Blueprint Reading 3 credits. An introduction to identifying blueprint information through the interpretation of lines, symbols and numbers as shown on 2 and 3 view orthographic drawings, and an introduction to geometric dimensioning and toleranced drawings.

MACH 140 Mill Practice II 3 credits. PREREQ: MACH 120, 121, and 122. 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.

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 8 credits. A course which provides a maximum of eight credits for those new students entering the program with prior experience. It is not a mandatory course.

MACH 152 Machinery's Handbook 2 credits. A study of handbook subjects of lubrication, coolants, tables, charts, formulas, thread calculations, expansion, bearing fitting, and metric measurements as required of a machinist working in industry.

MACH 176 Geometric Dimensioning and Tolerancing 2 credits. On the board Drafting/Detailing of machined parts to fit NC-CNC applications. Also includes dimensioning to geometric tolerancing parameters.

MACH 250 Advanced Machine Practice I 5 credits. PREREQ: MACH 110 through 142. 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.

MACH 260 Advanced Machine Practice II 5 credits. A continuation of MACH 250 with an emphasis on tool cutter grinding, jig boring, and those machines not covered in the previous course.

MACH 261 Advanced Machine Math I 2 credits. PREREQ: 2.5 GPA in MACH 112 and 122. 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.

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, 130 and 140.

MACH 275 NC Programming/Machining 5 credits. An introductory course in the programming, setup, and operation of numerically controlled machine tools.

MACH 281 Advanced Machine Math II 2 credits. PREREQ: MACH 112, 122 and 261. Machine Shop math pertaining to NC/CNC lathe and milling programming.

MACH 285 CNC Machining 5 credits. A course in the programming, setup, and operation of the computer numerically controlled lathe and mill.

MACH 286 CNC Programming Theory 3 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.

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 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 Economics 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.

Management Technology

(See Marketing and Management Occupations)

Marketing Technology

(See Marketing and Management Occupations)

Marketing and Management Occupations

Four and 1/2 Semester Program Options

Program Coordinator and Instructor: Gilliland

Instructors: Anderson, Dando, Hanson

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

Business Technology

Two Semester Program

One Associate of Applied Science degree (includes earned Technical Certificate of 38 Semester Credits PLUS 2 semesters).

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.

ENGL 101	English Composition	3 cr
MANT 120	Concepts of Accounting	3 cr
MANT 121	Essentials of Management	3 cr
MANT 130	Business Communications	3 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 120	Business Relationships	2 cr
MART 121	Marketing Applications	2 cr
MART 130	Promotion Concepts	3 cr
COMM 101	Principles of Speech	2 cr
TGE 100	Technical General Education	1-8 cr

plus earned Technical Certificate of 38 credits or more

TOTAL 70 Cr

Hospitality Management Technology

Four and 1/2 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.

CIS 120	Introduction to Computer Systems	3 cr
ENGL 101	English Composition	3 cr
HOST 240	Rooms Division Operations	3 cr
HOST 241	General Hosp. Operations	3 cr
HOST 251	Marketing Hosp. Services	3 cr
HOST 252	Food & Beverage Mgmt	3 cr
HOST 259	Career Internship	4 cr
MANT 120	Concepts of Accounting	3 cr
MANT 121	Essentials of Management	3 cr
MANT 130	Business Communications	3 cr
MANT 131	Quality Management Communication	3 cr
MANT 240	Legal Environment	3 cr
MANT 241	Human Resource Mgmt	3 cr
MANT 250	Front Line Supervision	3 cr
MANT 251	Small Business Management	3 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 120	Business Relationships	2 cr
MART 121	Marketing Applications	2 cr
MART 130	Promotion Concepts	3 cr
MART 240	Professional Selling	3 cr
COMM 101	Principles of Speech	2 cr
TGE 100	Technical General Ed	1-8 cr

TOTAL 69 cr

Management Technology

Four and 1/2 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.

CIS 120	Introduction to Computer Systems	3 cr
ENGL 101	English Composition	3 cr
MANT 120	Concepts of Accounting	3 cr
MANT 121	Essentials of Management	3 cr
MANT 130	Business Communications	3 cr
MANT 131	Quality Management Communication	3 cr
MANT 240	Legal Environment	3 cr
MANT 241	Human Resource Mgmt	3 cr
MANT 244	Introduction to Finance	3 cr
MANT 250	Front Line Supervision	3 cr
MANT 251	Small Business Management	3 cr
MANT 252	Employment Seminar	1 cr
MANT 253	Ethics	3 cr
MANT 259	Career Internship	4 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 120	Business Relationships	2 cr
MART 121	Marketing Applications	2 cr
MART 130	Promotion Concepts	3 cr
MART 240	Professional Selling	3 cr
COMM 101	Principles of Speech	2 cr
TGE 100	Technical General Edu	1-8 cr

plus 3 credits for the following :

MANT 242	Administrative Management	3 cr
MANT 243	Operations Management	3 cr
MART 243	Sales Management	3 cr

TOTAL 66 cr

Marketing Technology

Four and 1/2 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.

CIS 120	Introduction to Computers Systems	3 cr
ENGL 101	English Composition	3 cr
MANT 120	Concepts of Accounting	3 cr
MANT 121	Essentials of Management	3 cr
MANT 130	Business Communications	3 cr
MANT 131	Quality Management Communication	3 cr
MANT 240	Legal Environment	3 cr
MANT 241	Human Resource Management	3 cr
MANT 250	Front Line Supervision	3 cr
MANT 251	Small Business Management	3 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 120	Business Relationships	2 cr
MART 121	Marketing Applications	2 cr
MART 130	Promotion Concepts	3 cr
MART 240	Professional Selling	3 cr
MART 242	Business Marketing	3 cr
MART 243	Sales Management	3 cr
MART 250	Retail Technology	4 cr
MART 259	Career Internship	4 cr
COMM 101	Principles of Speech	2 cr
TGE 100	Technical General Education	1-8 cr

TOTAL 67 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 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.

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 General Hospitality Operations 3 credits. This course covers the general operations of a hotel or restaurant business. An introduction to the physical maintenance, sanitation, and design concerns required of any hospitality facility is covered. Security and loss prevention strategies are also covered to prepare students to better protect employees and guests, and to help limit potential liability. Prereq: MANT 121.

HOST 251 Marketing Hospitality Services 3 credits. This course is designed to provide students the opportunity to apply the basic knowledge of marketing to the hospitality industry. This course provides the student with the basic knowledge of tourism-related concepts and marketing strategies for the hospitality industry. Prereq: MANT 121, MART 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 120 Concepts of Accounting 3 credits. Covers the accounting cycle including journalizing, posting, financial statements, and closing procedures. The use of financial records as a decision-making tool is stressed. Prereq: MART 110, MART 111, MART 112, MART 113, and MART 114.

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: MART 110, MART 111, MART 112, MART 113, MART 114 or permission of instructor.

MANT 130 Business Communications 3 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. Topics such as TQM and managing quality, diversity and conflict in the workplace are discussed. Prereq: MART 110, MART 111, MART 112, MART 113, and MART 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 242 Administrative Management 3 credits. This course will provide the student with tools to evaluate and improve office efficiency. Subjects covered include: principles of office management, management of human resources in the office, office personnel problems and practices, and space management for administrative services. Prereq: MANT 121.

MANT 243 Operations Management 3 credits. Study of the acquisition, scheduling and management of people and other resources; the location, design and layout of facilities in time and motion considerations; with attention to TQM in production of goods and services. 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 MART 121.

MANT 252 Employment Seminar 1 credit. This course discusses career planning, the job search, cover letter, resume' 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 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 2 credits. Designed to provide a basic overview of models, concepts, and techniques that are effective in the design and implementation of marketing programs. 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 120 Business Relationships 2 credits. 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: CIS 120, MART 110, MART 111, MART 112, MART 113 and MART 114.

MART 121 Marketing Applications 2 credits. Students develop and analyze marketing strategies through case analysis and computer simulations. Prereq: CIS 120, MART 110, MART 111, MART 112, MART 113, and MART 114.

MART 130 Promotion Concepts 3 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 243 Sales Management 3 credits. Emphasis of the course will be in the areas of selection, training procedures, and supervision of the sales force. Prereq: MANT 121 and 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: MANT 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.

Medical Assistant

Four and One Half Semester Program

Coordinator/Instructor: Griffin

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

The program is pending accreditation by the Commission on Accreditation of Allied Health Educational Programs in conjunction with the American Association of Medical Assistants' Commission on Accreditation.

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 I	1-8 cr
MA 101	Technical General Education II	1-8 cr
MA 104	Intro. to Medical Assisting	3 cr
MA 200	Clinical Medical Assisting	3 cr
MA 201	Pharmacology for Allied Health	3 cr
MA 202	Administration of Medications	2 cr
MA 203	Phlebotomy	2 cr
MA 204	Clinical Practice	3 cr
MA 206	Administrative Practice	3 cr
OT 120	Bookkeeping	4 cr
HO 105	Introduction to Allied Health Careers	2 cr
HO 106	Medical Terminology	3 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
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 143	College Algebra	4 cr
PSYC 101	Introductory Psychology I	3 cr

Courses

For course descriptions of the academic course required by the Medical Assistant AAS degree see the College of Arts and Sciences.

MA 100 Technical General Education I 1-8 credits. A review of mathematical skills of addition, subtraction, multiplication, division, fractions, decimals, percents and proportions. Written and oral communications with an emphasis on spelling and grammar.

MA 101 Technical General Education II 1-8 credits. Continuation of review of mathematical skills including elementary algebra. Written and oral communications with an emphasis on spelling and grammar.

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 3 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 3 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 3 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 203 Phlebotomy 4 credits. Correct procedure for drawing blood for laboratory examination following laboratory rules and body fluid precautions.

MA 204 Clinical Practice 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 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.

OT 120 Bookkeeping 3 credits. Covers the entire bookkeeping cycle for sole proprietorship bookkeeping. Includes journalizing, posting, financial statements, payroll and closing procedures.

HO 104 Medical Office Word Processing 3 credits. This course covers the formatting, editing and production of documents for the medical office including memoranda, letters, reports and medical papers.

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 3 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 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.

HO 203 Medical Office Procedures 3 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.

HO 204 Medical Transcription 4 credits. Transcription of a wide variety of medical reports including History & Physicals, Discharge Summaries, Operative Reports, Consultations, Emergency Room, Obstetrics, Pathology, Autopsy, Radiology and others. PREREQ: HO 106.

HO 205 CPT Coding and Alternative Care Records 3 credits. Principles and application of coding for statistical and billing purposes utilizing CPT, and abstracting information from health care records.

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

Office Technology

Three Semester to Four 1/2 Semester Program Options

Program Coordinator and Instructor: Larson

Instructors: Deagle, Ketterman, Priddy, Shaugnessy, Spinner, Stroud and Staff

Four certificate options and three Associate of Applied Science Degrees which require 50-85 credits as listed below are available. 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. They will not be required to attend the initial semester. Course exemption may be granted on the basis of meeting course objectives. Program length will 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.

Accountant Clerk

(Three Semesters)

A minimum of 50 credits is required for a completion certificate in Accounting Clerk.

Required Courses:

OT 100	Technical General Education I	1-8 cr
OT 101	Technical General Education II	1-8 cr
OT 118	Business Communications I	3 cr
OT 119	Business Communications II	3 cr
OT 120	Bookkeeping	3 cr
OT 141	Keyboarding	3 cr
OT 144	Word Processing I	3 cr
OT 149	Accounting Clerk Office Applications	3 cr
OT 151	Office Procedures and Interpersonal Skills	2 cr
OT 170	Computer Concepts	1 cr
OT 171	Computerized Bookkeeping	3 cr
OT 173	Spreadsheets, Database, Graphics	3 cr
OT 174	Records Management	3 cr

Administrative Office Technology

(Three Semesters)

A minimum of 57 credits is required for a completion certificate in Administrative Office Technology.

Required Courses:

OT 100	Technical General Education I	1-8 cr
OT 101	Technical General Education II	1-8 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	
OT 141	Keyboarding	3 cr
OT 144	Word Processing I	3 cr
OT 145	Word Processing II	3 cr
OT 147	Administrative Office Applications	3 cr
OT 151	Office Procedures and Interpersonal Skills	2 cr
OT 170	Computer Concepts	1 cr
OT 171	Computerized Bookkeeping	3 cr
OT 173	Spreadsheets, Database, Graphics	3 cr
OT 174	Records Management	3 cr
OT 176	Desktop Publishing/ Multimedia	1-3 cr

Legal Office Technology

(Two to Three Semesters)

A minimum of 57 credits is required for a completion certificate in Legal Office Technology.

Required courses:

OT 100	Technical General Education I	1-8 cr
OT 101	Technical General Education II	1-8 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 141	Keyboarding	3 cr
OT 144	Word Processing I	3 cr
OT 145	Word Processing II	3 cr
OT 152	Legal Terminology and Office Procedures	6 cr
OT 170	Computer Concepts	1 cr
OT 171	Computerized Bookkeeping	3 cr
OT 173	Spreadsheets, Database, Graphics	3 cr
OT 174	Records Management	3 cr

Medical Office Technology

(Three Semesters)

A minimum of 64 credits is required for a completion certificate in Medical Office Technology.

Required courses:

OT 100	Technical General Education I	1-8 cr
OT 101	Technical General Education II	1-8 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 141	Keyboarding	3 cr
OT 144	Word Processing I	3 cr
OT 145	Word Processing II	3 cr
OT 170	Computer Concepts	1 cr
OT 171	Computerized Bookkeeping	3 cr
OT 174	Records Management	3 cr
HO 106	Medical Terminology	3 cr
HO 202	ICD-CM Coding	3 cr
HO 203	Medical Office Procedures	3 cr
HO 204	Medical Transcriptions	4 cr
HO 205	CPT Coding and Alternative Care Records	3 cr

Associate of Applied Science Degree in Administrative Office Technology

(Four to Four and One-half Semesters)

A minimum of 85 credits is required for an Associate of Applied Science Degree in Administrative Office Technology.

Required Courses:

OT 100	Technical General Education I	1-8 cr
OT 101	Technical General Education II	1-8 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 141	Keyboarding	3 cr
OT 144	Word Processing I	3 cr
OT 145	Word Processing II	3 cr
OT 151	Office Procedures and Interpersonal Skills	2 cr
OT 170	Computer Concepts	1 cr
OT 171	Computerized Bookkeeping	3 cr
OT 173	Spreadsheets, Database, Graphics	3 cr
OT 174	Records Management	3 cr
OT 176	Desktop Publishing/ Multimedia	1-3 cr
OT 199	Special Topics	1-8 cr
CSET 183	Microcomputer Operating Systems	3 cr
CSET 185	Microcomputer Database and 4th GL's	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
COMM 101	Principles of Speech	2 cr
PSYC 101	Introductory Psychology I	3 cr

Plus a minimum of 3 credits from the following:

ECON 100	Economic Issues	3 cr
ECON 201	Principles of Macroeconomics	3 cr
ECON 202	Principles of Microeconomics	3 cr

Associate of Applied Science Degree in Legal Office Technology

(Four and One-half Semesters)

A minimum of 85 credits is required for an Associate of Applied Science degree in Legal Office Technology.

Required courses:

OT 100	Technical General Education I	1-8 cr
OT 101	Technical General Education II	1-8 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 141	Keyboarding	3 cr
OT 144	Word Processing I	3 cr
OT 145	Word Processing II	3 cr
OT 152	Legal Terminology and Office Procedures	6 cr
OT 170	Computer Concepts	1 cr
OT 171	Computerized Bookkeeping	3 cr
OT 173	Spreadsheets, Database, Graphics	3 cr
OT 174	Records Management	3 cr
CSET 185	Microcomputer Database Management and 4th GL's	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

plus a minimum of 3 credits form the following:

ECON 100	Economic Issues	3 cr
ECON 201	Principles of Macroeconomics	3 cr
ECON 202	Principles of Microeconomics	3 cr

Associate of Applied Science Degree in Medical Office Technology

(Four and One-half Semesters)

A minimum of 89 credits is required for an Associate of Applied Science Degree in Medical Office Technology.

Required courses:

OT 100	Technical General Education I	1-8 cr
OT 101	Technical General Education II	1-8 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 141	Keyboarding	3 cr
OT 144	Word Processing I	3 cr
OT 145	Word Processing II	3 cr
OT 170	Computer Concepts	1 cr
OT 171	Computerized Bookkeeping	3 cr
OT 173	Spreadsheets, Database, Graphics	3 cr
OT 174	Records Management	3 cr
HIT 105	Introduction to Health Information	2 cr
HO 105	Introduction to Allied Health Careers	2 cr
HO 106	Medical Terminology	3 cr
HO 107	Medical Law and Ethics	3 cr
HO 202	ICD9-CM Coding	3 cr
HO 203	Medical Office Procedures	3 cr
HO 204	Medical Transcriptions	4 cr
HO 205	CPT & Alternative Care Records	3 cr
ENGL 101	English Composition	3 cr
ENGL 201	Critical Reading and Writing	3 cr
PSYC 101	Introductory Psychology I	3 cr
COMM 101	Principles of Speech	2 cr

Plus a minimum of three credits from the following:

ECON 100	Economic Issues	3 cr
ECON 201	Principles of Macroeconomics	3 cr

ECON 202	Principles of Microeconomics	3 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 OT 100 and OT 101 and will not be required to attend the initial semester.

For course descriptions of the academic course required AAS degrees see the College of Arts and Sciences.

OT 100 Technical General Education I 1-8 credits. A review of the mathematical skills of fractions, decimals, percents and proportions. A study of oral and written communications with an emphasis on grammar.

OT 101 Technical General Education II 1-8 credits. A continuation of Technical General Education I. An in-depth review of mathematical skills including fractions, decimals, proportions and percents. Special emphasis on the communication skills of grammar, spelling, writing, and critical reading.

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 I 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. Keyboarding skills preferred.

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 proprietorship 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 and 119 with a 'C' grade or better. The student must have completed or be enrolled in OT 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.

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.

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. Concentrates on building speed and accuracy in keyboarding. Prereq: Student must have completed or be enrolled OT 141.

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 Word Processing I 4 credits. This course builds on keyboarding competencies. Emphasis is placed on learning word processing functions, developing formatting skills, and learning document production skills. PREREQ: OT 141 or 35 net words a minute.

OT 145 Word Processing II 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; 120,123,141 OR 35 net words per minute. Student must have completed or be enrolled in OT 151, 170, 171, 173, and 174.

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. Student must have completed or be enrolled in OT 141 or 35 net words a minute.

OT 152 Legal Terminology and Office Procedures 6 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 and 119 must be completed with a grade of 'C' or better. Student must have completed or be enrolled in OT 132 OR 122; and 145.

OT 170 Computer Concepts 1 credit. Introduction to the fundamentals in the use of microcomputers.

OT 171 Computerized Bookkeeping 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 141 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 141.

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 141 or 35 net words per minute.

OT 175 Computer Applications I 1-3 credits (variable). 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, and forms, and to make multimedia presentations. 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.

CSET 183 Microcomputer 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 optimum system to use for a given application. Students will learn how to present jobs for both foreground and background processing.

CSET 185 Microcomputer Database and 4th GL's 3 credits. This course will present the theory and usage of current relational database management systems used on microcomputers. The student will design and use a database system using current microcomputer packages to include a 4th GL. The advantage 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.

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.

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 3 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.

HO 203 Medical Office Procedures 3 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.

HO 204 Medical Transcription 4 credits. Transcription of a wide variety of medical reports including History & Physical, Discharge Summaries, Operative Reports, Consultations, Emergency Room, Obstetrics, Pathology, Autopsy, Radiology and others. PREREQ: HO 106.

HO 205 CPT Coding and Alternative Care Records 3 credits. Principles and application of coding for statistical and reimbursement purposes utilizing Physician's Current Procedural Terminology in conjunction with documentation standards, format and content of alternative care records.

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.

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. All that this course proposes to do is to make people in all areas of business aware of the dangers that do exist and to help them to know when competent legal advice becomes necessary.

Physical Therapist Assistant

Four and One Half Semester Program

Coordinator/Instructor: West

An Associate of Applied Science degree requiring 79 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.

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

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	3 cr
HO 107	Medical Law & Ethics	3 cr
MATH 143	Algebra	4 cr
PSYCH 101	Intro to Psychology	3 cr
PTA 105	Intro to Physical Therapy	3 cr
PTA 106	Applied Kinesiology	4 cr
PTA 107	Physical Therapy Assessment	4 cr
PTA 108	Clinical Pathology	3 cr
PTA 200	Therapeutic Exercise	5 cr
PTA 202	Procedures I	5 cr
PTA 203	Procedures II	5 cr
PTA 204	Seminar	3 cr
PTA 210	Clinical Affiliation I	3 cr
PTA 211	Clinical Affiliation II	7 cr
PTA 212	Clinical Affiliation III	7 cr

Courses:

For course descriptions of the academic courses required by the Physical Therapist Assistant AAS degree, see the College of Arts and Sciences.

HO 106 Medical Terminology 3 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 105 Introduction to Physical Therapy 3 credits. Roles and responsibilities of physical therapists and physical therapist assistants. 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). 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, BIOS 101, BIOS 301.

PTA 107 Procedures I 5 credits. Procedures related to physical therapy treatment, including, joint mobilization, universal precautions, principles of physics, anatomy, kinesiology, heat cold, sound and their use in therapeutics. Also, traction, intermittent venous compression, and wheelchair management. Prereq: *Must be a second year student in good standing. PTA 105, PTA 106, PTA 107, BIOS 101, BIOS 301.

PTA 108 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 105, PTA 106, PTA 107, BIOS 101, BIOS 301.

PTA 200 Therapeutic Exercise 5 credits. Therapeutic exercise principles and practices related to patient treatment. Includes stretching, proprioceptive neuromuscular facilitation, other rehab techniques like NDT, Rood, Brunnstrum, cardiopulmonary rehab, and exercise equipment. Prereq: *Must be a second year student in good standing. PTA 105, PTA 106, PTA 107, BIOS 101, BIOS 301.

PTA 202 Physical Therapy Assessment 4 credits. Observation skills, tests and measurements in physical therapy including manual muscle testing, goniometry, vital signs, gait and posture assessment as related to patient progress. Also, transfer training, bed mobility and positioning. Prereq: PTA 105, BIOS 101, BIOS 301.

PTA 203 Procedures II 5 credits. A continuation of Procedures I, including electrical stimulation theory and techniques for applying variations of electrical current, biofeedback, wound management, prosthetics and orthotics. Prereq: *Must be a second year student in good standing. PTA 105, PTA 107, PTA 108, PTA 200, PTA 202, PTA 210, BIOS 101, BIOS 301.

PTA 204 Seminar 3 credits. Current practices an d 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 105, PTA 107, PTA 108, PTA 200, PTA 202, PTA 210, BIOS 101, BIOS 301.

PTA Clinical Affiliation I 3 credits. Clinical instructor supervised, four seek 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 105, PTA 106, PTA 107.

PTA 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 105, PTA 106, PTA 107, PTA 108, PTA 200, PTA 202, PTA 210, BIOS 101, BIOS 301.

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 105, PTA 106, PTA 107, PTA 108, PTA 200, PTA 202, PTA 203, PTA 204, PTA 210, PTA 211, BIOS 101, BIOS 301.

Practical Nursing

(Two and One-Half Semester Program)

Program Coordinator and Instructor: LaHann

Instructors: Jackson, Proctor, Thompson

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 Edu	1-8 cr
PNUR 110	Basic Foundations of Nursing	4 cr
PNUR 111	Anatomy and Physiology for Practical Nurse	3 cr
PNUR 112	Geriatric Nursing	3 cr
PNUR 113	Medical Terminology	3 cr
PNUR 114	Clinical Foundations of Nursing I	2 cr
PNUR 115	Growth and Development	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	5 cr
PNUR 132	Newborn Nursing	2 cr
PNUR 199	Special Topics	1-8 cr
	TOTAL:	49-63 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 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions and science. Study of oral and written communications.

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.

PNUR 112 Geriatric Nursing 3 credits. A study of the normal and abnormal aging in the older adult.

PNUR 113 Medical Terminology 3 credits. Body systems approach to theory and application of medical terms including anatomical, pathological, surgical and diagnostic as well as appropriate abbreviations.

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 115 Growth and Development 2 credits. A study of the normal life cycle from infancy to senescence.

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.

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 normal and abnormal 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 5 credits. The theory and principles of the nursing care of the critically ill adult client.

PNUR 132 Newborn Nursing 2 credits. The theory and principles of the nursing care of the normal and abnormal newborn.

PNUR 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.

Welding

(Two Semester and Four Semester Program Options)

Program Coordinator and Instructor: Rost

Instructors: Humpherys, Treasure, and Staff

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

Weldor General

(Two Semesters)

The following courses are required for a certificate:

WELD 100	Technical General Education	8 cr
WELD 131	Welding Practice 1	12 cr
WELD 132	Welding Practice II	12 cr
WELD 140	Welding Theory	2 cr
WELD 141	Mechanical Drawing	2 cr
WELD 142	Blueprint Reading	2 cr
WELD 143	Shop Math	2 cr
	TOTAL	40 cr

Weldor-Fitter

(Four Semesters)

The following courses are required in addition to the Weldor General requirements for a certificate:

WELD 231	Welding Practice III	13 cr
WELD 232	Welding Practice IV	13 cr
WELD 241	Metal Layout	3 cr
WELD 243	Shop Math II	3 cr
	TOTAL	72 cr

Associate of Applied Science Degree in Weldor-Fitter

The following courses are required in addition to the Weldor-Fitter requirements:

TGE 151	Applied Communications I	2 cr
TGE 152	Applied Communications II	2 cr
TGE 153	Applied Communications III	2 cr
TGE 156	Applied Business Economics	2 cr
TGE 158	Occupational Job Search	2 cr
TGE 160	Occupational/Human Relations	2 cr
	TOTAL:	12 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 WELD 100 and will not be required to attend the initial session.

WELD 100 Technical General Education 1-8 credits. A review of the mathematical skills of fractions, decimals, percents, proportions, and science. Study of oral and written communications.

WELD 131 Welding Practice I 12 credits. Welding practice on the techniques to make successful welds with oxyacetylene and fillet welds with 7018 electrodes.

WELD 132 Welding Practice II 12 credits. Practice on the techniques to make successful welds in the flat, horizontal, vertical, and overhead positions on open butt joints. PREREQ: WELD 131.

WELD 140 Welding Theory I 2 credits. Processing and manufacturing of ferrous and nonferrous metals; effect welding has on different metals, how to weld them and the heat treatment of them.

WELD 141 Mechanical Drawing 2 credits. Proper care and use of equipment, alphabet of lines, orthographic projections, dimensioning, section view drawing, freehand sketching of isometrics, pattern development and geometric construction.

WELD 142 Blueprint Reading 2 credits. Study of trades symbols, dimensioning from working drawings of the trade. Identification of lines, views, materials and dimensions; study of basic drawings of welding trade.

WELD 143 Shop Math I 2 credits. Basic study of trade math concentrating on basic arithmetic, common fractions, decimals, ratio, percentages, square root, and appropriate conversions as they apply to the welding trade.

WELD 159 Arc Welding 1-8 credits (variable). Special course with emphasis on shop practice in the general areas of arc welding. Open for enrollment only with approval of the advisor, program coordinator and Applied-Tech counselor. (This is a special certificate option).

WELD 231 Welding Practice III 13 credits. Low hydrogen, stainless steel, and pipe welding techniques in shop applications. PREREQ: WELD 132.

WELD 232 Welding Practice IV 13 credits. Tungsten inert gas and semiautomatic welding techniques and procedures. PREREQ: WELD 231.

WELD 241 Metal Layout 3 credits. Introduction to geometric construction, principles of metal layout, special trade charts and tables, and basic slide rules. PREREQ: WELD 141.

WELD 243 Shop Math II 3 credits. Continuation of WELD 143, with introduction to specific trade formulas, basic algebra, proportions, right triangle math, trigonometry, special trade charts and tables, and electronic calculators. PREREQ: WELD 143.

TGE 151 Applied Communications I 2 credits. The course provides students with instruction in applied written communication skills: The mechanics of written composition, technical terms, spelling and definition, basic computer literacy and technical writing and reporting formats.

TGE 152 Applied Communications II 2 credits. The course expands on communication skills taught in TGE 151. New material taught in Applied Communications II includes writing business correspondence and technical reports.

TGE 153 Applied Communications III 2 credits. The course provides students with instruction in applied oral communication skills. Business speaking and effective oral communications will be taught.

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

TGE 158 Occupational Job Search 2 credits. The course provides students with knowledge and abilities in the areas of employment process skills. Job acquisition and maintenance skills and job market analysis are the core of this course.

TGE 160 Occupational/Human Relations 2 credits. The course provides a study of human behavior in an occupational environment with emphasis on communications, motivation, leadership and personal attitude.

General Education

Department Chair: Richard Sparks

Adult Basic Education

ABE (Adult Basic Education) and ESL (English as a Second Language) require no fee. Scholarships are available for GED (General Educational Development) students. Services are provided on the fourth floor of the Roy F. Christensen Building and outreach sites in 7 southeastern Idaho counties.

ABE (Adult Basic Education). Provides basic literacy help to those who need it. This includes basic math, reading and English skills for people performing at the nonreader through twelfth grade levels. The program offers different settings and methods to help students learn in the style they prefer.

VIEW (English as a Second Language). Non-English speakers can learn to speak, read, and write English w or nothether 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 advance-

ment 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 Mng.	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

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 JTPA 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 postsecondary levels. Students are encouraged to contact the office for further information.