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**KANSAS  
TECHNICAL  
INSTITUTE**



1982-84  
Vol.8  
KTI

**1982-1984 GENERAL BULLETIN**



# **KANSAS TECHNICAL INSTITUTE**

2409 Scanlan Avenue  
Salina, Kansas  
913 825-0275

## **GENERAL INFORMATION BULLETIN**

**Science and Engineering Technology**

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**Volume 8**

**1982-84**

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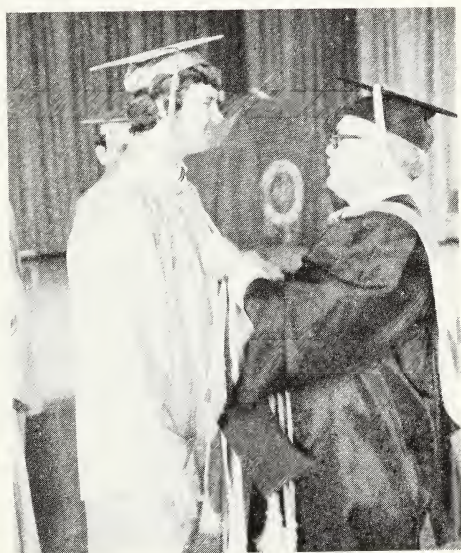
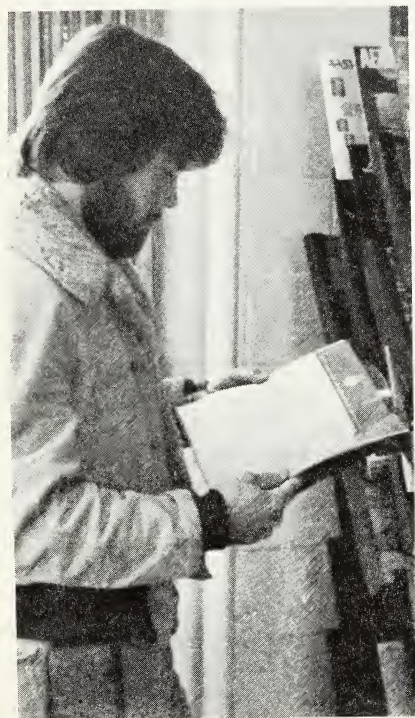
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## **DEGREE OR CERTIFICATE OPTIONS**

**Aviation Maintenance**  
**Associate of Aeronautical Technology**  
**Aviation Maintenance Management**  
**Civil Engineering Technology**  
**Environmental Protection Technology**  
**Survey Technology**  
**Computer Engineering Technology**  
**Computer Science Technology**  
**Electronic Data Processing**  
**Electronic Engineering Technology**  
**General Engineering Technology**  
**Mechanical Engineering Technology**  
**Solar Energy Utilization Technology**



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## **GENERAL INFORMATION**

## **HISTORY AND DEVELOPMENT OF THE INSTITUTE**

Kansas Technical Institute was created by the 1965 Kansas Legislature with the passage of House Bill 1101 titled "The State Education Authority Act." This bill provided for the establishment of a state technical institute to offer two-year programs of Science and Engineering Technology. Originally called Schilling Institute, the campus was developed on property that was formerly a part of Schilling Air Force Base.

The Kansas legislature, during the 1968 General Session, changed the name of the school to Kansas Technical Institute and transferred the responsibility for the school to the newly created State Board of Education. In 1976, the Legislature transferred the responsibility for the college to the Kansas Board of Regents, thus establishing Kansas Technical Institute as the seventh state institution for higher education under the Board.

Enrollment of 93 students in four fields of study for the fall semester of 1966 was the start of an educational opportunity new to Kansas. The enrollment trend has continued upward since that time with over 450 students presently enrolled in thirteen programs of study. Steady growth is expected to continue during the remainder of this century with 2,000 students anticipated by the year 2000.

All programs of study at KTI are two-year Associate of Technology degree or certificate programs. All programs have been designed to assure standards of excellence. The certificate program in Airframe and Powerplant Maintenance has been continuously certificated by the Federal Aviation Agency since its start in 1966. Four programs in Engineering Technology have been accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET, formerly The Engineers Council for Professional Development, ECPD). The college is also accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools. The reputation of the programs and the strong affiliation the institute maintains with professional and technical associations has been a major factor in the success of and high regard held for Kansas Tech graduates.

## **MISSION OF KTI**

Kansas Technical Institute is the state college whose mission is specifically devoted to technological education and training in Kansas. The following mission statement, which is consistent with the broad mission outlined in KSA 72-4332, was received by



the Board of Regents at the regular meeting of the Board in December, 1976: "Kansas Technical Institute shall be responsible for providing technical education and training in the fields of Engineering Technology, Science Technology and related fields. The principal mission of the institute shall be the education of Technologists and Technicians in the general fields of Engineering and Science. The mission of the institute shall include programs approved by the Board of Regents and special institutes, seminars, short courses and workshops at appropriate locations in Kansas as approved by the Extension Officer of the Board of Regents."

## **GOALS OF THE COLLEGE**

The college has the following goals for fulfilling its statewide mission:

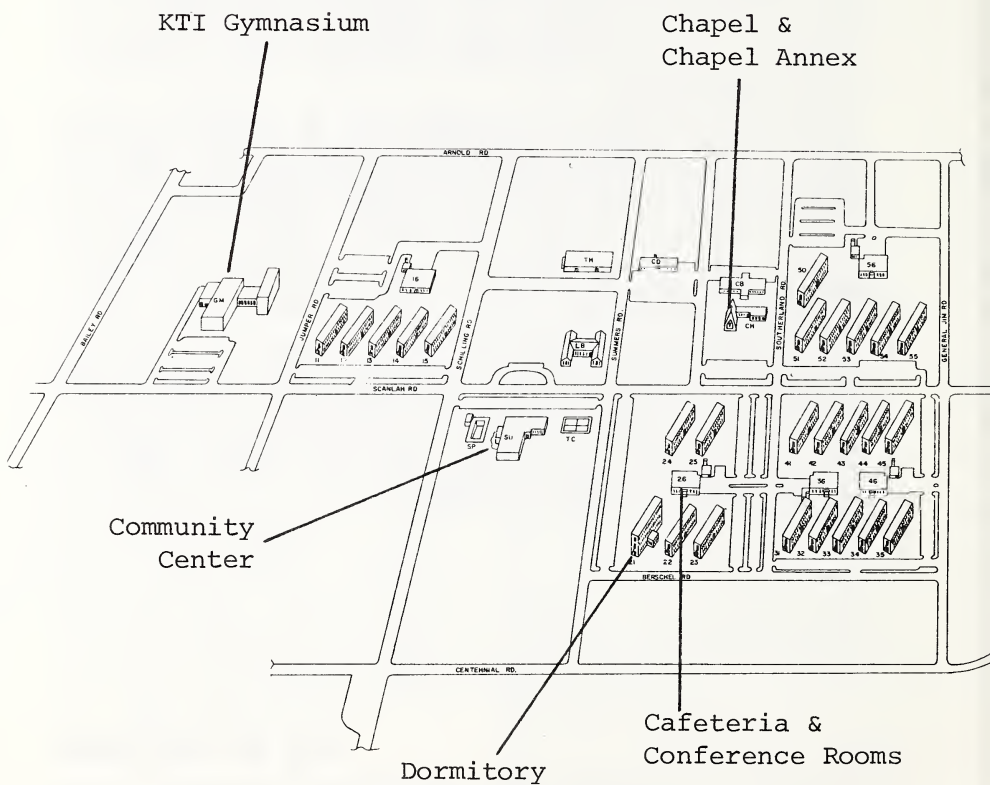
**Resident Instruction:** A primary goal of Kansas Technical Institute is to provide college-level programs in Engineering Technology, Science Technology and related fields to prepare the student for immediate employment as a Technician or Technologist upon graduation.

**Foundation Courses:** A secondary goal of the college is to provide a well balanced discipline of mathematics, physical science, communications skills and technical specialty skills to provide graduates a base upon which they can build and expand.

A third goal of the college is to provide a sound foundation of scientific and engineering technology principles that will permit graduates, who so desire, to pursue advanced academic study in their field of specialization.

**Community Service and Continuing Education:** It is a goal of the college to develop and offer such specialized technical and related courses to the adult community of Kansas as is compatible with KSA 72-4332. Technical and specialized courses may include, but are not limited to, short courses, seminars, institutes, workshops and credit hour courses.

# Campus Map



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Library



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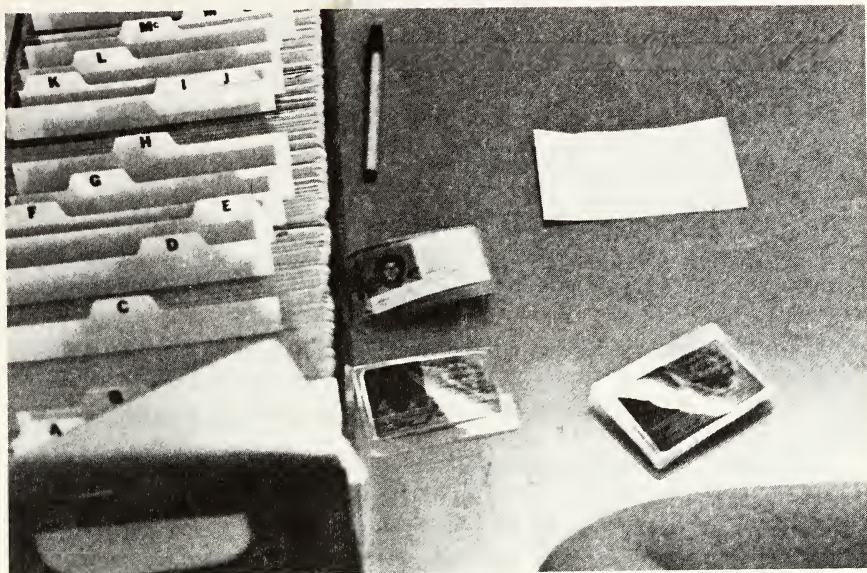
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## ADMISSION AND FEES

## **ADMISSION REQUIREMENTS**

Application for admission should be directed to the Office of Admissions. All applicants should have completed a four-year course of study in any high school accredited by the State Superintendent or have passed the General Educational Development Test (G.E.D.). The applicant shall then be entitled to admission to the freshman class at KTI.

The following procedures should be followed to apply for admission to the Institute:

1. Submit to the Institute a completed Application Form for Admissions with a \$25 application fee, which is not refundable.
2. Have sent directly to the Institute a transcript of all high school work. If not a high school graduate, then an official copy of the scores attained on the G.E.D. test must be provided.
3. Applicants must have official transcripts of all college-level work completed sent directly to the admissions office.

Each applicant will be notified by mail as to his or her status. Applicants can not be classified as a formally accepted student until the above entry criteria have been met.

## **ADMISSION AS A TRANSFER STUDENT**

Applicants for admission as transfer students from a regionally accredited university or college may be accepted if their records indicate the ability to successfully pursue the courses in their chosen curriculum.

The procedure for a transfer student is as follows:

1. Submit a completed Application for Admission form.
2. Provide an official transcript from each post-secondary school attended and a copy of the high school transcript.
3. If waiver of course requirements is desired prior to enrollment, it is advisable to submit all of the above information to the Registrar no later than thirty days before the Institute's enrollment date. All credits will be evaluated by the heads of the departments that offer the courses to determine if they relate to Kansas Tech courses in the chosen field of study. Those courses that do relate and meet the necessary criteria of content and success level will be recommended for approval. A Waiver of Credit form will be issued by the Registrar to appropriate department heads. All courses approved on the Waiver of Credit form will become part of the student's transcript.



## **OUT-OF-STATE APPLICANTS**

Out-of-state applicants for admission to Kansas Technical Institute will be required to pay non-resident fees (see fee schedule) and generally must have a good academic rank in their high school graduating class. The residence of students entering Kansas Technical Institute is determined by the Kansas State Board of Regents as follows:

“Persons entering the state educational institutions who, if adults, have not been, or if minors, whose parents have not been residents of the state of Kansas for twelve (12) months prior to matriculation in the state educational institutions, are non-residents for the purpose of payment of matriculation and incidental fees.”

## **FOREIGN APPLICANTS**

Foreign applicants should contact the Dean of Student Services for information concerning enrollment procedures. Correspondence should begin no later than six (6) months prior to the desired enrollment date. Foreign students will be considered as out-of-state applicants for the purpose of paying student fees. They will also be required to document that they have adequate funds to meet their cost of education.

## **PRE-ADMISSION TESTING**

All applicants for enrollment will be required to take the American College Testing (ACT) test or the Scholastic Aptitude Test (SAT) prior to enrollment. High school students should arrange with their counselor or principal to take the tests during their senior year and request that these scores be sent to Kansas Technical Institute. Other applicants may contact a local high school or the Student Services Office at the Institute for test information on the American College Testing program. Residual testing is administered at KTI at the fall enrollment period. The battery is used as a counseling and guidance aid only and is not used as a pre-admission requirement. The ACT college code number assigned to Kansas Technical Institute is 1453. The SAT college code number assigned to Kansas Technical Institute is 006345.

## **MEDICAL HISTORY**

A personal medical history is required of each new student. Applicants who have been accepted for admission at Kansas Technical Institute will be mailed a medical form which should be completed by the student and/or his or her parents.

The medical report, filed with the Institute by the student will become a part of the student's confidential file. The purpose of

the report is to provide medical history in the event a student requires medical consideration while at the Kansas Technical Institute.

## FEES AND EXPENSES

The amount a student spends and the actual cost of obtaining an education at Kansas Technical Institute are two different items. A student can anticipate certain fixed expenses, such as enrollment fees, but beyond that, financial outlays depend to a considerable extent on the personal habits and management ability of the student. An estimate of the cost of attending the Institute for two regular semesters for a Kansas resident follows:

Fees (including tuition) .....	\$ 345
Books and Supplies * .....	200
Room and Board (on campus) .....	1,500

Total Estimated Cost \*\* ..... \$2,045

\* First year students in all technologies, other than Airframe and Powerplant students are required to own a scientific calculator (e.g. T.I. 55 or HP32E) which costs approximately \$70 additional.

\*\* Does not include expenditures for clothing, laundry, travel, social activities, and miscellaneous expenses. Students living in dorm over interterm will be charged \$150 which includes 19 meals per week in the cafeteria.

## ENROLLMENT FEES

Fees at Kansas Technical Institute are established by the State Board of Regents and are subject to change at any time without prior notification. Following is a description, at the time of publication, of student fees per semester at the Institute:

	Kansas Resident	Non-Kansas Resident
<i>Regular Semester Fees</i>		
Incidental Fees (tuition) .....	\$150.00	\$450.00
Student Activities .....	15.00	15.00
Student Union .....	7.50	7.50
	<u>\$172.50</u>	<u>\$472.50</u>

Students enrolled in seven (7) or more regular semester hours are full-time students for fee purposes. (Interterm costs included in spring semester.)

	Kansas Resident	Non-Kansas Resident
<i>Summer Session</i>		
Incidental and/or Audit Fees (Tuition per semester hour) .....	\$10.75	\$32.25
Student Activities .....	7.50	7.50
Student Union .....	3.75	3.75
Extension Courses	\$20.00 per semester hour	
Workshops and Conferences	Charges will be announced	

Students enrolled in six (6) regular semester hours or less are part-time students for fee purposes.

	Kansas Resident	Non-Kansas Resident
<i>Regular Semester Fees</i>		
Incidental Fees and Audit Fees .....	\$10.75	\$32.25
(Tuition per semester hour)		
Student Activities .....	7.50	7.50
Student Union .....	3.75	3.75



## **REFUNDS** (Fees other than Dormitory & Food Service)

A student who enrolls at Kansas Technical Institute, but who finds it necessary to withdraw from school, is entitled to a refund of enrollment fees as determined by the Business Office.

<i>Regular Semester</i>	<i>Refund</i>
Through Friday on the week of Registration	100%
Through Friday the second week	75%
Through Friday the third week	50%
After third week and through 20th day	25%

<i>Summer Session</i>	
Through the first class day	100%
Through Friday of the first class week	50%
Through Friday of the second class week	25%

## **INCIDENTAL FEES**

The Incidental Fee (tuition) is used to pay, in part, costs of administration, operation, maintenance, equipment, library books, and other supplies.

## **STUDENT ACTIVITY FEES**

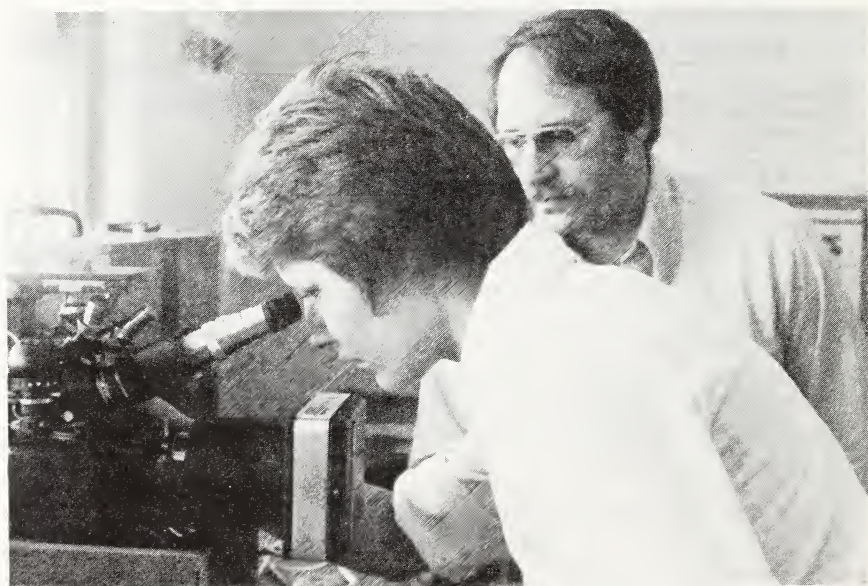
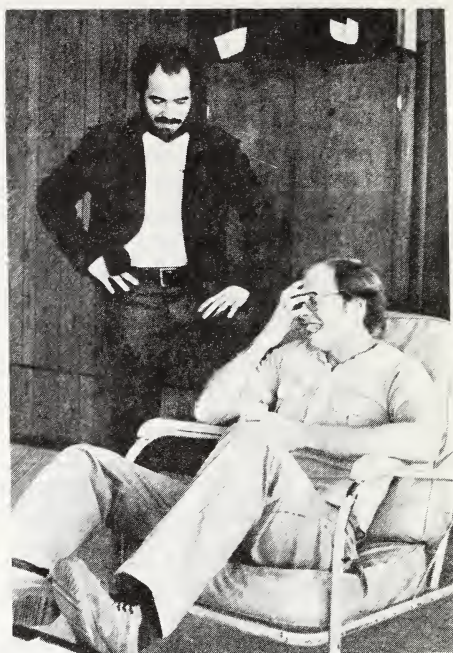
The Student Activity Fees are used to financially support student activities, including intramural sports, student organizations, intercollegiate athletics, and student dances.

## **STUDENT UNION FEES**

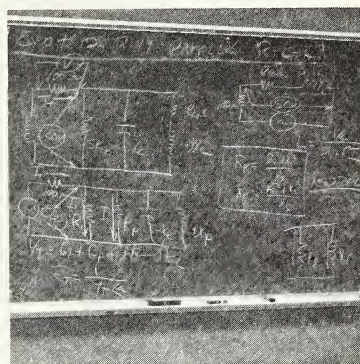
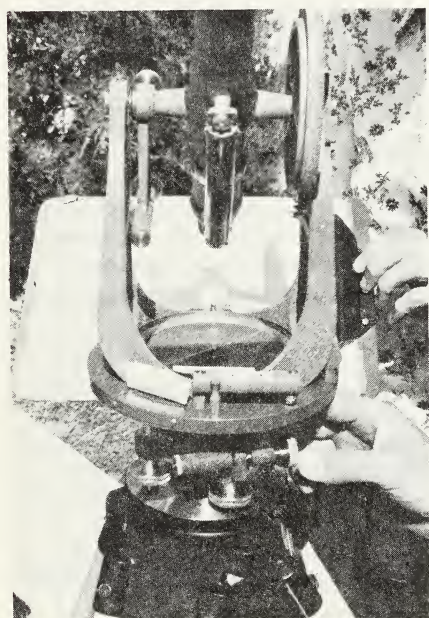
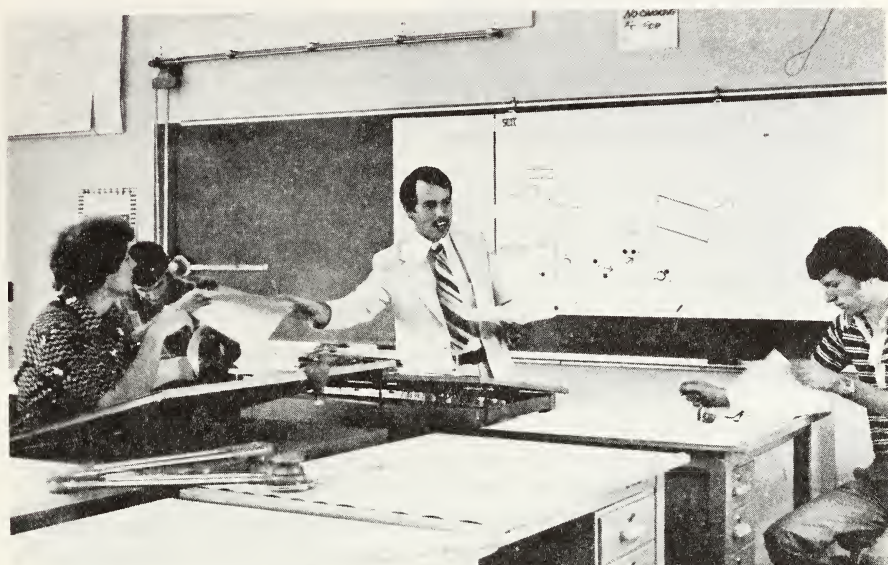
The Student Union Fees are used for the Student Union development and activities.

## **VEHICLE REGISTRATION FEES**

Students enrolled at the Institute who plan to operate motor vehicles on the campus must register them with the Business Office in the Administration Building. The registration fee is five dollars (\$5) per academic year for the first car and two dollars (\$2) per additional car. The student will be issued an identification sticker permitting parking in all non-restricted parking areas. Violation of traffic and parking regulations will result in progressive fines and, if excessive, may result in dismissal from the Institute.







## ACADEMIC INFORMATION

## **SCOPE OF PROGRAMS**

The year at Kansas Technical Institute consists of two regular semesters, an interterm, and a summer session. A student who carries a prescribed credit load and who makes satisfactory progress can graduate after the completion of four regular semesters (two years).

Although the interterm and the summer session are not required, many students enroll in them for additional technology enrichment courses or to satisfy course deficiencies. Students should consult their faculty advisor to determine whether or not a practical advantage may be gained by attending a summer session or interterm.

## **SCHEDULING OF CLASSES**

A schedule of classes is established by the faculty for each semester, interterm and the summer session. A copy of the class schedule can be obtained from the Registrar's Office.

In general, classes are scheduled Monday through Friday. Most classes are scheduled between 8:00 a.m. and 5:00 p.m. However, a number of classes are scheduled in the evenings to extend the services of instruction to persons who cannot attend daytime classes.

Lecture classes are typically 50 minutes in duration with a ten minute interval between periods. Laboratory classes are generally 1 hour and 50 minutes, but specific courses may hold 2 hour and 50 minute sessions.

## **ENROLLING FOR CREDIT OR AUDIT**

Students may enroll in any course for credit provided they have met all prerequisite requirements. Students enrolled in a course for credit will take all examinations scheduled for the course. Courses taken for credit will be posted to the student's transcript with the letter grade earned in the course.

A student may enroll in a course for audit with permission from the instructor and upon payment of the course fee. Courses taken for audit will be posted to the student's transcript as audit (AU). Audit indicates that the individual has paid fees and is allowed to attend classes without the requirements to perform homework assignments or take examinations. The Credit Waiver Committee has the authority to grant credit in those instances where a student has been assigned to audit a class as a condition for credit waiver.

## **SPECIAL STUDENT**

A special student is the classification given to one not enrolled for a degree. Any special student is expected to meet the same

admission requirements for a regular student. A special student may be included under the following:

**Undeclared Majors**—Students who will enroll for only a few courses may wish to apply under this category.

**High School Students**—High school students are allowed to take several credit courses and/or non-credit classes before completing their high school education. Students may have to have approval of their high school.

**Non High School Graduates**—An adult who is not a high school graduate or equivalent may be admitted as a special student if previous school work completed was of good quality.

Students seeking a degree or certificate should change their status to a specific degree major as early as possible. Special students may not apply for candidacy for a degree.

Special students are subject to regulations for regular students, and are responsible for the same fee and regular attendance at classes as regular students, whether for credit, non-credit or audit.

A student may enroll in a given course provided the necessary prerequisites have been met or waived by the Academic Dean.

## **CONTINUING EDUCATION DIVISION**

The Continuing Education Division offers special courses to meet the needs of individuals, groups, and organizations. Workshops, seminars, short-term and full-term courses are Kansas Technical Institute's answer to the State's challenge to provide educational opportunities in fields of technology.

Credit and non-credit courses reflect the interests and needs of the individual community or state and cover a wide variety of subjects, providing information for both occupational and personal use. Instructors are leading professional men and women on the institute's faculty. For many of these classes there are no entrance requirements and class schedules are set for the convenience of the students during both daytime and evening hours.

Special courses can be designed to meet the needs of individuals, groups, and organizations. The Continuing Education staff is eager to cooperate with firms which wish to arrange for courses, workshops or seminars in conjunction with their own training programs. These services can be provided on-campus, in-plant or in the respective communities where technical services are needed but not readily available.

## **CONTINUING EDUCATION STUDENT**

An individual who enrolls in credit or non-credit courses but who is not working toward a degree is classified as an undeclared major. These persons may receive a Certificate of Completion for certain courses.



Those desiring to work toward a degree at K.T.I. or planing to transfer course work to another institution of Higher Education must complete regular admission requirements. (See page 16 Admission Requirements)

## **SEMESTER CREDITS**

The units of completed work are "semester credits." One semester credit presumes that a student will spend three hours per each week of the semester for academic study. One semester credit of lecture class requires that a student attend one fifty-minute period of lecture each week during the semester and that the student spend approximately two hours each week on homework or outside assignments. One semester credit of laboratory requires a student to spend a minimum of two hours in the laboratory with possible additional outside work.

## **STUDENT LOAD**

A student may enroll in up to eighteen semester credits of course work without special permission. Students who desire to enroll in more than eighteen credits must obtain written permission from the Academic Dean. Students generally may not enroll in more than 18 semester credits their first semester at the Institute. A student with a poor scholastic record or a student who is employed part-time may be counseled to carry a reduced load. (See Reinstatement.)

## **FULL-TIME STATUS**

The minimum load for a student to be considered a full-time student is 12 credit hours. This status applies to certain student benefits such as H.E.A.F. loans, basic grants, full-time veterans, and others.

## **STUDENT CLASSIFICATION**

A student who has graduated from high school or earned equivalence is considered a freshman. A student is considered a sophomore upon completion of 30 semester hours.

## **CLASS ATTENDANCE**

Regular and punctual class attendance is important to a high standard of work. The student is expected to recognize the importance of regular class attendance.

Each instructor is responsible for advising the students of the attendance and tardiness criteria in his class. The student is expected to know and comply with each instructor's regulations. It is the student's responsibility to make up all work missed due to the absence.



## EXAMINATIONS

Examinations play a vital part in determining a student's performance in class. Each instructor will schedule a sufficient number of examinations to determine the student's progress in the course.

Final examinations are considered a part of each course and are generally scheduled during the last week of each regular semester, the summer session and the interterm. All students are expected to take a final examination in each course during the scheduled period. In emergency cases, a student may take a final examination at other than the scheduled time.

A list of potential graduating seniors will be prepared by the Academic Dean during the spring semester of each year. The grade for these students must be determined prior to the final examination period of the spring semester; hence, instructors will arrange to give final exams to potential graduates prior to the regular final examination period.

## GRADING SYSTEM

The Institute uses the following grade and point system:

<i>Grade</i>	<i>Type of Performance</i>	<i>Grade Points</i>
A	Superior	4
B	Above average	3
C	Average	2
D	Below average	1
F	Failure to earn credit	0
I	Incomplete	0
Au	Audit	0
S	Satisfactory (Pass)	0
U	Unsatisfactory (Fail)	0
WP	Withdrew Passing	0
WF	Withdrew Failing	0

A grade of "I" (Incomplete) may be given in special cases where a student was unable to complete all work in a course. If, in the opinion of the instructor, justifiable reasons exist to explain unfinished work, a report of Incomplete (I) may be given along with a tentative grade on the last day of class. A student will be allowed six (6) weeks or the beginning of the next semester, whichever is longer (excluding Summer semester), to make up the incomplete or the tentative grade will be recorded. If no tentative grade is given, an "F" will become the permanent grade. See the Academic Calendar for specific dates.

The grade point average for each student is reported for each semester and as a cumulative average for the entire period of attendance. This average is computed by dividing the total number of grade points earned by the total number of semester credits.

## **REINHART SCHWEMMER PHYSICS AWARD**

The General Technology Department will award a scholarship annually to a Kansas Technical Institute student who has demonstrated outstanding achievement in Physics I and/or Physics II. Selection of the candidates will be accomplished during the 14th week of each fall semester by the General Technology Physics instructors and General Technology Department Head.

Announcement of the scholarship award will be made during the last week of classes in the fall semester by the Kansas Technical Institute President and Academic Dean.

## **PRESIDENT'S HONOR ROLL**

Any student carrying a full-time load (12 hours or more) and earning a 3.75 or better grade point average with no grade below a "C" will be listed on the President's Honor Roll for that semester.

## **DEAN'S HONOR ROLL**

Any student carrying a full-time load (12 hours or more) and earning a 3.25 to 3.75 grade point average with no grade below a "C" will be listed on the Dean's Honor Roll for that semester.

## **CREDIT BY SPECIAL EXAMINATION**

Any student who feels that past education or experience has provided the basic knowledge that is equivalent to a course may take a special examination for that course.

Credit in any subject may be granted by special examination. Permission to take a special examination should be initiated through the department head who requests a waiver of credit form from the Registrar.

The fee for taking a special examination for course credit is three dollars (\$3.00) per semester credit.

Upon successfully completing the special examination, the form will then become part of the student's permanent file and the particular courses noted on the student's transcript.

## **CLEP**

CLEP provides an excellent means of obtaining college credit for skills or knowledge obtained through experience in areas outside of the formal college environment. Any student has the opportunity to utilize for credit experience gained through employment, formal and informal study, military experience and training, and many other areas where knowledge or skill is acquired.

CLEP examinations are administered at test centers throughout the country at specific periods during the year. Students wishing

to take a CLEP examination must complete an application form and submit it, along with the appropriate test fees, to the center of their choice.

KTI accepts for waiver of credit many of the CLEP subject examinations. Interested persons should contact the Registrar's Office for specific details.

## **WITHDRAWAL FROM CLASS**

Students are responsible for completing all courses in which they enroll. They may withdraw from any course within the limits provided below. It is the student's responsibility to insure that all withdrawal procedures are completed.

1. If a withdrawal is completed prior to Friday (5 p.m.) of the eighth week of the regular semester, no record of the class will appear on the individual's transcript.
2. A withdrawal after Friday (5 p.m.) of the eighth week thru Friday (5 p.m.) of the thirteenth week of the regular semester will result in a grade of "WP" (withdrew-passing) or "WF" (withdrew-failing) depending on the class standing at the time of withdrawal.
3. There will be no withdrawal from class after Friday (5 p.m.) of the thirteenth week. The grade earned will be the grade received.

For summer session and interterm course drop dates, consult the bulletin supplement available from the Student Services Office.

Students wishing to withdraw from a class shall initiate such action with the department head of their major technology. They will then be advised of the procedure they are to follow to complete the withdrawal action. Unless the withdrawal procedure is completed prior to Friday (5 p.m.) of the eighth week of the regular semester, the course grade earned will become a permanent part of the student's transcript.

## **ACADEMIC PROBATION AND DISMISSAL**

A student is expected to attend class regularly and maintain normal progress toward the completion of the program. Students who earn less than a 1.8 grade point average in any semester will be placed on academic probation. The probation condition will be removed when the student earns a semester grade point average of 2.0 or better.

Any student on academic probation who earns less than a 2.0 grade point average will be dismissed for academic reasons. Persons dismissed for academic reasons will not be allowed to

enroll except with special permission of, and under conditions established by the Academic Standards Committee.

Students enrolled in six (6) or less semester credits will not be subject to probation or dismissal action.

## **REINSTATEMENT**

Students who have been dismissed for academic reasons may petition for reinstatement.

A student desiring to be reinstated will be advised of the procedure by the Office of Academic Affairs. Official action will be taken on the request no later than two working days prior to enrollment.

Students who are reinstated will be on academic probation for the semester in which they are reinstated and may be required to carry a reduced course load.

## **REPETITION OF COURSES**

A course may be repeated to improve a grade. All grades received in a given course will be shown on the student's transcript; however, the grade received the last time the course is taken will be the grade used for computing the cumulative grade point average.

## **TRANSCRIPT**

The transcript is the official record of a student's success at the Institute. The transcript is a record that colleges and employers use to evaluate a student or graduate of the Institute. It must be certified by the Registrar before it will be used as an official record.

Copies of the transcript may be obtained by contacting the Registrar's office. Each student is entitled to five transcripts free of charge. A fee of \$1.00 is charged for each additional transcript.

Transcript and/or grades will not be released for the student who is indebted to the college.

## **GRADUATION REQUIREMENTS**

The Board of Regents is authorized by the Legislature to empower the President to grant Associate of Technology Degrees/or certificates by type and title as approved by the Board of Regents. Any student who plans to obtain the degree/certificate should be aware of the following criteria used by the faculty for recommending degree/certificate candidates to the President:



The candidates for the degrees/certificates must:

1. successfully complete or obtain a waiver for each course in their study,
2. earn a 2.000 overall grade point average in all courses in their study which are taken at K.T.I.,
3. be screened and recommended for graduation by the Academic Standards Committee, and
4. attend commencement exercises or obtain written permission for graduation in absentia.\*

\* A written request for graduation in absentia will be made as soon as the candidate becomes aware of circumstances which will prevent attendance at commencement. Such request will be directed to the Academic Dean.

Any student to be considered for graduation shall have successfully completed his final fifteen (15) semester credits in residence at the Institute.

## **GRADUATION WITH HONORS**

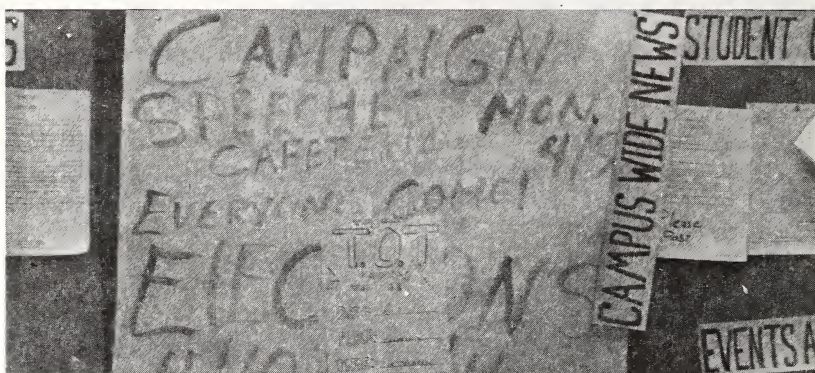
Students maintaining a high level of academic achievement are recognized at graduation by Honors and High Honors recognition.

The requirement for graduation with High Honors is that the student shall earn an overall grade point average of 3.85 or above based on a 4.00 point system, and a 3.9 in course work in the major field.

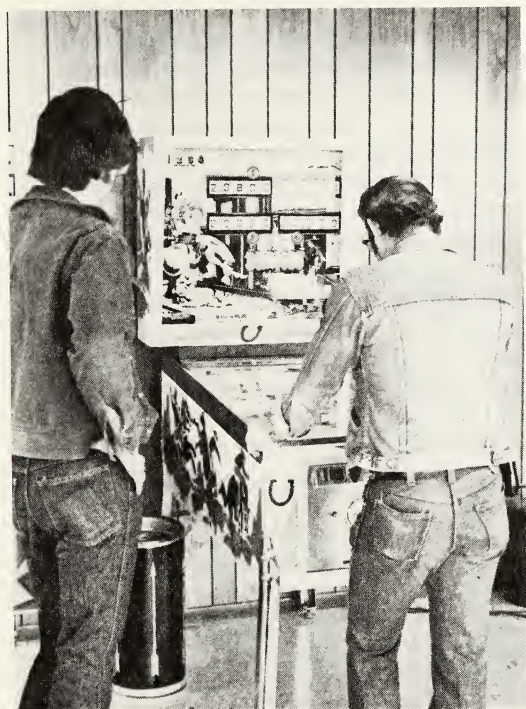
The requirement for graduation with Honors is that the student shall earn an overall grade point average of 3.75 or above, and a 3.8 in all course work in the major field.

A grade of "D" or "F" in any course will eliminate any recognition of Honors or High Honors.









## **STUDENT SERVICES AND ACTIVITIES**

## **STUDENT SERVICES**

The primary goal of Kansas Technical Institute is to prepare its students for rewarding and satisfying careers in their chosen areas of specialization. To attain this goal, the Institute not only provides educational opportunities in the classroom and laboratories, but also provides the means whereby students can develop their individual talents and meet their many non-academic needs.

Students entering the Institute are considered to be mature individuals who are responsible for their own behavior. High standards of personal, ethical, and moral conduct are expected of all students, on campus and elsewhere. The capacity for sound planning and the desire to establish good study and work habits are characteristic of a successful student.

Students are expected to use the Institute facilities with consideration, and to conduct themselves with decorum. Students who refuse to conform to accepted standards of conduct will be dismissed from the Institute.

## **COUNSELING**

Kansas Technical Institute administrative and faculty personnel are available at all times to counsel students in their educational programs and to help the student who seeks vocational guidance. Students will find the Institute personnel are eager to contribute their training and knowledge to aid students in solving their specific problems.

Each student is assigned a faculty advisor who will work with the student to help him solve any academic problems that may arise. Kansas Tech faculty members have a great amount of industrial experience that qualifies them to assist students in vocational guidance.

Students are strongly encouraged to discuss personal and non-academic problems with personnel of the Student Services Office. Of course the student may wish to consult solely with his faculty advisor. In either case, every effort will be made to help students through personal counseling and guidance while they are enrolled in an educational program at Kansas Technical Institute.

## **FINANCIAL AID**

It is the firm belief of the Kansas Tech Financial Aid Office that no student should be denied access to an education on the basis of insufficient personal or family funds. The function of the Aid Office is, therefore, to provide financial assistance to students



who qualify under the federal regulations governing the aid programs.

The basic idea behind financial aid at KTI is to meet the documented needs of the student body. There are limitations in some fund accounts and therefore, each recipient is encouraged to apply for financial aid early and to indicate their acceptance of aid within two weeks of receipt of the award letter.

The budgets for Kansas Tech students will be developed according to categories of students such as independent or dependent, married or single, dorm resident or off-campus student.

## **STUDENT'S RIGHTS**

You have the right to know what financial assistance is available, including information on all federal, state and institutional Financial Aid Programs.

You have the right to know the deadlines for submitting applications for each of the financial aid programs available.

You have the right to know the criteria used by the institution to select financial aid recipients.

You have the right to know how the college determines your financial need. This process includes how costs for tuition and fees, room and board, travel, books and supplies, personal and miscellaneous expenses, etc., are considered in your budget.

You have the right to know how much of your financial need, as determined by the institution, has been met.

You have the right to request from the financial aid office an explanation of the various programs in your student aid package. If you believe you have been treated unfairly, you have the right to request reconsideration of the award which was made to you.

You have the right to know what portion of the financial aid you received must be repaid, and what portion is grant aid. If the aid is loan, you have the right to know what the rate of interest is, the payback procedures, the length of time you have to repay the loan, and when payment is to begin.

You have the right to know how the college determines whether you are making satisfactory progress, and what happens if you are not.

## **STUDENT'S RESPONSIBILITIES**

It is your responsibility to review and consider all information about the college's program before you enroll.

It is your responsibility to complete all application forms accurately and submit them on time to the right place.

It is your responsibility to pay special attention to, and accurately complete, your application for student financial aid. Errors

can result in long delays in your receipt of financial aid. Intentional misreporting of information on application forms for federal financial aid is a violation of law and is considered a criminal offense subject to penalties under the U.S. Criminal Code.

It is your responsibility to return all additional documentation, verification, corrections, and/or new information requested by either the financial aid office or the agency to which you submitted your application.

It is your responsibility to read and understand all forms that you are asked to sign, and keep copies of them.

It is your responsibility to accept responsibility for all agreements you sign.

It is your responsibility to know and comply with the deadlines for application or reapplication for aid.

It is your responsibility to know and comply with your college's refund procedures.

It is your responsibility to keep the college informed about other scholarships and loans accepted or pending from other sources, such as business foundations, private organizations, and state scholarship programs. Failure to do so may result in forfeiture of all aid received from the college.

## **APPLICATION PROCEDURES**

1. A student must be enrolled or accepted for admission before he will be considered for financial aid. (See Admission Requirements on page 16.)

2. A Kansas Student Data Form must be completed and submitted to the KTI Office of Student Services.

3. The American College Testing Program (A.C.T.) "Family Financial Statement" or the College Board "Financial Aid Form" must be completed for processing. A fee specified on the form is charged to process this financial need analysis. A financial need analysis must be on file before any financial aid, except loans, can be awarded.

4. Those who are eligible to apply should complete a Basic Educational Opportunity Grant application. The results of this application will be sent to the student and should be forwarded to the Student Services Office for processing.

After the applications have been processed, the detailed financial aid need analyses will be used by the Financial Aid Committee in determining the student's financial need and corresponding "financial aid package" for that student.

Although no specific application deadline exists for these programs, it is recommended that students interested in financial aid have all completed forms submitted by April 15 for fall semester enrollment.



### **Basic Educational Opportunity Grant (BEOG) Program**

This is a federally funded program available to eligible students attending any approved post-secondary institution. The amount of the individual non-repayable grants varies from \$200-\$1800 per academic year. An undergraduate student who has not received a bachelor's degree from another institution and is enrolled on at least a half-time basis is eligible to apply.

### **College Work-Study Program**

The College Work-Study Program was established to assist students of low-income families by providing jobs on campus. These jobs are available in various departments and will permit a student to earn part of his educational expenses. The number of hours a student works per week depends on his eligibility total. However, this is limited to not more than 20 hours per week while school is in session. The pay rate closely follows the minimum wage as established by law. It may lag behind the established laws for short periods of time due to budgeting problems. The school and the federal government share the cost of the College Work-Study Program.

### **Supplemental Educational Opportunity Grant (SEOG) Program**

This federally funded program is for students who have exceptionally high financial need as exhibited through the "Application Procedures" outlined above. An SEOG award ranges from \$200 to \$1500 per year and does not have to be repaid. To be eligible students must be enrolled at least half-time or accepted for enrollment. The grants are awarded by the Financial Aid Committee.

### **Scholarships/Sponsorships**

A limited number of scholarships are made available to KTI students from interested individuals, businesses, and organizations. These vary from \$50 to \$365 per year. Eligibility requirements vary according to the scholarships. The regular "Application Procedures" should be followed to apply for any of these scholarships; selection is made by the Financial Aid Committee. The Financial Aid Office should be consulted to obtain a listing of the scholarship/sponsorships available.

### **Higher Education Assistance Foundation (HEAF)**

The HEAF program enables students to borrow directly from local banks or participating lenders who are willing to make these educational loans. The loan is guaranteed by the federal government. The maximum loan per academic year is \$2,500, with repayment normally beginning ten months after graduation or

withdrawal from post-secondary education. Maximum annual interest is 7% on the unpaid balance. Those students finding themselves unable to locate a local lender may apply for a Higher Education Loan Program (HELP) loan and obtain a similar loan. It must be noted that the maximum loan per year may not be more than \$1,500 for the first-time borrowers. The maximum total amount that can be borrowed by an individual student during undergraduate studies is \$7,500.

Students interested in this loan program should contact their local banks or the KTI Office of Student Services.

### **Student Emergency Loan**

Kansas Technical Institute maintains a small loan fund to help students meet emergency situations. These loans are for \$50 or less and must be repaid within 30 days or by the end of the semester, whichever comes first. The Office of Student Services administers these loans.

For application forms or more information concerning any of these financial aid programs, please write or call:

Office of Student Services  
Kansas Technical Institute  
Salina, KS 67401  
Phone 913/825-0275

## **DORMITORY**

Recognizing the benefits to be gained from experience in group living, Kansas Technical Institute provides modern dormitory and dining facilities for students enrolled in a resident instruction program.

All single freshmen male students who live beyond commuting distance will be required to live in a dormitory approved by the Institute for a period of two (2) semesters, summer school not included as an academic semester.

The following types of students are permitted to take residence elsewhere:

1. A student who has attended another institution of higher learning for two (2) semesters.
2. A student who is a veteran.
3. A student who is twenty-one years of age or older.
4. Special cases include the following:
  - a. Students living with relatives who live within commuting distance of Salina. This will require a signed, notarized statement from the student's parent. This form must be obtained from the Student Services Office.
  - b. Medical reasons, which require a doctor's certification.
  - c. Other similar situations.

All exceptions in this category require approval by the Dean of Student Services.

Dormitory rooms are reserved by paying a deposit of \$25.00 which is not refundable after August 15. Reservations, including the deposit, should be made as early as possible. As soon as an applicant's reservation has been confirmed by the Institute contracts for room and board will be sent to applicants for their signature. Housing regulations and campus rules of conduct will be printed on and attached to the contract and each student must agree to abide by these rules and regulations.

If the student withdraws from the Institute or obtains special permission to move from the dormitory after the beginning of the semester, the contract will be cancelled and a refund will be made according to the refund schedule printed on the reverse side of the contract form. Generally, no refund will be made for students withdrawing during the last six (6) weeks of classes of a semester or the last three (3) weeks of a summer session.

A damage deposit of \$25.00 is required when a student moves into the dormitory. This deposit will be refunded, if there is no damage to the room, when the resident moves from the dorm.

Dormitory facilities are designed to accommodate two (2) students per room. All rooms are equipped with single beds, adequate storage, and comfortable furniture. Dormitory fees do not include weekly linen service. Blankets, pillows, and other incidental room furnishings must also be supplied by occupants.

Kansas Tech women will be aided in finding comparable housing. They should contact the Student Services Office to obtain a listing of current vacancies.

## **FOOD SERVICE**

The Institute provides a pleasant cafeteria conveniently located near the dormitory complex for the convenience and enjoyment of students, staff and visitors. The preparation of food is under the supervision of qualified dietitians to insure balanced and wholesome meals.

## **OFF-CAMPUS AND MARRIED STUDENT HOUSING**

For those students who are not required to live in the campus dormitory and who wish to seek residence in the local community, there is usually adequate housing available. The Student Services Office may post known vacancies or the student may wish to contact a local real estate agency for assistance.

## **VETERANS AFFAIRS**

Veterans comprise a substantial contingent of the total student population at KTI, and it is recognized that they require special assistance in many respects. Because of this, Kansas Technical



Institute maintains an Office of Veterans Affairs to assist veterans in receiving their entitled benefits, counseling as particularly related to veterans, assistance in locating part-time jobs, and numerous other areas which are specific to veterans' needs.

The GI Bill which was passed by Congress in 1966 establishes a comprehensive program of governmental assistance to help restore lost educational opportunities for persons who have served on active duty in the Armed Forces for a period of at least 181 consecutive days, any part of which was after January 31, 1955, and who were discharged or released under conditions other than dishonorable. The mechanics of such a program are vast. The following material was prepared to better acquaint the individual veteran with those procedures which must be performed either by himself or by the Veterans Affairs Office at Kansas Technical Institute.

The following are explanations of procedures and guidelines used in the Veterans Program. Please read the material carefully.

## **I. Application Procedures**

Applications for the benefits may be obtained through the Regional Veterans Administration Center or the KTI Veterans Affairs Office. Early application could result in an advance paycheck arriving at the institute in time for registration. When filling out your VA paperwork answer all questions, even if it means a response of NA (not applicable). The following documents may be required as needed:

1. DD-214-Notice of Separation. This document should accompany all initial applications.
2. Marriage Certificate. Not needed if the marriage is the first for both the veteran and wife.
3. Birth Certificate. If any previous marriages are involved.

Application and all necessary documents should be returned to the "Veterans Affairs Officer," Kansas Technical Institute six (6) weeks prior to time of enrollment. This will enable us to complete the school's part of the paperwork, and forward the completed documents to VA for speedy processing.

## **II. Enrollment Procedures**

It is the veteran's responsibility to notify the Veterans Affairs Officer when he will be enrolling, changing numbers of hours, or dropping classes. Proper and timely certification will then be made with the veteran's help.

NOTE: When a veteran changes programs or place of training for a second time, VA counseling will be required. See your Veterans Affairs Officer if clarification is needed.

## **III. Procedures for Reporting Changes**

Any changes in a veteran's address, course load, dependency, educational program, place of training, etc., should be reported to the Veterans Affairs Office at Kansas Technical Institute immediately. The Veterans Administration has forms for reporting these changes, or they may be obtained through the Veterans Affairs Office. In most cases, the school must certify the changes on these forms and payments will not be released until the school certification is received by the VA.

NOTE: When a veteran changes his course load during a part of the month, he



will receive the monthly payment for the course load which he was carrying at the beginning of the month. His payments will not be reduced until the beginning of the following month. For example, a veteran who drops from a full-time course load to a three-fourths load during the second week of the month will receive a payment for full-time benefits for the month in which the drop occurs, but will be reduced to the three-fourths rate at the beginning of the following month. Also, when a veteran acquires a dependent, either a wife or a child, he should immediately notify the Veterans Affairs Office which will then contact the Veterans Administration Center. Claims for a dependent will be paid for the entire period when made within one year of the marriage or birth. If the veteran does not furnish proof of the dependent with his letter, he may be asked to do so at a later date.

**IV. Satisfactory Progress**

The institution is committed to report failure on the part of any veteran or dependent receiving benefits to maintain satisfactory progress. When a recipient has received more than 12 credit hours of failing grades, the V.A. will be notified and benefits may not be received in subsequent semesters until they have been approved for training by the V.A.

**V. Guidelines for Evaluating Semester Credit-Course Load Equivalents**

Regular Semester	
<i>Course Load</i>	<i>Semester Credits</i>
Full-time . . . . .	12 or more
¾ time . . . . .	9, 10, 11
½ time . . . . .	6, 7, 8
Less than ½ time (VA pays tuition and fees only) . . . . .	5 or less
Summer Semester	
<i>Course Load</i>	<i>Semester Credits</i>
Full-time . . . . .	6 or more
¾ time . . . . .	5
½ time . . . . .	3, 4
Less than ½ time (VA pays tuition and fees only) . . . . .	2 or less

The amount of payments is the same as for the regular semester. Payments may be changed by legislation and therefore are not shown in this catalog.

NOTE: Non-credit deficiency courses may be included in arriving at the course load level.

**HEALTH SERVICE**

Emergency first aid and minor medical services are provided on the Kansas Tech campus. Injuries or illnesses which require the attention of a physician are referred to Salina clinics which perform any medical service required by a student at Kansas Technical Institute. The cost of this service, of course, will be assumed by the student.

A special student health and accident program is available to all students enrolling at Kansas Technical Institute. This program is optional but deserves serious consideration from students who

are not covered under some form of medical insurance or for those who wish to supplement their existing coverage. Representatives of the insurance agency will be available to explain the program and enroll students in the program in conjunction with the Institute's regular enrollment schedule.

## **PLACEMENT SERVICE**

Kansas Technical Institute maintains close contact with numerous industries and business firms who are interested in graduates of technical institutes as prospective employees. Students taking advantage of the Institute's Placement Center are given the opportunity to discuss their employment goals with representatives of these firms during the final year of their educational programs. These discussions may take place on the campus, or if feasible, the student is provided the opportunity to visit the site of the firm itself in order to obtain a clearer picture of the working conditions and operations of the business establishment.

The Dean of Student Services offers a non-credit course of study at least once each year designed to prepare the upcoming graduates with basic skills to facilitate the interviewing process. The major thrust of the course will be an exposure to research materials and interviewing techniques.

The Placement Center also maintains files of information for resource materials to use in the job pursuit process. References are available on industries and businesses in many cities in the United States. The staff of the Student Services Office is available for added guidance and assistance.

The Placement Center does not limit its services to graduates of the Institute. Current files on part-time job opportunities are maintained for the use of students who are interested in supplementing their income while they are enrolled in their educational program.

## **LIBRARY SERVICES**

A vital part of every technical education center is the availability of relevant and current library resources. The library, called the James E. Tullis Resource Center at Kansas Tech, serves many functions which contribute toward better academic progress of the student body.

The library houses an authoritative, current, and relevant technical information; it provides supplementary reference material which offers a wide range of modern technological subject matter.

Audio visual materials in the library and in each department offer further opportunity for curriculum enrichment.

An inviting atmosphere is offered in the well-lighted and attractive library. The staff is available to assist students in locating materials and in the general use of the library.

## **STUDENT UNION**

The Institute has a Student Union building designed to house all student activities. The Union is supported financially by the fees paid by all students during each enrollment period.

Some of the functions of the Student Union are to provide recreational activities such as pool and ping-pong, a well-equipped snack bar, meeting rooms for many of the campus organizations, and a quiet room for study.

The Student Union provides a comfortable, entertaining and relaxed atmosphere for people who enjoy the company of others.

## **CAMPUS BOOKSTORE**

The campus bookstore, located in the Student Union, maintains a complete inventory of books and supplies necessary for Kansas Tech students. The bookstore will buy back used books at the end of the semester.

Class rings can be ordered through the bookstore, and a used paperback book exchange is maintained for students and staff. Clothing items with the school name and logo and snack foods are also available.

## **OUTLINE OF ACTIVITIES**

A wide range of student activities is provided for the enjoyment and development of the student. These activities are widely diversified and all students, regardless of their personal interests, may find a group or club which will appeal to their special interests.

Students are urged to take an active role in the Student Governing Association (SGA). The SGA will participate in the development of basic codes of conduct, disciplinary measures, campus activities, and other facets of administrative organization and control. In addition, there is permanent student representation on the KTI President's Advisory Council.

Various social events will be scheduled throughout the year for the social development and enjoyment of Kansas Tech students. In most cases, the planning and organization of social activities will be the responsibility of representatives from the student body and the SGA.

The student chapter of the American Society of Certified Engineering Technicians (A.S.C.E.T.) is a very active campus organization. The chapter is the first student chapter established for student technicians in the United States. The ASCET chapter provides students an opportunity to become part of what will be their future professional organization.



Students who receive a semester grade point average (GPA) of 3.25 or above for twelve or more semester credits are eligible for membership in the honor fraternity, Tau Omicron Tau. The fraternity performs helpful and honorable services on the campus and gives students an opportunity for leadership and service.

Student activities are limited only by the imagination of the student body and by common sense. Approval for clubs and activities rests with the SGA board. Campus activities have included: photography club, student yearbook, student newspaper, ham radio club, chess club, model airplane club and others that may be of interest to student groups.

## **RECREATION AND INTRAMURALS**

Recognizing the benefits to be derived from activities other than those connected with formal instruction, Kansas Technical Institute has facilities for a well-rounded program of recreation and entertainment for its students.

Students may participate in intramural competition in a wide variety of sports. In some instances, a small fee may be assessed for participating teams or individuals to defray the cost of trophies and other awards of achievement.

## **PARTICIPATION**

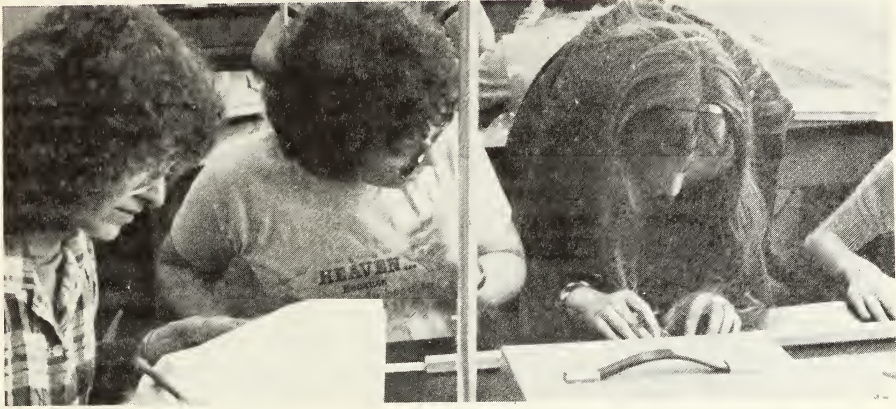
Students are encouraged to participate in all activities sponsored by school organizations. Individual participation is subject to the policies and regulations of the organization in which the student is involved.

## **ALUMNI ASSOCIATION**

Each student upon enrollment at KTI becomes a potential alumnus. After graduation, his name is entered into the alumni records and maintained by the Association. Currently records are maintained on over 600 alumni. KTI graduates reside in more than 30 states and several foreign countries.

The purpose of the Association is to provide services and benefits to each individual graduate and to the institute. All alumni programs are financed by voluntary memberships and donations from alumni and friends who remain actively interested in supporting their alma mater. The Association also maintains a Student Aid Fund for the purpose of providing scholarships and emergency loans.





## **CURRICULA AND COURSE DESCRIPTIONS**

## ACADEMIC DEPARTMENTS

Kansas Technical Institute is authorized to provide a wide range of instruction in the field of science and engineering technology. A standing committee reviews the needs for technology education in Kansas and works to develop a program specifically designed to meet those needs.

Presently there are six departments of instruction. They are:

- Aeronautical Technology
- Civil Engineering Technology
- Computer Science Technology
- Electronic Engineering Technology
- General Engineering Technology
- Mechanical Engineering Technology

Detailed curricula and course descriptions are provided in this bulletin for each of the programs of study taught by these six departments.

## ACCREDITATION AND CERTIFICATION

Kansas Technical Institute is accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools.

Kansas Technical Institute offers four ABET (ECPD) \* Accredited Engineering Technology Programs. Programs so accredited are:

- Civil Engineering Technology
- Computer Science Technology
- Electronic Engineering Technology
- Mechanical Engineering Technology

\* The Accreditation Board for Engineering and Technology, (ABET), formerly the Engineers' Council for Professional Development (ECPD) is a unity organization in the education area for the engineering profession. The purpose of ABET is stated in its constitution as "... the promotion and advancement of engineering education with a view to furthering the public welfare through the development of the better educated and qualified engineer, engineering technologist, engineering technician, and others engaged in engineering or engineering-related work." The participating bodies are the American Congress on Surveying and Mapping; the American Institute of Aeronautics and Astronautics, Inc.; the American Institute of Chemical Engineers; the American Institute of Industrial Engineers, Inc.; the American Institute of Mining, Metallurgical and Petroleum Engineers; the American Nuclear Society; the American Society of Agricultural Engineers; the American Society of Civil Engineers; the American Society for Engineering Education; the American Society of Heating, Refrigerating and Air-conditioning Engineers, Inc.; the American Society of Mechanical Engineers; the Institute of Electrical and Electronics Engineers, Inc.; the National Council of Engineering Examiners; the National Society of Professional Engineers; the Society of Automotive Engineers; and the Society of Manufacturing Engineers. Member bodies are the American Academy of Environmental Engineers, and the American Society for Metals.

The Aircraft Maintenance Program at Kansas Technical Institute is certified as an "Aviation Maintenance Technician School No. 3344" by the Federal Aviation Administration.

## **PROGRAM OPTIONS**

A variety of program alternatives can be obtained to suit the specific interest of the student. A student entering Kansas Tech may consult with the faculty in the subject area of his special interest. A specific program of study will be selected for the student at the earliest possible time to insure that the student progresses toward a degree objective with the least delay.

## **MATHEMATICS TRANSITION PROGRAM**

A large number of men and women have the interest in and capabilities for a satisfactory career as an engineering technician. For various reasons many of these persons have not considered such a career during their high school experience. Frequently, new students have not completed the mathematics courses that would be most helpful to them in pursuing work in this career field.

The faculty at Kansas Technical Institute has developed a transition program in mathematics to assist those who have, for some reason, recognized that their mathematics ability is less than adequate.

A combination of basic mathematics applications courses and laboratory exercises assist in developing mathematical competence in students who have only fundamental working ability in math. Students entering Kansas Technical Institute will be offered a Mathematics Placement examination and will be given, if desired, the special help needed to insure that they develop competence in mathematics. This will allow them to be successful in the mathematics sequence in the technology of their choosing. If a competency in math is exhibited they may move directly into the prescribed mathematics sequence without having to participate in the Mathematics Transition Program.

## **ENGLISH AND READING PROFICIENCY PROGRAMS**

Like the Mathematics Transition Program, the English and Reading Proficiency Programs are designed to aid students whose level of competency in these areas may be below the normal college level.

Proficiency examinations can be administered to help identify those students who need developmental work in English and reading. The students may then enroll in Developmental English and/or Developmental Reading to prepare them for the more advanced work they will encounter. These developmental courses may be taken concurrently with other communication and technical courses.



## Key to Identification of Course Descriptions

Course descriptions are listed alphabetically by curricular codes as follows:

AM—Aviation Maintenance  
CL—Civil Engineering Technology  
CT—Computer Engineering Technology  
CP—Computer Science Technology  
DP—Electronic Data Processing Technology  
EP—Environmental Protection Technology  
ET—Electronic Engineering Technology  
GT—General Technology  
MT—Mechanical Engineering Technology

The format of the course numbers is the curricular code plus a four digit number. The digits are explained in the following example:

### GT1124

GT—Curricular Code  
1—Course Level by Year  
1—Department Use Code  
2—Earliest possible semester course can be taken  
4—Total Semester credit

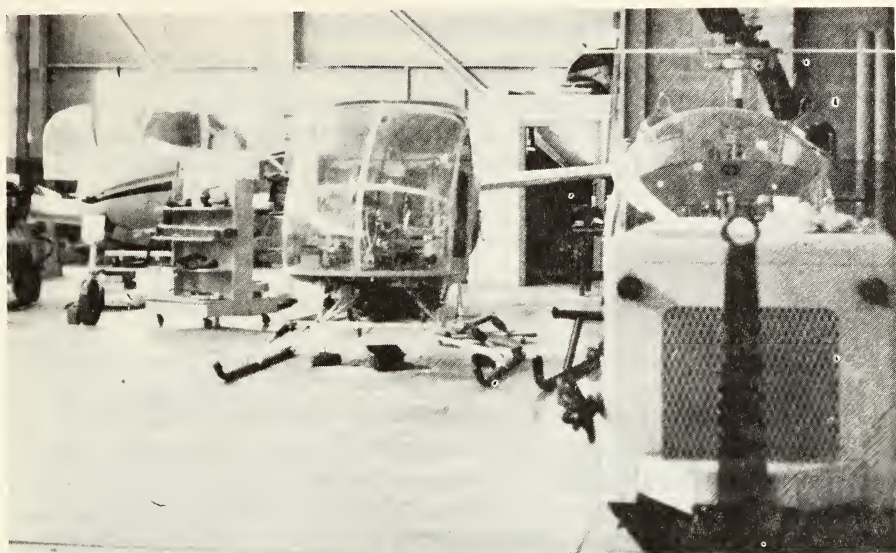
Parentheses at the end of a course description indicate the amount of recitation, laboratory, and semester credits for that course. The GT1124 example has (3-1-4) which means there are three (3) semester credits of recitation, one (1) semester credit of laboratory, and a four (4) semester credit course total.

Information following the semester credit block indicates *prerequisites* or *concurrency*, where they may exist. The prerequisite courses must be taken before the course being described may be taken. Concurrency means that the course may be taken at the same time as the course being described.

EXAMPLE: GT1222 has *prerequisites* of GT1212 and GT1213 which means that before taking GT1222 (Analytic Geometry and Calculus I) the student must have completed GT 1212 (Plane Trigonometry) and GT1213 (College Algebra).

EXAMPLE: GT 1423 has *concurrent* course GT1213 meaning that GT1423 (Economics) may be taken at the same time as GT1213 (College Algebra).





## **AERONAUTICAL TECHNOLOGY**

## AERONAUTICAL TECHNOLOGY

The aviation industry has advanced in a few short years from the embryo stage to a diversified industry. This rapid improvement of aeronautical technology is providing a stable and rewarding future for millions of persons who want to work in the field of aviation. Kansas Technical Institute provides sound programs of instruction in a variety of aviation related fields.

### Aviation Maintenance

The aircraft maintenance program is fully certified as an "Aviation Maintenance Technician School No. 3344" as designated in Federal Aviation Regulation Part 147. A student who satisfactorily completes this two-year aviation maintenance program will be awarded a Certificate of Completion which will be recognized by the FAA as a document authorizing the graduate to take the federally administered airframe and powerplant (A&P) written and oral examinations. Upon passing the exams, the graduate will be a licensed, government-certified Airframe and Powerplant maintenance technician.

#### Airframe, Powerplant Curriculum (AM)

##### First Year—Fall Semester

Course No.	Course Name	Hours*		Semester Credits
		R	L	
AM 1113	Aircraft Welding .....	2	1	3
AM 1212	Aircraft Drawings .....	0	2	2
AM 1214	Aircraft Science .....	3	1	4
AM 1213	Aircraft Standards .....	2	1	3
AM 1114	Aircraft Basic Electricity .....	3	1	4
Total Credits .....				16

##### First Year—Spring Semester

Course No.	Course Name	Hours*		Semester Credits
		R	L	
GT 1213	College Algebra .....	3	0	3
AM 1324	Airframe Systems .....	2	2	4
AM 1325	Airframe Structures and Repair .....	3	2	5
AM 1323	Aircraft Fluid Power .....	2	1	3
AM 1723	Airframe/Powerplant Electrical Systems ..	1	2	3
Total Credits .....				18

##### Second Year—Fall Semester

AM 2423	Navigation Aids and Communications Sys- tems .....	2	1	3
AM 2335	Inspection and Assembly .....	3	2	5
AM 2333	Aircraft Wood and Fabric .....	1	2	3
AM 2534	Powerplant Fundamentals .....	3	1	4
AM 2533	Powerplant Ignition Systems .....	2	1	3
Total Credits .....				18

### Second Year—Spring Semester

AM 2643	Powerplant Induction and Fuel Systems ..	2	1	3
AM 2542	Propellers .....	1	1	2
AM 2543	Powerplant Operation and Troubleshooting	1	2	3
AM 2644	Powerplant Overhaul .....	1	3	4
AM 2544	Gas Turbine Powerplants .....	2	2	4

Total Credits .....	16
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Total semester credits required to complete certificate requirements .....	68
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R—recitation or lecture credit; L—laboratory credit.

\* Students should expect to spend 2 hours of study for each hour of class.

## Associate of Technology Degree

A person interested in a career in production control, quality control, manufacturing supervision of aircraft and aircraft component manufacturing may consider a career in Aeronautical Technology. A graduate of this program will receive the Associate of Technology degree and would be qualified to work as an engineering technician in the aeronautics field. This program may be taken congruently with the A&P maintenance technician program.

### Aeronautical Technology Curriculum (AT)

#### First Year—Fall Semester

Course No.	Course Name	Hours*		Semester Credits
		R	L	
GT 1213	College Algebra .....	3	0	3
AM 1212	Aircraft Drawing .....	0	2	2
AM 1214	Aircraft Science .....	3	1	4
AM 1213	Aircraft Standards .....	2	1	3
AM 1114	Basic Aircraft Electricity .....	3	1	4

Total Credits .....	16
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#### First Year—Spring Semester

GT 1212	Plane Trigonometry .....	2	0	2
AM 1325	Airframe Structures and Repair .....	3	2	5
AM 1324	Airframe Systems .....	2	2	4
AM 1323	Aircraft Fluid Power .....	2	1	3
AM 1722	Airframe/Powerplant Electrical Systems ..	1	2	3

Total Credits .....	17
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#### Second Year—Fall Semester

GT 1124	Technical Physics I .....	3	1	4
GT 1713	Written Communications .....	3	0	3
GT 1222	Analytic Geometry and Calculus I .....	2	0	2
AM 2534	Powerplant Fundamentals .....	3	1	4
AM 2643	Powerplant Induction and Fuel Systems ..	2	1	3
AM 2533	Powerplant Ignition Systems .....	2	1	3

Total Credits .....	19
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### Second Year—Spring Semester

AM 2543	Powerplant Operation and Troubleshooting	1	2	3
AM 2544	Gas Turbine Powerplants	2	2	4
GT 2713	Technical Writing	3	0	3
GT 1413	Industrial Relations	3	0	3
GT 1312	Oral Communications	2	0	2
Total Credits				15
Total semester credits required for Associate of Technology Degree				67

R—recitation or lecture credit; L—laboratory credit.

\* Students should expect to spend 2 hours of study for each hour of class.

## Aviation Maintenance Management

The field of aviation has many areas that require diverse technical skills. Kansas Technical Institute offers the Airframe and Powerplant Maintenance Program that provides the Aviation Mechanics necessary for both commercial and civil aviation. For graduates who want to expand their knowledge into the area of fundamental business management, Kansas Tech offers the Aviation Maintenance Management curriculum.

This curriculum is available to graduates of the KTI Aviation Maintenance Technician curriculum or to individuals who already possess an F.A.A. Airframe and Powerplant Mechanics License.

Completion of the Aviation Maintenance Management Curriculum will provide a two-fold advantage: an advantage toward obtaining supervisory and management positions with commercial airlines, aircraft companies, corporate business aircraft operators, fixed-base operators, repair stations and governmental flight agencies; and the advantage of having the background for operating and managing the economically important small-town airports.

### Aviation Maintenance Management Curriculum (MM) First Year—Fall Semester

Course No.	Course Name	Hours*		Semester Credits
		R	L	
43:112	Principles of Management	3	0	3
GT 1513	Principles of Accounting I	3	0	3
GT 1713	Written Communications	3	0	3
GT 1423	Economics	3	0	3
GT 1413	Industrial Relations	3	0	3
Total Credits				15

### First Year—Spring Semester

GT 2713	Technical Writing . . . . .	3	0	3
43:213	Marketing . . . . .	3	0	3
GT 1523	Principles of Accounting II . . . . .	3	0	3
GT 1312	Oral Communications . . . . .	2	0	2
CP 1213	Computer Science Concepts . . . . .	2	1	3
	Elective <sup>o</sup> . . . . .			2
Total Credits . . . . .				16
Total semester credits required for Associate of Technology Degree . . . . .				31

R—recitation or lecture credit; L—laboratory credit.

<sup>o</sup> Student should expect to spend 2 hours of study for each hour of class.

<sup>o</sup> Technical electives will be selected from KTI courses with the consent of the student's advisor and approved by the Aeronautical Technology Department Head.

Part of the technical elective requirement will be waived for students who possess a private pilot license or who have completed private pilot ground school and have logged a minimum of 35 flight hours.

This curriculum is available to graduates of the KTI Aviation Maintenance Technician curriculum or to individuals who already possess an FAA Airframe and Powerplant Mechanics License (must have had College Algebra).

## AERONAUTICAL COURSE DESCRIPTIONS

### AM 1213 Aircraft Standards

A survey of the organization of the Federal Aviation Administration and the Civil Aeronautics Board. Emphasis will be placed on the regulations, standards, and specifications of each of these organizations. A detailed study of weight and balance procedures will be conducted in the classroom and in the laboratory. (1-1-2) Prerequisite: None

### AM 1113 Aircraft Welding

Theory and skill development in aircraft welding processes. Exercises in gas welding processes as applied to ferrous and non-ferrous materials. Inert gas atomic hydrogen, and resistance welding processes are to be studied. Additional studies will be made in the following areas: welding magnesium, welding stainless steels, brazing, soldering, silver soldering. Some arc welding fundamentals will also be covered. (2-1-3) Prerequisite: None

### AM 1114 Basic Aircraft Electricity

A basic concept of D.C. and A.C. circuits, basic laws relating to the following: measurement of capacitance and inductance; calculating and measurement of electrical power; measuring voltage, current, resistance, continuity and leakage; relationship of voltage, current and resistance in electrical circuits; reading and interpretation of electrical circuit diagrams; inspection and servicing of batteries; electrical devices; A.C. current studies; magnetism; tubes, transistors, rectifiers, inverters; meters; D.C. and A.C. motors and generators; alternators; regulation of electrical systems; and maintenance and inspection of electrical systems. (3-1-4) Prerequisite: None

### **AM 1214 Aircraft Science**

A survey of aircraft nomenclature, theory of flight and aerodynamics, aircraft ground operation and servicing, and aircraft materials and processes. (3-2-5) Prerequisite: None

### **AM 1723 Airframe/Powerplant Electrical Systems**

An advanced study of DC/AC circuits' law relating to circuit analysis and a detailed study of measuring instruments. Advanced study of relays, switches, and other devices encountered in circuit analysis, troubleshooting and repair. Also includes a detailed study of electrical components and systems used in a variety of aircraft active in general aviation. Attention will be devoted to low voltage electrical components of airframe electrical systems. (1-2-3) Prerequisite: AM 1114

### **AM 1212 Aircraft Drawings**

The course is designed to teach the student how to recognize and identify each kind of line as it appears in drawings, to interpret the meaning of the lines as they relate to surfaces and details in drawings. The student will make drawings illustrating major repairs or alterations, and study the reading and interpretation of blueprints. (0-2-2) Prerequisite: None

### **AM 1323 Aircraft Fluid Power**

A study of basic fluid mechanics as it applies to practical applications in aircraft systems. Compressible and incompressible fluid systems will be studied. (2-1-3) Prerequisites: AM 1115, GT 1213

### **AM 1324 Airframe Systems**

A study of the airframe systems and components common to various types of general aviation aircraft. (2-2-4) Prerequisite: AM 1115

### **AM 2423 Navigational Aids and Communications Systems**

A survey study of the aids to navigation and communications used in light and intermediate class aircraft. Operation and installation of the various types of equipment will be stressed. (2-1-3) Prerequisite: AM 1114

### **AM 1325 Airframe Structures and Repair**

A study of materials commonly used in airframe structures and the associated study of making structural repairs according to recommended procedures. Skills in sheetmetal are stressed. (3-2-5) Prerequisite: AM 1115

### **AM 2333 Aircraft Wood and Fabric**

A course designed to acquaint the student with the various fabric coverings used on aircraft and methods used in application of finishes to aircraft surfaces, also includes a study of materials



commonly used in airframe structures and the associated study of making structural repairs according to recommended procedures. Skills in woodworking are stressed. (1-1-2) Prerequisite: None

#### **AM 2335 Aircraft Inspection and Assembly**

A study of the assembly, assembly procedures, manufacturing procedures, and inspection of aircraft components. This course also covers in detail the inspections required in aircraft maintenance, aircraft alterations and inspections governing the issuance of airworthiness certificates, either under the manufacturers type certificate or a supplemental type certificate. (3-2-5) Prerequisites: GT 1513, AM 1212, AM 1115, AM 1112, AM 1114

#### **AM 2643 Powerplant Induction and Fuel Systems**

A study of aircraft induction and fuel metering systems including fuels, carburetors, fuel injection systems, superchargers and other induction system components used to insure a dependable and accurate fuel supply at any flight configuration and attitude. (2-1-3) Concurrent: AM 2434

#### **AM 2534 Powerplant Fundamentals**

A study of the principles of operation, design features and operating characteristics of reciprocating aircraft engines. Includes the study of radial, in-line and horizontal opposed engines. (3-1-4) Prerequisite: None

#### **AM 2542 Propellers**

A study of the use, maintenance, and inspection of propellers, and their related control systems. (1-1-2) Concurrent: AM 2434

#### **AM 2553 Powerplant Ignition Systems**

A study of battery, magneto high and low tension ignition systems for today's aircraft. Emphasis will be placed on troubleshooting, repair, and timing of aircraft ignition systems. (2-1-3) Prerequisite: AM 1114; Concurrent: AM 2434

#### **AM 2543 Powerplant Operation and Troubleshooting**

Experience in installation, operation, and removal of reciprocating engines. Engine analysis and diagnosis of malfunctions, including methods of remedy are items that are fundamental to the operation phase of this course. (1-2-3) Prerequisite: AM 2434

#### **AM 2544 Gas Turbine Powerplant**

Advanced study of the fundamentals of gas turbine powerplants including principles of operation, studies of supporting systems, and methods of inspection are fundamentals of this course. (2-2-4) Prerequisite: AM 2434

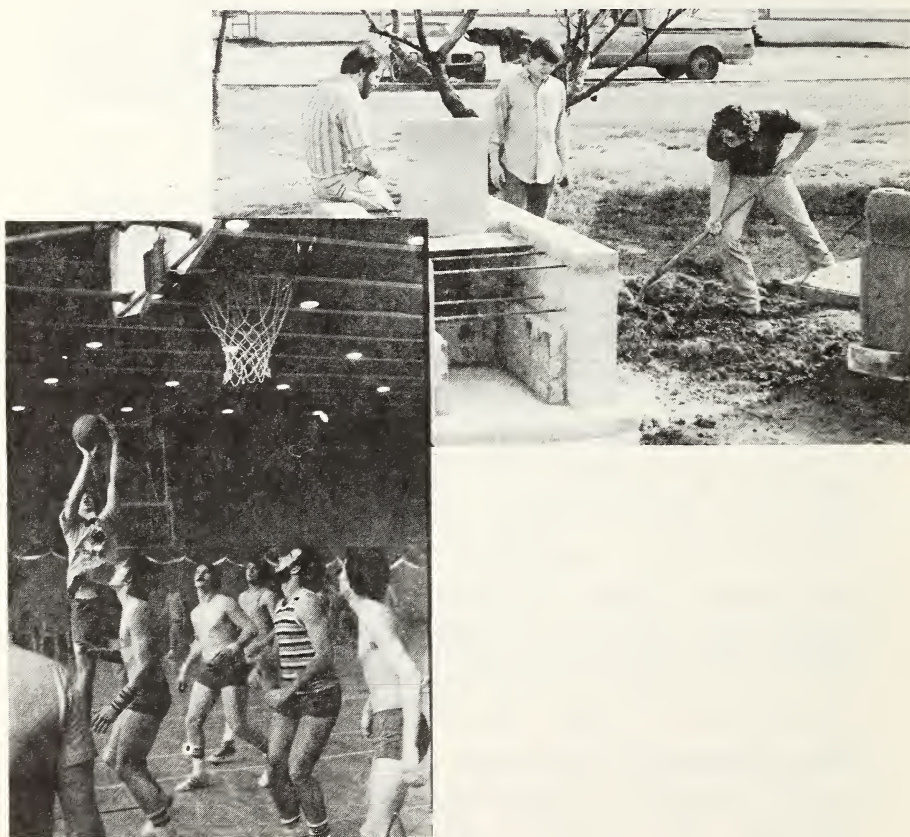
#### **AM 2644 Powerplant Overhaul**

Practical experience in overhauling reciprocating engines. Some experience will be gained on radial engines; however, emphasis

will be placed on small opposed engines of a current popular variety. Attention will be devoted to various inspection methods, allowable tolerances, replacement procedures, and assembly. (1-3-4) Prerequisite: AM 2434

#### **AM 2930 Problems in Aeronautical**

A course in which advanced study is done in a specific area chosen by the instructor. (1 to 6) Prerequisite: Instructor's consent







## **CIVIL ENGINEERING TECHNOLOGY**



## CIVIL ENGINEERING TECHNOLOGY

Scientific research and new technological developments have made great changes in the field of civil engineering, increasing the need for improved technical education and the highly skilled technician. The use of electronic measuring devices in surveying and the computer in structural analysis are only two revolutionary advancements in this fast moving field.

The Civil Engineering Technician, to keep abreast of these new advancements, must acquire a vast source of technical knowledge and competence. To do so the technician will study in the areas of construction materials sampling and testing, construction equipment and practices, principles of surveying and photogrammetry and their applications, structural design and fabrication, as well as related areas of science, math, economics and personnel management.

### Civil Engineering Technology

The program will equip and prepare the civil technician for employment in industries dealing with the design and construction of highways, bridges, railroads, airports, water supply and distribution projects, and other projects ranging from small scale construction jobs to those involving tremendous capital expenditures. Civil Engineering Technicians have varied employment opportunities in each of these areas.

#### Civil Engineering Technology Curriculum (CL)

This curriculum is accredited by the Accreditation Board for Engineering and Technology (ABET/ECPD).

#### First Year—Fall Semester

Course No.	Course Name	Hours*		Semester Credits
		R	L	
GT 1213	College Algebra . . . . .	3	0	3
GT 1212	Plane Trigonometry . . . . .	2	0	2
CL 1311	Materials Sampling and Testing . . . . .	0	2	1
GT 1113	Applied Chemistry . . . . .	3	0	3
MT 1113	Technical Drafting . . . . .	0	3	3
GT 1713	Written Communications . . . . .	3	0	3
GT 1312	Oral Communications . . . . .	2	0	2
Total Credits . . . . .				17

#### First Year—Spring Semester

GT 1124	Technical Physics I . . . . .	3	1	4
GT 1222	Analytic Geometry and Calculus I . . . . .	2	0	2
CL 1124	Plane Surveying . . . . .	2	2	4
CL 1221	Survey Drafting . . . . .	0	1	1
GT 1413	Industrial Relations . . . . .	3	0	3
GT 1423	Economics . . . . .	3	0	3
Total Credits . . . . .				17

### Second Year—Fall Semester

CL 2435	Statics and Strength of Materials	5	0	5
MT 2533	Fluid Mechanics	2	1	3
CL 2134	Route and Construction Surveying	2	2	4
CL 2531	Photogrammetry	0	1	1
CL 1322	Soils and Foundations	1	1	2
CL 2532	Construction Methods	1	1	2

Total Credits ..... 17

### Second Year—Spring Semester

GT 2232	Analytic Geometry and Calculus II	2	0	2
CL 2445	Structural Design	3	2	5
CL 2444	Transportation Systems	2	2	4
GT 2431	Management and Human Development	1	0	1
GT 2613	Technical Writing	3	0	3

Total Credits ..... 15

Total semester credits required for Associate of Technology Degree ..... 66

\* R—recitation or lecture credit; L—laboratory credit.

\* Students should expect to spend 2 hours of study for each hour of class.

## Environmental Protection Technology

Rapidly growing public concern over environmental quality has resulted in a dramatic increase in the manpower needed to develop, plan and implement pollution prevention and control activities. Although mass public concern is relatively recent, the needed technology has been developing for many years. It was begun largely by the concern and efforts of health officers and sanitary engineers in providing safe supplies of drinking water, milk and foods; and by many natural resource and wildlife conservationists. A wide variety of professionals and technicians are presently involved in a broad scale program of research, protecting and restoring the quality of our modern environment.

Environmental protection and control efforts represent a diverse area of work and consequently draw heavily upon a wide variety of occupational skills. Virtually every occupation can be related in some phase to an aspect of environmental protection, resource conservation and development of impact statements. The extensive nature of environmental control measurements and pollutant detection for permit applications has resulted in a wide spectrum of occupations. These occupations demand skill levels from basic operation jobs to higher educational technician through the advanced PhD levels.

A program in Environmental Protection Technology, closely related to the Civil Engineering Technology program at Kansas Tech, trains environmental technicians to actively provide the technical and field support for solving the problems of the nation's land, air and water quality. The Environmental Protection

Technology program is established as a broad educational program so that the student may select one of several career possibilities.

### Career Options and Employment

An environmental technician performs functions in the areas of pollution survey and control; water and waste systems design; water, land and air monitoring; laboratory techniques and environmental inspection. His purpose is protecting and aiding in the correction and improvement of our inherited resources. The Environmental Protection Technology program trains the student to provide technical support for solving the vast problems of environmental quality. The graduate will possess the lab and technical design background necessary to perform the economically applied functions sought by many firms and agencies.

The basic program may be expanded by taking additional courses on campus in Civil, Mechanical, Computer and Electronics. Close cooperation is present with Kansas Wesleyan for students to obtain credits in both biology and advance chemistry. This allows further depth of knowledge tailored to individual desire.

#### Environmental Protection Technology Curriculum (EV)

##### First Year—Fall Semester

<i>Course No.</i>	<i>Course Name</i>	<i>Hours*</i>		<i>Semester Credits</i>
		<i>R</i>	<i>L</i>	
GT 1213	College Algebra . . . . .	3	0	3
GT 1212	Plane Trigonometry . . . . .	2	0	2
MT 1113	Technical Drafting . . . . .	0	3	3
GT 1113	Applied Chemistry . . . . .	3	0	3
GT 1111	Applied Chemistry Lab . . . . .	0	1	1
GT 1713	Written Communications . . . . .	3	0	3
EP 1312	Water Resources, Domestic Supply . . . . .	2	0	2
Total Credits . . . . .				17

##### First Year—Spring Semester

GT 1222	Analytic Geometry and Calculus I . . . . .	2	0	2
GT 1124	Technical Physics I . . . . .	3	1	4
CL 1124	Plane Surveying . . . . .	2	2	4
GT 1413	Industrial Relations . . . . .	3	0	3
EP 1233	Chemistry and Microbiology of Water . . . . .	1	2	3
Total Credits . . . . .				16

##### Second Year—Fall Semester

EP 2333	Domestic Water Treatment Methods . . . . .	2	1	3
GT 2232	Analytic Geometry and Calculus II . . . . .	2	0	2
MT 2533	Fluid Mechanics . . . . .	2	1	3
CL 2642	Civil Technology Design (Storm Sewers) . . . . .	1	1	2
GT 2713	Technical Writing . . . . .	3	0	3
EP 2243	Chemistry and Microbiology of Waste . . . . .	1	2	3
Total Credits . . . . .				16



### Second Year—Spring Semester

GT 1312	Oral Communications . . . . .	2	0	2
CL 2643	Civil Technology Design (Waste Collection and Treatment Systems) . . . . .	2	1	3
CL 2433	Civil Technology Design (Water Systems) . . . . .	2	1	3
GT 2431	Management and Human Development . . . . .	1	0	1
EP 2343	Waste Treatment Methods . . . . .	2	1	3
GT 1423	Economics . . . . .	3	0	3
EP 2352	Environmental Field Survey and Reporting . . . . .	0	2	2
Total Credits . . . . .				17
Total semester credits required for Associate of Technology Degree . . . . .				66

\* R—recitation or lecture credit; L—laboratory credit.

\* Students should expect to spend 2 hours of study for each hour of class.

## SURVEYING TECHNOLOGY

From as early as 1400 B.C. man has found it necessary to determine property boundaries and to divide areas of land into smaller sections. Over the years the use of surveying has expanded until today it is impossible to imagine any land transaction or construction project that does not make use of some type of survey.

Surveys are necessary for the planning, design and layout of all major engineering projects. Surveys are used for subdivisions, buildings, bridges, railroads, highways, airports, canals, dams, irrigation and drainage projects and in the preparation of any type of map. A surveyor must be able to think logically, to plan and to take pride in his work. He must be able to work, and make a neat and orderly record of, his measurements and calculations.

The tremendous amount of physical development in our country has created a need for qualified surveyors at a faster rate than our schools have been able to produce them. Graduates of the Surveying Technology option will be able to find employment in the areas of construction, as governmental surveyors (federal, state, county and municipal) and in the fields of engineering consulting and private surveying.

It's important to note that any person who goes into private practice must be licensed. This program combined with the necessary work experience will help the individual qualify to take the Surveying Examination.

## Surveying Technology Curriculum (SV)

### First Year—Fall Semester

<i>Course No.</i>	<i>Course Name</i>	<i>Hours*</i>		<i>Semester Credits</i>
		<i>R</i>	<i>L</i>	
GT 1213	College Algebra .....	3	0	3
GT 1212	Plane Trigonometry .....	2	0	2
GT 1413	Industrial Relations .....	3	0	3
MT 1113	Technical Drafting .....	0	3	3
GT 1713	Written Communications .....	3	0	3
GT 1312	Oral Communications .....	2	0	2
CL 1311	Materials Sampling and Testing .....	0	1	2
Total Credits .....				17

### First Year—Spring Semester

CL 1221	Survey Drafting .....	0	1	1
GT 1124	Technical Physics I .....	3	1	4
GT 1222	Analytic Geometry and Calculus I .....	2	0	2
CL 1124	Plane Surveying .....	2	2	4
CL 1123	Land Surveys .....	2	1	3
GT 1423	Economics .....	3	0	3
Total Credits .....				17

### Second Year—Fall Semester

CL 1322	Soils and Foundations .....	1	1	2
CL 2435	Statics and Strength of Materials .....	5	0	5
CL 2134	Route and Construction Surveying .....	2	2	4
CL 2531	Photogrammetry .....	0	1	1
CL 2133	Surveying Astronomy .....	3	0	3
CL 2532	Construction Methods and Estimating ...	1	1	2
Total Credits .....				17

### Second Year—Spring Semester

GT 2232	Analytic Geometry and Calculus II .....	2	0	2
CL 2444	Transportation Systems .....	2	2	4
GT 2431	Management and Human Development ..	1	0	1
CL 2143	Surveying Law .....	3	0	3
CL 2142	Advanced Surveying .....	1	1	2
GT 2713	Technical Writing .....	3	0	3
Total Credits .....				15

Total Semester Credits required for Associate of Technology Degree ..... 66

R—recitation or lecture credit; L—laboratory credit.

\* Students should expect to spend 2 hours of study for each hour of class.

## CIVIL COURSE DESCRIPTIONS

### CL 1123 Surveys

A course dealing with the procedures for researching records, conducting surveys, formulating descriptions, and producing plats which relate to the surveying of land. (2-1-3) Prerequisite or concurrent: CL 1124

### **CL 1124 Plane Surveying**

This is a course in the theory and practice of obtaining field measurements for surveying. Emphasis is placed on accuracy and how to avoid or minimize errors and mistakes. (2-2-4) Prerequisite or concurrent: GT 1212

### **CL 1221 Survey Drafting**

This course consists of making the various types of maps and plats common to surveying. "Certificates" for property and mortgage surveys, topographic maps, and subdivision plats are prepared. Office calculations as they relate to surveying are also used. (0-1-1) Prerequisite: MT 1113

### **CL 1311 Materials Sampling and Testing**

A study of aggregates in respect to their use for asphalt and concrete construction. the study includes sampling techniques and methods of testing to conform with the American Society of Testing Materials and the American Association of State Highway and Transportation Officials specifications. Concrete mix design along with field and laboratory testing is emphasized. (0-1-1) Prerequisite: None

### **CL 1322 Soils and Foundations**

This course covers the criteria used in the selection, design and construction of the elements of a structure that transfers its total load to the underlying formation. Physical characteristics of compacted and uncompacted soils, soil bearing qualities and an insight into the design for footings, walls, piers and piling used for foundation purposes. (1-1-2) Prerequisite: GT 1222

### **CL 2133 Surveying Astronomy**

A study of the definitions and methodology used in determining latitude, longitude, time, and azimuth from solar and polar observations. (3-0-3) Prerequisites: NoneCL 2134 Route and Construction SurveyingA study of the geometry involved in vertical and horizontal alignment of roads and streets. The effects of the alignment on grades, design speed and slight distance are considered. In the laboratory the knowledge is used to perform the staking necessary for preliminary studies as well as construction. (2-2-4) Prerequisite: CL 1124

### **CL 2142 Advanced Surveying**

A study of the advanced areas of surveying with primary emphasis on geodetic surveying and the use of electronic surveying equipment and computers in the surveying field. (1-1-2) Prerequisites: CL 2134, CL 1123



### **CL 2143 Surveying Law**

A study of the legal aspects that apply to the surveying profession, and the role of the surveyor within the judicial frame work of our court system. (3-0-3) Prerequisite: CL 1123

### **CL 2433 Civil Technology Design (Water Systems)**

A continuation of hydraulics in the specific application to a domestic water supply system. It includes distribution requirements, layout and sizing as well as materials, specifications, codes and construction methods. (2-1-3) Prerequisite: MT 2533

### **CL 2435 Statics and Strength of Materials**

A study of forces, stresses, structures, and design characteristics of a variety of engineering components. (5-0-5) Prerequisite: GT 1124

### **CL 2432 Statics**

A study of forces and their effects on the bodies upon which they act. (2-0-2) Prerequisites: GT 1124

### **CL 2443 Strength of Materials**

A study of the internal resistance to external forces. The course also deals with the resulting changes in the dimensions and shapes of bodies produced by outside forces. (3-0-3) Prerequisites: CL 2432

### **CL 2444 Transportation Systems**

A study of the design of transportation systems with emphasis on highways, urban roadways, railroads and airports. General topics included are roadway alignment, drainage structures and pavements. (2-2-4) Prerequisite: CL 2134

### **CL 2445 Structural Design**

A course combining the design of structures in reinforced concrete and structural steel. Basic stress calculations and design concepts are studied for use in either a design or inspection role. (3-2-5) Prerequisite: CL 2435

### **CL 2743 Structural Steel Design**

A course covering the basic fundamentals of structural steel design. Stress calculations and design concepts are studied for use in either a design or inspection role. (2-1-3) Prerequisites: CL 2435

### **CL 2753 Reinforced Concrete Design**

A course covering the basic fundamentals of reinforced concrete

design. Stress calculations and design concepts are studied for use in either a design or inspection role. (2-1-3) Prerequisites: CL 2435

### **CL 2531 Photogrammetry**

An introduction to the principles, equipment, techniques, and applications of using aerial photographs for topographic and planimetric mapping, site location and highway design and construction. (0-1-1) Prerequisite: CL 1124

### **CL 2532 Construction Methods and Estimating**

A study of the basic equipment needs, usage, costs, and quantity determinations for planning and estimating construction projects. Field trips through construction sites and visitation with the inspectors assist in developing reporting procedures and inspection responsibilities. (1-1-2) Prerequisite: None

### **CL 2642 Civil Technology Design of Storm Sewers**

Surface runoff and collection hydraulics from established data are studied along with grade line layout, detailing, materials and construction methods. (1-1-2) Prerequisite or concurrent: MT 2533

### **CL 2643 Civil Design (Sewage Collection and Treatment Systems)**

A continuation of hydraulics in specific applications to a collection, transporting and treatment system. It includes the use of established data to determine collection requirements, layout and sizing of the system. A study of treatment systems relative to capacities, quantities and effluent will be included. The materials, specifications, sites and construction methods will be integrated into the course at appropriate times to provide clarification and understanding. (2-1-3) Prerequisite: MT 2533

### **CL 2930 Problems in Civil**

A course in which advanced study is done in a specific area chosen by the student. (1 to 6) Prerequisite: Instructor's consent

### **EP 1223 Environmental Public Health**

An introductory course in the theory and practice of the role of environmental Sanitation in the field of Public Health. The course covers elements of communicable disease, air pollution, milk and food and institutional sanitation, disinfection, and insect and rodent control, occupational health, plumbing inspection, vital statistics and Public Health organizations. (3-0-3) Prerequisite: None

### **EP 1312 Water Resources and Domestic Supply**

An introductory course to provide an overview of the major areas of emphasis in Environmental Technology. Included are the areas of domestic water supply and treatment as well as sewage collection and treatment. (2-0-2) Prerequisite: None

### **EP 1233 Chemistry and Microbiology of Water**

A course designed to help the student visualize the more important biological phenomena encountered in connection with water and provide the opportunity to observe comparable phenomena first hand in the laboratory. (1-2-3) Prerequisite: GT 1111

### **EP 2243 Chemistry and Microbiology of Waste**

A course designed to help the student visualize the more important biological phenomena encountered in connection with sewage and provide the opportunity to observe comparable phenomena first hand in the laboratory. (1-2-3) Prerequisite: GT 111

### **EP 2333 Domestic Water Treatment Methods**

A study of the purification methods, objectives and the results that may be expected from each. The laboratory will provide the vehicle to allow first hand observation of facilities in operation. (2-1-3) Prerequisite: EP 2233

### **EP 2343 Waste Treatment Methods**

A study of the different methods, objectives, and the results that may be expected from each. The laboratory provides the vehicle for first hand observation of facilities in operation. (2-1-3) Prerequisite: CL 2243

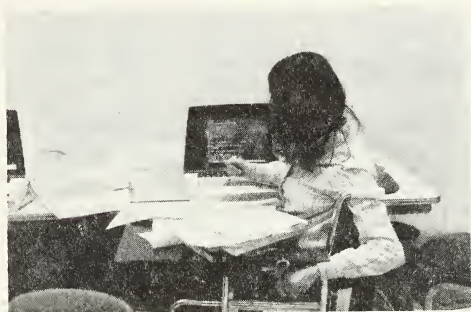
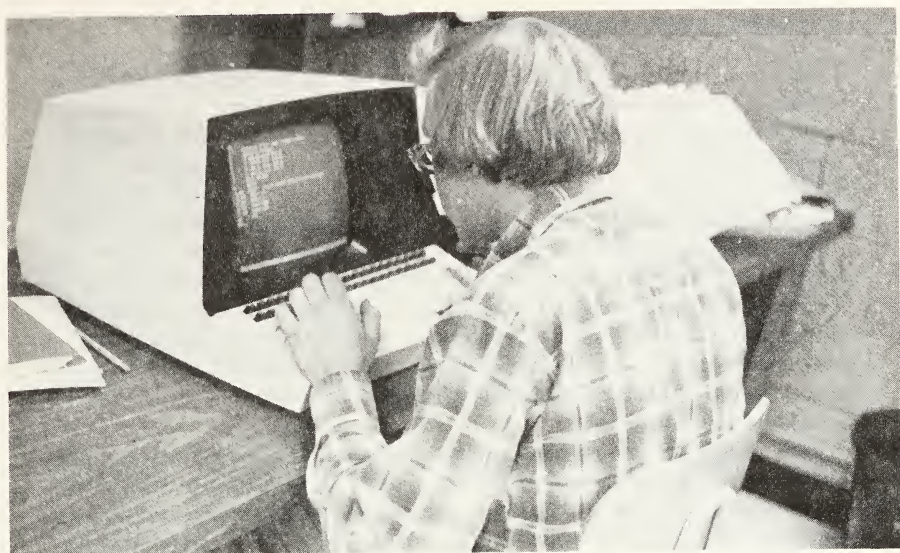
### **EP 2352 Environmental Field Survey**

An introductory course in the theory and practice of the role of environmental sanitation in the field of Public Health. The course covers elements of communicable disease, air pollution, milk and food and institutional sanitation, disinfection, and insect and rodent control, occupational health, plumbing inspection, vital statistics and Public Health organizations. (3-0-3) Prerequisite: None

### **EP 2930 Problems in Environmental**

A course in which advanced study is done in a specific area of interest chosen by the student. (1 to 6 hrs.) Prerequisite: None





## **COMPUTER SCIENCE TECHNOLOGY**



## **COMPUTER SCIENCE TECHNOLOGY**

The technology of the digital computer is having far-reaching effects on nearly every aspect of our modern society. Advances in computer technology have made the use of computers a feasible reality for virtually all types of businesses and industries. This rapid growth in the computer industry has created a strong demand for workers with special training in the computer field.

The KTI Computer Technology Department offers programs leading to challenging careers in three areas: Computer Science Technology, Electronic Data Processing Technology, and Computer Engineering Technology. In addition, the department's course offerings are utilized by the other departments on campus, since computer usage has become a very important tool in nearly all areas of technology.

The Harris S/123 computer system gives all KTI students the opportunity to obtain experience with the programming and operation of a state-of-the-art computer comparable to systems used in business and industry. In addition, several microprocessor systems are available, as well as digital logic test equipment, for experimentation in computer hardware areas.

### **Computer Science Technology**

The Computer Science Technology curriculum offers training in the use of computers for solution of scientific and engineering problems. Many industries including aircraft companies, energy companies, agricultural research organizations, as well as large computer manufacturers employ computer science technicians as computer programmers and programmer/analysts in these scientific areas.

The computer programmer works closely with the systems analyst who develops mathematical models of scientific and engineering problems for solution by the computer. The programmer helps define the problem, including input and output requirements, and prepares the actual set of instructions the computer must follow to solve the problem. As a programmer/analyst the computer science technician would do most of the mathematical formulation as well as the actual programming necessary to solve a problem. Programmer/analysts frequently work directly with scientists and engineers in developing solutions to problems.

Training in the Computer Science Technology curriculum includes a strong coverage of science and mathematics as well as courses in computer programming and advanced applications of computers in scientific areas.

## Computer Science Technology Curriculum (CP)

This curriculum is accredited by the Accreditation Board for Engineering and Technology (ABET/ECPD).

### First Year—Fall Semester

Course No.	Course Name	Hours*		Semester Credits
		R	L	
GT 1213	College Algebra .....	3	0	3
GT 1212	Plane Trigonometry .....	2	0	2
GT 1713	Written Communications .....	3	0	3
GT 1312	Oral Communications .....	2	0	2
CP 1213	Computer Science Concepts .....	2	1	3
CP 1222	Computer Systems Architecture .....	2	0	2
Total Credits .....				15

### First Year—Spring Semester

GT 1413	Industrial Relations .....	3	0	3
GT 1124	Technical Physics I .....	3	1	4
GT 1222	Analytic Geometry and Calculus I .....	2	0	2
CP 1122	FORTRAN .....	1	1	2
CP 1223	Introduction to Microprocessors .....	2	1	3
ET 1113	D. C. Circuits .....	2	1	3
Total Credits .....				17

### Second Year—Fall Semester

CP 1123	COBOL .....	2	1	3
CP 2233	Statistics and Quality Control .....	2	1	3
GT 2232	Analytic Geometry and Calculus II .....	2	0	2
CP 2133	Numerical Methods .....	2	1	3
GT 1423	Economics .....	3	0	3
CP 2433	Assembly Language Programming .....	2	1	3
Total Credits .....				17

### Second Year—Spring Semester

GT 1113	Applied Chemistry .....	3	0	3
CP 2232	Computer Graphics .....	0	2	2
CP 2444	Analog Computer Methods with Applied Differential Equations .....	3	1	4
GT 2713	Technical Writing .....	3	0	3
CP 2122	PL/I .....	1	1	2
CP 2222	RPG OR .....	1	1	2
CP 2143	Computer System Seminar .....	2	1	3
Total Credits .....				17

Total semester credits required for Associate or Technology

Degree ..... 66

R—recitation or lecture credit; L—laboratory credit.

\* Students should expect to spend 2 hours of study for each hour of class.

## COMPUTER ENGINEERING TECHNOLOGY

New advances in electronics including the remarkable micro-processor—an actual computer smaller than a postage stamp—have created a need for skilled individuals capable of working



with this new technology. The Computer Engineering Technology program at KTI offers training in these computer electronics areas.

The computer engineering technician must understand not only the electronic or "hardware" aspect of the computer, but also the programming or "software" aspects as well. By understanding both hardware and software, the computer engineering technician can be employable in one of many different areas including computer hardware design, computer maintenance, industrial process control, and computer manufacturing and testing.

The Computer Engineering technician will often work closely with computer engineers, electrical engineers, and computer scientists to assist in the design and development of computers and computer-based products. Job responsibilities might include design assistance, prototype construction, system testing and computer programming tasks.

Training in the Computer Engineering Technology curriculum includes a solid foundation in mathematics and science. Courses in electronics and fundamental computer programming areas form the basis for the advanced courses in digital system design and microprocessor applications.

#### Computer Engineering Technology Curriculum (CT)

##### First Year—Fall Semester

<i>Course No.</i>	<i>Course Name</i>	<i>Hours*</i>		<i>Semester Credits</i>
		<i>R</i>	<i>L</i>	
ET 1113	D. C. Circuits . . . . .	2	1	3
GT 1213	College Algebra . . . . .	3	0	3
GT 1212	Plane Trigonometry . . . . .	2	0	2
GT 1713	Written Communications . . . . .	3	0	3
CP 1213	Computer Science Concepts . . . . .	2	1	3
CP 1222	Computer System Architecture . . . . .	2	0	2
Total Credits . . . . .				16

##### First Year—Spring Semester

ET 1224	A. C. Circuits . . . . .	2	2	4
ET 1324	Applied Electronics I . . . . .	2	2	4
GT 1222	Analytic Geometry and Calculus I . . . . .	2	0	2
GT 1124	Technical Physics I . . . . .	3	1	4
CP 1223	Introduction to Microprocessors . . . . .	2	1	3
Total Credits . . . . .				17

##### Second Year—Fall Semester

ET 2434	Electronic Measurements . . . . .	2	2	4
GT 2232	Analytic Geometry and Calculus II . . . . .	2	0	2
GT 1113	Applied Chemistry . . . . .	3	0	3
CT 2144	Digital System Design . . . . .	2	2	4
CP 2433	Assembly Language Programming . . . . .	2	1	3
Total Credits . . . . .				16

## Second Year—Spring Semester

GT 1312	Oral Communications . . . . .	2	0	2
GT 1423	Economics . . . . .	3	0	3
	Elective° . . . . .			2
CT 2244	Computer Engineering Seminar . . . . .	2	2	4
GT 2713	Technical Writing . . . . .	3	0	3
GT 1413	Industrial Relations . . . . .	3	0	3

Total Credits . . . . . 17

Total semester credits required for Associate or Technology Degree . . . . . 66

° Electives: CP 1122, CP 2122, CP 2930, MT 1113.

R—recitation or lecture credit; L—laboratory credit.

° Students should expect to spend 2 hours of study for each hour of class.

## Electronic Data Processing Technology

Applications of computers in the business world presently affect persons in all walks of life. Financial transactions including bank statements, credit card purchases, customer billing, payroll checks, and even grocery store cash registers are now computerized. The demand for skilled computer programmers and programmer/analysts in the business world continues to grow with each new application that arises.

The programmers and computer analysts in the Electronic Data Processing field apply knowledge of computer programming, accounting and management methods to the solution of business-oriented problems. Training in the Electronic Data Processing curriculum includes work in business-oriented computer languages and techniques, accounting, business law, and management. Fundamental mathematics and communications skills are included to enhance the individual's capabilities in the business world.

### Electronic Data Processing Technology Curriculum (DP)

#### First Year—Fall Semester

Course No.	Course Name	Hours°		Semester Credits
		R	L	
GT 1513	Principles of Accounting I . . . . .	3	0	3
GT 1213	College Algebra . . . . .	3	0	3
GT 1312	Oral Communications . . . . .	2	0	2
GT 1713	Written Communications . . . . .	3	0	3
CP 1213	Computer Science Concepts . . . . .	2	1	3
CP 1222	Computer Systems Architecture . . . . .	2	0	2
Total Credits . . . . .				<u>16</u>

#### First Year—Spring Semester

GT 1523	Principles of Accounting II . . . . .	3	0	3
GT 1423	Economics . . . . .	3	0	3
CP 1122	FORTTRAN . . . . .	1	1	2
CP 1223	Introduction to Microprocessors . . . . .	2	1	3
	Elective° . . . . .			5
Total Credits . . . . .				<u>15</u>

### Second Year—Fall Semester

43:216	Business Law .....	3	0	3
43:205	Principles of Management .....	3	0	3
CP 1123	COBOL .....	2	1	3
CP 2433	Assembly Language Programming .....	2	1	3
CP 2233	Statistics and Quality Control .....	2	1	3
	Electives° .....			3
Total Credits .....				17

### Second Year—Spring Semester

GT 1113	Applied Chemistry .....	3	0	3
DP 2243	EDP Applications .....	1	2	3
CP 2143	Computer System Seminar .....	2	1	3
CP 2122	PL/I .....			
CP 2222	OR .....			
CP 2222	RPG .....	1	1	2
GT 2713	Technical Writing .....	3	0	3
	Electives° .....			3
Total Credits .....				17

Total semester credits required for Associate of  
Technology Degree ..... 66

\* Electives; CP 2232, CP 2133, CP 2444, CP 2930, GT 1212, GT 1222, GT 1124, GT 2232, GT 1413, ET 1113, 43:214, 46:315, 46:201.

R—recitation or lecture credit; L—laboratory credit.

\* Students should expect to spend 2 hours of study for each hour of class.

## COMPUTER COURSE DESCRIPTIONS

### CP 1122 FORTRAN

Study of the computer language FORTRAN and its application to scientific and engineering problem solution. Includes study of input/output techniques, arithmetic and logic processes, non-numeric data handling, arrays and subprograms. In the laboratory students write, process, and debug scientific programs using the FORTRAN-77 compiler. (1-1-2) Prerequisite: CP 1213, Concurrent: GT 1212

### CP 1223 Introduction to Microprocessors

Microprocessor operation and architecture, stressing industrial applications. Topics include numbering systems, logic circuits, Boolean algebra, machine and assembly language programming, peripheral device interfacing, and microprocessor applications. Also microprocessor simulation on the on-campus system and use of microprocessor system development tools. (2-1-3) Prerequisite: CP 1213, CP 1222

### CP 1123 COBOL

Study of computer language COBOL with emphasis on business applications. Includes coverage of file structures, file updating techniques, report generation, and processing of numeric and character data. Laboratory work includes solution of several business-related problems using COBOL. (2-1-3) Prerequisite: CP 1213



### **CP 1213 Computer Science Concepts**

Introduction to programming techniques and program structure, including algorithm and flowchart development. Includes numerical processing, array handling, string processing, searching and sorting techniques. Laboratory work includes use of the computer language BASIC to solve both numeric and non-numeric problems. (2-1-3) Prerequisite: None

### **CP 1222 Computer System Architecture**

Study of the organization and structure of computer systems. Includes study of computer data representation, storage mechanisms, addressing methods, control units, peripheral devices, parallel and multiprocessing schemes. Emphasis is on architecture types used in modern computer systems. (2-0-2) Prerequisite: None, Concurrent: CP 1213

### **CP 2122 PL/I**

Study of the computer language PL/I and its application to scientific and engineering problem solution. Includes laboratory application of input/output techniques, arithmetic processing, string handling, arrays, and subprograms. (1-1-2) Prerequisite: CP 1213

### **CP 2133 Numerical Methods**

Study of numerical methods used for solution of mathematical problems on the computer. Topics include error analysis, linear systems of equations, numerical integration techniques, numerical solutions of partial differential equations and finite differences. The algorithmic approach and the efficient use of the computer are emphasized in laboratory exercises. (2-1-3) Prerequisite: CP 1122, Concurrent: GT2232

### **CP 2433 Assembly Language Programming**

Programming of the digital computer at the machine language and assembly language levels. Includes numerical processing, data storage considerations, macros, and linkages with higher-level languages. Laboratory work includes the solution of several assembly language programming problems on the Harris computer system. (2-1-3) Prerequisite: CP 1122, CP 1223

### **CP 2143 Computer Systems Seminar**

Study of state-of-the-art computer hardware and software systems. Includes multiprogramming, teleprocessing, operating systems, virtual storage, and time sharing systems. Laboratory work includes Job Control programming, tape and disk file handling, and study of the Harris computer operating system. (2-1-3) Prerequisite: CP 2433

### **CP 2222 RPG**

This course introduces the student to the Report Program Generator (RPG) programming language, used primarily for generation of business reports such as payroll, statistical studies, accounts receivable, accounts payable, inventory and material accounting, and other business oriented applications. Lab work includes solution of several business report problems. (1-1-2) Prerequisite: CP 1213

### **CP 2232 Computer Graphics**

Study of the use of the computer to process and output graphic information. Includes overview of various computer graphics hardware including plotters, digitizers, and graphics display terminals. Laboratory work includes design of software for generation of charts, graphs, and mechanical drawings. Also included are mathematical concepts needed for three-dimensional drawings, projections, and animation. (0-2-2) Prerequisite: CP 1122

### **CP 2233 Statistics and Quality Control**

An introduction to elementary statistics with emphasis on applications using the computer. Topics include description and representation of sample data, probability, theoretical distributions, sampling, estimating, correlation, regression, and computer statistical software packages. (2-1-3) Prerequisites: CP 1122, GT 1213

### **CP 2444 Analog Computer Methods with Applied Differential Equations**

Introduction to analog to digital converters, digital to analog converters, hybrid systems, and electronic analog computer systems. Also analog system simulation on the digital computer. Laboratory work includes use of elementary mathematical models demonstrating practical applications of differential equations and their solutions on analog and digital computers. (3-1-4) Prerequisites: CP 1122, GT 2232, ET 1113

### **CP 2930 Problems in Computer**

Opportunity for advanced study and practical experience with specific problems selected jointly by the instructor and student in the field of Computer Technology. (1 to 6) Prerequisite: Instructor's Consent

### **DP 2243 EDP Applications**

An opportunity for the student to merge concepts learned in previous programming courses. Emphasis is placed on solution of nontrivial problems such as those experienced in a business computing environment. Documentation practices and written reports are emphasized. (1-2-3) Prerequisite: CP 1123

### **CT 2144 Digital System Design**

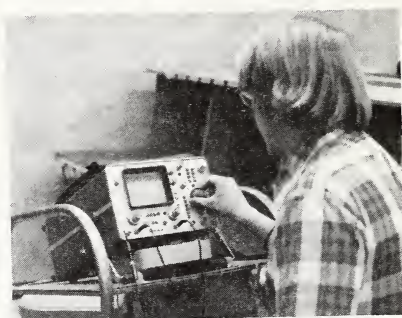
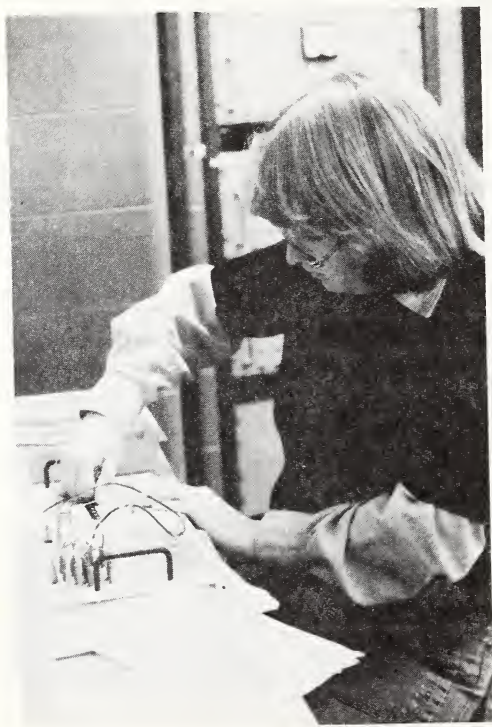
An extension of the material covered in CP 1123, Introduction to Microprocessors. Covers techniques of sequential logic, analog to digital and digital to analog conversion, display systems, and microprocessors as system elements, also use of microprocessors for control applications. Hardware/Software tradeoffs are discussed. Lab work includes system design, testing and troubleshooting using logic probes and the logic analyzer. (2-2-4) Prerequisites: CP 1122, ET 1324

### **CT 2244 Computer Engineering Seminar**

An industry-related course used to acquaint the student with industrial project design and development. Small-group research, design, and building of projects to implement computer-based tasks specified by instructor. Written reporting including hardware and software design implementation description, testing methods, test results, and design changes. (2-2-4) Prerequisites: ET 2434, CP 1122, Concurrent: CT 2144.







## **ELECTRONIC ENGINEERING TECHNOLOGY**

## ELECTRONIC ENGINEERING TECHNOLOGY

Electronics is a rapidly growing science which offers unlimited opportunities for the individual choosing this field as a career. As technology advances, the uses of electronics are expanding into every major industry and are becoming a common part of the lives of every citizen of our nation. Advances in electronics have resulted in the creation of entirely new industries and have accelerated the development of other segments of our economy.

Electronic applications to the fields of medicine, geology, public safety, aeronautics, law enforcement, and automation, to name but a few, have merely scratched the surface of the ultimate potential of the use of electronics in these and other fields. Because of its many facets, the field of electronics needs technicians to perform a variety of jobs.

Technical education in the field of electronics includes work in mathematics and basic science, study of basic electrical circuits, transistors, integrated circuits, electronic measurements, communication and computer circuits.

Although electronics is a relatively new science, it has become an industrial giant in commerce, industry and national defense.

### Electronic Engineering Technology Curriculum (ET)

This curriculum is accredited by the Accreditation Board for Engineering and Technology (ABET/ECPD)

#### First Year—Fall Semester

Course No.	Course Name	Hours*		Semester Credits
		R	L	
GT 1713	Written Communications .....	3	0	3
GT 1113	Applied Chemistry .....	3	0	3
GT 1213	College Algebra .....	3	0	3
GT 1212	Plane Trigonometry .....	2	0	2
ET 1011	Introduction to Electronics .....	1	0	1
ET 1113	Direct Current Circuits .....	2	1	3
Total Credits .....				15

#### First Year—Spring Semester

GT 1124	Technical Physics I .....	3	1	4
GT 1222	Analytic Geometry and Calculus I .....	2	0	2
MT 1113	Technical Drafting .....	0	3	3
ET 1224	Alternating Current Circuits .....	2	2	4
ET 1324	Applied Electronics I .....	2	2	4
Total Credits .....				17

#### Second Year—Fall Semester

GT 2713	Technical Writing .....	3	0	3
GT 1423	Economics .....	3	0	3
GT 2232	Analytic Geometry and Calculus II .....	2	0	2
ET 2434	Electronic Measurements .....	2	2	4
ET 2535	Applied Electronics II .....	3	2	5
ET 2631	Electronic Seminar I .....	0	1	1
Total Credits .....				18

## Second Year—Spring Semester

GT 1312	Oral Communications	2	0	2
GT 1413	Industrial Relations	3	0	3
ET 2743	Digital Electronics	2	1	3
ET 2843	Solid State Applications	2	1	3
ET 2944	Applied Electronics III	3	1	4
ET 2041	Electronic Seminar II	0	1	1
Total Credits				16
Total Semester Credits required for Associate of Technology Degree				66

R—recitation or lecture credit; L—laboratory credit.

\* Students should expect to spend 2 hours of study for each hour of class.

## ELECTRONIC COURSE DESCRIPTIONS

### ET 1011 Introduction to Electronics

Includes field trips to representative sites, selected topics of electronics related mathematics, a discussion of the technician's work environment and opportunities for placement. (1-0-1) Prerequisite: None

### ET 1113 Direct Current Circuits

A beginning course in basic circuit theory. The concept of voltage, current, resistance, capacitance and inductance is applied to various direct current circuits to analyze their behavior. Attention is paid to the application of Thevenins and Nortons theorems, loop and nodal circuit analysis. (2-1-3) Prerequisite: None

### ET 1224 Alternating Current Circuits

The study of alternating current circuits. Analysis of impedance networks from power line through communications frequencies. Laboratory analysis and measurement of impedance networks, using the oscilloscope and other instruments. (2-2-4) Prerequisite: ET 1113 Concurrent: GT 1212

### ET 1324 Applied Electronics I

A survey of the family of active electronic devices. Analysis includes both graphical and mathematical models. Laboratory periods are devoted to measurement of device parameters in basic circuit configurations. (2-2-4) Prerequisite: ET 1113

### ET 2332 Introduction to Microwaves

An introduction to the use of microwaves in the communication industry. Topics include basic transmission theory, characteristic of Klystron, magnetrons, Gunn diodes, and traveling wave tubes, microwave transistors, wave guides and strip line. Also includes basic system measurements such as, frequency, power, attenuation, and standing wave ratio (SWR). Students are introduced to use of Smith Chart. (1-1-2) Prerequisites: ET 2434, ET 2535 or consent of the department.



### **ET 2434 Electronic Measurements**

A study of theory and operation of basic electronic instruments. Includes DC and AC ammeters, voltmeters, impedance bridges, attenuators, filters, etc. Also includes a study of amplifiers as related to sensitive AC electronic voltmeters, sensitive DC electronic voltmeters, oscilloscopes, etc. Laboratory exercises provide experience in the selection of proper equipment for making measurements in electrical and electronic systems as well as interpretation of these measurements. (2-2-4) Prerequisites: ET 1224 and ET 1324

### **ET 2535 Applied Electronics II**

The application of electron devices to amplifiers. Emphasis is placed on analysis and design of RC-coupled, transformer coupled and direct coupled amplifiers. Load line analysis, equivalent circuit analysis and frequency response are studied. Principles of bias stabilization and characteristics of feedback circuits are included. Operational amplifiers and their applications are introduced. The family of feedback oscillators, tuned circuit coupling and power amplifiers are covered. Laboratory exercises emphasize principles of circuit operation. (3-2-5) Prerequisites: ET 1224 and ET 1324

### **ET 2631 Electronic Seminar I**

An industry related course to prepare the student for his first position. The student designs an electronic circuit to a set of specifications. Includes techniques of electronic chassis construction and printed circuit board techniques. A report is prepared describing the circuits, applications and testing methods. (0-1-1) Prerequisites: ET 1224 and ET 1324

### **ET 2041 Electronics Seminar II**

The report developed for ET 2631 is used by the student to develop the Electronic hardware to a finished model. The model is tested to the original specifications. A report is prepared showing test results, design changes, and instructions on the use of the equipment. (0-1-1) Prerequisite: ET 2631

### **ET 2743 Digital Electronics**

An overview of basic digital circuit theory; includes binary and octal arithmetic, binary codes, Boolean algebra, DeMorgans theorems, arithmetic gates, adders, multivibrator circuits, converters, counters, shift registers, memory devices, etc. Laboratory exercises demonstrate concepts through hands-on experience with integrated circuit transistor logic. (2-1-3) Prerequisite: ET 1324

### **ET 2843 Solid State Applications**

A study of the applications of solid state components including

bipolar transistors, field effect transistors, unijunction transistors and thyristors. Also the application of various integrated circuit families, including those found in current literature. Includes an introduction to microprocessor applications. Laboratory exercises require application and analysis of circuits studied in the classroom. (2-1-3) Prerequisites: ET 2535 and ET 2434

### **ET 2944 Applied Electronics III**

A study of the design and analysis of systems, as they pertain to applications ranging from communications and broadcasting to navigation systems and radar. Laboratory work involves design and measurement, as well as field trips to representative sites. (3-1-4) Prerequisites: ET 2434 and ET 2535

### **ET 2930 Problems in Electronics**

A course in which advance study is done in a specific area chosen by the student. (1 to 6) Prerequisite: variable

### **Optional Interterm Courses**

#### **ET 1131 Electronic Construction Practices**

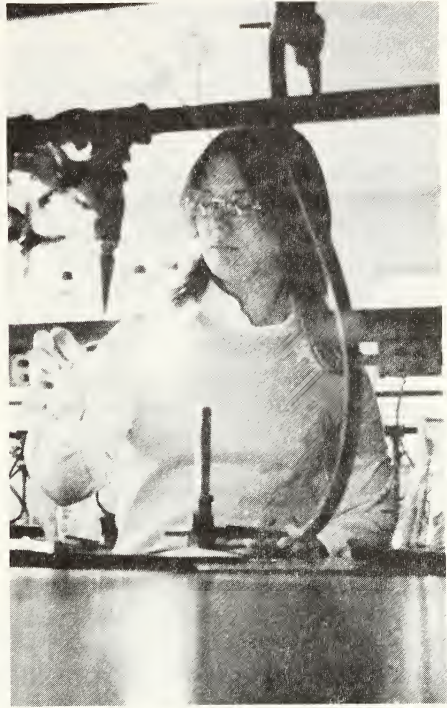
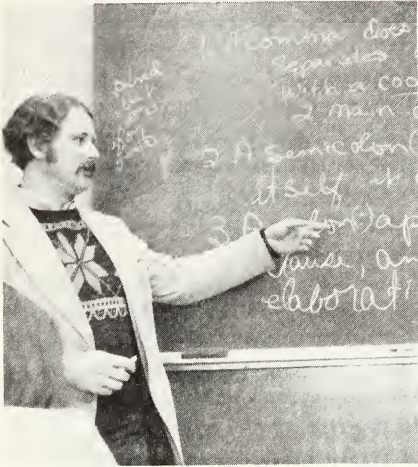
Use of basic hand and power tools as they relate to Electronic shop practice and construction techniques. Includes chassis layout, bending, drilling, punching, and cutting operations. Also printed circuit artwork, design, layout and component assembly techniques. Also printed circuit repair and soldering techniques; harness and cable fabrication techniques. (0-1-1) Prerequisite: Consent of department

#### **ET 2332 Introduction to Microwaves**

An introduction to the use of microwaves in the communication industry. Topics include basic transmission theory, characteristics of Klystron, magnetrons, Gunn diodes, and traveling wave tubes. Also includes basic system measurements such as frequency, power, attenuation and standing wave ratio (SWR). Students are introduced to use of the Smith Chart. (1-1-2) Prerequisites: ET 2434, ET 2535 or consent of the Department.

#### **ET 2043 Electronic Communications**

A survey of two-way communications and broadcast systems, beginning with a review of basic electronics. The material presented in the course is structured to aid individuals preparing to take F.C.C. Commercial Radio License examinations. General subject content is related to elements I, II, III, and IV of the F.C.C. examinations. (3-0-3) Prerequisite: concurrent with ET 2944 or consent of instructor.



## **GENERAL ENGINEERING TECHNOLOGY**



## GENERAL ENGINEERING TECHNOLOGY

Many industries have shown a need for a technician who is diverse in skills. Often these companies don't want or are unable to fill their staff with enough specialists to cover each of the many areas they may require. A company may rather have one versatile individual with a broad-based background. Jobs such as inspector, estimator, detail draftsman, test technician, technical writer, production planner, and many others require this type of broad-based education. Therefore, the General Engineering Technology program provides graduates with a diversified background which includes study in the fields of electronics, civil, computer and mechanical engineering technologies to meet the needs of these industries.

Students in General Engineering Technology are offered a flexible program of study that draws courses from several curricula at KTI. Eight of the sixty-six hours required for graduation are electives, allowing the student to choose courses of specific interest to the individual.

The education of the general engineering technician is "things" oriented. Technicians must have the ability to visualize objects and to make sketches or drawings. It requires that they have an aptitude in science and/or mathematics. Often jobs require some familiarity with one or more of the skilled trades, although not the ability to perform as a craftsman. Some jobs demand extensive knowledge of industrial machinery, tools, equipment, and processes. Many jobs held by these technicians are supervisory and require both technical knowledge and the ability to supervise people.

### General Engineering Technology Curriculum (GT)

#### First Year—Fall Semester

Course No.	Course Name	Hours*		Semester Credits
		R	L	
GT 1212	Plane Trigonometry . . . . .	2	0	2
GT 1213	College Algebra . . . . .	3	0	3
CP 1213	Computer Science Concepts . . . . .	2	1	3
MT 1113	Technical Drafting . . . . .	0	3	3
GT 1713	Written Communications . . . . .	3	0	3
GT 1312	Oral Communications . . . . .	2	0	2
Total Credits . . . . .				16

#### First Year—Spring Semester

GT 1113	Applied Chemistry . . . . .	3	0	3
GT 1111	Applied Chemistry Lab . . . . .	0	1	1
GT 1222	Analytic Geometry and Calculus I . . . . .	2	0	2
GT 1124	Technical Physics I . . . . .	3	1	4
MT 1222	Manufacturing Methods II . . . . .	0	2	2
CL 2124	Plane Surveying . . . . .	2	2	4
Total Credits . . . . .				16

### Second Year—Fall Semester

GT 2633	System Analysis and Quality Control . . . .	3	0	3
CL 2435	Statics and Strength of Materials . . . . .	5	0	5
GT 2334	Technical Physics II . . . . .	3	1	4
GT 2232	Analytic Geometry and Calculus II . . . . .	2	0	2
	Technical Elective† . . . . .			3
Total Credits . . . . .				17

### Second Year—Spring Semester

43:205	Principles of Management . . . . .	3	0	3
GT 2713	Technical Writing . . . . .	3	0	3
GT 1423	Economics . . . . .	3	0	3
GT 2643	Electric Power and Devices . . . . .	2	1	3
	Technical Elective† . . . . .			5
	Technical Credits . . . . .			17
				17

Total semester credits required for Associate of Technology Degrees . . . . . 66

† Technical Electives: (8 required) Students may choose from all courses taught at KTI, however, all electives must be approved by General Technology Department Head and the student's advisor.  
 R—recitation or lecture credit; L—laboratory credit.

\* Students should expect to spend 2 hours of study for each hour of class.

## GENERAL COURSE DESCRIPTIONS

The following courses have been specifically designed for the General Engineering Technology students to enhance his/her overall employability.

### GT 2633 System Analysis and Quality Control

An introductory course in system analysis and statistical quality control, including work in the areas of basic logic, control charts, and methods for determining necessary requirements for specific levels of finished product quality. The basic rules of reason are explored as fundamental concepts. (3-0-3) Prerequisite: GT 1213

### GT 2334 Technical Physics II

A quantitative investigation into the fundamentals of electricity, sound, magnetism and light. The class work and the supporting laboratory are specifically designed to provide the student with an understanding of, and a proficiency in measurement and calculation with these principles as they are applied to the solution of technical problems. (3-1-4) Prerequisite: GT 1124

### GT 2643 Electric Power and Devices

An approach to technical understanding of the concepts and uses of alternating current power in industry. Strong alternating current theory with emphasis on motor speed controls, phase shifts, control systems, simpler forms of logic switching circuits, process systems with self-check, and servo loop principles. Various forms of transducers are examined. Field trips are made

to study representative motors and load control systems. (2-1-3)  
Prerequisite: GT 2134 concurrently

## **GENERAL STUDIES COURSES**

### **MATHEMATICS**

#### **GT 1515 Mathematics**

A five-hour non-degree-credit course in the principles of Basic Mathematics. The course includes addition, subtraction, multiplication, division, fractions, percents and an introduction to Algebraic and Trigonometric concepts. (5-0-5) Concurrent recommendation GT 1532

#### **GT 1215 College Algebra/Math Review**

A reduced pace College Algebra course with five contact hours per week. The course will cover the same material at GT 1213 College Algebra with approximately the first two weeks emphasizing Basic Mathematics. The student will receive 5 hours of credit, 3 of which will count towards graduation. Students are placed in this course on the basis of their score on the Kansas Technical Institute Math Placement Exam. (5-0-5) Prerequisite: None

#### **GT 1532 Mathematics Laboratory**

A laboratory course in problem solution for those students with low scores in Kansas Technical Institute Math Placement Examination. The student is grounded in basic mathematics principles by instructor-supervised exercises from the mathematics course or problems from other classes in the student's discipline. (0-2-2) Prerequisite: None

#### **GT 1212 Plane Trigonometry**

The fundamentals of College Trigonometry with emphasis on applications to engineering technology. Course content includes right and oblique triangle solutions, vectors, polar coordinates, angular velocities, use of trigonometry in surveying, tool and machine design, sine and cosine law uses, introduction to identity solutions, and an introduction to the conic sections. (2-0-2) Prerequisite: GT 1213 Concurrently

#### **GT 1213 College Algebra**

The fundamentals of Algebra, as taught at the college level, modified to emphasize applications and de-emphasize theoretical developments. In particular, certain properties and theorems are stated without proof. Course content includes identifying number sets up to and including complex numbers, fundamental concepts of Algebra as a review, operations with algebraic fractions, exponents and radicals, logarithms, linear equations in one and multiple variables, linear functions and graphs, systems of



equations, determinants, quadratic equations, and solutions involving higher degree equations. (3-0-3) Prerequisite: None

### **GT 1222 Analytic Geometry and Calculus I**

The general topics covered in this course are basic analytic geometry, differentiation and integration of algebraic functions. Definitions and applications will include limits, differential derivatives of algebraic functions, conics, integration of algebraic functions, emphasizing the process of application to technical problems, tangents and normals, related rates, curve sketching applied maximum and minimum problems, areas under a curve, volumes by integration, centroids and moments of inertia. (2-0-2) Prerequisites: GT 1212, GT 1213

### **GT 2232 Analytic Geometry and Calculus II**

A continuation of GT 1222, which includes the following: application of trigonometric derivatives, derivatives of exponential and logarithmic functions, integration, application of integration, methods of integration and introduction to partial derivatives and double integrals. A special emphasis is placed on solution of technical problems to include differential equations. Expansion of functions and computations by use of the Maclaurin, Taylor and Fourier Series are also covered. (2-0-2) Prerequisite: GT 1222

## **SCIENCE**

### **GT 1113 Applied Chemistry**

A study of the arrangement of matter, the atomic structure, the concepts of chemistry as shown through problem solutions, and energy balances related to interaction of elements. Physical chemistry concepts are included along with an introduction to simplified laboratory procedure in chemical analysis. (3-0-3) Prerequisite: None. Concurrent recommendation: GT 1213, GT 1111

### **GT 1111 Applied Chemistry Lab**

Principles of applied chemistry lab methods with emphasis on inorganic tests and experiments, for students in Environmental Protection Technology. (0-1-1) Prerequisite: GT 1113 concurrently

### **GT 1124 Technical Physics**

A quantitative investigation into the fundamentals of mechanics and heat. The class work and the supportive laboratory are specifically designed to provide the student with an understanding of and a proficiency in measurement and calculation with these principles as they are applied to the solution of technical problems. (3-1-4) Prerequisites: GT 1212, GT 1213

## **COMMUNICATIONS**

### **GT 1702 Developmental English**

Guided self-study in basic mechanical skills (i.e., elementary grammar, syntax, spelling, and punctuation) through laboratory exercises for those students entering Kansas Technical Institute with serious deficiencies in these basic writing skills.(0-2-2) Prerequisite: None

### **GT 1512 Reading Improvement Lab**

Supervised self-study in reading skills for students who have special problems in reading, and for students who wish to achieve an above average proficiency in reading. A voluntary course earning two hours of credit.(0-2-2) Prerequisite: None

### **GT 1312 Oral Communications**

Oral Communications teaches the student how to present information persuasively and enjoyably to an audience through the oral medium. The student will plan and give informative, expressive, entertaining, and persuasive reports.(2-0-2) Prerequisite: None

### **GT 1713 Written Communications**

Written Communications is designed to acquaint the student with grammatical and rhetorical skills. Topics covered include vocabulary growth, sentence structure, punctuation, spelling, modes of development (definition, description, classification, etc.), aims of discourse (expression, persuasion, etc.), and paragraph and essay structure. (3-0-3) Prerequisite: None

### **GT 2713 Technical Writing**

Technical Writing applies rhetorical skills to the special writing requirements of business and industry. Course writings will include letter of application, operation manual, proposal, feasibility report, progress report, and research report. (3-0-3) Prerequisite: GT 1713

## **SOCIAL SCIENCE**

### **GT 1413 Industrial Relations**

An analysis of interpersonal relationships in the world of work. This includes developing an understanding of job satisfaction, job design, basic supervisory skills, organizational structures, and the basic functions of personnel management. (3-0-3) Prerequisite: None

### **GT 1423 Economics**

A study of how economic decisions are made, on the level of individuals, organizations, and national market systems. This

includes an introduction to the topics of market structure, the price mechanisms, business cycles, inflation, monetary and fiscal policy, and unemployment. Also included are sections on business investment analysis and personal money management. (3-0-3) Prerequisite: Concurrent GT 1213

### **GT 2431 Management and Human Development**

A study of first line supervision techniques which includes the following areas of study: Management and environment, the beginning of modern management, the management functions, fundamentals of organizational behavior, leadership and its development. Case problems will be introduced and discussed. (1-0-1) Prerequisite: GT 1413 and Senior Standing

## **BUSINESS**

### **GT 1513 Principles of Accounting I**

A study of accounting for the sole proprietorship. A problem approach is utilized to explain concepts and procedures. Included are the recording of business transactions in journals; receivables, payables and inventories. (3-0-3) Prerequisite: GT 1213 concurrently

### **GT 1523 Principles of Accounting II**

A continuation of Principles of Accounting I with an introduction to accounting for partnerships and corporations. Included are costing, forecasting, deferrals, accruals, plant assets, partnership and corporate form of business organization, accounting controls, earnings, and dividends. (3-0-3) Prerequisite: GT 1513

### **43:205 Principles of Management**

(Kansas Wesleyan Campus) A study of the theory and concepts involved in managing organizations. Topics include management functions in planning, decision-making, organizing, staffing, leadership and controlling an organization. (3-0-3) Prerequisite: None

### **43:216 Business Law**

(Kansas Wesleyan Campus) A basic study on contracts, sales, commercial papers, business organizations, agency, and other areas of business law. Includes a study of the UCC conjunction with these topics. (3-0-3) Prerequisite: None

### **43:213 Marketing**

(Kansas Wesleyan Campus) An examination of the coordination and control of marketing activities including market segmentation, marketing research, product management, pricing, distribution channels, and promotion methods. (3-0-3) Prerequisite: None



## **Continuing Education**

### **AP 1113 Private Pilot Ground School**

Basic ground school in preparation for the FAA Private Pilot Certificate. FAA exams may be taken upon completion of the course. (3-0-3) Prerequisite: None

### **AP 1123 Instrument Pilot Ground School**

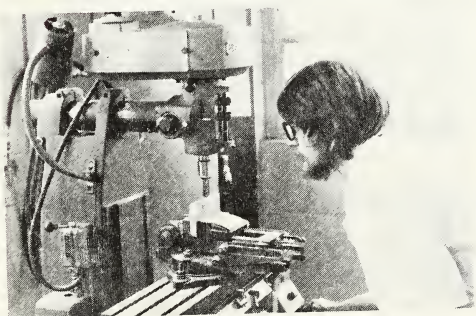
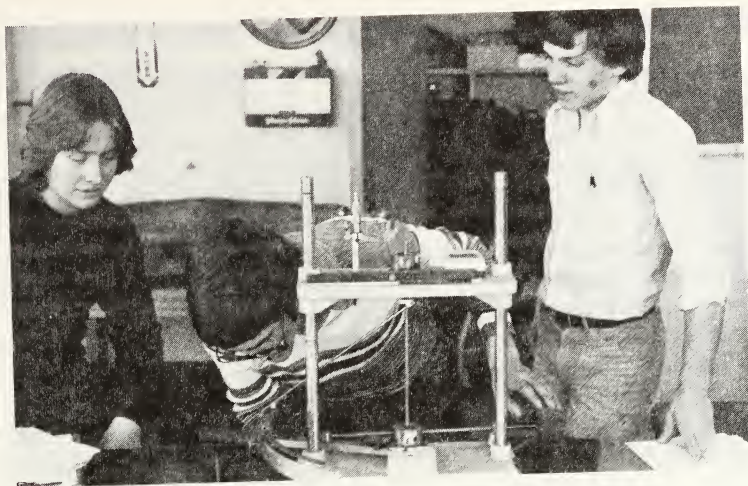
A ground school course in preparation for FAA Instrument Rating. FAA exams may be taken upon completion of the course. (3-0-3) Prerequisite: AP 1113/Private Pilot License and Flight Experience

### **AP 1512 First Line Management**

This course is developed for the First Line Supervisor who has most likely developed craft expertise but limited formal training in human values. Time is devoted to integration of good techniques in supervision and inter-action of human relations. (2-0-2) Prerequisite: None

### **AP 1542 Management, Motivation, and Goals**

Designed to assist the supervisors and managers in developing motivation techniques and goal setting methods. Topics of management skills includes both personal and group related applications. (2-0-2) Prerequisite: None



## **MECHANICAL ENGINEERING TECHNOLOGY**

## **MECHANICAL ENGINEERING TECHNOLOGY**

The Mechanical Engineering Technology program prepares the graduate for a position in mechanical and/or manufacturing industries. This program embraces the design, manufacture and production of mechanical products and the tools, machines and processes by which they are made. It also deals with sales and maintenance of such products, tools and machines. The two-year program is designed to develop the student's ability to proceed in an independent manner to use both trade and technical literature to solve technical problems.

The first year of study finds the mechanical technology student developing a strong base in the areas of mathematics, physical science, manufacturing processes and written and graphic communications. During the second year, the student develops abilities in such areas as materials of industry, fluid mechanics, mechanisms and designs of mechanical elements.

Mechanical Technology, though not a new science, has continually been an exciting and rewarding field involved with development of products for today and tomorrow. New product ideas in energy, transportation, product manufacturing, and other areas involving mechanical devices indicate that rapid advances in the field are continually being made.

### **Mechanical Engineering Technology**

The mechanical engineering technician is concerned with the development, testing, evaluation, detailing and design of machinery, equipment, instruments and other mechanical devices. The technician's duties may involve drafting, use of handbooks and tables, calculations of strength and reliability, selection of materials, and cost estimating for the development or modification of the design of almost any type of machine or mechanism. Technicians may conduct performance and endurance tests on various mechanical devices and report the results.

Because of the many facets of this field, mechanical engineering technology graduates, always in high demand, have found fine careers in industries in Kansas and across the United States.



## Mechanical Engineering Technology Curriculum (MT)

This curriculum is accredited by the Accreditation Board for Engineering and Technology (ABET/ECPD)

### First Year—Fall Semester

Course No.	Course Name	Hours		Semester Credits
		R	L	
GT 1212	Plane Trigonometry .....	2	0	2
GT 1213	College Algebra .....	3	0	3
GT 1113	Applied Chemistry .....	3	0	3
MT 1113	Technical Drafting .....	0	3	3
MT 1212	Manufacturing Methods I .....	1	1	2
GT 1713	Written Communications .....	3	0	3
Total Credits .....				16

### First Year—Spring Semester

GT 1222	Analytic Geometry and Calculus I .....	2	0	2
GT 1124	Technical Physics I .....	3	1	4
MT 1323	Metallurgy .....	2	1	3
MT 1122	Mechanical Detailing .....	0	2	2
MT 1222	Manufacturing Methods II .....	0	2	2
GT 1413	Industrial Relations .....	3	0	3
Total Credits .....				16

### Second Year—Fall Semester

GT 2232	Analytic Geometry and Calculus II .....	2	0	2
CL 2435	Statics and Strength of Materials .....	5	0	5
MT 2533	Fluid Mechanics .....	2	1	3
MT 2433	Elements of Mechanisms .....	3	0	3
MT 2432	Design Technology I .....	1	1	2
GT 1312	Oral Communications .....	2	0	2
Total Credits .....				17

### Second Year—Spring Semester

GT 1423	Economics .....	3	0	3
MT 2341	Mechanical Testing Lab .....	0	1	1
MT 1722	Thermodynamics I .....	2	0	2
ET 1113	D.C. Circuits .....	2	1	3
MT 2444	Design Technology II .....	2	2	4
GT 2713	Technical Writing .....	3	0	3
GT 2431	Management and Human Development ..	1	0	1
Total Credits .....				17

Total semester credits required for Associate of Technology Degree .....

66

R—recitation or lecture credit; L—laboratory credit.

\* Students should expect to spend 2 hours of study for each hour of class.

## Solar Energy Utilization Technology

The Solar Energy Utilization Technology program prepares the graduate for a position in the construction and/or manufacturing industries. During the first year of study, the student develops a strong base in the areas of mathematics, physical science, manufacturing processes and written and graphic communications.

During the second year, the student develops abilities in such areas as materials of industry, fluid mechanics, thermodynamics, mechanisms, and design of solar energy collection, storage and distribution systems.

The concept of utilizing solar energy to perform useful tasks in our society is not new. However, the necessity of developing a strong and active technology in the area of alternate energy sources has been recently reemphasized by the realization that the traditional energy sources (oil, coal, hydroelectric, etc.) are being rapidly depleted and becoming more expensive. The student who enters the Solar Energy Utilization Technology field will become a part of a rapidly expanding and constantly changing technology.

The solar technician is concerned with the development, testing, evaluation, design of equipment, and control mechanisms of solar utilization systems. The technician's duties may involve drafting, use of handbooks and tables, calculations of strength and reliability, selection of materials, and cost estimating for the development or modification of various types of solar collection systems. The technician may also conduct performance and endurance type tests on prototype or development systems and report the results of these tests.

#### Solar Energy Utilization Technology Curriculum (SO)

##### First Year—Fall Semester

Course No.	Course Name	Hours*		Semester Credits
		R	L	
GT 1212	Plane Trigonometry . . . . .	2	0	2
GT 1213	College Algebra . . . . .	3	0	3
GT 1113	Applied Chemistry . . . . .	3	0	3
MT 1113	Technical Drafting . . . . .	0	3	3
MT 1212	Manufacturing Methods I . . . . .	1	1	2
GT 1713	Written Communications . . . . .	3	0	3
Total Credits . . . . .				16

##### First Year—Spring Semester

GT 1124	Technical Physics I . . . . .	3	1	4
MT 1323	Metallurgy . . . . .	2	1	3
MT 1122	Mechanical Detailing . . . . .	0	2	2
MT 1222	Manufacturing Methods II . . . . .	0	2	2
GT 1413	Industrial Relations . . . . .	3	0	3
MT 1722	Thermodynamics I . . . . .	2	0	2
Total Credits . . . . .				16

##### Second Year—Fall Semester

GT 1222	Analytic Geometry and Calculus I . . . . .	2	0	2
CL 2435	Statics and Strength of Materials . . . . .	5	0	5
MT 2533	Fluid Mechanics . . . . .	2	1	3
MT 2433	Elements of Mechanisms . . . . .	3	0	3
MT 2832	Solar Systems Design Technology I . . . . .	1	1	2
GT 1312	Oral Communications . . . . .	2	0	2
Total Credits . . . . .				17

## Second Year—Spring Semester

GT 1423	Economics	3	0	3
MT 2341	Mechanical Testing Lab	0	1	1
MT 2743	Thermodynamics II	2	1	3
ET 1113	D.C. Circuits	2	1	3
MT 2844	Solar Systems Design Technology II	2	2	4
GT 2713	Technical Writing	3	0	3
GT 2431	Management and Human Development	1	0	1
Total Credits				18

Total semester credits required for Associate of Technology Degree 67

R—recitation or lecture credit; L—laboratory credit.

\* Students should expect to spend 2 hours of study for each hour of class.

## MECHANICAL COURSE DESCRIPTIONS

### MT 1113 Technical Drafting

Lettering, freehand sketching, use of drafting equipment. Theory and applications of orthographic projection and pictorial drawings. Descriptive geometry of bearing, slope, true length, and true size. Standards for symbols, section views, and dimensioning included. (0-3-3) Prerequisite: None

### MT 1122 Mechanical Detailing

Preparation of shop drawings for manufacturing, fabrication or assembly. Specifications of size, shape, material and manufacture. Specifications of standard fasteners including threads, rivets, keys, splines. Allowance specifications for mating parts and surface quality. Introduction to graphic illustration. (0-2-2) Prerequisite: NT 1113

### MT 1212 Manufacturing Methods I

Study and practice in gas, arc, TIG welding, spot weld, weld testing, cost estimation. Introduction to welding metallurgy and special welding processes. (1-1-2) Prerequisite: None

### MT 1222 Manufacturing Methods II

Laboratory practice in performing basic machine shop operations on lathes, milling machines, drill presses. Use of hand tools, metal cutting machines and grinders included. Laboratory observation of foundry, plastic and electric discharge machine operations. (0-2-2) Prerequisite: None

### MT 1323 Metallurgy

Basic principles of physical metallurgy. Structure of metals and alloys. Phase transformations of ferrous and non-ferrous metals. Testing and microscopic examination of metals. (2-1-3) Prerequisite: Credit or classification in GT 1113

### MT 1722 Thermodynamics I

Thermodynamic laws and equations. Use of tables and charts for properties of important fluids. Applications to systems used for



producing, transforming, and applying heat and mechanical energy. Brief introduction to heat transfer. (2-0-2) Prerequisite: GT 1113

### **MT 2341 Mechanical Testing Laboratory**

Principles of mechanical testing. Instrumentation and measurement in the areas of loads, stresses, deformations, heat flow, and other qualities. Preparation of written laboratory reports. (0-1-1) Prerequisites: CL 2435, credit or classification in MT 2732

### **MT 2432 Design Technology I**

A study of the design process. Use of handbooks and industrial catalogs to select components including belts, chains, gears, springs, clutches and bearings to satisfy design requirements. Introduction to the use of computers in solving design problems. (1-1-2) Prerequisite: Credit or classification in MT 2433

### **MT 2433 Elements of Mechanisms**

Fundamental motion concepts of displacement, velocity and acceleration. Analytical and graphical analysis and synthesis of linkages, gear trains, cams, pulleys and combinations of these elements. (3-0-3) Prerequisites: GT 1124 and MT 1113

### **MT 2444 Design Technology II**

Continued study of design process. Investigation of theories of failure, stress analysis, stress concentration, deflections, materials and costs relating to machine design. Group laboratory design projects requiring application of previously learned concepts and methods in detailing, manufacturing, mechanisms, and other courses relative to machine design. (2-2-4) Prerequisites: CL 2435 and MT 2432

### **MT 2533 Fluid Mechanics**

Fundamental concepts of fluid mechanics. Study of buoyancy, energy equation, viscosity, flow measurement. Selected applications of fluid mechanics to civil and mechanical fields. (2-1-3) Prerequisites: GT 1212 and GT 1213

### **MT 2743 Thermodynamics II**

Continued studies in Thermodynamics. Major emphasis in the area of heat transfer and application in Solar Energy. (2-2-5) Prerequisite: MT 1722 and Senior Standing

### **MT 2832 Solar Systems Design Technology I**

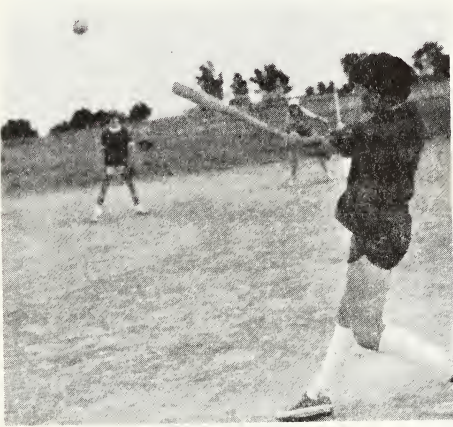
A study of the design process. Use of handbooks and industrial catalogs to select components, including pumps, manual valves, schematic valves, regulators, temperature sensing systems and instrumentation devices. Introduction to the use of computers in solving design problems. (1-2-3) Prerequisites: MT 2433 and MT 2533

### **MT 2844 Solar Systems Design Technology II**

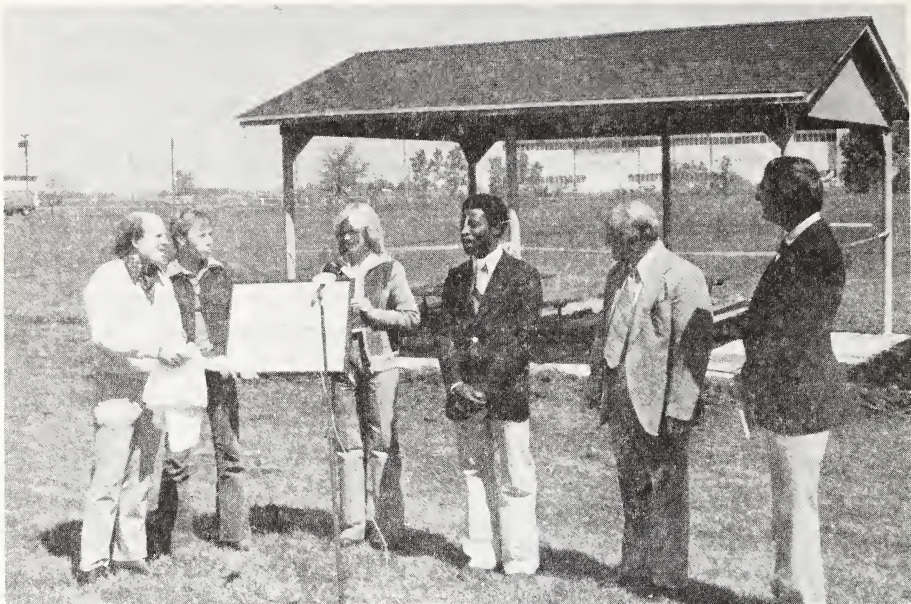
Continued study of design process. Investigation of theories of failure, stress analysis, stress concentration, fatigue, materials and costs as related to system design. Group laboratory design projects requiring application of previously learned concepts and courses related to systems design. (2-4-6) Prerequisites: CL 2435 and MT 2832

### **MT 2930 Problems in Mechanical**

Opportunity for advanced study and practical experience with specific problems of the student's choice in the field of Mechanical Technology. (0-6) Prerequisite: Instructor's consent







## **BOARD OF CONTROL**



## **BOARD OF CONTROL**

### **Administration**

The governing board of the Institute is the Kansas State Board of Regents. It consists of nine members appointed by the Governor. The board elects its own chairman. The President of Kansas Technical Institute, who is charged by statute with the general management of the Institute, is appointed by the Board of Regents.

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