STATE TECHNICAL INSTITUTE AT KNOXVILLE

CATALOG 1984-85

State Technical Institute at Knoxville does not discriminate on the basis of race, sex, color, religion, national origin, age, handicap, or veteran status in provisions of educational opportunities or employment opportunities and benefits.

State Tech does not discriminate on the basis of sex or handicap in the education programs and activities which it operates, pursuant to the requirements of Title IX of the Education Amendments of 1972, Pub. L. 92-318; and Section 504 of the Rehabilitation Act of 1973, Pub. L. 93-112; respectively. This policy extends to both employment by and admission to the college.

In conjunction with these requirements STIK provides ramps, elevators, and limited reserved parking to accommodate the needs of handicapped students, staff, and visitors.

Inquiries concerning Title IX and Section 504 should be directed to the Director of Administrative Affairs, State Technical Institute at Knoxville. Charges of violation of the above policy should also be directed to the Director of Administrative Affairs.

PRIVACY RIGHTS ACT OF PARENTS AND STUDENTS PUBLIC LAW 93-380

State Technical Institute at Knoxville adheres to the guidelines developed by the Department of Health, Education and Welfare regarding the Educational Rights and Privacy Act (Buckley Amendment) of 1974 Public Law 93-380. State Tech provides students and parents of dependent students access to official records directly related to them and limits dissemination of personally identifiable information without the student's consent. Students enrolled at State Technical Institute at Knoxville may review guidelines and procedures regarding Public Law 93-380 in the Office of Student Affairs.
Established as a state institution on September 9, 1974, State Technical Institute at Knoxville operates under the governance of the Board of Regents of the State University and Community College System of Tennessee.

ACADEMIC YEAR

The State Technical Institute at Knoxville is a two-year, college-level institution which operates on the quarter system with Fall, Winter, Spring and Summer Quarters constituting the academic year.

NOTICE

The provisions of this catalog constitute a contract between the State Technical Institute at Knoxville and a student who commences any program of study insofar as it relates to the degree requirements for that program during the effective period of this catalog and the degree requirements are subject to change during such period only to the extent required by federal or state laws or accreditation standards. The specific courses or activities constituting the degree requirements for any program are subject to substitution at any time prior to completion by the student.

The remaining provisions of this catalog reflect the general nature of and conditions concerning the educational services of the State Technical Institute at Knoxville in effect at this time, but do not constitute a contract or otherwise binding commitment between the State Technical Institute at Knoxville and the student. Any fees, charges or costs, and all academic regulations set forth in this catalog are subject to change at any time, and all courses, programs, and activities described in this catalog are subject to cancellation or termination by the State Technical Institute at Knoxville or the State Board of Regents at any time.

The State Technical Institute at Knoxville provides the opportunity for students to increase their knowledge by providing programs of instruction in the various disciplines and programs through faculty who, in the opinion of the State Technical Institute at Knoxville, are trained and qualified for teaching at the college level. However, the acquisition of knowledge by any student is contingent upon the student's desire to learn and his or her application of appropriate study techniques to any course or program. As a result, the State Technical Institute at Knoxville does not warrant or represent that any student who completes a course or program of study will necessarily acquire any specific knowledge or skills, or will be able to successfully pass or complete any specific examination for any course, degree, or license.
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LOCATION (Maps to State Tech), Inside Back Cover
# ACADEMIC CALENDAR 1984-85

## WINTER 1984
- New Student Orientation: January 3
- Official Registration: January 3
- Classes Meet as Scheduled: January 4
- Last Day to Register: January 6
- Last Day to Add Classes: January 10
- Last Day to Drop/Withdraw: February 2
- Last Day of Classes: March 16

## SPRING 1984
- New Student Orientation, Advisement, Official Registration: March 26
- Classes Meet as Scheduled: March 26
- Last Day to Register: March 29
- Last Day to Add Classes: April 3
- High School Tour Day: April 18
- Holiday, Good Friday: April 20
- Last Day to Drop/Withdraw: April 25
- Last Day of Classes: June 8
- Commencement: June 9

## SUMMER 1984
- New Student Orientation, Advisement, Official Registration: July 2
- Classes Meet as Scheduled: July 3
- Holiday, Independence Day: July 4
- Last Day to Register: July 5
- Last Day to Add Classes: July 9
- Last Day of Refund: July 19
- Last Day to Drop/Withdraw: August 13
- Holiday: September 3
- Last Day of Classes: September 13

## FALL 1984
- Orientation, New Student Advisement, Official Registration: September 24-25
- Classes Meet as Scheduled: September 26
- Last Day to Register: September 28
- Last Day to Add Classes: October 2
- Last Day of Refund: October 12
- Career Day: October 17
- Last Day to Drop/Withdraw: November 22, 23
- Holiday, Thanksgiving: December 11
- Last Day of Classes: December 12

## 1984 Calendar

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WINTER 1985
Orientation, Advisement, and Official Registration
Classes Meet as Scheduled
Last Day to Register
Last Day to Add
Last Day of Refund
Last Day to Drop/Withdraw
Last Day of Classes

SPRING 1985
Orientation, Advisement, and Official Registration
Classes Meet as Scheduled
Last Day to Register
Last Day to Add
Last Day of Refund
High School Tour Day
Last Day to Drop/Withdraw
Last Day of Classes

SUMMER 1985
Orientation, Advisement, and Official Registration
Classes Meet as Scheduled
Holiday
Last Day to Register
Last Day to Add
Last Day of Refund
Last Day to Drop/Withdraw
High School Tour Day
Last Day of Classes

FALL 1985
Orientation, Advisement, and Official Registration
Classes Meet as Scheduled
Last Day to Register
Last Day to Add
Last Day of Refund
High School Tour Day
Last Day to Drop/Withdraw
Last Day of Classes

1985

JANUARY

MARCH

MAY

JULY

SEPTEMBER

NOVEMBER

FEBRUARY

APRIL

JUNE

AUGUST

OCTOBER

DECEMBER

4 Academic Calendar
The purpose of the State Technical Institute at Knoxville is:

To serve the people of East Tennessee by

Providing classroom and laboratory instruction (in one and two-year programs) to prepare adults for employment as technicians.

Providing training to increase the competence of employed adults so that they may become technicians or move to a higher level of responsibility.

To serve business, industry, and government in East Tennessee by

Providing technicians for employers and training to increase the competence of employees.

Providing technician training to attract business and industry to East Tennessee and to encourage business and industry now located in this region to expand.

RECOGNITION

Approved by the Tennessee State Board of Regents, State Technical Institute at Knoxville is granted the privilege of awarding the Associate of Engineering Technology degree, Associate of Science degree, and certificates.

State Technical Institute of Knoxville is accredited by the Southern Association of Colleges and Schools Commission on Colleges, which is the regionally recognized accrediting organization.

Associate degree programs in Chemical Engineering Technology, Construction Engineering Technology, Electrical Engineering Technology, and Mechanical Engineering Technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.

The computer accounting degree program is accredited by Council for Professional Development in Accountancy (CPDA).

State Tech is approved under the appropriate laws governing the Veterans Administration to offer training for veterans and other eligible persons. Also, Federal Law authorizes State Tech to enroll nonimmigrant alien persons.

State Tech is an official member of the following organizations:

American Association of Collegiate Registrars and Admissions Officers
American Association of Community and Junior Colleges
American Society for Engineering Education
American Technical Education Association
Blount County Chamber of Commerce
Greater Knoxville Chamber of Commerce
National Association of College and University Business Officers
National Association of Student Personnel Administrators
Oak Ridge Chamber of Commerce
Society for the Advancement of Management
Southern Association of Colleges and Schools
Southern Association of Collegiate Registrars and Admissions Officers
Southern College Placement Association
Tennessee Association of Collegiate Registrars and Admissions Officers
Tennessee College Association
Tennessee College Placement Association
Tennessee Valley Personnel Association

TECHNICIAN: A DEFINITION

Technicians are qualified specialists who apply scientific and engineering knowledge in business, industry, or government. Often having the responsibility of converting ideas or theories into workable models, technicians fill the gap between engineers and craftworkers or between business managers and computers. Technicians must be able to understand and speak the language of both the engineer or manager and the craftworker or computer. Those who have the ability to combine theory and application serve a special and necessary function in our advancing technology.

Here are examples of technology teams:

<table>
<thead>
<tr>
<th>Professional Engineer, Scientist or Manager (four-year degree or better)</th>
<th>TECHNICIAN (two-year associate degree)</th>
<th>Craftsworker (one- or two-year certificate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Engineer</td>
<td>Mechanical Engineering Technician, or Associate Engineer</td>
<td>Welder</td>
</tr>
<tr>
<td>Systems Analyst</td>
<td>Computer Programmer</td>
<td>Keypunch Operator</td>
</tr>
<tr>
<td>Architect</td>
<td>Architectural Draftsperson</td>
<td>Carpenter</td>
</tr>
</tbody>
</table>

TECHNICAL EDUCATION: What Sets It Apart?

Technical Education is a specialized type of education in one or more fields that emphasizes the learning of a technique, or technical procedures, and skills to prepare individuals for employment in positions which lie between those of the skilled worker or craftworker, and the professional scientist or engineer. Such programs of study usually lead to the associate degree with the transferable college credit commonly involved. However, the purpose of technical education programs is for employment, not transfer credit.

Because a technician functions between the professional and the skilled worker, he/she must have both theoretical and practical knowledge. The professional is educated primarily to understand and work with theory; the skilled worker has a minimum of theoretical knowledge but has the skill to do practical tasks; and the technician has less theoretical knowledge than the professional and less practiced skill than the craftworker, but is able to understand and perform to a limited extent the work of both.

Programs for educating technicians are characterized by intensive classroom and laboratory learning. About 50 percent of classroom and laboratory work is devoted to the study of applied science and the technical specialty. A planned sequence of courses emphasizes scientific principles and provides practice with scientific equipment.

Curriculum advisory committees from community businesses assist in program planning and form an essential and vital ingredient in shaping each curriculum to meet current and future needs.
GENERAL INFORMATION
Procedures for Admission

ENTRANCE REQUIREMENTS
A person applying for admission to an Associate Degree program at State Technical Institute at Knoxville must be a high school graduate or have an equivalency diploma (GED) with a minimum composite score of 45. Admission to special courses and certificate programs is open to adults who meet requirements for specific programs and can benefit from additional course work.

It is recommended that applicants who have not previously earned satisfactory college-level credits submit scores from the American College Testing (ACT) examination. Placement tests are administered by State Tech before registration to most new students who cannot provide ACT scores. State Technical Institute at Knoxville reserves the right to reject any applicant whose general records do not predict success in the institute's environment.

The college will provide opportunities for education to all qualified applicants without regard to race, sex, color, religion, national origin, age, or handicap.

FOREIGN NATIONAL STUDENTS
A person who is a citizen or permanent resident of a country other than the United States is classified for educational purposes as a foreign national student. Foreign national students whose native language is not English must present a score of at least 500 on the Test of English as a Foreign Language. Foreign nationals are required to submit the same credentials for admission as are required of other students and, in addition, must also submit the following prior to official registration:

1. An official statement indicating how expenses will be met while a student in the United States.
2. Official status with the U.S. Department of Justice, Immigration Service.
3. Notification that there is in the college's possession a current Form I-94, stating one is attending a college in the United States.
4. A statement from a licensed physician verifying that the student does not have tuberculosis. This must be received before the I-20 will be issued.

Any exception for admission of a foreign national or refugee must be approved by the Dean of Student Affairs.

APPLICATION STEPS
All applicants must submit a completed application for admission. Applications are available in the Admissions and Records Office. Applicants for the associate degree programs must also submit a high school transcript certifying graduation, or a copy of GED scores, or complete transcripts of all previous work from regionally accredited colleges. No letter of acceptance is issued until an application is completed, graduation from a high school is certified and on file (or a minimum score of 45 on GED is on file), if not a college transfer student, and any previous accredited college transcripts are received and evaluated from all college transfer students.

DEGREE STUDENTS
Applicants for the associate degree programs must complete and submit the following:

1. Student application for admission. Application forms may be obtained from the Admissions and Records Office.
2. Transcript of high school course work certifying graduation.

3. Satisfactory General Educational Development (GED) test scores, if applicant did not graduate from high school.

4. Official transcripts from all colleges or universities attended. Transfer students from regionally accredited colleges need not submit high school transcripts or G.E.D. scores.

5. The American College Test (ACT), STIK Placement Test scores, or transcripts from regionally accredited colleges.

CERTIFICATE STUDENTS

Applicants for certificates must complete and submit a student application. Application forms may be obtained from the Admissions and Records Office. (Only students who work full-time for a license ambulance service as emergency medical technicians for a minimum of one year may apply for the Emergency Medical Technology Certificate Program.)

TRANSFER STUDENTS AND CREDIT

Applicants transferring from regionally accredited colleges or universities must present valid transcripts from each college. Upon receipt of all official transcripts, the Admissions and Records Office will grant equivalent credit, after consultation with appropriate division or department chairperson.

For V.A. certification, veterans must have transcripts from all regionally accredited colleges or universities attended, and each must be on file beginning the second quarter of attendance. Veterans may not receive benefits of attendance if terminated before ALL admission documents are submitted.

As a rule, applicants eligible for readmission to the institution from which they are transferring are also eligible for admission to State Tech.

Transfer credits are evaluated (see page 19 for details on Transfer Credit), if they can be related to the student's field of study. Credit will be given for work taken at regionally accredited institutions. No credit will be given unless a grade of C or above was received. Veterans should not register for courses which will transfer from previous colleges. The VA will not pay benefits for repeated courses if a passing grade was received for the original attempt.

Armed forces education experience will be evaluated according to guidelines of the American Council on Education. The college will require verification from official military records.

PLACEMENT TESTING

All applicants must complete the college's pre-admission testing prior to registration unless one of the following items is on file in the State Tech Admissions and Records Office:

1. Scores on the American College Test (ACT), and Scholastic Aptitude Test (SAT).

2. Transfer credit from a regionally accredited institution with grades of "C" or above in English and one course in mathematics. (All transcripts must be submitted to the Admissions and Records Office prior to registration, preferably at the time an application is submitted.)

3. Special permission from the Head of Admissions and Records Division or the Head of the Developmental Studies Department.
All applicants who cannot supply ACT or SAT scores need to take the STIK Placement Test. This test includes:

1. Reading
2. Written English
3. Mathematics Computations
4. Elementary Algebra

RE-ADMISSION

A former student at State Technical Institute at Knoxville must complete a new application if he/she has not attended the Institute for four or more quarters. This application must be submitted to the Admissions and Records Office prior to the official registration, by which time a letter of acceptance must also be on file.

If an applicant for re-admission has attended other colleges or universities since last attending State Tech, a complete and official transcript from those institutions must also be on file, including the student-requested evaluation of any transfer credit.

NEW STUDENT ORIENTATION AND REGISTRATION

All prospective new students completing application procedures are required to register on the dates shown on the academic calendar and urged to attend a scheduled orientation and registration session. Contact the Admissions and Records offices for more information.

OFFICIAL ENROLLMENT

Credit will be granted only for courses in which the student is officially registered and for which he/she has paid appropriate fees.

ADDING OR DROPPING COURSES

A student can add a course(s) within the four class days following the first day classes meet with permission of the advisor. A student may drop a course(s) within 30 days of the official registration date. All appropriate signatures must be affixed on the "Add/Drop or Withdrawal" form in order to make it valid and ready for processing. Each date is listed in the official college calendar.

When complete withdrawal from all courses becomes necessary, appropriate signatures from the Academic Advisor, Head of Student Services, and Financial Aid/Veterans Affairs Counselor on the Withdrawal form are required.
BUSINESS REGULATIONS

Expenses are charged and payable by the quarter since each quarter is a separate unit of operation. A student may enroll at the beginning of any quarter. Registration at the beginning of each quarter is not complete until all fees have been paid (which means all checks have cleared the bank), and no student may be admitted to classes without having met his financial obligations. All payments are to be made in cash or by check to the Business Office. Check-writing privileges will be taken from a student after he has had one returned check. There is a $10.00 charge for any returned check given to the Institute. No student may re-enroll, graduate, or receive a transcript of his records until all accounts are settled. The term "account" includes any indebtedness to the Institute. All fees are subject to change by the Tennessee State Board of Regents.

MAINTENANCE FEES—ALL STUDENTS

1983-84 Rates: Thirteen dollars ($13.00) per quarter hour, not to exceed $154.00 per quarter (see note below).

OUT-OF-STATE TUITION

Non-residents of Tennessee will pay out-of-state tuition. Out-of-state tuition is assessed in addition to maintenance fees.

1983-84 Rates: fifty-one dollars ($51.00) per quarter hour, not to exceed $586.00 per quarter (see note below).

NOTE: For the 1984-85 academic year, maintenance fees and out-of-state tuition are proposed to be increased. The amount of increase is not known at the time of printing this catalog. Please refer to the quarterly class schedule or contact the Office of Admissions and Records for current fee rates.

AUDIT STUDENTS

Students enrolling in regular college courses as auditors will pay the same fees as those enrolling for credit. Audit students will follow the same procedures for enrollment as other students.

ENROLLMENT OF PERSONS 60 YEARS OF AGE OR OLDER AND TOTALLY DISABLED PERSONS

TCA 49-3251, as amended, provides special legislation for disabled persons and for individuals 60 and 65 years of age or older.

1. Eligibility to audit courses—Disabled persons as defined by the above referenced legislation and persons 60 years of age or older, who are domiciled in Tennessee, are eligible to enroll in courses for audit without payment of maintenance and student activity fees.

2. Eligibility to take courses for credit—Disabled persons as defined by the above referenced legislation and persons 65 years of age or older, who are domiciled in Tennessee, are eligible to enroll in courses for credit without payment of maintenance and student activity fees, subject to payment of service fees at the rate of one-half the quarter hour rate, not to exceed $50.00 per quarter.

Enrollments for audit or credit are subject to the availability of space in the classrooms for the courses in question. Please contact the Office of Admissions for complete information.
INCIDENTAL FEES

APPLICATION FEE—A non-refundable fee of $5.00 must accompany any application to the college. This fee is a one-time charge and is not applicable to the registration fee.

LATE REGISTRATION FEE—$10.00. This non-refundable fee will be charged during the entire period of late registration.

CHANGE OF COURSE OR SECTION FEE (DROP AND ADD)—$5.00 per form. Nonrefundable. No charge is made if the change is initiated by the Institute.

STUDENT IDENTIFICATION CARD—No Charge
I.D. Card Replacement—$1.00

NON-CREDIT AND CONTINUING EDUCATION UNITS—Fees for non-credit (continuing education units) courses shall be sufficient to cover the total costs incurred in providing instruction plus a minimum of 25% of the annual instructional salary costs.

LOST LIBRARY BOOKS AND PUBLICATIONS—The student shall reimburse the Institute for the replacement value of library books and other publications which are not returned to the library on the due date.

GRADUATION FEE—$25.00. This fee includes the cost of diploma and rental or academic regalia. This fee must be paid at the beginning of the quarter in which a student is scheduled to graduate. This fee is valid for four quarters. This fee is refundable only if the Institute has incurred no costs on the student's behalf.

ALL FEES EXCEPT MAINTENANCE AND TUITION ARE NONREFUNDABLE. ALL FEES ARE SUBJECT TO CHANGE BY POLICY OF THE STATE BOARD OF REGENTS WITHOUT PRIOR NOTICE.

REFUNDS
State Tech will refund a portion of the maintenance fee to any student who officially drops, withdraws, or is dismissed from a course(s). Refunds of all fees and charges must be in accordance with the following provisions except where previously stated.

A. MAINTENANCE FEE REFUNDS
1. Refunds are 100% for courses cancelled by the Institution.
2. Changes in courses involving the adding and dropping of equal numbers of SCH's for the same term at the same time require no refund or assessment of additional maintenance fees. The change of course fee would be applicable.
3. The basic refund for withdrawals or drops during regular terms (fall, winter and spring) is 75% from the time of enrollment through the fourteenth calendar day of classes and then reduced to 25% for a period of time which extends 25% of the length of the term. There is no refund after the 25% period ends.
4. For summer sessions and other short terms, the 75% refund period and the 25% refund period will extend a length of time which is the same proportion of the term as the 75% and 25% periods are of the regular terms.
5. All refund periods will be rounded to whole days and the date on which each refund period ends will be included in publications. In calculating the 75% period for other than the fall, winter or spring and in calculating the 25% length of term in all cases, the number of calendar days during the term will be considered. When the calculation produces a fractional day, rounding will be up or down to the nearest whole day.
6. A full refund (100%) is provided on behalf of a student whose death occurs during the term. Any indebtedness should be offset against the refund.

7. A 100% refund will be provided for students who enroll under an advance registration system but who drop or withdraw prior to the beginning of the official registration period which is immediately prior to the start of a term. No refund will be made during the registration period. Refunds during the period between the last day of registration and the first day of classes should be at the 75% level.

8. A 100% refund will be provided to students who are compelled by the institution to withdraw when it is determined that through institutional error they were academically ineligible for enrollment or were not properly admitted to enroll for the course(s) being dropped. An appropriate official must certify in writing that this provision is applicable in each case.

9. When courses are included in a regular term’s registration process for administrative convenience, but the course does not begin until later in the term, the 75%/25% refunds will be based on the particular course’s beginning and ending dates. This provision does not apply to classes during the fall, winter, or spring terms which may meet only once per week. Those courses will follow the same refund dates as other regular courses for the term.

10. The refund percentage is applied to the difference between the per hour rate (or maximum) for the number of credit hours immediately before the drop or withdrawal and the number immediately afterward.

B. OUT-OF-STATE TUITION REFUNDS

The refund provision for out-of-state tuition is the same as that for maintenance fees. A 75% refund is made for the same period and a 25% refund is made for the same time period. When 100% of maintenance fees are refunded, then 100% of out-of-state tuition also is refunded. Calculation procedures are the same as those specified for maintenance fees.

All refunds are written at the end of the end of the refund period. Refund checks will be mailed approximately the fourth or fifth week in each quarter. All fees except maintenance and tuition are non-refundable. (Please refer to the class schedule published quarterly for specific refund periods.)

MOTOR VEHICLE REGULATIONS

State Tech believes that operating and parking a vehicle on the Division Street and Lonas Hall campus is a privilege and not necessarily a right. Vehicles operated on all properly owned or controlled by State Tech-Knoxville will comply with all traffic and parking signs and with the laws of the State of Tennessee, in accordance with T.C.A. 59, "Motor Vehicle Laws of Tennessee".

MOTOR VEHICLE REGISTRATION

All vehicles operated on State Tech controlled properties must be properly registered and have the prescribed decal affixed on the left rear bumper. A vehicle can be registered at either of the campus receptionists' desks.

TRAFFIC FINES

The fine for illegal parking, i.e., fire zone parking, and parking out of classification is $10. The fine for parking in handicapped spaces is $25 (first offense), $50 (subsequent offense). Vehicles parked in fire and handicapped zones are subject to tow.

If a vehicle is towed, the operator will reimburse the towing agent for all towing and storage charges and will pay any fines assessed by State Tech-Knoxville.
Fine for failure to register or display parking decal is $6.

Fine for moving violation, or exceeding posted speed limit, or any other moving violation such as those listed in T.C.A. 59 is $15.

All citations must be paid within seven days. Any person who fails to make payment of traffic fines or to request a hearing will be charged a late fee of $5.

Individuals wishing to appeal the citation can pick up the appropriate form at the Public Safety Department.

**ADMINISTRATIVE DISMISSAL**

Students may be administratively dismissed from State Tech if they fail to satisfy payment of the approved fees of the Institute.

A collection process may not be used for the non-interest student maintenance fee loan. The administrative dismissal will be automatic on the first working day following the due date of the note. Exceptions to this policy must be approved by the Dean of Student Affairs before the due date.

**FINANCIAL AID**

General eligibility for financial aid is based on financial need and ability to maintain academic progress. To qualify for aid, a student must:

1) submit appropriate application(s) for aid to determine financial need and eligibility,
2) submit verifying documents as requested,
3) be enrolled for at least half-time study (6 credit hours) in an approved curriculum program,
4) maintain Financial Aid Satisfactory Progress Standards.

Numerous sources of financial aid are available through State Tech and other agencies for qualified students. Among the available sources are the following:

**Pell Grant (BEOG):** Federal grant based on financial need; awards range from $200-$1,800 per year depending on need and tuition costs; application required each year; limited to U. S. citizens and permanent residents.

**Supplemental Educational Opportunity Grant (SEOG):** Federal grant on exceptional financial need; awards generally $200 per year depending on need and funding; application required each year; limited to U. S. citizens and permanent residents.

**Tennessee Student Assistance Corporation Award (TSAC):** State award based on financial need as determined by Pell Grant award index; awards range from $100-$200 per year depending on need and funding; application required each year; limited to Tennessee residents.

**STIK Work Scholarship (STIK-WS):** Tuition-only work scholarship based on scholastic achievement and fulfillment of 35-hour work obligation; available as funded for tuition costs only to full-time students who graduated in upper one-fourth of high school class (or who have demonstrated college-level scholastic ability) and who maintain a minimum 2.80 CGPA; application required each year; limited to Tennessee residents.

**College Work-Study Program (CWSP):** Federal program for providing part-time employment for students with financial need; 10-20 hours/week at minimum wage available depending on need and funding; application required each year; limited to U. S. citizens and permanent residents; preference given to full-time students.
Guaranteed Student Loan (GSL): Low-interest loan plan initiated by student through local bank or other lending agency; loans up to $2,500 per academic year available; application required each year; repayment begins 6 months after leaving school; limited to U. S. citizens and permanent residents.

STIK Temporary Student Loan (STIK-TSL): Thirty-one day non-interest-bearing promissory note initiated by student through STIK and approved by Financial Aid Office; tuition-only loans available to limited number of students with proven financial hardship; application required each quarter; limited to Tennessee residents.

Other Assistance: Social Security, Vocational Rehabilitation, and Veterans Administration assistance available to qualified applicants; contact STIK Financial Aid Office for application information.

Scholarship Funds: Scholarship awards sponsored by various organizations, including STIK Faculty Association, Oak Ridge/Knoxville Chapter of American Society for Certified Engineering Technicians, Insurance Women or Knoxville, Tennessee Valley Personnel Association, Society for the Advancement of Management, and American Business Women's Association, are available for students with demonstrated financial need and/or scholastic promise; awards generally for tuition only or tuition/books only; application initiated by student through the contributing organization; eligibility criteria determined by contributing organization.

Students interested in receiving financial aid should contact the State Tech Financial Aid Office, Room 111 Lonas Hall (584-6103, Ext. 367) for application forms and additional information.

SATISFACTORY PROGRESS

The standards of satisfactory progress for the technical institutes will be the same as the academic standards for the Institute. In addition to those guidelines, the following regulations will apply to all students who wish to receive financial assistance:

1. Financial Aid Recipients placed on Academic probation will be considered to be on Financial Aid Probation and may continue to receive financial assistance. At the end of the probation quarter, if academic standards have been met then financial aid may be granted in the following quarter of attendance.

2. Students who are suspended from the Institute are ineligible for any financial assistance during the time of suspension. Suspended students who are readmitted to the Institute will be ineligible for financial aid for that quarter and until such time as satisfactory progress has been established.

3. Students who receive a 0.0 quality point average for a quarter will not receive Federal or State financial assistance the following quarter. If a student is determined to have achieved satisfactory progress at the end of the subsequent quarter, then eligibility for financial assistance can be re-established for the following quarter.

4. Students who lose their eligibility for financial aid may present their documented case of mitigating circumstances, if any, to the Dean of Student Affairs or designee and if approved, may be allowed to continue receiving aid.

5. Students who wish to receive financial aid must maintain quarter hour progress toward graduation. If a student is enrolled (per Records Office documentation) for full-time attendance, three-quarter time attendance, or
half-time attendance, the following hours must be completed in that quarter.

Full-time must complete 9 quarter hours
Three-quarter time must complete 6 quarter hours
Half-time must complete 6 quarter hours

Failure to complete the above will terminate or deny financial aid for the following quarter of attendance. Satisfactory completion of the quarter hours progress (minimum enrollment of 6 hours) and academic standards during a succeeding quarter may re-establish aid eligibility.

6. Students must maintain progress toward graduation thus a student must pass two-thirds of all course work (grade of A,B,C,D,P) during each quarter. A student that fails to pass 66.6% of the courses during the quarter will be placed on Financial Aid Unsatisfactory Progress status. Satisfactory completion of the quarter hours progress (minimum enrollment of 6 hours and academic standards during a succeeding quarter) may re-establish aid eligibility.

7. Students will be evaluated at least at the end of each academic year to determine if measurable progress has been achieved in meeting the requirements of their degree or certificate.

8. A student may receive financial aid at State Technical Institute for no more than sixteen quarters.

NOTE: Standards number 6 & 8 will become effective June 18, 1984.

VETERANS

Veterans wishing to apply for educational benefits must submit transcripts from the high school/GED facility which granted a diploma or all accredited colleges and universities attended. These documents must be submitted within the first quarter, or further registration for courses will not be permitted.

The VA Form 22-1990, "Veterans Application for Program of Education or Training" must also be completed. The veteran must submit the original of Form DD-214, a marriage record (if applicable), a divorce decree (if applicable) and birth records of each dependent child (if applicable). If benefits have previously been used for educational assistance, veterans must complete VA Form 22-1995. Any change in marital status or number of dependents since the veteran's last school attendance must be verified by marriage license, divorce decree, or birth certificate. The application and all supporting documents should be submitted for processing to the Financial Aid/Veterans Affairs Office at least eight weeks prior to the beginning of the quarter in which the Veteran wishes to attend. Advance pay is available to early applicants.

Proper application forms for disabled veterans, sons or daughters, widows or wives, widowers or husbands of veterans are available in the Financial Aid/Veterans Affairs Office.

Continuous Enrollment: The Veterans Administration also has a policy which allows those veterans attending school on a yearly basis (Fall, Winter, Spring, and Summer Quarters) to obtain their monthly checks with no interruptions or reduction in benefits due to school classes closing between quarters. However, days paid to veterans between quarters will be deducted from the total entitlement.

Veterans Administration Policy: VA Regulations forbid a veteran from repeating any course that has been passed with a "D" or above or any course that has been transferred from another school. Veteran students should not take any course that is not listed in the catalog under their curriculum even though they
are not counting it for VA benefits. Veterans may not be certified for a course in which they have received an "I" grade, unless the "I" converts to an "F."

**Advance Payment:** Veterans who make application for admission and veterans benefits at least 30 days before the starting date of the quarter of attendance will receive at least one month's pay at the beginning of that quarter.

**Fee Deferment:** Veterans who have applied for advance pay at least 15 days prior to official registration or who have not received a regular VA educational benefits checks due to VA error may apply for 30-day fee deferment. Contact STIK Veterans Affairs Office for application and information.

**Advisors:** Veterans should work closely with the advisor to adhere to the specified curriculum since courses not listed under a major curriculum are generally not payable by VA.

**Miscellaneous:** Deficiency courses are not payable by veterans' educational benefits. Credit by examination will not be counted as a course eligible for benefits pay.

Independent study courses may be paid by VA if the curriculum advisor approves the course.

The Veterans attendance is recorded by the instructor. If the student fails to attend the number of class credit hours times two, then the instructor must file a non-attendance report to the Veterans Affairs Office.

Additional information for veterans can be found in the *Veterans Handbook* available in the Financial Aid/Veterans Affairs Office.
Registration

ACADEMIC ADVISING
At the time of initial enrollment, each student will be assigned a faculty advisor by each curriculum department head. The advisor's function is to assist with all academic considerations such as:

The technology in which the student will probably succeed on the basis of aptitude and experience,

The quarter hours of work which the student should carry,

The sequence of courses in a student's total academic program and the schedule of courses for a quarter,

Any special academic questions or problems which should not be handled by the faculty member teaching the course.

Instructors will:
1. Assist advisees in registration,
2. Post office hours when they will be available to confer with advisees,
3. Have a personal conference with each advisee at least once during each quarter to insure the student's continued academic success,
4. Establish and maintain a file on each advisee containing the following information:
   a. Basic information regarding the student including prior education.
   b. Entrance test scores.
   c. Transcripts or copies of grade reports.
   d. An updated curriculum guide indicating courses taken and required.

PRE-REGISTRATION
Pre-registration occurs each quarter for students already enrolled. Evening students may pre-register in the evening.

Students pick up the next quarter's trial schedule, tabloid, and instruction sheets from the Records Office or other designated areas, and consult with their advisor in planning their following quarter's schedule.

Students may complete all registration requirements during pre-registration. Payment dates for students who pay fees by cash or personal check will be announced during the pre-registration period. A student will not be officially enrolled until fees have been paid and a receipt has been issued by the Business Office. If tuition is being paid by an outside source, a student must still go to the Business Office on registration day or during the late registration period to get a receipt to be officially enrolled.

PRE-REGISTRATION AND SUSPENSION
Students who pre-register and are then suspended after grades for the quarter are submitted will be notified of a change of status as soon as possible, in most cases, before the next quarter's registration day.

REGISTRATION
Official Registration will be held (see Academic Calendar) at the beginning of each quarter. Payment of fees is required of all students at the time of official registration. If a student has not paid fees by the end of official registration (prior to the first day of classes), he/she will be administratively dropped. Former students who have not attended for four or more quarters must apply for re-admission prior to official registration. All new freshmen and transfer students
will be assigned advisors and counseled on their expected course of study. The minimum load for full-time attendance is twelve credit hours.

OFFICIAL ENROLLMENT
Credit will be granted only for courses in which the student is officially registered. Students who are officially registered for a class which they do not attend and do not officially drop or withdraw from will receive an "F" for the course. Students may be placed on the "hold list" for registration if any of the following applies:

1. Fees or other charges owed to the Business Office.
2. On academic suspension from previous attendance.
3. Financial Aid Program reimbursement due.
4. Failure to submit all required admission documents.
5. Overdue library books or materials
6. Traffic fines due
7. Previous disciplinary action taken by college. The proper action must be taken as indicated, or the Dean of Student Affairs should be contacted for further information before a student can be considered for re-admission.

PROCEDURES FOR ADDING, DROPPING, AND WITHDRAWAL
Adding a class: The last day to add classes, set by the academic calendar, is five school days after the last day of official registration.

Dropping or withdrawing from a course(s): Thirty calendar days are normally provided between official registration and the last day to drop or withdraw from courses as listed in the academic calendar. A grade of "W" will be recorded to reflect withdrawal from the course. The "W" grade indicates a drop processed after the last date to add a course.

SUMMARY OF PROCEDURES FOR ADDING, DROPPING, AND WITHDRAWAL

<table>
<thead>
<tr>
<th>Action</th>
<th>Time</th>
<th>Who Initiates</th>
<th>Approval Chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add Class</td>
<td>Through last day to add</td>
<td>Student</td>
<td>1. Advisor</td>
</tr>
<tr>
<td>Drop Class</td>
<td>Through last day to drop</td>
<td>Student</td>
<td></td>
</tr>
<tr>
<td>*Withdrawal</td>
<td>Through last day to drop</td>
<td>Student</td>
<td>1. Advisor</td>
</tr>
</tbody>
</table>

*Only if withdrawing from all courses.

ADMINISTRATIVE DROP
If a student has not paid fees by the end of official registration (prior to the first day of classes), he/she will be administratively dropped.
Requirements for an Associate Degree

The individual student is responsible for seeing that all requirements for graduation are met. Any exception to the requirements must be approved by the Dean of Academic Affairs. As a candidate for the Associate of Engineering Technology degree or Associate of Science degree, the student must satisfy the following requirements for graduation:

Minimum residence: The last 30 credits hours preceding graduation must be completed at the State Technical Institute at Knoxville.

Minimum credit hours: Each candidate must complete at least 90 credit hours to be eligible for the associate degree.

Minimum grade point average: A cumulative grade point average of at least 2.0 on all course work at State Tech is required for graduation.

Major studies: Completion of the curriculum for the major subject chosen is required for graduation.

Degree application: Each prospective candidate must file an Intent to Graduate Form during the quarter preceding the quarter in which he/she expects to graduate. Forms may be obtained in the Student Records Office.

Catalog option: The student must meet the requirements of (a) the current catalog or (b) the catalog effective at the time the student entered a program, provided graduation is within six years from the entrance date. Credits earned earlier than six years prior to graduation are subject to review and evaluation by the Dean of Academic Affairs. This option does not exempt anyone from the general requirements of State Tech. General requirements are subject to change without notice.

Commencement: All students are to participate in a formal graduation ceremony unless excused by the President of the Institute.

An annual commencement exercise is scheduled at the end of each Spring quarter for those certified as completing all requirements by their respective Department Chairperson during or before the spring quarter.

Other commencement exercises may be planned for completers who are certified after the summer or fall quarters, if there is a sufficient number of candidates to warrant a ceremony.
ACADEMIC STANDARDS

DEGREES AND CERTIFICATES AWARDED

Associate of Science (AS)
Associate of Engineering Technology (AET)
Certificate of Completion (Cert)

Associate Degree Programs

<table>
<thead>
<tr>
<th>Major</th>
<th>Option within major</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banking and Finance</td>
<td>AS</td>
<td></td>
</tr>
<tr>
<td>Business Data Processing</td>
<td>AS</td>
<td></td>
</tr>
<tr>
<td>Computer Accounting</td>
<td></td>
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<tr>
<td>Managerial Accounting</td>
<td>AS</td>
<td></td>
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<tr>
<td>Programming</td>
<td>AS</td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td>AS</td>
<td></td>
</tr>
<tr>
<td>Mid-Management</td>
<td>AS</td>
<td></td>
</tr>
<tr>
<td>Managerial</td>
<td>AS</td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
<td>AS</td>
<td></td>
</tr>
<tr>
<td>Engineering Technology</td>
<td></td>
<td></td>
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<tr>
<td>Chemical</td>
<td>AET</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td></td>
<td></td>
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<tr>
<td>Building Construction</td>
<td>AET</td>
<td></td>
</tr>
<tr>
<td>Civil-Structural</td>
<td>AET</td>
<td></td>
</tr>
<tr>
<td>Surveying</td>
<td>AET</td>
<td></td>
</tr>
<tr>
<td>Quality Control-</td>
<td></td>
<td></td>
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<tr>
<td>Non-destructive testing</td>
<td>AET</td>
<td></td>
</tr>
<tr>
<td>Electrical</td>
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<td></td>
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<tr>
<td>Electronic</td>
<td>AET</td>
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</tr>
<tr>
<td>Energy</td>
<td>AET</td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>AET</td>
<td></td>
</tr>
<tr>
<td>Robotics</td>
<td></td>
<td></td>
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<tr>
<td>Engineering Graphics</td>
<td>AS</td>
<td></td>
</tr>
<tr>
<td>Design/Drafting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Aided Design/</td>
<td>AS</td>
<td></td>
</tr>
<tr>
<td>Drafting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td>AET</td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Aided Manufacturing</td>
<td>AET</td>
<td></td>
</tr>
</tbody>
</table>

Certificates of Completion Programs

Business and Industrial Development Division
Photography                  Cert
Real Estate                   Cert
Insurance                    Cert
Land Surveying               Cert
Emergency Medical             Cert
Technology-Paramedic          Cert

General Grading Policy

Interpretation of Letter Grades: A grade will be earned in each course. The grade will report the student’s progress and achievement in the following:

A. Knowledge of the subject;
B. Ability to apply this knowledge; and
C. Work habits and practices.
Grades will be awarded on the four-point system as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent 4 per quarter hour</td>
</tr>
<tr>
<td>B</td>
<td>Above Average 3 per quarter hour</td>
</tr>
<tr>
<td>C</td>
<td>Average 2 per quarter hour</td>
</tr>
<tr>
<td>D</td>
<td>Below Average 1 per quarter hour</td>
</tr>
<tr>
<td>F</td>
<td>Failure 0 per quarter hour</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawal not computed</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete not computed</td>
</tr>
</tbody>
</table>

"I" reverts to an "F" if not completed by the end of the following quarter.

Audit: A student who enrolls in classes on a non-credit basis as an auditor, is expected to attend class but does not receive a grade.

A student can change from audit to credit or from credit to audit only during the period when it is possible to add a course. No changes are permitted after this time. The auditor must inform the Registrar the class is being taken as an audit.

Notes:
1. The only school-wide grading policy is that no final exam will count more than 50 percent of a student's final grade.
2. Grades of W, I, P, NP, and Au do not affect grade point average.

ACADEMIC HONORS AND AWARDS

The President will post, each quarter, a list of students attaining excellence in academic work. The President's Honor List will contain those students who completed 12 or more quarter hours whose GPA is 3.50 to 4.00.

The Dean's Honor List will likewise be posted and consist of those students who completed 12 or more quarter hours whose GPA is 3.00 to 3.49.

Students will be graduated with "Highest Honors" upon the attainment of a final cumulative grade point average of 3.5 or higher.

Students will be graduated with "Honors" upon the attainment of a final cumulative grade point average of 3.0 to 3.49.

Honors and Highest Honors will also be indicated on graduates' degrees.

The Valedictorian and Salutatorian awards for highest and second highest grade point averages will be presented twice a year—at the graduation reception in December and formal graduation ceremonies in June.

Policy on Incompletes: The grade of "I" does not count as hours attempted in determining the grade point average for the quarter the student receives the "I." Instead, the grade replacing the "I" is computed into the grade point average at the end of the subsequent quarter. A grade of "I" must be removed up by the end of the subsequent quarter or it reverts to an "F." The instructor, however, has the prerogative to limit the time allowed for completion to less than one quarter.

If a student receives a grade of "I" (incomplete) for a course and re-enrolls for the same course in the quarter immediately following the one in which she or he received the "I," the "I" reverts to an "F." However, if the student drops the course (second enrollment) on or before the last day to late register, the "I" grade will be reinstated. The student will have the remainder of the quarter to remove the "I" unless the instructor has set a date by which the course must be completed.
Students who receive grades of "I" are encouraged to complete these courses without re-enrolling in the same courses the following quarter.

REPETITION OF COURSES

Students are responsible for repeating courses failed. The most recent grade will be used for computing Grade Point Average. Courses may be repeated as often as the student feels necessary. In order that grade point averages may be adjusted appropriately, the student repeating a course must so indicate on his/her Trial Schedule.

Veterans or other eligible persons repeating courses for which they have a passing grade (D or higher) and for which they have been paid are cautioned not to claim this course for pay the second time.

GRADE REPORTS

Reporting of final grades: If a student's name appears on the final class list and the student has not been attending class, the student is still enrolled for the course and will receive a grade of "F."

STUDENT CLASS ABSENCES

Students are expected to attend all classes each time the class meets. When it becomes necessary for a student to be absent from a class, courtesy requires an explanation to the instructor in charge.

At the discretion of the instructor, excessive absences may affect the student's overall quarter grade.

Veterans are required to attend each class. Absences must be reported to the Veterans Affairs Office. VA educational benefits may be terminated for failure to comply with the institutional attendance policy.

PROBATION AND SUSPENSION

Academic Probation and Suspension will be based on the CUMULATIVE GRADE POINT AVERAGE as follows:

<table>
<thead>
<tr>
<th>Total Hours Attempted</th>
<th>Minimum Required G.P.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1—24.9</td>
<td>1.50</td>
</tr>
<tr>
<td>25—50.9</td>
<td>1.75</td>
</tr>
<tr>
<td>51—above</td>
<td>2.00</td>
</tr>
</tbody>
</table>

A student whose grade point average falls below the minimum acceptable level in any quarter will be placed on academic probation for the subsequent quarter of enrollment. During the probationary quarter the student must attain the minimum acceptable cumulative grade point average, or a 2.0 average for that quarter, or be placed on suspension. The first occurrence may subject the student to a one-quarter suspension. The second occurrence will subject the student to a one-year suspension.

Probation and suspension of student in special training courses shall be left to the discretion of the institution.

COLLEGE TRANSFER CREDIT

Upon receipt of all college transcripts, the Admissions and Records Office and the respective divisions will evaluate the courses taken. Transfer credit is awarded for those individual courses which are determined to be comparable to courses offered at the State Technical Institute at Knoxville, provided a grade of "C" or better was made in the course. No credit is awarded for transfer courses containing less than 75 percent of the credit hours associated with the State Tech equivalent of the same course. Transferred credit will not be computed in a student's GPA at State Tech.
Transfer credit completed more than six years prior to admission to State Tech must be approved by the Dean of Instruction.

WAIVERS, INDEPENDENT STUDY, AND CREDIT BY EXAMINATION

Waiver of a Prerequisite

Under special circumstances a prerequisite to a course may be waived by the head of the department in which the course is offered. The waiver is granted only when it is felt that the student has a fundamental knowledge of the prerequisite course, and his progress in the course requiring the prerequisite would not be impeded by by-passing the prerequisite course.

The waiver of prerequisite is not to be confused with a course waiver. If the prerequisite waived is a course required in the student's curriculum, it must be completed or substituted (as below) before he/she receives the associate degree. No fee is required for a waiver of a prerequisite.

Course Waiver and Substitution

Under special circumstances a course may be waived by the head of the department. The waiver is granted in instances where a course deletion or curriculum change necessitates the waiver. A course of equal or greater credit must be substituted and taken in lieu of any course waived. This stipulation in no way reduces the minimum quarter hours required for the associate degree. The substitute should be of the same or higher level as the course being waived. Primary consideration must be given to selecting a substitute course from the same department as the course waived.

No fee is required for a course waiver and substitution. A course waiver and substitution does not reduce the total credit hours or number of courses required for the associate degree. Likewise, no credit is awarded for a course waiver.

Independent Study

Registration for a course on an independent study basis, and subsequent granting of credit, may be accomplished for students who can prove to the satisfaction of the faculty of the Institute that they have the capability of mastering the content of any independent study course.

Permission to pursue a course on an independent study basis will be given only in instances where the student can demonstrate the ability to pursue the course through independent study and there is reasonable expectation that the course may be successfully completed. Permission to register for such a course must be granted by both the student's advisor and the course department head. The current maintenance fee per credit hour (non-refundable) must be paid to the Business Office for each course in which the student is enrolled on an independent basis; out-of-state and foreign national students must also pay the current tuition per credit hour (non-refundable). The total student maintenance fee and tuition cannot exceed the current published maximum for one quarter. Students are given up to six months from the date of fee payment to complete the course, including the examining process.

Examination(s) will be given by the instructor offering the independent study course as the student progresses through the assigned material. It will be the student's responsibility to meet with the instructor to arrange these examinations so that the course material is completed within the six-month period.

When a student passes an independent study course, the student is awarded full course credit.
A student must register for Independent Study by completing the special "Independent Study Application Form" at registration.

Credit by Examination

A student may challenge any course offered at State Tech on the basis of past experience or training. The student's application for Credit by Examination must be approved by the Department Head.

The examination criteria will be determined by the Department Head and may normally consist of a comprehensive written test and/or an oral test. A laboratory exam may be given when necessary.

Credit by Examination will be given on a pass-no pass basis only and will not be computed in the student's grade point average. A student may not attempt an examination for any course more than once.

A student must register for Credit by Examination and complete the necessary form.

A student may apply for Credit by Examination for no more than two courses per quarter at any given time. Credit by examination is counted as part of a student's load. The load of courses taken and courses in which one is seeking Credit by Examination may not exceed the maximum load which is allowed at any one time.

Credit by CLEP (College Level Examination Program)

Students who score at least 550 on the CLEP General Examination in either Composition or Freshman English may receive credit in certain English courses at State Tech:

a. EN 1051 or EN 1151. With scores of at least 550 or 55, students will be given 1 hour credit for either EN 1051 or EN 1151 with a grade of P.

b. EN 1050 or EN 1150. With scores of at least 500 or 55 or an examination that includes a writing sample, students will be given 3 hours credit for either EN 1050 or EN 1150 with a grade of P.

General Testing

Any or all students may be required to take one or more tests designed to measure general education achievement and achievement in major areas as a pre-requisite to graduation, for the purpose of evaluation of academic programs. Unless otherwise provided for any individual program, no minimum score or level of achievement is required for graduation. Participation in testing may be required of all students, of students in selected programs, and of students selected on a sample basis.

RECORD OF STUDENT WORK

Records of each student's grades are kept on file in the Admissions and Records Office. These records are permanent and are frequently referred to for the purpose of supplying information to legitimate sources. In all cases, obligations to the Institute must be fulfilled before a transcript will be issued.

CHANGE OF ADDRESS

Any change of address and phone number should be reported immediately to the Admissions and Records Office.
EDUCATIONAL RESOURCE CENTER

"Service is our most important product," says the advertising slogan of one company. It could also be the slogan of the Educational Resource Center (ERC) because the main reason for its existence is to serve the informational needs of the students and faculty at State Tech. In its collection of books, periodicals, microfilm, audio-visual equipment, and materials, the ERC supports the various State Tech curricula and provides recreational reading. Periodicals, an important part of the library's collection, contain the most up-to-date information for new applications and advances in the technologies. The library also has a typewriter available for student use.

Audio-visual equipment is available in the Media Center of the ERC. In the development of instructional materials, the Media Center works hand-in-hand with institutional personnel by advising and consulting them in the various techniques for presenting instructional materials. Audio-visual assistance is also available to students upon request.

BOOKSTORE

Located in the lobby at Lonas Hall, the bookstore is designed to serve the students, faculty, and staff. The essential textbooks and supplies for each course offered at State Tech can be purchased in the bookstore.

Books in the same condition as when purchased are returnable with the proper course withdrawal slip and the original sales receipt up to drop deadline of each quarter the book was purchased in. Supplies are non-returnable.

Graduating students must have caps and gowns purchased or ordered in the bookstore by March 1.

STUDENT AFFAIRS

State Technical Institute at Knoxville is aware that State Tech creates a new challenge for students. The Student Affairs Area at State Tech, responsible for assisting all students in meeting these challenges and providing the maximum development of each student, offers a number of services and activities to supplement the academic program. The Student Affairs Area coordinates the following services for students: admissions and orientation, recruiting, testing, counseling, financial aid (see page 11), veterans' assistance (see page 13), career planning and placement, records, insurance, activities, and matters involving student conduct. The department is staffed with full-time professional employees who are available to work with students in their areas of interest. The activities of the Area are coordinated by the Dean of Student Affairs.

Testing and Counseling

Testing, personal and career counseling, and personal effectiveness and career awareness workshops are available. The purpose of these services is to assure that the student receives maximum results from these educational opportunities.

The aim of counseling is to help students gain a better understanding of their capabilities and potentialities, and to bring about a better relationship with the world around them so that they may become all they are capable of being.

Admissions/Recruiting

A positive, continuing program to provide potential students with current information concerning State Tech is carried out by visits to all area high
schools. Contact is made with potential students through letters, posters, advertising in local media, and liaison with local industries and civic organizations.

Current students are recognized as valuable resources for recruiting new students and are encouraged to make their friends aware of the opportunities afforded by State Tech.

**Career Planning and Placement**

The Career Planning & Placement Program is designed to assist students and alumni in selecting and obtaining career positions. Counseling, career planning, and placement are emphasized in this Student Services program.

Students and alumni are assisted in both the career planning process and job search methods by means of individual counseling, placement credential service, Career Day, on-campus interviews, Career Resource Center, and workshops presented each quarter.

**The Cooperative Education Program**

STIK is committed to providing a workable career success ladder for its students. The unique contribution of STIK has been and will continue to be the development of high-quality, high-technical level, specialized programs to train personnel in the areas of Business and Engineering Technology, and to serve the technical training needs of business and industry.

In response to the increasing demand for experienced technicians, STIK has received a federal grant to develop a Cooperative Education (CE) program. This program will offer opportunities to students to develop job competencies appropriate to their major fields and to test career possibilities.

The CE program will incorporate a parallel work experience schedule, and students will be eligible to begin CE after 2 quarters (30 quarter hours minimum); a minimum 3.0 G.P.A. is required.

Interested students should contact their academic department head or the CE coordinator.

**Admissions and Records**

All past and current records on students at State Tech are maintained in the Admissions/Records Office. All requests for copies of information contained in a student’s folder are made directly to the Admissions/Records Office. In accordance with the Family Educational Rights and Privacy Act of 1974, also known as the Buckley Amendment, this institution provides eligible students or their parents with the opportunity to review the student’s education records and to seek correction of information contained in those records. Copies of college policy relating to information practices are obtained in the Admissions/Records Office.

**Student Insurance**

Since major care is occasionally needed on an emergency basis and on short notice, students are encouraged to consider the health and accident insurance policy issued by a private insurance company approved by State Tech. Details concerning this insurance are available in the Student Services Office or the Business Office.

**Student Activities**

There are several activities on campus for students. State Tech encourages extra-curricular activities which develop individual initiative, group leadership, and cooperation. Student organization and administration of student activities is a function of the Student Affairs Area.
Student Government Association

The purpose of the Student Government Association (SGA) is to promote and expand interest in student activities and to serve as an advisory group to both the administration of the school and the student body. The SGA is delegated authority to be responsible for certain specific matters affecting student affairs and represents student opinions in working with the administration toward the good of State Tech. The officers of SGA are the President, the Vice-President, Secretary, Treasurer, and Parliamentarian. Officers & SGA representatives from each curriculum area are elected during the last week of spring quarter and serve for one year. The Head of Student Services is the Student Affairs liaison, and the head or a designated representative must be present at all official meetings of the SGA.

Clubs

Honor, social, and professional clubs may be organized by the SGA. Organizations not chartered by the SGA will not be recognized as part of the Institute. Those chartered must have the following elected officers: president, vice-president, secretary, treasurer, club reporter, and the representative to the SGA.

The SGA will determine if sufficient interest exists to form or to continue such a club. Each club will have a faculty advisor.

Included among the clubs on campus are student chapters of the American Society of Certified Engineering Technicians (ASCET), the Data Processing Managers Association (DPMA), American Institute for Design Drafting (AIDD), Phi Theta Kappa National Honor Fraternity (PTK), All-Sports Club, Christian Student Association (CSA), the PSI Delta Chapter of Tau Alpha Pi National Honor Society, the “Technician” student newspaper, and a local chapter of Phi Beta Lambda. These clubs sponsor field trips to local businesses and industries and give students the opportunity to meet and talk with working technicians and business people.
INSTITUTION POLICY STATEMENT

Technical Institute students are citizens of the state, local, and national governments, and of the academic community, and are, therefore, expected to conduct themselves as law-abiding members of each community at all times. Admission to State Technical Institutes carries with it special privileges and imposes special responsibilities apart from those rights and duties enjoyed by non-students. In recognition of the special relationship that exists between the institution and the academic community which it seeks to serve, the State Board for Vocational Education has authorized the Presidents of the institutions under its jurisdiction to take such action, within these prescribed policies, as may be necessary to maintain campus conditions and preserve the integrity of the institution and its educational environment.

Pursuant to this authorization and in fulfillment of its duty to provide a secure and stimulating atmosphere in which individual and academic pursuits may flourish, the State Board for Vocational Education has developed the following relations which are intended to govern students and, where appropriate, employee conduct on the several campuses under its jurisdiction, and which regulations may be expanded or supplemented by each institution subject to Board approval. In addition, students are subject to all national, state, and local laws and ordinances. If a student’s violation of such laws or ordinances also adversely affects the institution’s pursuit of its educational objectives, the institutions may enforce their own regulations regardless of any proceedings instituted by other authorities. Conversely, violation of any section of these regulations may subject a student to disciplinary measures by the institution whether or not such conduct is simultaneously violative of state, local, or national laws.

DISCIPLINARY OFFENSES

A. Generally, through appropriate due process procedures, institutional disciplinary measures shall be imposed for conduct which adversely affects the institution’s pursuit of its educational objectives, which violates or shows a disregard for the rights of other members of the academic community, or which endangers property or persons on institution or institution-controlled property.

B. Individual or organizational misconduct which is subject to disciplinary sanction shall include but not be limited to the following examples:

1. Conduct dangerous to others. Any conduct which constitutes a serious danger to any person’s health, safety or personal well-being, including any physical abuse or immediate threat of abuse.

2. Hazing. Any act of hazing or any variety by an individual or group.

3. Disorderly conduct. Any individual or group behavior which is abusive, obscene, lewd, indecent, violent, excessively noisy, disorderly, or which unreasonably disturbs other groups or individuals.

4. Obstruction of or interference with institutional activities or facilities. Any intentional interference with or obstruction of any institutional activity, program, event, or facilities, including the following:

   A. Any unauthorized occupancy of institution or institutional controlled facilities or blockage of access to or from such facilities.

   B. Interference with the right of any institution member or other authorized person to gain access to any institution or institutional controlled activity, program, event or facilities.
C. Any obstruction or delay of a campus security officer, fireman, or any institution official in the performance of his/her duty.

5. **Misuse of or damage to property.** Any act of misuse, vandalism, malicious or unwarranted damage or destruction, defacing, disfiguring or unauthorized use of property belonging to the institution including, but not limited to, fire alarms, fire equipment, elevators, telephones, institution keys, library materials and/or safety devices; and any such act against a member of the institution community or a guest of the institution.

6. **Theft, misappropriation, or unauthorized sale.** Any act of theft, misappropriation, or unauthorized possession or sale of institution property or any such act against a member of the institution community or a guest of the institution.

7. **Misuse of documents or identification cards.** Any forgery, alteration of or unauthorized use of institution documents, forms, records or identification cards, including the giving of any false information, or withholding of necessary information, in connection with a student's admission, enrollment or status in the institution.

8. **Firearms and other dangerous weapons.** Any unauthorized or illegal possession of or use of firearms or dangerous weapons of any kind.

9. **Explosives, fireworks, and flammable materials.** The unauthorized possession, ignition, or detonation of any object or article which could cause damage by fire or other means to persons or property or possession of any substance which could be considered to be and used as fireworks.

10. **Alcoholic beverages.** The consumption or possession of alcoholic beverages.

11. **Drugs.** The unlawful possession or use of any drug or controlled substance (including any stimulant, depressant, narcotic, or hallucinogenic drug or substance, or marijuana), or sale or distribution of any such drug or controlled substance.

12. **Gambling.** Gambling in any form.

13. **Financial irresponsibility.** Failure to meet financial responsibilities to the institution promptly including, but not limited to, passing a worthless check or money order in payment to the institution or to a member of the institution community acting in an official capacity.

14. **Unacceptable conduct in hearings.** Any conduct at an institutional hearing involving contemptuous, disrespectful, or disorderly behavior, or the giving of false testimony or other evidence at any hearing.

15. **Failure to cooperate with institutional officials.** Failure to comply with directions of institutional officials acting in the performance of their duties.

16. **Violation of general rules and regulations.** Any violation of the general rules and regulations of the institution as published in an official institutional publication, including the intentional failure to perform any required action or the intentional performance of any prohibited action.

17. **Attempts and aiding and abetting the commission of offenses.** Any attempt to commit any of the foregoing offenses (an "attempt" to
commit an offense is defined as the intention to commit the offense coupled with the taking of some action toward its commission).

18. **Violations of state or federal laws.** Any violation of state or federal laws or regulations prescribing conduct or establishing offenses, which laws and regulations are incorporated herein by reference.

19. **Student Harassment.** Students who interfere in any way with the educational process of another student or violate a person’s constitutional rights are subject to disciplinary action under the student code of conduct.

20. **Smoking.** Smoking is not permitted in classrooms. However, it is allowed in other places on campus, provided appropriate receptacles are used in corridors and on the outside for disposal of wastes.

C. Disciplinary action may be taken against a student for violations of the foregoing regulations which occur on institutionally owned, leased, or otherwise controlled property, or which occur off campus when the conduct impairs, interferes with or obstructs any institutional activity or the missions, processes and functions of the institution. In addition, disciplinary action may be taken on the basis of any conduct, on or off campus, which poses a substantial threat to persons or property within the institutional community.

D. For the purposes of these regulations, a “student” shall mean any person who is registered for study in any State Technical Institute for any academic period. A person shall be considered a student during any period which follows the end of an academic period which the student has completed until the last day for registration for the next succeeding regular academic period, and during any period while the student is under suspension from the institution.

**ACADEMIC AND CLASSROOM MISCONDUCT**

A. The instructor has the primary responsibility for control over classroom behavior and maintenance of academic integrity, and can order the temporary removal or exclusion from the classroom of any student engaged in disruptive conduct or conduct violative of the general rules and regulations of the institution. Extended or permanent exclusion from the classroom or further disciplinary action can be effected only through appropriate procedures of the institution.

B. Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Students guilty of academic misconduct, either directly or indirectly through participation or assistance, are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions which may be imposed through the regular institutional procedures as a result of academic misconduct, the instructor has the authority to assign an F or a zero for the exercise or examination, or to assign an F in the course.

If the student believes that he or she has been erroneously accused of academic misconduct, and if his or her final grade has been lowered as a result, the student may appeal the case through the Academic Standards Committee, chaired by the Dean of Instruction.

**DISCIPLINARY SANCTIONS**

A. Upon a determination that a student or organization has violated any of the rules, regulations or disciplinary offenses set forth in the regulations, the
following disciplinary sanctions may be imposed, either singly or in combination, by the appropriate institution officials.

B. Definition of Sanctions

1. **Restitution.** A student who has committed an offense against property may be required to reimburse the institution or other owner for damage to or misappropriation of such property. Any such payment in restitution shall be limited to actual cost of repair or replacement.

2. **Warning.** The appropriate institutional official may notify the student that continuation or repetition of specified conduct may be cause for other disciplinary action.

3. **Reprimand.** A written reprimand, or censure, may be given any student or organization whose conduct violates any part of these regulations. Such a reprimand does not restrict the student in any way, but does have important consequences. It signifies to the student that he or she is, in effect being given another chance to conduct himself or herself as a proper member of the institutional community, but that any further violation may result in more serious penalties.

4. **Restriction.** A restriction upon a student’s or organization’s privileges for a period of time may be imposed. This restriction may include, for example, denial of the right to represent the institution in any way, denial of use of facilities, parking privileges, participation in extracurricular activities or restriction of organizational privileges.

5. **Probation.** Continued enrollment of a student on probation may be conditioned upon adherence to these regulations. Any student placed on probation will be notified of such in writing and will also be notified of the terms and length of the probation. Probation may include restrictions upon the extracurricular activities of a student. Any conduct in violation of these regulations while on probationary status may result in the imposition of a more serious disciplinary sanction.

6. **Suspension.** If a student is suspended, he or she is separated from the institution for a stated period of time with conditions of readmission stated in the notice of suspension.

7. **Expulsion.** Expulsion entails a permanent separation from the institution. The imposition of this sanction is a permanent bar to the student’s readmission to the institution.

8. **Interim or summary suspension.** Though as a general rule, the status of a student accused of violations of these regulations should not be altered until a final determination has been made in regard to the charges against him, summary suspension may be imposed upon a finding by the appropriate institutional official that the continued presence of the accused on campus constitutes an immediate threat to the physical safety and well-being of the accused, or of any other member of the institution community or its guest, destruction of property, or substantial disruption of classroom or other campus activities. In any case of immediate suspension, the student shall be given an opportunity at the time of the decision or immediately thereafter to contest the suspension, and if there are disputed issues of fact or cause and effect, the student shall be provided a hearing on the suspension as soon as possible.

C. The president of each institution is authorized, in his or her discretion, to subsequently convert any sanction imposed to a lesser sanction, or to rescind any previous sanction, in appropriate cases.
Due Process

The State Technical Institutes, in the implementation of Board approved policies and regulations pertaining to discipline and conduct of students, shall insure the constitutionally and legally sound procedures which provide for equal protection and due process of law. (See Student Handbook, "Technicalities")
BUSINESS TECHNOLOGIES DIVISION
Associate Degree Programs

BANKING AND FINANCE

As the price of money and the need for financial services have grown in the past decade, competition within the industry has brought about many changes in financial institutions. A need for better-educated bank personnel and for people trained for new jobs in public relations, bank marketing, and branch management has developed. The Banking and Finance Associate of Science Degree program is designed to meet that need.

Theories and principles of banking are taught at a conceptual level in the Bank Management and principles of Banking courses. Opportunities for skill development in communications, machine usage, accounting, and office operations are included. In all courses the latest developments in banking-related technology and regulations are used. One important overall objective is to instill a person-to-person approach to working in the banking community by providing practical education in supervision, personnel administration, human relations, and effective communications.

The curriculum provides a sound background for persons seeking a career in the banking industry. The American Institute for Banking (AIB) has assisted in developing this curriculum. The wide range of courses covers nearly every facet of banking and bank operation.

The Banking and Finance curriculum is an Associate of Science degree program with a wide range of educational offerings covering nearly every facet of banking and bank operation. A basic background in English is given to emphasize oral and written communication as it relates to banking. Mathematics is also directed specifically to needs of banking workers. Social studies is geared toward management, human relations, economics, law and psychology—all as they relate to the world of banking.

These basic courses are applied to more specific course content areas such as accounting, business finance, principles of banking, credit administration, marketing, federal reserve systems, and federal regulations.

TYPICAL POSITIONS OPEN TO BANKING AND FINANCE GRADUATES

Bank Public Relations
Marketing
Trust Services
Bank Operations
Correspondent Banking
Personnel Management
# BANKING AND FINANCE Curriculum

<table>
<thead>
<tr>
<th>HOURS PER WEEK</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Class</td>
<td>Lab</td>
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</table>

## FIRST QUARTER
- **EN 1150** Business Communications 3 0 3
- **EN 1151** Business Communications Lab 0 3 1
- **MA 1405** Elementary Algebra for Business Technologies 4 0 4
  - or
  - **MA 141** Business Equations 4 0 4
- **DP 101** Introduction to Data Processing 3 0 3
- **BU 121** Accounting I 3 3 4
  - Banking Elective 3 0 3
- **BU 122** Accounting II 3
- **BU 123** Accounting III 3 3 4
- **BU 124** Banking Elective(s) 3 0 3
- **DP 1010** Data Processing Environment 2 3 3

## SECOND QUARTER
- **EN 121** Oral Communications 3 0 3
- **MA 141** Business Equations 4 0 4
  - or
  - **MA 142** Linear Systems 4 0 4
- **BU 122** Accounting II 3 3 4
- **BU 123** Banking Elective(s) 3 0 3
- **BU 124** Banking Elective(s) 3 0 3
- **DP 1200** Data Processing Techniques 3 3 4

*May be taken second quarter, if desired*

## THIRD QUARTER
- **EN 116** Business Report Writing 3 0 3
- **MA 142** Linear Systems (if not completed 2nd quarter) 4 0 4
- **BU 122** Accounting II 3 3 4
- **BU 123** Banking Elective(s) 3 0 3
- **BU 124** Banking Elective(s) 3 0 3

## FOURTH QUARTER
- **SC 101** Human Relations 3 0 3
  - or
  - **SC 102** Applied Psychology 3 0 3
  - **DP 1200** Data Processing Techniques 3 3 4
  - **DP 120** Basic Programming 3 3 4
- **BU 216** Business Finance 3
- **BU 217** Banking Elective 3
- **BU 218** Banking Elective 3
- **BU 219** Banking Elective 3

## FIFTH QUARTER
- **EC 101** Economics I 3 0 3
- **BU 216** Business Finance 3 0 3
- **IM 201** Principles of Management 4 0 4
  - Banking Elective 3 0 3
  - Banking Elective 3

**Total Hours**: 10-13 3 11-14

**Total Hours**: 10 0-3 10-11

**Total Hours**: 15 6 17

**Total Hours**: 18 6 20

**Total Hours**: 16 0 16
**SIXTH QUARTER**

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</table>

**Students who do not desire more extensive computer skills may elect to substitute IM 236, Information Systems for Management. If so, IM 201, Principles of Management, should be taken fourth quarter, +IM 236, Fifth.**

**BANKING ELECTIVES**

The American Institute of Banking, Knoxville Chapter has contracted with State Technical Institute-Knoxville to offer the following courses. Students must be a member of AIB to be guaranteed a place in these courses. Others will be admitted on a "space available" basis only.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>BK 100</td>
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<tr>
<td>BK 1062</td>
<td>Principles of Banking</td>
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</tr>
<tr>
<td>BK 1202</td>
<td>Marketing for Bankers</td>
<td>3 0 3</td>
</tr>
<tr>
<td>BK 1312</td>
<td>Installment Credit</td>
<td>3 0 3</td>
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<tr>
<td>BK 2012</td>
<td>Analyzing Financial Statements</td>
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</tr>
<tr>
<td>BK 2022</td>
<td>Intro to Commercial Lending</td>
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</tr>
<tr>
<td>BK 2032</td>
<td>Money and Banking</td>
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<td>BK 2042</td>
<td>Law and Banking</td>
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<td>BK 2051</td>
<td>Trust Function in Banking</td>
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<td>BK 2132</td>
<td>Bank Management</td>
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<tr>
<td>BK 2212</td>
<td>Branch Bank Management</td>
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<tr>
<td>BK 2232</td>
<td>Bank Supervisory Training</td>
<td>3 0 3</td>
</tr>
<tr>
<td>BK 2242</td>
<td>Savings and Time Deposits</td>
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A minimum of twelve (12) Banking Elective courses must be taken. There is no maximum.

**BANKING AND FINANCE**

**Course Requirements**

<table>
<thead>
<tr>
<th>ACCOUNTING</th>
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**Total Credit Hours: 36-38**

Business Technology Division 35
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<td>DP 1000</td>
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<td>DP 120</td>
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</tbody>
</table>

*As noted in the quarter schedule, those students who do not desire more extensive computer skills may elect to take IM 236, Information Systems for Management. If so, IM 201 must be taken before IM 236.

***98 Credit hours are required for graduation. Students without adequate hours may take any business course to make up this deficiency. It is strongly advised that MA 143, Business Statistics, be selected.
Business Data Processing

With the continuing emphasis on computer usage in all phases of business and science, the role of the computer programmer is gaining in importance. The college strives to teach students to become competent computer programmers, preparing them for rewarding careers in data processing.

As the curriculum name implies, emphasis is placed on business applications of computer programming. Considerable course time is spent learning the computer languages most applicable to business environments. Students also are taught basic business fundamentals in order to understand better the underlying problems of business data processing. These business courses, together with foundation courses in English, mathematics, and statistics, will enable the student to communicate effectively with others in a data processing environment.

A computer program is usually developed via a three-part procedure: careful evaluation of the problem, analysis of alternate solutions, and a final implementation. Therefore, analytical tools are introduced to students to aid in this procedure. With these tools the student can assist in the design and development of an automated system.

Students completing the course outlined in the data processing curriculum can expect to find careers in diversified areas such as manufacturing enterprises, accounting firms, hospitals, government installations, universities, and many other public and private concerns. The well-trained data processing technician has a wide horizon of job opportunities.

TYPICAL POSITIONS OPEN TO DATA PROCESSING TECHNICIANS

Applications programmer — is employed by a computer user and converts a problem into a set of directions for a computer to solve.

Systems representative — is usually employed by a computer manufacturer and provides customer programming support and normally travels from installation to installation.

Systems programmer — is normally employed by a computer user and is responsible for maintaining programs supplied by the manufacturer which are an essential part of the computer’s operational environment.
## BUSINESS DATA PROCESSING
### Curriculum

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# BUSINESS DATA PROCESSING
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**TOTAL 104**
Computer Accounting Technology

A graduate in computer accounting technology is a technical assistant to both the accounting department and the data processing department and, as such, must be capable of speaking the language of the accountant and of the computer technician.

Specifically, the computer accounting technician acts as a liaison between the two departments by transposing information collected by the accounting department into a viable language understood by the data processing personnel. By interacting with these departments, the computer accounting technician can facilitate the collection of raw data into financial statements that may be used by the accountant and/or management in the decision-making process. By using the computer, technicians not only perform computations usually done by bookkeepers or junior accountants (thereby reducing costs of personnel) but, more importantly, can perform them much faster. This function has a two-fold effect on the business. First, the technician is free to perform more important duties such as the collection of raw data. Secondly, the data upon which management bases its decisions is more current.

With computers becoming more accessible to companies which have regional or local markets, the demand for competent technicians will increase appreciably. As a result of this growth potential, graduates who possess the necessary skills to fill positions as computer technicians will find new and exciting job opportunities limited only by their own creativity.

The Managerial Accounting Specialization is designed to provide the student with a firm base in accounting principles and fundamentals of management. Typical course work areas include accounting, accounting theory and practice, cost accounting, taxation, finance, personnel management, labor relations, business law, and supervisory development.

TYPICAL ENTRY LEVEL POSITIONS OPEN TO COMPUTER ACCOUNTING TECHNICIANS

Accounting technician - assists the chief accountant in the implementation of data collection methods to utilize better the advantage of the data processing department.

Programmer - assists the data processing department in converting the data collected by the accounting department into a language acceptable to the computer.

Analyst trainee - assists the data processing department in retrieving and compiling data stored in the computer into financial statements understood and usable by the accounting department.

MANAGERIAL ACCOUNTING SPECIALIZATION

Management trainee - entry level position in the accounting department. This technician has skills to perform duties in general accounting or cost accounting and related areas of activity which require an understanding of accounting principles.
## COMPUTER ACCOUNTING TECHNOLOGY

### Curriculum

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## MANAGERIAL ACCOUNTING SPECIALIZATION

### Curriculum

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*Must be selected from accounting courses. Subject to approval by department head.*
PROGRAMMING SPECIALIZATION
Curriculum

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BU 2211 Intermediate Accounting I  
IM 201 or IM 2311  
DP 131 COBOL Programming

BU 222 Intermediate Accounting II  
BU 231 Cost Accounting  
DP 232 COBOL II  
DP 2210 Systems Design and Development

FIFTH QUARTER
BU 203 Taxation  
BU 222 Intermediate Accounting II  
BU 231 Cost Accounting  
DP 232 COBOL II  
DP 2210 Systems Design and Development

SIXTH QUARTER
*BU Accounting Elective(s)  
IM 123 Business Law  
EC 101 Principles of Economics I  
BU 216 Introduction to Finance

TOTAL

HOURS PER WEEK
Credit
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3 0 3
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16 0 16
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*Must be selected from accounting courses. Subject to approval by department head.

COMPUTER ACCOUNTING
Course Requirements

ACCOUNTING
BU 121 Principles of Accounting I  4
BU 122 Principles of Accounting II  4
BU 123 Principles of Accounting III  3
BU 203 Income Taxation  4
BU 2211 Intermediate Accounting I  4
BU 222 Intermediate Accounting II  3
BU 231 Cost Accounting I  3
*BU Accounting Elective  6
31

BUSINESS
BU 216 Business Finance  3

DATA PROCESSING
DP 1000 Data Processing Techniques  4
DP 101 Introduction to Data Processing  3
DP 1050 Data Processing Environment  3
DP 120 BASIC  4
DP 121 Computer Programming RPG II  4
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ECONOMICS
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**Management:**

**Math:**

**Programming Specialization**

**Course Requirements**

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**Social Science:**

**Course Requirements**

- Business Communications: 3 credit hours
- Business Communications Lab: 1 credit hour
- Business Report Writing: 3 credit hours
- Oral Communication: 3 credit hours
- Business Law: 4 credit hours
- Linear Algebra: 4 credit hours
- Finite Mathematics: 4 credit hours
- Business Mathematics I: 4 credit hours
- Systems Design and Development: 3 credit hours
- Computer Programming - COBOL: 5 credit hours
- Computer Programming - COBOL - Advanced: 4 credit hours
- Personnel Management: 5 credit hours
- Principles of Management: 4 credit hours
- Labor Relations: 4 credit hours
- Supervisory Development I: 3 credit hours
- Supervisory Development II: 3 credit hours
- Applied Psychology: 3 credit hours

Total Credit Hours: 81
Marketing Technology

The Marketing Technology Curriculum is designed to provide the skills graduates need to enter careers in retailing, wholesaling, sales and small business management. Courses in BASIC MARKETING, ADVERTISING, SALESMAINSHP AND SMALL BUSINESS MANAGEMENT as well as core courses needed by all business persons—ACCOUNTING, ECONOMICS, MANAGEMENT, TECHNICAL REPORT WRITING—help the marketing technician develop requisite skills necessary to enter the dynamic world of marketing. A recent addition to the workplace - MICRO-COMPUTER TECHNOLOGY - has dramatically impacted the way marketing tasks are accomplished. To address the marketing technician's need for computer skills, one option in the curriculum now includes one full year (four courses) of data processing courses for those students who plan to pursue careers with heavy emphasis. Upon completion of these four courses, the marketing technician should have an understanding of the use of computers in business applications and have the ability to program a computer using BASIC. This skill will be applied in upper division marketing courses, reflecting the department's emphasis on applications oriented skill acquisition.

The MARKETING MANAGEMENT OPTION puts more emphasis on people skills, and is suggested for those students whose career goals include retail and sales management. PERSONNEL MANAGEMENT and SUPERVISORY DEVELOPMENT courses compliment the basic Marketing curriculum, giving future marketing managers additional insight into the people side of management.

The success and development of marketing graduates is limited only by their own initiative and ability to use the skills learned.

TYPICAL POSITIONS OPEN TO MARKETING TECHNICIANS

Sales representative — acts as the company's agent in contacting potential customers, presents the product to that customer, promotes the sale, and finally uses the tools of marketing to satisfy the customer's expectations.

Assistant buyer — assists buyers in many of the tasks associated with the buying function, placement of orders, inventory control, working with sales and resource personnel, and tracking of merchandise.

Manager or manager trainee — accepts the responsibilities of "being in charge" of the operation. There are many levels of management which are available to the marketing technician, and attainment of promotion is limited only to the trainee's abilities and efforts.

Inventory control clerk — has responsibilities for the regulation of incoming and outgoing merchandise inventory and other materials used in the business. Also responsible for maintaining quantity and price levels of stock.

Advertising media sales representative — may represent an ad agency, magazine or newspaper publishing company, radio or television station, or outdoor advertising company in planning, pricing and scheduling advertising for businesses.

Entrepreneur — the marketer who starts and manages his/her own business finds that all the skills learned in the Associate Degree program are quite useful. From determining if a particular business is viable to actually operationalizing the venture, the entrepreneur uses MARKETING, ACCOUNTING & MANAGEMENT SKILLS to their utmost.
**MARKETING TECHNOLOGY**  
**Curriculum**

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This specialization is designed to meet the needs of students interested in Marketing Management. More emphasis is placed on supervisory skills.
Marketing Information Systems Emphasis

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*Students with adequate Algebra background may elect to begin their math sequence with MA 141.

This specialization is designed to prepare students to utilize MICRO and MINI Computers in their marketing careers. It is highly recommended for those students interested in inventory control.
### Marketing Technology Course Requirements

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Students may select any business technology course to satisfy this requirement, or may elect to take AV III (Still Photography I) or RE 102 (Principles of Real Estate). A minimum of one 3-hour course is required. No upper limit is set.

* Marketing Information Emphasis only
** Marketing Management Emphasis only
*** If needed
Mid-Management Technology

Management for small organizations and for the lower and middle levels of larger organizations is a relatively new concept. In these positions management theories and principles find practical application. Managers are needed in a wide variety of organizations including education, health care, service, retail, government, and manufacturing.

Basic understanding of theory and principle is essential, but the emphasis in mid-management is on practical applications for small businesses and the lower levels of larger businesses. Management is exciting and challenging, and the courses include case studies and problems to give students the feel of real situations.

Experience is the best teacher in mid-management as in most other fields. But systematic study of the techniques and tools used in management is basic to experience learning. Familiarity with the methods developed and used in all kinds of organizations is the key to becoming a part of the management system. On-the-job experience meeting demands, making decisions, executing plans, devising strategies, then becomes an effective and rapid means to accomplishment and success.

Some of the specific topics covered in the mid-management courses are: leadership, supervision, group dynamics, communications, union relations, organizational change, planning, controlling, and motivation. These are all people-oriented activities. Topics dealing with money (economics, finance, costs), materials (handling, transportation, quality control), and machines (plant layout, time and motion study) are given an important place in the curriculum.

The two-year Management Associate of Science degree is directed toward students who wish to develop or improve their supervisory skills. be especially interesting and helpful to mature students who are continuing their education on a part-time basis.

TYPICAL POSITIONS OPEN TO MID-MANAGEMENT GRADUATES

Personnel Management
Office Supervision
Counselor
Management of a Small Business
Retail Management
Manufacturing
Foreman
Production Planning and Control
Materials Handling
Plant Layout
Production Planner
### MID-MANAGEMENT TECHNOLOGY Curriculum

#### First Year Curriculum (All Students)

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### INDUSTRIAL SPECIALIZATION Curriculum

#### Second Year Curriculum

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TOTAL 9342-51 108-110
### MANAGERIAL SPECIALIZATION

#### Curriculum
Second Year Curriculum

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### MID-MANAGEMENT TECHNOLOGY

#### Course Requirements

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<td>MT 100 Marketing</td>
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<td>Personnel Management</td>
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<td>Wage and Salary Administration</td>
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<td>Introduction to Labor</td>
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<td>IM 231</td>
<td>Supervisory Development I</td>
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<td>IM 233</td>
<td>Research Project</td>
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**MATH**

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**MECHANICAL ENGINEERING TECHNOLOGY**

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**INDUSTRIAL SPECIALIZATION**

**Course Requirements**

**DRAFTING**

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**MID-MANAGEMENT**

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<tr>
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<td>Motion and Time Study</td>
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<tr>
<td>IM 221</td>
<td>Plant Layout and Materials Handling</td>
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<td>IM 222</td>
<td>Statistical Quality Control</td>
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<td>Engineering and Economic Analysis</td>
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<td>Methods and Time Measurement</td>
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<td>IM 232</td>
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**MANAGERIAL SPECIALIZATION**

**Course Requirements**

**BUSINESS**

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**MID-MANAGEMENT**

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<td>Supervisory Development II</td>
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<td>IM 238</td>
<td>Labor Relations</td>
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<td>IM 239</td>
<td>Job Analysis and Evaluation</td>
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BUSINESS TECHNOLOGIES DIVISION

Course Descriptions

BANKING AND FINANCE

BK 101 Principles of Bank Operations
4 Credits
4 Class Hours
The fundamentals of bank functions are presented in a descriptive fashion so that the beginning student may view the banking profession in a broad and operational perspective. The descriptive orientation is intentional. Banking is increasingly dependent upon personnel who have the broad perspective so necessary for career advancement.

BK 106 Principles of Banking
4.5 Credits
4.5 Class Hours
Touches on nearly every aspect of bank functions including the language and documents of banking, check processing, teller function, trust services, bookkeeping, loans and investments.

BK 110 Economics
4.5 Credits
4.5 Class Hours
Emphasis is placed on theory and issues, and covers both micro- and macroeconomics and devotes considerable time to current developments in national and international arenas.

BK 121 Credit Administration
4 Credits
4 Class Hours
This course, directed toward the executive level, concerns itself with a statement and a discussion of factors influencing and determining loan policy. Methods of credit investigation and analysis, credit problems, and regular as well as unusual types of loans are discussed.

BK 122 Accounting
4.5 Credits
4.5 Class Hours
Presents more advanced concepts and techniques including departmentalized accounting, the partnership accounting cycle, branch and home office accounting, corporation accounting, budgeting, reporting, and statement analysis. A final view of data processing completes this course.

BK 131 Installment Credit
4 Credits
4 Class Hours
In this course, the techniques of installment lending are presented concisely. Emphasis is placed on establishing the credit, obtaining and checking information, servicing the loan, and collecting the amounts due. Each phase of a bank's installment credit operation is carefully scrutinized. Other topics discussed are inventory financing, special loan programs, business development and advertising, and the public relations aspect of installment lending.

BK 200 Practicing Management Theory
4 Credits
4 Class Hours
This course integrates the basic functions of management-planning, organizing, directing, and controlling — with new insights from the behavioral sciences. The establishment of objectives and the implementation of strategies and policies to accomplish these objectives will be studied. This course may be substituted for any of the Banking courses except BK 101 and BK 111.

Prerequisite: Second Year Student or Permission of Department Head
BK 201 Management of Commercial Bank Funds
4 Credits        4 Class Hours
This course deals with those necessary principles from which the student can
derive an adequate philosophy of funds management. Differences between
practices in large banks and smaller institutions are discussed. The importance
of funds management as the catalyst that brings together policies in the areas of
loans, deposits, investments, capital, and their interrelationship is stressed.
Prerequisite: BK 101

BK 203 Money and Banking
4 Credits        4 Class Hours
This course stresses the practical aspects of money and banking and empha­sizes the basic monetary theory needed by the banking student to apply
knowledge to a particular job. Historical treatment has been kept to a mini­mum. Emphasis is placed on such problems as economic stabilization, types of
spending, the role of gold, limitations of central bank control, government fiscal policy, balance of payments, and foreign exchange, showing their repercussions
on the banking industry in affecting yield curves and the structuring of portfolios.

BK 204 Law and Banking
4.5 Credits       4.5 Class Hours
An introduction to basic American law, Law and Banking presents the rules of
law which underlie banking. Topics covered include jurisprudence, the court
system, contracts, property, crimes, and agency. The text concentrates on the
Uniform Commercial Code in its coverage of sale of personal property, commer­cial paper, bank deposits and collections, documents of title, and secured
transactions.

BK 211 Trust Functions and Services
4 Credits        4 Class Hours
This course presents a complete picture of the services and duties of institutions
engaged in trust business. This introductory course is intended for any student,
not only those who expect to be engaged in trust operations. It endeavors to
keep clear the distinction between the business and legal aspects of trust
functions.
Prerequisite: BK 101

BK 221 Bank Management
4 Credits        4 Class Hours
New trends which have emerged in the philosophy and practice of management
are presented. The study and application of these concepts will provide new
and experienced bankers with a working knowledge of bank management. Case
studies will be used to integrate course material.
Prerequisite: BK 101

BK 231 Federal Reserve System
4 Credits        4 Class Hours
The operations and policies of the Federal Reserve are examined during critical
periods over the past 60 years. The approach taken is topical rather than chrono­logical, thereby enabling students to compare and contrast Federal
Reserve policies dealing with similar problems at different periods of time.
Attention is given to international monetary affairs and economic developments
affecting the American fiscal system.
Prerequisite: BK 203
BK 241 Federal Regulations of Banking
4 Credits 4 Class Hours
This course provides a comprehensive treatment of the "why" and "what" of federal banking regulations. It will provide an understanding of the federal regulatory system and the industry's relationship to the Federal government.
Prerequisite: BK 203

BUSINESS

BU 121 Principles of Accounting I
4 Credits 3 Class Hours, 3 Lab Hours
A course which includes basic principles of accounting theory and practice, analysis and recording of business transactions, business documents, books and controlling accounts, adjusting and closing entries and payroll accounting.
Co-requisite: MA 141

BU 122 Principles of Accounting II
4 Credits 3 Class Hours, 3 Lab Hours
A course which includes merchandise inventory, deferrals and accruals, fixed assets, systems and controls, and partnership and corporate accounting.
Prerequisite: BU 121

BU 123 Principles of Accounting III
4 Credits 3 Class Hours, 3 Lab Hours
A course which includes cost accounting systems, budgetary control and standard costing, cost and revenue relationship for management, management reports and special analyses, funds statement, and cash flow and financial statement analysis.
Prerequisite: BU 122

BU 202 Accounting Systems
3 Credits 3 Class Hours
A study of the integration of information systems concepts with the basic accounting process, including an in-depth analysis of these processes in various computer environments.
Prerequisite: BU 123
DP 121, DP 221

BU 203 Income Taxation
3 Credits 3 Class Hours
A course which integrates the principles of accounting and law into the understanding of income taxation.
Prerequisite: BU 123

BU 204 Advanced Taxation
3 Credits 3 Class Hours
Further study of corporate income taxes and partnership taxation, excise taxes, estate taxes.
Prerequisite: BU 203

BU 205 Auditing
3 Credits 3 Class Hours
A course which incorporates extensive material on accounting systems and discusses computer applications as a part of the auditing process.
Prerequisite: BU 222
**BU 209 Managerial Accounting**  
3 Credits 3 Class Hours  
Designed to aid students who expect to become managers; provides information concerning the meaning of the accounting figures, terms and techniques of analysis; provides application of technique in making general decisions and judging performance.

**BU 211 Payroll Procedures**  
3 Credits 3 Class Hours  
This course teaches procedures followed in handling the payroll. These will include working with time cards, payroll records, payroll deductions, employee earning records, paying employees, and accounting for payroll funds.

**BU 216 Introduction to Finance**  
3 Credits 3 Class Hours  
The subject matter surveys the whole field of finance, both public and private.  
Prerequisite: BU 122, MA 141

**BU 217 Finance II**  
3 Credits 3 Class Hours  
A continuation of BU 216 to include capital markets, company valuation, merger, reorganization, and liquidation.  
Prerequisite: BU 216

**BU 2211 Intermediate Accounting I**  
3 Credits 4 Class Hours  
A study of accounting records, end-of-period procedure, net income concepts, corrections of prior periods, and the capital structure of a business.  
Prerequisite: BU 123

**BU 222 Intermediate Accounting II**  
3 Credits 3 Class Hours  
This course covers such topics as investments, plant and equipment, intangible assets, long-term liabilities, and paid-in capital.

**BU 223 Intermediate Accounting**  
3 Credits 3 Class Hours  
A study of corporation accounting, time value of money, and analysis of financial statements.  
Prerequisite: BU 222

**BU 231 Cost Accounting I**  
3 Credits 3 Class Hours  
A study of the fundamentals of cost accounting within an industrial organization. The accounting functions relative to materials, labor, overhead and marketing are treated in detail.  
Prerequisite: BU 123

**BU 232 Cost Accounting II**  
3 Credits 3 Class Hours, 3 Lab Hours  
A continuation of Cost Accounting I (BU 231) in which process and standard cost systems are developed in detail with emphasis directed toward the budgeting and managerial control functions.  
Prerequisite: BU 231
BU 235 Advanced Cost Accounting
3 Credits 3 Class Hours
Continuation of first two courses in Cost Accounting. Using cost information in decision-making by management; cost analysis.
Prerequisite: BU 231-2

BU 241 Not-for-Profit Accounting
3 Credits 3 Class Hours
A study of fund accounting and of methods used in accounting by governments, hospitals, and other nonprofit organizations.
Prerequisite: BU 123

BU 251 Internal Auditing
3 Credits 3 Class Hours
Methods and procedures employed by in-house auditor and preparation of reports are analyzed for top management.
Prerequisite: Permission of department.

BU 261 Practical Application of Accounting
3 Class Hours
Application of theory to actual practice in simulated work situations. Practice in recording, processing, summarizing financial information.

BU 263 Internship
1-4 Credits
Actual work experience in industry or business. One credit for each sixty hours worked with maximum of 4 credits.
Prerequisite: BU 123 and permission of department head.

DATA PROCESSING

DP 1000 Data Processing Techniques
4 Credits 4 Class Hours, 0 Lab Hours
This course introduces students to the computing environment of State Tech while covering the use of certain invaluable data processing "tools": flow-charting, and structured or modular programming techniques.
Co-requisite: MA 141

DP 101 Introduction to Data Processing
3 Credits 3 Class Hours
Fundamentals of data processing vocabulary, basic description of hardware and its uses, a history of hardware development, and a survey of the functions of software. Attention is given to business data processing applications.

DP 1050 Data Processing Environment
3 Credits 2 Class Hours, 3 Lab Hours
A closer look at the DEC operating system. Utility programs, binary, octal, and hexadecimal arithmetic, DCL commands, editors, libraries, and other selected topics will also be covered.

DP 111 Assembler Programming
4 Credits 3 Class Hours, 3 Lab Hours
The study and development of a manufacturer's assembly language. The student will write and debug programs in an ASSEMBLER language and also be capable of employing this language in a total programming system. The principles of debugging and core-dump reading will be given major emphasis.
Prerequisite: DP 120
DP 112 Advanced Assembler Programming
4 Credits 3 Class Hours, 3 Lab Hours
Continuing study of ASSEMBLER language with emphasis placed upon applications to systems programming. Topics covered include subroutine linkage, organization and access methods of sequential and indexed sequential files.
Prerequisite: DP 111

DP 120 Basic Programming
4 Credits 3 Class Hours, 3 Lab Hours
BASIC is chosen as the first computing language because it is so easy to learn. The full range of BASIC statements will be explored including those used for various file structures, and file handling techniques.
Prerequisite: DP 1050

DP 1210 RPG Programming
4 Credits 3 Class Hours, 3 Lab Hours
The study and development of programming capabilities in the business computer language Report Program Generator II (RPG II). Includes program logic, coding techniques, documentation, tape and disk file handling concepts, tables and arrays, advantages and disadvantages of RPG as a high-level language in small and medium scale installations.
Prerequisite: DP 120

DP 131 COBOL Programming I
5 Credits 4 Class Hours, 3 Lab Hours
Experience in using programming techniques with a high level language. Students will be required to program, debug, and test specified business oriented problems using COBOL.
Prerequisite: DP 120

DP 201 FORTRAN Programming
4 Credits 3 Class Hours, 3 Lab Hours
The study and development of the business applications of Fortran IV, including input-output formatting, loop control, arithmetic statements, arrays, tables, and subprograms.
Prerequisite: DP 111

DP 213 Data Communication
3 Credits 3 Class Hours
An introduction to the hardware and software systems which support today's on-line real-time business systems. Time-sharing, multi-programming, and multiprocessing systems are investigated as they relate to data communications systems.
Prerequisite: DP 111
Suggest: DP 112

DP 221 Systems Design and Development
3 Credits 3 Class Hours
A study of the overall computer based systems analysis and design process, information problems of business organization and the interrelationship of functions, nature of business problem isolation and definition, and initial phase of systems analysis and evaluation.
Prerequisite: DP 111 or DP 131
DP 224 File Management Concepts
4 Credits 3 Class Hours, 3 Lab Hours
A survey of data base concepts, file structure, file handling, DEC's Record Management Service (RMS) data dictionaries, and other selected topics.
Prerequisite: DP 131
Co-requisite DP 232

DP 226 Advanced Operating Systems
3 Credits 3 Class Hours
An overview of the different operating systems of different manufacturers. An introduction to the different components of an operating system such as job control, compilers, assemblers, supervisors, utilities and libraries.
Prerequisite: DP 111

DP 232 COBOL Programming II
4 Credits 3 Class Hours, 3 Lab Hours
A course which introduces advanced programming techniques using the COBOL language. Students will be expected to use disk files and random access techniques to solve programming problems.
Prerequisite: DP 131

DP 234 Advanced Programming Applications
8 Credits 3 Class Hours, 15 Lab Hours
This course is designed to afford students practical work experience. The requirements include: approval of work situation by data processing department chairperson, satisfactory work experience as reported by cooperating supervisor and completion of prescribed programming or systems application related to commercial data processing.
Prerequisites: Completion of all course work through fifth quarter and departmental approval.

ECONOMICS

EC 101 Principles of Economics
3 Credits 3 Class Hours
A course which includes a presentation of basic economic concepts including types of business organization, supply and demand determination, market structure classification, profit maximization, and microeconomic role in government.

EC 102 Managerial Economics
3 Credits 3 Class Hours
This course is designed to review the importance of economics to management. Specific issues of product liability, minimum wage, unions, the political business cycle, and their effects on the corporation are studied. Also covered are general economic techniques for forecasting and decision making.

MID-MANAGEMENT

IM 1000 Introductory Drawing for Industrial Management Technology
2 Credits 6 Class Hours
An elementary course in drawing designed to provide the student with the fundamentals of drawing and print reading required to communicate effectively in industry and business.

IM 124 Business Law
4 Credits 4 Class Hours
Principles of law as applied to business transactions, including contracts, employment, negotiable instruments, and personal property.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Class Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM 125</td>
<td>Business Law II</td>
<td>3</td>
<td>3</td>
<td>Principles of law as applied to business transactions, including bailments, transportation, sales, insurance, suretyship and guaranty, and partnership. Prerequisite: IM 124</td>
</tr>
<tr>
<td>IM 131</td>
<td>Methods Analysis</td>
<td>3</td>
<td>3</td>
<td>The application of the “questioning attitude” is studied in search for better manufacturing methods and job procedures.</td>
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<tr>
<td>IM 132</td>
<td>Personnel Management</td>
<td>5</td>
<td>5</td>
<td>The course is designed to prove an understanding of the basic functions of management used to build and work with an effective and satisfied group of people. Attention is focused on the scope, guiding principles, and background of personnel management.</td>
</tr>
<tr>
<td>IM 201</td>
<td>Principles of Management</td>
<td>4</td>
<td>4</td>
<td>This course undertakes the study of management by analyzing the basic managerial functions and relating these to the manager’s total environment. Differing management theories are researched along with the total organization and its role in present society. Management is approached through a component breakdown with each area being researched in detail.</td>
</tr>
<tr>
<td>IM 211</td>
<td>Motion and Time Study</td>
<td>4</td>
<td>3</td>
<td>The application of time study, standard data development and formula construction, and work sampling principles and studies will be discussed.</td>
</tr>
<tr>
<td>IM 212</td>
<td>Wage and Salary Administration</td>
<td>4</td>
<td>4</td>
<td>This course covers the methods used in developing a job evaluation program and the various ways of making wage payments. Consideration is given to the maintenance and control of established programs.</td>
</tr>
<tr>
<td>IM 221</td>
<td>Plant Layout and Materials Handling</td>
<td>4</td>
<td>3</td>
<td>The study of equipment maintenance, utilization of space and arrangement of stock, machines and aisleways is included in this course. The course surveys material-handling elements, the unit load, packaging, bulk handling, economic improvement procedures, justification of equipment, and special techniques.</td>
</tr>
<tr>
<td>IM 222</td>
<td>Statistical Quality Control</td>
<td>4</td>
<td>3</td>
<td>The practical application of statistics and probability theory as it applies to acceptance sampling, control charts, and sampling plans.</td>
</tr>
<tr>
<td>IM 223</td>
<td>Engineering Cost Analysis</td>
<td>3</td>
<td>3</td>
<td>A study of engineering economy including fundamental economic principles and concepts such as the Law of Supply and Demand, Law of Diminishing Return, Consumer-Producer Goods Relationships, Cost-Volume Relationships, and the Concept of Alternatives. The students will calculate interest, annuity, depreciation, and rate of return on investments. They will compare alternative investments and decisions and evaluate the risk of uncertainty in forecast.</td>
</tr>
</tbody>
</table>
IM 224 Methods — Time Measurement
4 Credits 3 Class Hours, 3 Lab Hours
A course designed to give the student detailed training in the application of work measurement by the MTM technique. Includes the recognition and definition of fundamental work elements with practical applications.

IM 225 Introduction to Labor Relations
4 Credits 4 Class Hours
This course gives an overview of all aspects of labor. Covers the dimensions of our labor force, the laws and regulations governing its employment, programs for its improvement and protection, and labor-management relations.

IM 2310 Supervisory Development
3 Credits 3 Class Hours
Applications of modern psychological principles to supervisory problems of training, motivation, and discipline. The supervisor’s role as a morale builder and the importance of understanding, empathy, and proper counseling will be discussed.

IM 232 Production Planning and Control
4 Credits 3 Class Hours, 3 Lab Hours
A discussion of the most economical methods, machines, operations, and materials for the manufacturing of a product. Also covered is the planning, scheduling, routing, and detailed procedure of production control.

IM 233 Research Project
1-4 Credits Class Hours as Required
A report written on a project which has been selected by the student and approved by the instructor. This course may be repeated until 4 hours of credit are earned. The consent of the department head or advisor is required before enrollment in this course.

IM 2350 Supervisory Development II
3 Credits 3 Class Hours
A second-quarter course covering the fundamental techniques supervisors or first-line managers need to know for supervision, managing and helping themselves succeed.

IM 236 Information Systems for Management
4 Credits 4 Class Hours
This course is an in-depth introduction to the practical world of computer use to improve students’ managerial effectiveness. Presents an overview of how the modern practice of management is affected by computers and information systems.

IM 238 Labor Relations
4 Credits 4 Class Hours
A study of the various aspects of labor problems, including a study of wages, unemployment, organized labor, collective bargaining, union policies and methods, political activities of organized labor, the labor problem of employers and methods of communications between labor and management.
IM 239 Job Analysis and Evaluation
3 Credits 3 Class Hours
This course is devoted to the theory, principles, procedures and methods involved in analyzing and rating jobs to establish clear job differentials as well as to price jobs. The course will also emphasize the effect that employees and their performance have in determining wage differentials for the similar jobs and for total compensation. The theory and practice of establishing job standards and employee performance are fully discussed. The objective will be to discuss why certain techniques and methods are necessary.

IM 263 Field Experience
1-4 Credits
Actual work experience in industry or business. One credit for each forty hours worked, with maximum of 4 credits.
Prerequisite: Second year standing and permission of department head.

MARKETING

MT 1000 Introduction to Marketing
4 Credits 4 Class Hours
A general but critical survey course of the field of marketing, covering marketing channels, functions, methods, and institutions. Designed to introduce the marketing major, or students from other fields, to marketing.

MT 1010 Salesmanship
4 Credits 4 Class Hours
A study of the principles and techniques of effective selling, with emphasis placed on the theoretical aspects of the psychology of selling and those personal characteristics found most often in a successful salesperson.

MT 1020 Industrial Selling
4 Credits 4 Class Hours
Designed to extend and enhance the skills learned in MT 1010, MT 1020. Utilizes videotaping sessions and role playing to familiarize the student with sales technologies.
Prerequisite: MT 1010

MT 211 Advanced Marketing
3 Credits 3 Class Hours
An in-depth study of marketing which utilizes the theories and principles to which students have been exposed in the lower division courses which introduces the study of more complex marketing theories, practices, and concepts.
Prerequisite: MT 100

MT 2140 Marketing Opportunity Analysis
4 Credits 3 Class Hours, 3 Lab Hours
A hands-on application of research, strategic planning, and target marketing principles. Actual preparation and presentation of an M.O.A., written and oral, will give the student insight on application of these principles in actual situations.
Prerequisite: MT 211, BU 122

MT 215 Advertising Theory I
3 Credits 3 Class Hours
A study of the development of advertising, the various media, and the social, psychological, and technical aspects of advertising.
MT 216 Applied Advertising II
3 Credits
Study and practice of the technical aspects of developing advertising campaigns for business, media surveying, and graphic applications of layout and copywriting.
Prerequisite: MT 215

MT 222 Buyer Behavior
3 Credits
A study of industrial and ultimate consumer purchasing behavior and the theories underlying buying-decision processes. There is also an emphasis on marketing management and pivotal concepts in behavioral sciences.

MT 224 Public Relations
3 Credits
An examination of the communications process in terms of its theory and its relationship to the marketing areas of advertising, public relations, and personal selling.

MT 231 Retail Merchandising
3 Credits
An examination of the successful techniques of retail establishment marketing operations, including both small and large establishments. An overview of those elements of retail marketing, including location considerations, promotion, advertising, and training of personnel.

MT 232 Retail Buying
3 Credits
A study of the activities included in the buying function of retail institutions. Merchandising math and related data processing techniques used by the buying specialist.
Prerequisite: MT 231

MT 233 Small Business Management I
3 Credits
Training in the operation of a small business concern, including principles of accepted accounting procedures, order billing, credits and collections, costs, payroll procedures, taxes, ratio analysis and franchising vs. independent ownership.
Prerequisite: BU 121

MT 2340 Sales Management
4 Credits
A study of the organization of sales staffs and departments, the techniques of campaign planning, quota assignment, compensation plans and other considerations primarily related to the personnel aspects of sales management.
Prerequisite: MT 101

MT 235 Small Business Management II
3 Credits
A study of small business strategy planning, decision making processes, organization factors, staff training and development. Also emphasizes financial and administrative control systems and legal and governmental regulations and tax structure.
Prerequisite: MT 233
Chemical Engineering Technology

Chemical engineering technicians are technical assistants to the chemical engineer and, as such, must be able to speak the language of the engineer.

Specifically, they must be familiar not only with the basic concepts of mathematics, chemistry, and physics but also with the variety of techniques and equipment used in the chemical processing industries.

An ever-expanding field, chemical engineering technology is employed extensively in industries which process plastics and synthetics, food and beverages, petroleum chemicals and products, paper, and industrial chemical intermediates. In addition, chemical engineering technology plays an important role in environmental control and in many other areas. As a result of continuing expansion in the field, engineering technicians with the necessary skills for advancement are offered interesting and rewarding careers across a broad spectrum of industrial complexes and governmental agencies.

TYPICAL POSITIONS OPEN TO CHEMICAL ENGINEERING TECHNICIANS

Development technician — assists engineers and chemists in developing new processes, improving existing processes, and carrying bench projects into pilot and/or full scale operation.

Environmental control technician — works with the chemical engineer or environmental engineer to oversee municipal or industrial air and water purification.

Pilot plant operator — operates equipment in research and development of new processes and products.

Chemical production technician — works in commercial plant with engineers and plant supervisors to help solve problems or improve operations.

Process instrumentation technician — works with the chemical engineer to assist in the design, testing, and installation of process control instrumentation.

Chemical salesperson — sells chemicals and assists customers in the development of uses for chemicals.

Analytical technician — performs laboratory analyses requiring use of specialized equipment or knowledge.
## Chemical Engineering Technology Curriculum

<table>
<thead>
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<th>Quarter</th>
<th>Course</th>
<th>Class</th>
<th>Lab</th>
<th>Credit Hours</th>
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<td>CH 111</td>
<td>Inorganic Chemistry I</td>
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<td>EN 106</td>
<td>Technical Report Preparation</td>
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<td>Chemical Engineering Materials</td>
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<td>Industrial Inspection Trips</td>
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<td>CH 231</td>
<td>Automatic Control of Processes</td>
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<td>CH 243</td>
<td>Chemical Engineering Principles III</td>
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<td>CH 244</td>
<td>Unit Operations Laboratory</td>
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<td>MA 204</td>
<td>Probability and Statistics</td>
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64 Engineering Technology Division
# CHEMICAL ENGINEERING TECHNOLOGY

## Course Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CH 101</td>
<td>Industrial Seminar</td>
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<tr>
<td>CH 131</td>
<td>Chemical Engineering Calculations I</td>
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<td>CH 132</td>
<td>Chemical Engineering Calculations II</td>
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<td>Chemical Engineering Materials</td>
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<td>Automatic Control of Processes</td>
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### CHEMISTRY

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<tr>
<td>CH 111</td>
<td>Inorganic Chemistry I</td>
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<td>CH 112</td>
<td>Inorganic Chemistry II</td>
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<td>CH 121</td>
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### COMPUTER SCIENCE

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<th>Course Name</th>
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<tbody>
<tr>
<td>CS 120</td>
<td>BASIC Programming for Engineering Technology</td>
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### DRAFTING

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<tbody>
<tr>
<td>DR 101</td>
<td>Technical Drawing</td>
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### ELECTRONIC ENGINEERING TECHNOLOGY

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### ENGLISH

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<td>Patterns of Composition</td>
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<td>Writing Laboratory</td>
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<td>EN 106</td>
<td>Technical Report Preparation</td>
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### MATH

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<tr>
<td>MA 101</td>
<td>Algebra &amp; Trigonometry I</td>
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<tr>
<td>MA 102</td>
<td>Algebra &amp; Trigonometry II</td>
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<td>MA 103</td>
<td>Applied Calculus</td>
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<tr>
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<td>Probability &amp; Statistics</td>
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### PHYSICS

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Total Credit Hours: **53**
SOCIAL SCIENCE
SC Social Science Elective 3
   Technical Elective** 2
   TOTAL 5

*The major electives will consist of two of the courses listed below.

POLYMER TECHNOLOGY
CH 251 Polymer Processing Principles
CH 271 Polymer Chemistry

ENVIRONMENTAL TECHNOLOGY
CH 261 Environmental Control Principles
CH 281 Environmental Chemistry

**Technical electives will be taken from a list of approved courses.
CONSTRUCTION ENGINEERING TECHNOLOGY

Construction engineering technology encompasses the broad fields of architecture, construction, and civil engineering. The curriculum presents theory, practical application, and related study instruction that will prepare graduates for direct entry into employment in the construction industry.

The construction industry has vastly expanded in technical innovations, thereby requiring technical knowledge and skills to manage and solve problems involved with construction projects. The construction engineering technology curriculum, therefore offers an Associate of Engineering Technology Degree in two areas of emphasis.

BUILDING CONSTRUCTION SPECIALIZATION — Presents course information from engineering and construction sources to train technicians in the mid-management skills of construction administration and building construction.

Positions requiring this expertise would include:
Architectural draftsperson — assists in the production of architectural working drawings.
Sales representative — sells and advises customers regarding the use of various construction materials.
Junior specification writer — assists in the research and completion of technical information for project specification manuals.
Architectural or Engineering field representative — visits construction projects and reports on job progress and compliance with construction documents.
Plan reviewer or building inspector — works for an agency reviewing compliance with prevailing construction guidelines.
Detailer — assists in the production of construction shop drawings.
Superintendent's aid — assists superintendent or project manager in monitoring construction projects.
Estimator's aid — assists estimator in preparing quantity and pricing surveys.

CIVIL-STRUCTURAL SPECIALIZATION — Presents course information from construction and civil engineering technologies to train technicians to become engineering aids on engineering design projects.

Positions requiring this expertise would include:
Engineering junior designer and draftsperson — assists in the design and production of engineering working drawings.
Materials tester — assists engineers in testing soils, concrete, and various construction materials.
Engineering field representative — visits construction projects and reports on job progress and compliance with construction documents.
Structural detailer — assists in the production of engineering detail drawings.
Estimator's aid — assists estimator in preparing quantity and pricing surveys.
Survey party member — assists party chief in performing surveying work.
Plan reviewer or building inspector — works for an agency reviewing compliance with prevailing construction guidelines.
Sales representative — sells and advises customers regarding the use of various construction materials.
Bridge inspector and field layout person — assists party chief in inspection of existing bridge work and performs field drafting.
# BUILDING CONSTRUCTION SPECIALIZATION
## Curriculum

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<thead>
<tr>
<th>FIRST QUARTER</th>
<th>HOURS PER WEEK</th>
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<tbody>
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<td>Building Methods of Light Construction</td>
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<tr>
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<td>CT 131</td>
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<td>Building Plumbing Systems Design</td>
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68 Engineering Technology Division
SIXTH QUARTER

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<td>Code Interpretation &amp; Construction Safety</td>
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<td>Construction and Civil Drawing Techniques</td>
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**TOTAL**  
13  12  17

Technical electives may be selected from the following after consultation with and approval by the Department Chairperson.

CT 211, CT 212, CT 232, CT 233, CT 234, CT 235, CT 254, CT 271, CT 272, CT 273, ET 271

CIVIL—STRUCTURAL SPECIALIZATION

Curriculum

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<td>MA 101</td>
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**TOTAL**  
14  12  18

SECOND   | CT 102      | Building Methods of Heavy Construction          | 3       |
| QUARTER  | DR 122      | Architectural Drawing Techniques II             | 0       |
|          | EN 106      | Technical Report Preparation                    | 3       |
|          | MA 102      | Algebra and Trigonometry II                     | 5       |
|          | PH 1010     | Physics of Mechanics                            | 3       |
|          | PH 1011     | Physics of Mechanics Lab                        | 0       |

**TOTAL**  
14  9  17

THIRD    | CT 111      | Construction Materials                          | 3       |
| QUARTER  | CT 121      | Surveying I                                     | 2       |
|          | CT 131      | Statics                                         | 3       |
|          | EN 121      | Oral Communication                              | 3       |
|          | MA 103      | Applied Calculus                                | 4       |

**TOTAL**  
15  12  19

FOURTH   | CT 211      | Soil Mechanics                                  | 3       |
| QUARTER  | CT 221      | Surveying II                                    | 3       |
|          | CT 231      | Strength of Materials                            | 3       |
|          | PH 1030     | Physics of Heat, Light and Sound                 | 3       |
|          | PH 1031     | Physics of Heat, Light, and Sound Lab            | 0       |

**TOTAL**  
12  12  16
### FIFTH QUARTER
- **CT 232** Structural Steel Design 3 3 4
- **CT 235** Indeterminate Structures 3 3 4
- **CT 2520** Blueprint Reading, Quantity Surveys & Estimating 5 0 5
- **SC** Social Science Elective 3 0 3

### SIXTH QUARTER
- **CT 233** Reinforced Concrete Design 3 3 4
- **CT 234** Structural Wood Design 3 3 4
- **CT 2550** Code Interpretation & Construction Safety 4 0 4
- **DR 221** Construction and Civil Drawing Techniques 0 6 2
- **TE** Technical Elective 3 3 4

**TOTAL** 13 15 18

*Technical electives may be selected from the following after consultation with and approval by the department chairperson.

CT 212, CT 241, CT 2420, CT 251, CT 253, CT 254, CT 271, CT 272, CT 273, ET 271, ME 211, ME 221

### CONSTRUCTION ENGINEERING TECHNOLOGY Course Requirements

**ENGLISH**
- **EN 1050** Patterns of Technical Writing 3
- **EN 1051** Writing Lab 1
- **EN 106** Technical Report Preparation 3
- **EN 121** Oral Communication 3

**MATHEMATICS**
- **MA 101** Algebra and Trigonometry I 5
- **MA 102** Algebra and Trigonometry II 5
- **MA 103** Applied Calculus 4

**PHYSICS**
- **PH 1010** Physics of Mechanics 3
- **PH 1011** Physics of Mechanics Lab 1
- **PH 1030** Physics of Heat, Light, and Sound 3
- **PH 1031** Physics of Heat, Light, and Sound Lab 1

**SOCIAL SCIENCE**
- **SC** Social Science Elective 3

**COMPUTER SCIENCE**
- **CS 120** Basic Programming for Engineering Technology 4

**DRAFTING**
- **DR 121** Architectural Drawing Techniques I 2
- **DR 122** Architectural Drawing Techniques II 2
- **DR 221** Construction and Civil Drawing Techniques 2

**TOTAL** 104
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**BUILDING CONSTRUCTION SPECIALIZATION**

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<tr>
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**TECHNICAL ELECTIVES**

See curriculum requirements

|             | **TOTAL**                                                | **4**   |

**CIVIL-STRUCTURAL SPECIALIZATION**

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<th>Course Title</th>
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<tbody>
<tr>
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**TECHNICAL ELECTIVES**

See curriculum requirements

|             | **TOTAL**                                                | **4**   |

|             | **TOTAL**                                                | **24**  |
Electrical Engineering Technology

The program in electrical engineering technology offers instruction in mathematics, science, electrical and electronic fundamentals, and general education studies. This program is designed to prepare individuals to work at the technician level in the development, manufacture, instrumentation, testing, research, installation, and maintenance fields. The technician requires some of the knowledge and skills of both the professional engineer and the skilled craftsman. Developmental courses are available to assist students whose skills need to be raised to a college performance level.

The electrical engineering technology department offers associate of science degree programs in two specializations: energy and electronics. In the energy specialization the student is taught the characteristics of power production, transmission, and distribution, as well as the instrumentation and control of electrical rotating machinery and automation. In the electronic specialization the student is taught how digital and linear electronic devices are used in various fields such as digital computers, communications, control and switching applications. Also, emphasis will be placed on industrial electronics and applications.

The graduate technician can apply skills to processes and may perform simple design tasks under the supervision of an engineer.

A grasp of the theory of electricity and circuitry is basic. The technician will understand the use of transistors and other solid state devices. The electrical engineering technician may be employed by any industry using these devices, but would likely find a ready job market in the following areas:

1. Power generation and transmission
2. Power distribution and utilities
3. Industrial control and electrical maintenance
4. Electrical maintenance of major commercial or residential complexes
5. Manufacture or installation of electrical equipment
6. Telephone industries
7. Numerical control systems
8. Research and development
9. National defense
10. Digital computer electronics
11. Nuclear instrumentation and systems.
12. Communications
13. Medical instrumentation technology.
14. Consulting and engineering services

ELECTRICAL ENGINEERING TECHNOLOGY
Curriculum

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<thead>
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<th>HOURS PER WEEK</th>
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<td>Class</td>
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<tr>
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TOTAL: 14 9 17
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### ENERGY SPECIALIZATION

**Curriculum**

### FOURTH QUARTER

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**Engineering Technology Division**
### ELECTRONIC SPECIALIZATION Curriculum

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*Approved EET Technical Electives

ET 2510 & ET 2511 Communications Systems I & Lab
ET 2340 & ET 2341 Microprocessors & Applications and Lab
ET 2520 & ET 2521 Communications Systems II & Lab
ET 2430 & ET 2431 Operational Amplifiers & Lab
ET 2530 & ET 2531 Robotics & Automation & Lab
ET 2560 & ET 2561 Electronic Instrumentation & Lab.
## ELECTRICAL ENGINEERING TECHNOLOGY

### Course Requirements

<table>
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<th>Computer Science</th>
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### ELECTRICAL ENGINEERING TECHNOLOGY

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<td>ET 1020 Electric Circuits II</td>
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<td>ET 1021 Electric Circuits II Lab</td>
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<td>ET 1030 Electric Circuits III</td>
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<td>ET 105 Seminar</td>
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<td>ET 1210 Active Devices I</td>
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<td>EN 106 Technical Report Preparation</td>
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<td>EN 121 Oral Communication</td>
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<td>MA 103 Applied Calculus</td>
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*PH 1030 (& Lab PH1031) or CH 141 General Chemistry is required only in the Electronics Specialization.

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**TOTAL** 58
## ENERGY SPECIALIZATION

### Course Requirements

#### ELECTRICAL ENGINEERING TECHNOLOGY

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#### ELECTRONIC SPECIALIZATION

### Course Requirements

#### ELECTRICAL ENGINEERING TECHNOLOGY

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TOTAL 40
ENGINEERING GRAPHICS TECHNOLOGY

Engineering Graphics Technology provides a sound background for careers in the fields of technical graphic design. Graphics technicians must be familiar not only with the basic concepts of mathematics, physics, and English, but also with the variety of techniques to present design information in a visual manner. These techniques now include not only traditional mechanical drafting skills, but also the interactive use of computers in drafting and design.

This rapidly growing field is used by all manufacturing operations, whether buildings, TV sets, or bridges are being constructed. The challenge of modern technology is to integrate the entire design and manufacturing process and graphics technicians are vital to and, central to this progress. The Engineering Graphics Technology Department offers an Associate of Science Degree Program designed to impart some of the knowledge and skills of the designer and the skilled drafter.

TYPICAL POSITIONS OPEN TO ENGINEERING GRAPHICS TECHNICIANS

Design drafter — translates a sketch produced by an engineer into a working drawing for production.

Computer aided design drafting technician — operates or manages a computerized design system.

Numerical control drafting technician — translates working drawings into instructions for a computer controlled manufacturing operation.

Technical illustrator — presents graphic illustrations for use in manuals or other presentations.

ENGINEERING GRAPHICS TECHNOLOGY

Curriculum

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**ENGINEERING GRAPHICS TECHNOLOGY**

**Course Requirements**

**ENGINEERING GRAPHICS TECHNOLOGY**

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MECHANICAL ENGINEERING TECHNOLOGY

Mechanical engineering technology covers many areas of specialization involving the generation, transmission, and utilization of mechanical energy. The curriculum reflects this broad spectrum of subjects ranging from English composition, physics, and technical drawing to the laboratory oriented studies of materials science, electronics, thermal science, and instrumentation. The mechanical engineering technician, consequently, is a broadly educated person who assists the engineer in every phase of research, design, and production.

TYPICAL POSITIONS OPEN TO MECHANICAL ENGINEERING TECHNICIANS

Technical salesperson — sells and troubleshoots mechanical equipment; has the expertise to advise customers since he/she understands the equipment and can match it with the engineering requirements.

Engineering aide — performs tests; collects data; evaluates and makes recommendations for equipment modification, changes or replacements to eliminate technical problems.

Production assistant — assists production engineering, design engineers, and maintenance personnel with diagnosing and eliminating problems in process equipment and systems.

MECHANICAL ENGINEERING TECHNOLOGY

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<td>CT 271</td>
<td>Engineering Economics &amp; Cost Estimating</td>
<td>3</td>
</tr>
</tbody>
</table>

Certificate Programs

In addition to the courses leading to the associate degree in each technology, State Tech presently offers two certificate programs for the Aluminum Company of America (ALCOA) and one certificate program within the Engineering Technology Division. These programs are designed to prepare the student, in a minimal time, to enter industry as either a draftsman or as an industrial electrician.

CONSTRUCTION TECHNOLOGY

Certificate Program

The Construction Technology certificate program is offered for the Aluminum Company of America (ALCOA) in Alcoa, Tennessee. It consists of 46 quarter hours of course work designed to meet the needs of industry. Course work includes industrial mathematics, construction blueprint reading, industrial surveying, industrial fasteners, industrial tools, construction rigging, industrial construction, industrial equipment operation, construction field practice, and other special elective courses.

INDUSTRIAL ELECTRICITY

Certificate Program

This certificate program is offered for the Aluminum Company of America (ALCOA) in Alcoa, Tennessee. It consists of 56 quarter hours of course work designed to meet the needs of the industry. Course work includes mathematics, basic electricity, industrial electricity, electrical maintenance, power distribution, motors, controllers, and other elective courses.
CHEMICAL

CH 101 Industrial Seminar
1 Credit 1 Class Hour
A study of the organization of typical local industries and the role of the chemical engineering technician. Emphasis is placed on discussion with speakers from local industries.

CH 111 Inorganic Chemistry I
4 Credits 3 Class Hours, 3 Lab Hours
A course covering the structure of atoms, chemical bonds, the nature of electromagnetic radiation, periodic relationships, chemical nomenclature, chemical formulas, the concept of the mole, stoichiometry, the nature of solutions, expressing concentrations, the concept of acids and bases, states of matter, the concept of pressure, the ideal gas law, and an introduction to oxidation and reduction reactions. The laboratory work includes experiments which illustrate the classroom material and provide for the development of laboratory techniques and procedures.

CH 112 Inorganic Chemistry II
4 Credits 3 Class Hours, 3 Lab Hours
The second course in inorganic chemistry covering many topics related to physical chemistry. Specific topics are, reaction rate, order of a chemical reaction, reversible reactions, chemical equilibrium, ionic equilibria, ionization of weak electrolytes, hydrogen ion concentration, buffered solutions, solubility product constant, thermochemistry, enthalpy, entropy, free energy, oxidation-reduction reactions and electromotive series. Laboratory experiments illustrate the principles involved.

CH 121 Organic Chemistry
4 Credits 3 Class Hours, 3 Lab Hours
A course covering the physical and chemical properties of compounds of carbon. Memorization of reactions is subordinated and strong emphasis placed on understanding the conditions that affect the initiation and rate of organic reactions. Organic chemical nomenclature is studied with some reference to the use and production of organic chemicals in industry. Laboratory experiments illustrate principles studied and develop laboratory techniques and procedures.

CH 131 Chemical Engineering Calculations I
4 Credits 3 Class Hours, 3 Lab Hours
An introduction to the basic methods of engineering analysis and calculation. Topics include conversion of units, proper format for engineering calculations, the use of graphs to represent data and functions, and material balances. Material balance calculations are made on simple systems (with and without chemical reactions), including bypass and recycle operations. A calculations laboratory provides an opportunity for students to work problems under supervision.

Prerequisite: MA 101
CH 132 Chemical Engineering Calculations II
4 Credits 3 Class Hours, 3 Lab Hours
A course covering elementary thermodynamics, energy balances (with and without chemical reactions) and the use of simple process flow diagrams. A calculations laboratory provides an opportunity for students to work problems under supervision.
Prerequisite: CH 131 and MA 102

CH 141 General Chemistry
4 Credits 3 Class Hours, 3 Lab Hours
A course primarily for mechanical and electrical engineering technology majors covering the basic concepts needed to understand chemical reactions - atomic structure, electronic energy levels, the periodic table, chemical bonds, chemical formula, chemical equations, the concept of the mole, oxidation-reduction reactions, acid-base solution, chemical reaction rates, electromotive series, states of matter, solutions, ionization in aqueous solution, chemical reaction rates, and chemical equilibria. The above basic concepts are used to study electrolytic cells, corrosion, and engineering materials. The laboratory work emphasizes the study of corrosion and engineering materials.
Co-requisite: MA 101

CH 151 Introductory Chemistry
4 Credits 3 Class Hours, 3 Lab Hours
A course covering basic physical and chemical concepts of matter. Topics covered include systems of measurement, density, pressure, states of matter, physical and chemical changes, elements, atoms, compounds, the periodic table, chemical nomenclature, chemical reaction equations, and calculations using chemical reaction equations. The laboratory work emphasizes laboratory techniques and experiments to demonstrate the topics covered. Prerequisite: Students need a working knowledge of algebra (or MA 100 as a co-requisite).

CH 153 Water Analysis
4 Credits 2 Class Hours, 6 Lab Hours
This course covers analytical procedures used in water purification facilities for quality control and in municipal type waste water treatment facilities for control of operation and evaluation of effluent. The theory of analysis is covered only minimally, and emphasis is placed on following written analytical procedures and performing analyses accurately in the laboratory. Methods of obtaining samples are covered also.
Prerequisite: CH 111

CH 201 Industrial Inspection Trips
1 Credit 0 Class Hours, 3 Lab Hours
A study of the technology of local industries. Visits are made to industrial facilities which are representative of major local industries. Written reports of visits are stressed. Techniques for job interviews and preparation of resumes are presented.
CH 211 Analytical Chemistry
4 Credits 2 Class Hours, 6 Lab Hours
A course concerning the fundamental principles of the chemical and physical methods used in the chemical analysis of materials. The laboratory work concentrates on familiarization with a wide variety of analytical techniques and equipment used in industry, including gravimetric and volumetric methods and instrumental methods such as visible, infrared, and atomic absorption spectroscopy, and gas liquid chromatography.

Prerequisite: CH 112

CH 221 Chemical Engineering Materials
4 Credits 3 Class Hours, 3 Lab Hours
A course covering the mechanical, physical, and chemical properties of engineering materials. The mechanisms and control of corrosion of engineering materials in different environments are discussed. Emphasis is placed on the determination of suitable materials for use in various chemical processing applications.

Prerequisite: CH 112

CH 231 Automatic Control of Processes
4 Credits 3 Class Hours, 3 Lab Hours
A course covering the fundamentals and techniques of process control. Topics include the elements of control theory, measurements of basic industrial parameters (such as flow rate, temperature, liquid level, and pressure), and industrial instrumentation. Emphasis is placed on the selection, placement and setting of control equipment.

Prerequisite: CH 242, DP 102
Co-requisite: CH 243 and CH 244

CH 241 Chemical Engineering Principles I
3 Credits 3 Class Hours
The first in a series of three courses covering fundamentals of chemical engineering principles. This first course covers fluid statics and dynamics. Topics include fluid statics, manometers, flow measurement, laminar and turbulent flow, viscosity, Reynolds number, Fanning friction factor, pressure drop in pipes, fittings and valves, pumps; NPSH and terminal velocity of falling particles.

Prerequisites: MA 103 and CH 132

CH 242 Chemical Engineering Principles II
3 Credits 3 Class Hours
The second in a series of three courses covering fundamental chemical engineering principles. This second course covers transmission of heat by conduction and convection. Heat exchangers of various configuration — including shell and tube exchangers, jacketed vessels, coils and fins are covered.

Prerequisite: CH 241

CH 243 Chemical Engineering Principles III
3 Credits 3 Class Hours
The third in a series of three courses covering fundamental chemical engineering principles. This third course covers selected operations involving mass transfer in combination with fluid flow and heat transfer. Topics include fractional distillation, humidification, gas absorption, liquid extraction, and drying. Problems of scale-up are discussed.

Prerequisite: CH 242
CH 244 Unit Operations Laboratory
2 Credits 6 Lab Hours
A course consisting of laboratory experimentation in the unit operations of chemical engineering. Experiments will include flow systems, heat transfer systems, and mass transfer systems. Emphasis will be placed on student assembly and operation of equipment and preparation of detailed laboratory reports.
Prerequisite: CH 242
Co-requisite: CH 243

CH 251 Polymer Processing Principles
4 Credits 3 Class Hours, 3 Lab Hours
This course integrates the theoretical and practical aspects of polymer processing in covering extrusion and molding of thermoplastics. Extrusion of profiles, film, sheet, fibers, and foam is covered along with the primary extrusion equipment and the auxiliary equipment used in each type of extrusion. Emphasis in molding is placed on the geometry of parts to be made in molds and on the geometry and construction of molds. Mold cooling and part shrinkage are also covered.
Prerequisite: HC 271

CH 261 Environmental Control Principles
4 Credits 3 Class Hours, 3 Lab Hours
An introduction to air and water pollution control. Pollutants of interest or concern to local industries are emphasized, and both the methods of analysis and the methods of control are studied for each pollutant. Subjects covered include sulfur dioxide, carbon monoxide, nitrogen oxides and odors in air and biodegradable and non-biodegradable organic compounds, phosphates, nitrates, heavy metals, and dissolved salts in water.
Prerequisite: CH 281

CH 271 Polymer Chemistry
4 Credits 3 Class Hours, 3 Lab Hours
A survey of the chemical and physical properties of long-chain molecules. Topics include polymerization, polymer characterization; glass and melting transitions, and polymer structure and related properties. Nylon, polyester, and methacrylate polymerization are covered specifically.
Prerequisite: CH 121

CH 281 Environmental Chemistry
4 Credits 3 Class Hours, 3 Lab Hours
A study of the chemistry of air and water pollution. Topics include chemical reactions, sources and sinks, sampling techniques, and analytical methods for important air and water pollutants.
Prerequisite: CH 121 or consent of the instructor.

CH 291 Industrial Safety
3 Credits 3 Class Hours
A course surveying the development of safety standards and their application to the chemical processing industries. The requirements of the Occupational Safety and Health Act are presented. Emphasis is placed on the best modern industrial standards and methods for a good safety program.
CH 295 Research Problem
Investigation and reporting of a chemical engineering technology problem of interest to both the student and the advisor. Credit will be based on the problem difficulty.

CH 296 Research Problem
Investigation and reporting of a chemical engineering technology problem of interest to both the student and the advisor. Credit will be based on the problem difficulty.

CH 297 Research Problem
Investigation and reporting of a chemical engineering technology problem of interest to both the student and the advisor. Credit will be based on the problem difficulty.

CONSTRUCTION

CT 101 Building Methods of Light Construction
3 Credits
3 Class Hours
The course covers basic techniques and fundamentals essential in erecting a light frame building. It also covers various phases of light construction in a logical sequence beginning with the building site, through each building system, to the finished work.

CT 102 Building Methods of Heavy Construction
3 Credits
3 Class Hours
This course covers techniques and procedures necessary to construct a complex structure. Study involves the various phases of heavy construction from building site to finished work. Emphasis is placed on building systems which utilize engineering and innovation in the process of realizing a final product.
Prerequisite: CT 101

CT 111 Construction Materials
4 Credits
3 Class Hours, 3 Lab Hours
A study of materials used in heavy construction projects. Emphasis is placed on production, application, and testing to determine the appropriate use of the material. Topics covered include aggregates, asphalt, concrete, steel, and wood. Laboratory work includes performance of standard tests and the preparation of technical reports of the tests.
Prerequisite: CT 102

CT 121 Surveying I
4 Credits
2 Class Hours, 6 Lab Hours
An introductory course in surveying designed to familiarize the student with the use of the steel tape, the transit, and the level, with emphasis on applications of these instruments in engineering and construction projects such as boundary surveys, traverse computations, profile leveling, and field notes.
Prerequisite: MA 101

CT 131 Statics (same as ME 131)
4 Credits
3 Class Hours, 3 Lab Hours
A study of bodies at rest or in a state of equilibrium with their surroundings. This course will give the student an appreciation and understanding of how forces act externally on structures.
Prerequisite: MA 101 and PH 101
Co-requisite: MA 102
CT 211 Soil Mechanics
4 Credits 3 Class Hours, 3 Lab Hours
Topics discussed include soil properties, classification, compaction, shear strength, consolidation, lateral earth pressure, bearing capacity and settlement. The student conducts and files reports on laboratory tests.
Prerequisite: CT 111
Co-requisite: CT 231

CT 212 Hydrology
4 Credits 3 Class Hours, 3 Lab Hours
Topics discussed include hydrostatics of fluids, energy losses in fluids in motion, pipeflow, open channel flow, surface run-off, and an introduction to the design of distribution systems.
Prerequisite: ME 221

CT 221 Surveying II
4 Credits 3 Class Hours, 3 Lab Hours
Using the survey and layout course as a foundation, this advanced course develops with greater detail the student’s understanding of surveying procedures. Course material includes control systems and datums, mapping, and subdividing, volume calculations, horizontal and vertical curves, precision and boundary surveying.
Prerequisite: CT 121

CT 231 Strength of Materials
4 Credits 3 Class Hours, 3 Lab Hours
A study of the principles of stress and strain; shear, bearing and bending stresses; development of shear and bending moment diagrams; stresses and deflection of beams; columns and combined stresses; connections; and the application of this theory to determine capacity of structural elements.
Prerequisite: CT 131
Co-requisites: MA 103 and CS 120

CT 232 Structural Steel Design
4 Credits 3 Class Hours, 3 Lab Hours
The design of structural steel members and their connections, tensions, compression members, beams, girders, trusses, and columns subjected to concentric and eccentric loads. The lab involves prototyping of various structural systems, performing calculations, and preparing drawings related to steel design.
Prerequisites: CT 231
Co-requisite: CS 120

CT 233 Reinforced Concrete Design
4 Credits 3 Class Hours, 3 Lab Hours
Design of reinforced concrete structures, fundamentals of design of beams, columns, floor systems, footing and retaining walls. The lab involves prototyping of various structural systems, performing calculations, and preparing drawings related to reinforced concrete design.
Prerequisite: CT 231
Co-requisite: CS 120
CT 234 Structural Wood Design
4 Credits  3 Class Hours, 3 Lab Hours
Design of structural wood members and their connections; post-and-beam construction, roof trusses, bridges, arches, formwork for reinforced concrete. Lab involves prototyping of various structural systems, performing calculations, and preparing drawings related to wood design.
Prerequisite: CT 231

CT 235 Indeterminate Structures
4 Credits  3 Class Hours, 3 Lab Hours
This course covers the analysis of indeterminate structures such as continuous beams, rigid frames, and bents. Includes techniques for calculating deformation of structural members, consistent relationships between load and deformation, and calculation of internal forces and moments by the slope-deflection method and the moment-distribution method.
Prerequisite: CT 231, MA 103, CS 120

CT 241 Heating, Ventilation and Air Conditioning Design
4 Credits  3 Class Hours, 3 Lab Hours
A course covering the calculations of heating and cooling loads. Human comfort, ventilation requirements, the psychometric chart and its use, air distribution and duct sizing are topics covered.
Prerequisite: PH 103

CT 2420 Building Plumbing Systems Design
4 Credits  3 Class Hours, 3 Lab Hours
A study of basic hydraulics, water sources and distribution, plumbing systems, sewage systems, sewage treatment, and storm drainage.
Prerequisite: MA 101

CT 243 Building Electrical Systems Design
4 Credits  3 Class Hours
This course covers the basic principles of electricity, electrical wiring and service requirements and wiring design. Also covered will be lighting fundamentals, light sources and lighting design.
Prerequisite: MA 101

CT 251 Construction Documents
3 Credits  3 Class Hours
This course covers construction drawings, specifications, bonds, contracts, and other documents related to the construction industry. Topics also included are legal problems, contractor relations and responsibilities, contract performance requirements, and bidding procedures.

CT 2520 Blueprint Reading, Quantity Surveys, and Estimating
5 Credits  5 Class Hours
The study and interpretation of building plans: architectural, structural, mechanical, and electrical. The student is taught the procedures for preparing quantity surveys dealing with individual sections of work. Covered also are principles and practices employed in estimating construction costs. Study includes both direct and indirect cost, with emphasis on calculating labor, material, plant, equipment and job overhead costs and profit.
Prerequisite: CS 120
CT 253 Project Control and Construction Management
3 Credits
3 Class Hours
This course is designed to provide the student with the tools and procedures needed to control a construction project. Areas to be explored will include physical layout of the site, the sequence of operations, and their scheduling. Such scheduling will include labor requirements, subcontractors and material deliveries. Planning methods to be studied will include bar charts and the critical path. Reports, job logs, and cost control systems will receive attention.
Prerequisite: CT 251

CT 254 Construction Rehabilitation
3 Credits
3 Class Hours
This course covers the practices and procedures involved in restoring or renovating an existing structure. Emphasis on analysis of existing structural components and existing material usage to determine if the structure is capable of being rehabilitated, then on the techniques and fundamentals necessary to rehabilitate it.
Prerequisite: CT 251

CT 2550 Code Interpretation & Construction Safety
4 Credits
4 Class Hours
A study of the various types of building codes, their history and development, legal status and administration. Emphasis is placed on the use of a model code as a design tool. This course will also introduce the student to the concept of construction safety and to draw together some approaches to the problem of complying with the Occupational Safety & Health Act of 1970 as well as to construction safety model code requirement.

CT 271 Introduction to Solar Energy and Energy Conservation
3 Credits
3 Class Hours
This course reviews heat transfer and insulation requirements. Also covered is an introduction to various types of solar systems and their applications. Water and air mediums, active and passive systems, available market products, site considerations and economic constraints are some of the topics discussed.
Prerequisite: PH 103

CT 272 Special Projects
3 Credits
3 Class Hours, 9 Lab Hours
Group design projects are developed by teams of students under faculty supervision. This course concentrates on projects related to practical applications of design allowing students to use theory, methods, and practices similar to those encountered on the job.

CT 273 Passive Solar Design
4 Credits
3 Class Hours, 3 Lab Hours
A course built on the experience gained in CT 271 yet dealing exclusively with passive solar systems. Existing passive structures/design are analyzed and new passive system ideas are utilized to build a passive device.
Prerequisite: CT 271
DRAFTING

DR 100 Introductory Technical Drawing  
2 Credits 6 Lab Hours  
A course designed to introduce proper use of the drafting equipment, lettering, sketching and line quality, surface identification and orthographic projection.

DR 101 Technical Drawing I  
2 Credits 6 Lab Hours  
An introduction to lettering, sketching, instrumental drawing, orthographic projection, pictorial representation, dimensioning sections and auxiliary drawing with the course slanted toward the technology of primary interest to the student.

DR 102 Technical Drawing II  
2 Credits 6 Lab Hours  
Preparation of detail orthographic projections, sections and conventions, auxiliary drawing, isometric and oblique drawing. Common fasteners and simple assembly drawings are also covered in this course.  
Prerequisite: DR 101

DR 103 Detail Drawing Layout  
3 Credits 1 Class Hour, 6 Lab Hours  
An introduction to structural drawing and detailing, architectural drawing and detailing, axonometric projection, and perspective drawing. Major emphasis is on individual student projects employing design, detail, and assembly drawing.  
Prerequisite: DR 101

DR 112 Technical Drawing/Freehand  
2 Credits 0 Class Hours, 6 Lab Hours  
This course covers basic sketching skills and methods essential for communicating concepts or describing physical objects graphically. The use of line drawings, techniques of shade and shadow, mixed media ink and sample rendering methods are some of the skills employed.  
Prerequisite: DR 102

DR 121 Architectural Drawing Techniques I  
2 Credits 0 Class Hour, 6 Lab Hours  
Architectural Drawing I covers basic techniques and fundamentals essential in preparing a student to produce architectural drawings. Use of drafting equipment, lettering techniques, freehand sketching, as well as presentation techniques, is covered in this course.

DR 122 Architectural Drawing Techniques II  
2 Credits 0 Class Hours, 6 Lab Hours  
A study of drafting techniques related to industrial and commercial building types. The development of sketches, presentation drawings, working drawings, and outline specifications receive the major emphasis in this course.  
Prerequisite: DR 121

DR 221 Construction and Civil Drawing Techniques  
2 Credits 6 Lab Hours  
This course covers the fundamentals and techniques used in architectural detailing of concrete, steel, and masonry structural members meeting specified requirements, as well as topographical, site, and map drawing.  
Prerequisite: DR 122
ENGINEERING GRAPHICS TECHNOLOGY

EG 201 Mechanical Systems Design I
5 Credits 3 Class Hours, 6 Lab Hours
This is an introductory course in design drafting. The student will prepare all drawings necessary to show the dimensions and specifications of, and the location of, HVAC, piping and electrical systems for a small commercial or residential structure. The student will learn how to perform all necessary calculations for sizing the type of systems required.
Prerequisite: EG 2410, PH 1030, PH 1031 DR 221

EG 202 Mechanical Systems Design II
5 Credits 3 Class Hours, 6 Lab Hours
This is a sequel to EG 201. The student will prepare all the required drawings after performing the necessary calculations to design the systems for a large commercial structure. The student will be dealing with detailed drawings of each system, as well as with the working drawings.
Prerequisite: EG 201

EG 211 Presentation Technique
5 Credits 3 Class Hours, 6 Lab Hours
This course explores a variety of architectural and engineering presentation techniques using pencil and ink. The student will also use black and white transfers and some reproduction techniques to produce professionally acceptable presentation drawings.
Prerequisite: DR 112

EG 221 Structural Detailing I
3 Credits 1 Class Hours, 6 Lab Hours
This course covers drawing techniques, conventions, dimensioning, and tolerancing standards necessary for constructing reinforced concrete and steel buildings. The student will learn how to size beams, columns, and other structural elements for a small frame structure. The student will be required to produce shop drawings and working drawings from the design data.
Prerequisite: DR 221

EG 222 Structural Detailing II
3 Credits 1 Class Hours, 6 Lab Hours
This is a continuation of EG 221. The student will prepare the detailed shop and working drawings necessary for a building requiring heavy construction methods (welded and bolted steel connections; development length, cut-off, bends, etc. for concrete).
Prerequisite: EG 221

EG 2410 Apple PASCAL Graphics
4 Credits 3 Class Hours, 3 Lab Hours
An introduction to programming in PASCAL with emphasis on the graphics capabilities of a high-level language. The course introduces the top-down structured approach to problem solving. The student will write simple graphics programs and complete a project utilizing and advanced features of PASCAL.
Prerequisite: MA 101
Second year standing
EG 2420 Problems in Computer Graphics
5 Credits
3 Class Hours, 6 Lab Hours
This is an introductory course in computer graphics. Student should learn computer graphics command language and be capable of producing three-view drawings via the computer upon completion of this course.
Prerequisite: EG 2410, EG 201

ELECTRICAL ENGINEERING TECHNOLOGY

ET 1010 Electric Circuits I
3 Credits
3 Class Hours
An introductory course in DC Electric Circuits. Topics treated include units and notations, atomic structure, current and voltage, resistance, Ohm's Law, power, energy, series circuits, parallel circuits, series-parallel networks, analysis methods and network theorems. The various types of electronic measuring instrumentation are introduced throughout the course as required.
Co-requisite: MA 101, DP 102 and ET 1011

ET 1011 Electric Circuits I Lab
1 Credit
3 Lab Hours
Lab to accompany ET 1010.
Co-requisite: ET 1010

ET 1020 Electric Circuits II
3 Credits
3 Class Hours
An intermediate course in electric circuits in which subject matter pertaining to the transition from the study of DC to AC circuits is treated as well as all basic AC circuit behavior. Topics treated are capacitors, magnetic circuits, inductors, sinusoidal alternating current, phasors, series and parallel AC networks. The various types of electronic measuring instrumentation are introduced throughout the course as required.
Co-requisite: MA 102 & ET 1021
Prerequisite: ET 1010

ET 1021 Electric Circuits II Lab
1 Credit
3 Lab Hours
Lab to accompany ET 1020.
Co-requisite: ET 1020

ET 1030 Electric Circuits III
3 Credits
3 Class Hours
A course in advanced AC Electric Circuits. Topics treated are analysis methods, network theorems (AC) and power (AC), series and parallel resonance, polyphase systems, and transformers. The various types of electronic measuring instrumentation are introduced throughout the course as required.
Prerequisite: ET 1020
Co-requisite: ET 1031

ET 1031 Electric Circuits III Lab
1 Credit
3 Lab Hours
Lab to accompany ET 1030.
Co-requisite: ET 1030

ET 1040 DC and AC Circuits
5 Credits
5 Class Hours
A course for non-electronics majors. The course includes basic electrical fundamentals, the atom electron movement, insulators, conductors, voltage and

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current. Basic DC Circuits is covered, including Kirchoff’s Law, power, capacitors and inductors in DC circuits. The second portion of the course deals with AC circuits expanding the methods learned in DC with phasor analysis.

Co-requisite: MA 102 & ET 1041

**ET 1041 DC & AC Circuits Lab**
1 Credit
3 Lab Hours
Lab to accompany ET 1040.
Co-requisite: ET 1040

**ET 105 Seminar**
1 Credit
1 Class Hour
This seminar offers the chance for students to hear speakers from industry and learn the role of an engineering technician in local companies.

**ET 1210 Active Devices I**
3 Credits
3 Class Hours
An introductory course in solid-state bi-polar devices and the basic circuits in which they are used. Included are semiconductor physics, the junction diode, large and small signal diode approximations; common base, common emitter, common collector approximations, and large signal operation.
Co-requisite: ET 1020 & ET 1211

**ET 1211 Active Devices I Lab**
1 Credit
3 Lab Hours
Lab to accompany ET 1210.
Co-requisite: ET 1210

**ET 1220 Active Devices II**
3 Credits
3 Class Hours
An expanded study of solid state circuits and their design including biasing methods, AC operation, cascading of stages, temperature effects, and frequency response.
Prerequisite: ET 1210
Co-requisite: ET 1221

**ET 1221 Active Devices II Lab**
1 Credit
3 Lab Hours
Lab to accompany 1220.
Co-requisite: ET 1220

**ET 211 Electrical Safety**
3 Credits
3 Class Hours
This course covers the area of job-related safety. OSHA compliance, electrical safety philosophies, and engineering factors involved in meeting safety standards are a few of the topics discussed.
Pre-requisite: ET 2250

**ET 2230 Active Devices III**
3 Credits
3 Class Hours
A study of solid state, special purpose devices and the circuits in which they are used. Included are H parameter, field-effect transistors, silicon controlled rectifiers, triacs, diacs, unijunction transistors, varistors, thermistors, varactors, light emitting diodes, optoelectronic devices and integrated circuits.
Prerequisite: ET 1220
Co-requisite: ET 2231
ET 2231 Active Devices III Lab
1 Credit
3 Lab Hours
Lab to accompany ET 2230.
Co-requisite: ET 2230

ET 2250 Industrial Electronics and Logic
3 Credits
3 Class Hours
A study of electronic devices, circuits, and systems used to control machinery and processes in industry. All of the important solid state devices used in industry are presented in design situations with appropriate applications. Included are field effect transistors, silicon controlled rectifiers, triacs, diacs, PNPN silicon switches, unijunction transistors, industrial control relays, time delay circuits, digital control concepts, digital sequence control, linear and digital integrated circuit and electronic control of motors and power supplies.
Pre-requisite: ET 1220
Co-requisite: ET 2251

ET 2251 Industrial Electronics & Logic Lab
1 Credit
3 Lab Hours
Lab to accompany ET 2250.
Co-requisite: ET 2250

ET 2310 Introduction to Digital Logic
3 Credits
3 Class Hours
A study of basic numbering systems, basic computer codes and Boolean Algebra. The simplification of logic circuits using Boolean Algebra and Karnaugh maps is included. Following combinational logic, a brief study of sequential devices is covered. Implementation techniques using NAND and NOR Logic are also included.
Prerequisite: ET 1220
Co-requisite: ET 2320 & ET 2311

ET 2311 Introduction to Digital Logic Lab
1 Credit
3 Lab Hours
Lab to accompany ET 2310
Co-requisite: ET 2310

ET 2320 Pulse and Digital Circuits
3 Credits
3 Class Hours
A study of wave-shaping, clipping and clamping circuits, inverter circuits, bistable, monostable, and astable multivibrators. Some triggering circuits and the Schmitt Trigger are also included. Laboratory experiments emphasize the investigation and design of all circuits covered.
Prerequisite: ET 1220
Co-requisites: ET 2310 and ET 2230, ET 2321

ET 2321 Pulse and Digital Circuits Lab
1 Credit
3 Lab Hours
Lab to accompany ET 2320.
Co-requisite: ET 2320

ET 2330 Digital Computer Circuits
3 Credits
3 Class Hours
A study of computer systems including different types of shift registers and counters. A study of timing and sequencing operations is included along with a complete study of the ALU. Also included are different types of memory and some programming concepts, and an introduction to microprocessors.
Prerequisite: ET 2310 and ET 2320
Co-requisite: ET 2321
ET 2331 Digital Computer Circuits Lab
1 Credit
Lab to accompany ET 2330.
Co-requisite: ET 2330

ET 2340 Microprocessors
3 Credits
A comprehensive overview of microprocessor systems, design, programming, and applications. Included in the course is coverage interfacing and the popular IC's used in interfacing such as the PIA and ACIA.
Prerequisite: ET 2330
Co-requisite: ET 2340

ET 2341 Microprocessors Lab
1 Credit
Lab to accompany ET 2340.
Co-requisite: ET 2340

ET 2350 Microprocessors and Control
3 Credits
A comprehensive overview of microprocessor systems. This will include computer architecture and programming applications. Emphasis will be on interfacing and using microprocessors for automatic control applications.
Prerequisite: ET 2250
Co-requisite: ET 2351

ET 2351 Microprocessors and Control Lab
1 Credit
Lab to accompany ET 2350
Co-requisite: ET 2350

ET 2410 Introduction to Rotating Machines
3 Credits
A course designed to give the student an understanding of transformers and other magnetic devices along with a basic knowledge of the characteristics and performance of rotating machines. A comprehensive treatment of DC motors and generators, single and polyphase motors, alternators, and synchronous machines is given.
Prerequisite: ET 1020 or ET 1040
Co-requisite: ET 2411

ET 2411 Introduction to Rotating Machines Lab
1 Credit
Lab to accompany ET 2410.
Co-requisite: ET 2410

ET 2430 Operational Amplifiers
3 Credits
This course presents the theoretical concepts and practical parameters that determine the qualities of IC Op Amps such as their high input impedance, low output impedance, high gain, and other attractive features. Included are differential and operational amplifier circuits.
Prerequisite: ET 2230
Co-requisite: ET 2431

ET 2431 Operational Amplifiers Lab
1 Credit
Lab to accompany ET 2430.
Co-requisite: ET 2430
ET 2440 Energy Systems I
3 Credits
3 Class Hours
This course emphasizes study of power systems and their components, phasor and transmission diagrams, basic power circuit, percent and per unit quantities, current and voltage relations on a transmission line, four terminal networks, and ABCD constants. Also included as coverage of circuit interrupting devices, faults, and effective grounding.
Prerequisite: ET 2250
Co-requisite: ET 2441

ET 2441 Energy Systems I Lab
1 Credit
3 Lab Hours
Lab to accompany ET 2440.
Co-requisite: ET 2440

ET 2460 Magnetism and Transformers
3 Credits
3 Class Hours
This course involves the study of magnetic fields, Ohm's Law for magnetic fields, magnetizing force, Hysteresis, Ampere's circuital law, determining NI, air gaps, series-parallel magnetic circuits, ideal transformers, ratio relations, general transformer equations, practical conditions, transformer equivalent circuits, phasor and voltage relations, voltage regulations, short and open circuit tests, efficiency, and types of transformers.
Prerequisite: ET 1030
Co-requisite: ET 2461

ET 2461 Magnetism and Transformers Lab
1 Credit
3 Lab Hours
Lab to accompany ET 2460.
Co-requisite: ET 2460

ET 2480 Rotating Machinery I
3 Credits
3 Class Hours
The main objective of this course is to study electromechanical energy conversion, magnetic fields, construction and characteristics of DC Generators and motors, Dynamos, Synchronous alternators, operation and control of electrical machinery.
Prerequisite: ET 1030
Co-requisite: ET 2481, ET 2460

ET 2481 Rotating Machinery I Lab
1 Credit
3 Lab Hours
Lab to accompany ET 2480.
Co-requisite: ET 2480

ET 2490 Rotating Machinery II
3 Credits
3 Class Hours
Further study of the characteristics of electrical machinery, polyphase induction motors, single phase induction motors, special uses of synchronous and induction motors, motor control and operation.
Prerequisite: ET 2480
Co-requisite: ET 2491

ET 2491 Rotating Machinery II Lab
1 Credit
3 Lab Hours
Lab to accompany ET 2490.
Co-requisite: ET 2490
ET 2510 Introduction to Communications
3 Credits 3 Class Hours
This course is an introductory study of the various circuits and devices common to the field of communications. Included are noise calculations, information and bandwidth, non-sinusoidal waveforms, Fourier analysis, AM transmission and reception, SSB communications and FM transmission and reception.
Prerequisite: ET 2230
Co-requisite: ET 2511

ET 2511 Introduction to Communications Lab
1 Credit 3 Lab Hours
Lab to accompany ET 2510.
Co-requisite: ET 2511

ET 2520 Communication Systems
3 Credits 3 Class Hours
A course which involves an expanded treatment of the basic circuits covered in ET 251 and develops these concepts into communication systems. Included are TV transmission and reception, CB transceivers, facsimile, mobile telephone, communications transceivers, digital communications, pulse modulation, radio telemetry, transmission lines, wave propagation, antennas, waveguides and microwaves.
Prerequisite: ET 2510
Co-requisite: ET 2520

ET 2521 Communication Systems Lab
1 Credit 3 Lab Hours
Lab to accompany ET 2520.
Co-requisite: ET 2521

ET 2530 Robotics and Automation
3 Credits 3 Class Hours
Studies the history of automation, its advantages and limitations. Reviews robotics, its current impact and what the future might hold. Basic automation electrical and mechanical configurations in general use in industry. Lab work will include field trips to see automation in industry.
Prerequisite: ET 2350
Co-requisite: ET 2530

ET 2531 Robotics and Automation Lab
1 Credit 3 Lab Hours
Lab to accompany ET 2530.
Co-requisite: ET 2531

ET 2560 Electronic and Nuclear Instrument
3 Credits 3 Class Hours
A study of electronic instrumentation in use in industry. This course will deal primarily with how the electrical signals from transducers are amplified and will include special topics in nuclear instrumentation.
Prerequisite: ET 2250
Co-requisite: ET 2560

ET 2561 Electronic and Nuclear Instrument Lab
1 Credit 3 Lab Hours
Lab to accompany ET 2560.
Co-requisite: ET 2560
ET 260 Special Project
3 Credits 1 Class Hour, 6 Lab Hours
A project course in which the student and instructor identify a certain project to be pursued by the student. In this course, the student is required to submit the project for acceptance, acquire the parts, and build and test the completed product.
Prerequisite: ET 223 and approval of head of department.

ET 2800 Industrial and Commercial Power Distribution
3 Credits 3 Class Hours, 3 Lab Hours
This course is designed to familiarize students with basics of power distribution for industrial plants and commercial buildings. Emphasis is placed on voltage selection, one-line diagrams, motor control circuits, power factor improvements, protective devices, system grounding, system planning, medium voltage switchgears, cost estimation, and protective relaying.
Prerequisite: ET 246 and ET 244
Co-requisite: ET 2801

ET 2801 Industrial and Commercial Power Distribution
1 Credit 3 Lab Hours
Lab to accompany ET 2800
Co-requisite: ET 2800

MECHANICAL ENGINEERING TECHNOLOGY

MH 1010 Engineering Materials and Manufacturing Processes
3 Credits 3 Class Hours
A study of modern materials and their production. This course covers the production and fabrication of most common ferrous and non-ferrous metals; hot and cold working; heat treatment; casting, forging, and other forming processes; plastics.

MH 1011 Materials & Manufacturing Process Lab
1 Credit 3 Lab Hours
Lab to accompany MH 1010.

MH 111 Industrial Safety
3 Credits 3 Class Hours, 0 Lab Hours
This course covers the area of job-related safety. OSHA compliance, industrial safety philosophies, and engineering factors involved in meeting safety standards are a few of the topics discussed.
Prerequisite: EN 1050, EN 1051
Co-requisite: EN 106

MH 1120 Shop Practices I
2 Credits 2 Class Hours
This course serves as an introduction to the use of machine tools. Emphasis is placed on "hands-on" experience with the common machine tools; fabrication using welding and sheet metal processes; inspection, measurement, and gauging during the forming process.

MH 1121 Shop Practices I Lab
1 Credit 3 Lab Hours
Lab to accompany MH 1120.
MH 1130 Shop Practices II
1 Credit 1 Class Hours
This course is a continuation of MH 112 with additional emphasis placed on the more intricate machine elements such as threads and gears.
Prerequisite: MH-112

MH 1131 Shop Practices II Lab
1 Credit 3 Lab Hours
Lab to accompany MH.1130.
Prerequisite: MH 1121

MH 126 Shop Practices (EET Majors Only)
2 Credits 1 Class Hour, 3 Lab Hours
This course covers an introduction into the use of machine tools. Content is the same as MH 112 with the exception that welding techniques have been replaced by copperclas techniques. Limited to Electronic Engineering Technology majors only.
Prerequisite: ET 103

MH 2200 Advanced Shop Practices
3 Credits 2 Class Hours, 6 Lab Hours
This course builds on the experience of MH 112 and MH 113, covering more advanced shop fabrication techniques.
Prerequisite: MH 1130. 1131 and MH 132

MH 131 Statics
4 Credits 3 Class Hours, 3 Lab Hours
A course covering the branch of mechanics which deals with the effects of force acting upon a body at rest. Vectors, equilibrium, friction, and center of gravity are some of the concepts studied.
Prerequisite: MA 101
Co-requisite: MA 102 and PH 101

MH 132 Dynamics
4 Credits 3 Class Hours, 3 Lab Hours
As statics deal with the external forces on a body at rest, dynamics is concerned with the forces on a body which arise because it has motion. Velocity, accelerations, and their relationships to the dynamic forces are discussed in addition to the concepts of work, kinetic energy, momentum, and vibrations.
Prerequisite: MH 131
Co-requisite: MA 103

MH 201 Strength of Materials
4 Credits 3 Class Hours, 3 Lab Hours
A study of the internal reactions to external forces. This course deals with how various materials behave when loads or forces act on them. Principles of stress and strain, shear and bending are covered such that a material’s strength may be measured or calculated in various load carrying configurations such as beams, columns, compression, or tension structures.
Prerequisite: MH 132
Co-requisite: MA 103, DP 102
MH 211 Machine Elements I
4 Credits 3 Class Hours, 3 Lab Hours
A course covering various elementary machine elements. Bearing design-
selection, power shaft design, fastener design and weld design are a few of the
topics covered.
Prerequisites: MH 201, MH 132, MA 103, and DP 102

MH 212 Machine Elements II
4 Credits 3 Class Hours, 3 Lab Hours
A study of more advanced machine elements covering camshafts, gears,
clutches, flywheels and their applications, analysis, and design.
Prerequisite: MH 211

MH 221 Fluid Mechanics
4 Credits 3 Class Hours, 3 Lab Hours
A study of fluid mechanics with emphasis on the use of hydraulics and
pneumatics for power transmission; pumping theory and applications such as
the pressure losses in pipes, energy requirements, pressure head, viscosity and
flow rate.
Prerequisite: MH 132 and MA 103

MH 222 Hydraulics & Pneumatics
4 Credits 3 Class Hours, 3 Lab Hours
An introductory course in the application of Hydraulic and Pneumatic systems to
accomplish work. Application of Hydraulic power to single acting linear systems
is discussed and horsepower and efficiency are calculated. Seals and packings
pumps and valves are analyzed and methods of computing effectiveness are
studied. Pneumatic systems and Pneumatic logic control are also covered. The
student learns testing procedures for both Hydraulic and Pneumatic systems.
Prerequisite: MH 132, MH 221

MH 231 Thermodynamics and Heat Transfer
4 Credits 3 Class Hours, 3 Lab Hours
An introductory course in the fundamentals of applied thermodynamics and heat
transfer. Conservation of energy (1st law of thermodynamics) is discussed and
applied to practical engineering problems. The concepts of entropy, reversibility
and the second law of thermodynamics; the steam table and mollier diagram;
conduction, convection and radiation heat transfer; heat exchangers and their
applications are some of the topics covered.
Prerequisite: MH 221, ET 104, and DP 102

MH 233 Heating, Ventilation and Air Conditioning
4 Credits 3 Class Hours, 3 Lab Hours
A course covering the calculation of heating and air conditioning loads. Human
comfort, ventilation requirements, the psychometric chart and its use, air distribu-
tion and duct sizing are topics covered. Available refrigeration and heating
systems are discussed as time permits.
Prerequisite: MH 221
Co-requisite: MH 231

MH 241 Instrumentation
4 Credits 3 Class Hours, 3 Lab Hours
A course designed to introduce the student to the various mechanical and
electronic devices used to measure flow rate, pressure, level, temperature, and
other physical quantities.
Prerequisite: MH 221
or consent of MET Department
MH 251 Metallurgy
4 Credits  
3 Class Hours, 3 Lab Hours  
A course covering the properties of metals. Crystal structure, phase diagrams, heat treatment are a few of the topics studied in relation to mechanical properties of metals.
Prerequisite: MH 101 and MH 132

MH 261 Special Projects
3 Credits  
1 Class Hour, 6 Lab Hours  
A projects course in which the student and instructor identify a research design problem to be pursued by the student.
Prerequisite: MH 201, MH 221, Departmental Approval
Co-requisite: MH 231, MH 211

MH 271 Introduction to Solar Design
4 Credits  
3 Class Hours, 3 Lab Hours  
This course is an introduction to solar heating, including active and passive concepts. Consideration of design, application, and equipment will be given in addition to economic feasibility.
Prerequisite: MH 221
Co-requisite: MH 231

MH 277 Energy Systems
4 Credits  
3 Class Hours, 3 Lab Hours  
Principles of fossil fired and nuclear thermal and hydro-electric power plants will be covered in addition to peak-power generation and energy storage. Various fuels and fuel costs will be discussed. Other aspects of electric utility operation and alternate energy systems will be covered.
Prerequisite: MH 231 or Consent of MET Department
The Related Studies Division provides the foundations for a solid technical background. Each course has been designed to provide basic information necessary to the technician. The department heads of each technology have assisted in determining both course content and sequence of curriculum. The related areas are English, social science, mathematics, and physics.

**COMMUNICATIONS DEPARTMENT**

**English**

The English program promotes mastery of reporting skills, including writing, listening, and speaking — all essential tools of the technician. The practical aspects of communication — grammar, spelling, and vocabulary — are emphasized as needed to aid the student in developing sound techniques of collecting and presenting data.

**Social Science**

The social science courses seek to prepare students to deal effectively with situations and problems encountered in a growing technical society. Emphasis is placed on practical knowledge and skills.

**LEARNING SUPPORT CENTER**

The Learning Support Center provides assistance to students who want to improve their academic skills. The Center offers academic testing, counselling and tutoring. Students are encouraged to take advantage of these services.

**MATHEMATICS DEPARTMENT**

**Mathematics**

Mathematics courses stress the development of both computational skills and reasoning ability in the solution of technological problems. The curriculum presents concepts and processes of mathematics which are vital to scientific and technological progress.

**COMPUTER SCIENCE**

The computer science course is designed to extend these mathematical and technological processes into algorithms that can be programmed in the BASIC language.

**PHYSICS DEPARTMENT**

Physics courses are designed to offer students working knowledge of the basic principles of mechanics, heat, sound, electricity, light, magnetism, and other areas upon which all technological processes depend. An understanding of basic physical laws is essential for the technicians to maintain a proper perspective toward their work, which extends to the successful handling of new and unfamiliar tasks.

**COURSE REQUIREMENTS**

Related Studies requirements are listed in the appropriate section for each technology.
RELATED STUDIES DIVISION

Course Descriptions

COMPUTER SCIENCE

CS 120 BASIC Programming for Engineering Technologies
4 Credits, 3 Class Hours, 3 Lab Hours
An introduction to computer systems and applications through the use of the computer language called BASIC. The course will encompass broad areas of programming and computing systems, and will emphasize engineering applications.
Co-requisite: MA 101

ENGLISH

EN 1000 Basic Writing Skills
3 Credits, 3 Class Hours
A course designed to improve the individual student's basic writing skills, particularly in the areas of sentence structure and logical development of ideas. Grammar is studied as necessary to promote clarity and logic.
Co-requisite: EN 1003

EN 1003 Basic Writing Skills Lab
1 Credit, 3 Lab Hours
In EN 1003 the student will learn through individual conferences, group activities, workbook exercises, and assistance with discussion of writing assignments for EN 1000. The emphasis will be on the development of basic skills in grammar, spelling, and vocabulary.
Co-requisite: EN 1000

EN 1050 Patterns of Technical Writing
3 Credits, 3 Class Hours
A course focusing on the basic patterns of writing of use to the technician, with emphasis upon accuracy, clarity, and conciseness. The use of resources, development of a technical vocabulary, and a review of grammar and usage are employed as needed.
Co-requisite: EN 1051

EN 1051 English Laboratory (Technical)
1 Credit, 3 Lab Hours
The writing laboratory provides opportunity for students to improve spelling and grammar usage skills. In addition, it allows for in-class writing experience based on writing assignments given in the lecture. Diagnostic testing and consultation serve as bases for setting goals to meet various writing laboratory needs.
Co-requisite: EN 1050

EN 106 Technical Report Preparation
3 Credits, 3 Class Hours
A course in organizing and preparing various types of technical communiques and reports, including memoranda, business letters, proposals, abstracts, oral reports, semiformal and formal technical reports.
Prerequisites: EN 1050 and EN 1051
**EN 1150 Business Communications**  
3 Credits  
3 Class Hours  
English 1150 is designed to improve students' written communication abilities. Students learn to apply fundamental writing skills to business correspondence and to selected short business reports.  
Co-requisite: EN 1151

**EN 1151 English Laboratory (Business)**  
1 Credit  
3 Lab Hours  
The writing laboratory provides opportunity for students to improve spelling and grammar usage skill as applied in Technical Writing. Diagnostic testing and consultation serve as bases for setting goals for setting goals to improve various writing skills.  
Co-requisite: EN 1150

**EN 116 Business Report Writing**  
3 Credits  
3 Class Hours  
A continuation of short reports, including abstracts, proposals, and investigations, plus research, organization, and drafting of a formal business report from the student's field of study. Employment communications, including company research, personal resume, cover letter, and interview techniques are also studied and practiced.  
Prerequisites: EN 1150 and EN 1151

**EN 121 Oral Communication**  
3 Credits  
3 Class Hours  
Prepares students to make effective informative and persuasive talks on the job. Support topics include dealing with speechfright, understanding oral communication, and preparing visual aids. Students will plan and deliver several brief technical talks in class.

**EN 1400 Introduction to Technical and Business Writing for English-as-a-Second Language and Hearing-Impaired Students**  
3 Credits  
3 Class Hours  
The first writing course for students whose native language is not English and for hearing impaired students. A structured approach to word order and to special problems of English for the language learner is employed.  
Co-requisite EN 1401

**EN 1401 ESL-HI Writing Laboratory**  
1 Credit  
3 Class Hours  
The lab reinforces the topics studied in the lecture through intensive practice and repetition of basic patterns needed to learn the language.  
Co-requisite: EN 1400

**MATHEMATICS**

**MA 100 Elementary Algebra**  
5 Credits  
5 Class Hours  
Intended to provide a basic knowledge of algebra and to build skills in the use of the more elementary aspects of mathematics, the course emphasizes the solving of problems in technical areas. Topics include arithmetic review, elementary algebra, and geometry.

**MA 101 Algebra and Trigonometry I**  
5 Credits  
5 Class Hours  
An integrated treatment of algebra and trigonometry covering linear and quadratic
equations, functions and graphs, factoring, systems of linear equations, trigonometric functions, and solving right and oblique triangles.

**MA 102 Algebra and Trigonometry II**
5 Credits
A continuation of MA 101 including exponents and radicals, logarithms, complex numbers, inequalities, variation, equations of higher degree and trigonometric identities and equations.

Prerequisite: MA 101

**MA 103 Applied Calculus**
4 Credits
A presentation of the basic concepts of differentiation, integration and their applications to the physical sciences and engineering. Also included are selected topics from plane analytic geometry.

Prerequisite: MA 102

**MA 104 Geometry**
4 Credits
A course intended to enhance the student's comprehension of geometric principles. Topics covered include plane figures and their measurement, triangles, circles, geometric solids, cylinders, pyramids, cones, and spheres.

Prerequisite: MA 100

**MA 1400 Computation**
5 Credits
A study of the basic topics of arithmetic with emphasis on their practical uses.
The following topics are included: place value, whole numbers, rational numbers, decimal numbers, ratio and proportion, and percent.

**MA 1405 Elementary Algebra for Business Technologies**
4 Credits
An introduction to basic algebra skills which emphasizes the concepts of problem solving and algebra applications.

**MA 141 Business Equations**
4 Credits
An algebra based course concentrating on linear equations and on translations of verbal problems into symbolic form.

**MA 142 Linear Systems**
4 Credits
Linear systems of equation and inequalities, linear programming, and compound interest topics are presented.

Prerequisite: MA 141

**MA 143 Business Statistic's**
4 Credits
A presentation of probability models and statistical techniques and their applications.

Prerequisite: MA 141

**MA 204 Probability and Statistics**
3 Credits
An introduction to the basic principles of statistics and probability. Topics include visual description of data, measures of location, measures of variation, sampling, probability, and sampling distributions.

Prerequisite: MA 102
PHYSICS

PH 100 Introductory Physics
4 Credits 3 Class Hours, 3 Lab Hours
An introductory study of selected topics in physics involving a minimum of mathematics. Topics discussed include energy, basic electricity, wave motion and light, and physics of the atom as well as some interesting recent developments in physics.

Prerequisite: MA 140

PH 1010 Physics of Mechanics
3 Credits 3 Class Hours
This course provides an introduction to the basic concepts and principles of general physics. The course covers the major topics of mechanics including vectors, Newton's Laws, work, energy, circular motion, simple machines, impulse, and momentum. The laboratory parallels class work and will be used to illustrate lecture principles.

Prerequisite: MA 101

PH 1011 Physics of Mechanics Laboratory
1 Credit 3 Lab Hours
Laboratory to accompany PH 1010.

Co-requisite: PH 1010

PH 1020 Physics of Electricity and Magnetism
3 Credits 3 Class Hours
Basic Laws and theories of electricity and magnetism. Electric and magnetic fields, electric potential, DC circuits, electromagnetic induction, and an introduction to AC circuits are topics covered. Laboratory work closely parallels class work.

Prerequisite: PH 1010 and MA 101

PH 1021 Physics of Electricity and Magnetism Laboratory
1 Credit 3 Lab Hours
Laboratory to accompany PH 1020.

Co-requisite: PH 1020

PH 1030 Physics of Heat, Light and Sound
3 Credits 3 Class Hours
An introduction to wave motion, sound, thermodynamics, light, and optics.

Prerequisite: PH 1010 and MA 101

PH 1031 Physics of Heat, Light and Sound
1 Credit 3 Lab Hours
Laboratory to accompany PH 1030.

Co-requisite: PH 1030

DEVELOPMENTAL STUDIES

EN 100 Basic Writing Skills
3 Credits 3 Class Hours
A course designed to improve the individual student's basic writing skills, particularly in the areas of sentence structure and logical development of ideas. Grammar is studied as necessary to promote clarity and logic.

EN 1003 Basic Writing Skills Lab
1 Credit Hour 3 Class Hours
In EN 1003 the student will learn through individual conferences, group activities, workbook exercises, and assistance with and discussion of writing assignments.
for EN 100. The emphasis will be on the development of basic skills in grammar, spelling, and vocabulary. This course will aid the student who needs more intensive study of the basic skills taught in EN 100. Special attention will be given to verb tense and form, idiom and word choice, and standard living conventions and patterns.

**MA 140 Computation**
5 Credits 5 Class Hours
A study of the basic topics of arithmetic with emphasis on their practical uses. The following topics are included: Place value, whole numbers, rational-numbers, decimal numbers, ratio and proportion, and percent.

**READING**

**RD 100 Study Skills Improvement**
3 Credits 3 Class Hours
An introduction to techniques designed to teach the student how to identify and accomplish goals which contribute to better grades in all courses.

**RD 1010 Reading Improvement**
3 Credits 3 Class Hours
This course is designed to help students improve reading comprehension, speed, and vocabulary. Emphasis is also placed on stimulating a lasting interest in independent study.

Co-requisite: RD 1011

**RD 1011 Vocabulary Development Lab**
1 Credit 3 Class Hours
A lab for students who need to strengthen vocabulary for reading, speaking, and writing. The study of combined forms, pronunciation techniques, and reference sources will be presented in an individualized curriculum.

Co-requisite: RD 1010

**RD 102 Technical Reading**
3 Credits 3 Class Hours
This course introduces the student with at least average reading ability to special skills and techniques needed to read technical material. Topics covered include the use in technical writing of examples, classification comparison and contrast, illustrations, and specialized vocabulary.

**RD 103 Speed Reading**
1 Credit 1 Hour
In this course the student will learn and apply practices which contribute to selective and rapid reading of printed material. Learning experiences will include the use of Educulture tape presentations and individual workbook, as well as discussion and related supplemental materials.

**RD 1400 Introduction to Technical and Business Reading for English-as-a-Second Language and Hearing-Impaired Students**
4 Credits 4 Class Hours
The first reading course for students whose native language is not English and for those who need the development of basic reading skills. Word recognition and pronunciation techniques are combined with comprehension strategies to develop basic reading competency.
SOCIAL SCIENCE

SC 101 Human Relations
3 Credits 3 Class Hours
An experiential study of human interaction in the business and industrial complex. Emphasis is placed on the necessity of a cooperative environment to satisfy individual needs and to increase productivity.

SC 102 Applied Psychology
3 Credits 3 Class Hours
An introduction to those general principles of psychology which are most applicable to the everyday lives of students, emphasizing the transactional analysis approach.
BUSINESS AND INDUSTRIAL DEVELOPMENT DIVISION

The Division serves as an extension of State Tech to meet the needs of the working students of Knoxville and the surrounding area. All courses offered regularly in the day school may be offered in the evening program upon sufficient demand. In addition to the credit courses leading to the Associate Degree in each technology, special college credit and non-credit courses reflecting the needs of business, industry, schools, or government agencies may be organized at the request of a sufficient number of interested persons.

Additionally, State Tech offers programs for special interest groups and certificates in the following areas:

- Emergency Medical Technology
- Photography
- Insurance
- Real Estate
- Land Surveying

Emergency Medical Technology
Certificate Program

This one-year certificate program which trains Emergency Medical Technician Paramedics in the East Tennessee region is designed to administer advanced emergency care under the direction of a physician to victims of accidents and in acute medical emergencies. There is a great need to provide advanced life support for patients with critical care needs who are being transferred into tertiary care hospitals. Only students who work full-time for a licensed ambulance service as emergency medical technicians for a minimum of one year may apply.

EMT CURRICULUM

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<th>Course Code</th>
<th>Course Title</th>
<th>Class</th>
<th>Lab</th>
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<td>Shock and Fluid Therapy</td>
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EMT COURSE DESCRIPTIONS

EM 201 The EMT - Advanced
2 Credits
The role of Emergency Medical Technical-Paramedics in the health care delivery system is discussed. The duties and responsibilities of EMT's as well as any legislation affecting their job performance are covered. In addition, the students discuss issues concerning the EMT, including medical ethics and reaction to death and dying.

EM 202 Human Systems and Patient Assessment
5 Credits
4 Class Hours, 3 Lab Hours
This course includes an overview of anatomy and physiology of each body system. The use of medical terminology and the construction of medical terms using roots and prefixes are also included. In addition, the course deals with the procedure for a patient assessment, including the patient's medical history, physical examination, and transfer of collected information to the supervising physician.

EM 210 Shock and Fluid Therapy
4 Credits
3 Class Hours, 3 Lab Hours
Included in this course is a discussion of the fluids and electrolytes in the body with emphasis placed upon the manifestation of fluid and electrolyte imbalances. The manifestations of dehydration and overhydration are also included. The course also deals with the causes, signs, and symptoms of shock, fluid administration through intravenous techniques, and the application of the Medical Anti-Shock Trousers (MAST).

EM 220 Respiratory System
4 Credits
3 Class Hours, 3 Lab Hours
This course begins with a discussion of the anatomy and physiology of the respiratory system and the assessment of a patient with suspected respiratory distress. Pathophysiology, including respiratory arrest, upper airway obstruction, obstructive airway diseases, toxic inhalations, pulmonary edema, hyperventilation syndrome, pulmonary embolism, and trauma, are also discussed. Techniques of management of the previously defined include oxygen administration, use of adjunctive equipment, direct laryngoscopy, endotracheal intubation, esophageal obturator airway, and suctioning, among others.

EM 221 Cardiovascular System
6 Credits
5 Class Hours, 3 Lab Hours
The course begins with a discussion of the anatomy and physiology of the cardiovascular system, with emphasis upon the structure, function and electrical conduction system of the heart. Then the assessment of the patient with suspected cardiovascular problem is discussed. Pathophysiology is also covered including coronary artery disease and angina, acute myocardial infarction, cardiogenic shock, syncope, trauma, and hypertensive states. In addition, the course deals with the interpretation and treatment of basic arrhythmias. Specific techniques covered include cardiopulmonary resuscitation, electrocardiographic monitoring, defibrillation, phlebotomy, carotid sinus massage, intracardiac injection, transthoracic pacemakers, and use of mechanical heart-lung resuscitators.

EM 222 Central Nervous System
1 Credit
1 Class Hour
This course includes the anatomy and physiology of the nervous system and the procedure for the assessment of a patient with a nervous system disorder. The pathophysiology and management of patients, presented with CNS trauma,
seizures and cerebrovascular accident, are discussed. In addition, management of the comatose patient is covered. Specific treatments discussed include spinal immobilization in cases of trauma and the administration of diazepam in cases of seizures.

**EM 223 Musculoskeletal System**
3 Credits
This course includes the anatomy and physiology of the musculoskeletal system, patient assessment, and management of sprains, strains, fractures and dislocations. Skills presented include splinting and immobilization techniques with the traction splint, air splint and board splint.

**EM 224 Soft Tissue Injuries**
3 Credits
This course includes the anatomy and physiology of the integument and the assessment and management of soft tissue injuries, including abrasions, lacerations, punctures, avulsions, burns and impaled object. Skills presented in this course include control of hemorrhage and the dressing and bandaging of specific injuries. Also, injuries to specific regions, including the eye, face, neck, and abdomen, are discussed.

**EM 225 General Pharmacology**
3 Credits
This course is designed to introduce the student to the general groups of drugs and the classification of each. The course also discusses the kind of information the student should know about each drug, specifically therapeutic effect, indications, contraindications, correct dosage, and side effects. In addition, the course deals with the calculation of dosages, the use of the metric system, and the administration of drugs through the various routes.

**EM 230 Arrhythmia Identification and Treatment**
5 Credits
This course prepares the paramedic for specific identification and treatment of all major cardiac arrhythmias. Specific treatment includes: use of major cardiac drugs, positioning for transport, defibrillation, and other treatment methods.

**EM 240 Medical Emergencies**
3 Credits
The identification and management of diabetic emergencies, anaphylactic reactions, exposure to environmental extremes, alcoholism, poisoning, acute abdomen, genitourinary problems, and medical emergencies of the geriatric patient are the topics highlighted by this course.

**EM 241 Obstetric Gynecologic Emergencies**
4 Credits
This course includes the anatomy and physiology of the female reproductive system and the technique for assessment of a patient with suspected obstetric and/or gynecologic disorder. The course also includes the management of an expectant mother, normal delivery, and the care and transportation of the mother and newborn. Abnormal deliveries such as multiple births, premature birth, breech birth and prolapsed umbilical cord are discussed. In addition, complications of labor and delivery, including postpartum hemorrhage, ruptured uterus, eclampsia, and infant resuscitation are reviewed.

**EM 242 Pediatrics and Neonatal Care**
3 Credits
This course deals with the unique aspects of assessing pediatric patients. It also includes the pathophysiology and management of problems which are primarily
seen in pediatric patients, including asthma, bronchiolitis, croup, epiglottis, sudden infant death syndrome and seizures in the pediatric age group. In addition, the course covers the role of the EMT in a system for neonatal transport. The specific skills include a review of infant resuscitation, intravenous techniques and tracheal intubation on the infant.

**EM 243 Management of the Emotionally Disturbed Patient**  
3 Credits  
3 Class Hours  
This course covers the various kinds of psychological problems the EMT might encounter, and specific procedures for handling each are included.

**EM 250 Telemetry and Communications**  
3 Credits  
3 Class Hours  
The use of radio communications equipment including the transmission of voice communications and EKG transmission are covered. The course also includes a discussion of the regulations established by the Federal Communications Commission with respect to the use of radio equipment. In addition, the course deals with the protocols and procedures for the transfer of information to the supervising physician.

**EM 260-261 Clinical Training**  
4 Credits  
0 Class Hours, 12 Lab Hours  
This part of the program is comprised of time spent in various area hospitals, clinics, field trips, etc. Major emphasis will be placed on coronary care, intensive care, emergency room, labor and delivery, morgue, pediatrics, operating room, recovery room, psychiatric units, and ambulance experience.

**Insurance**

**Certificate Program**

State Tech offers a certificate in the area of General Insurance to students completing three courses sponsored by the Insurance Women of Knoxville:

IN 121 General Principles of Insurance  
4.5 Credits  
IN 122 Advanced Property Insurance  
4.5 Credits  
IN 123 Casualty Insurance  
4.5 Credits

**IN 121 General Principles of Insurance**  
4.5 Credits  
3 Class Hours  
Basic principles that underlie the entire field of insurance, as well as the nature and operation of the insurance business are covered.

**IN 122 Advanced Property Insurance**  
4.5 Credits  
3 Class Hours  
Primary emphasis is placed on understanding coverages, policy provision, and concepts common to property insurance. Contracts and forms studied include the standard fire policy, extended coverage endorsement, dwelling and contents forms, bailees', customers policy, and the property coverages provided by multiple line contracts.

**IN 123 Casualty Insurance**  
4.5 Credits  
3 Class Hours, 0 Lab Hours  
This course includes topics such as coverages, policy provisions, and concepts common to liability insurance policies, suretyship, and liability insurance aspects of multiple-line contracts, and life, health, and social insurance coverages.

A second area of certification is also sponsored by the Insurance Institute of
America for chartered Property Casualty Underwriters. To receive the certificate from State Tech a student is required to present evidence that the following ten courses have been completed successfully.

**INSURANCE COURSE DESCRIPTIONS**

**IN 1311 Principles of Risk Management and Insurance (CPCU 1)**  
4.5 Credits  
3 Class Hours, 15 Week Course  
This course will describe the risk management framework and discuss the insurance environment, basic legal concepts, and fundamentals of insurance contracts. It is strongly recommended that IN 131 be taken before other courses in the program. The latter courses will develop and apply the concepts and principles covered in IN 131.

**IN 1321 Personal Risk Management and Insurance (CPCU 2)**  
4.5 Credits  
3 Class Hours, 15 Week Course  
This course will apply the risk management process and concepts to individual and family exposures. The readings and case studies will illustrate the role of property and liability insurance, life and health insurance, social insurance, employee benefits, and coordinated insurance buying in personal risk management.

*The three courses in the Program of Insurance, i.e., IN 121, IN 122, and IN 123 may be substituted for IN 132.*

**IN 1331 Commercial Property Risk Management and Insurance (CPCU 3)**  
4.5 Credits  
3 Class Hours, 15 Week Course  
This course will begin with commercial property risk analysis and measurement and then examine the major commercial property policies and forms—fire and allied lines, business interruption, ocean and inland marine, crime and combination policies. Noninsurance techniques, such as loss and control and risk transfer, will also be discussed.

**IN 1341 Commercial Liability Risk Management and Insurance (CPCU 4)**  
4.5 Credits  
3 Class Hours, 15 Week Course  
This course will analyze the major sources of liability loss exposures and then examine the insurance coverages designed to meet those exposures. Premises and operations, products and completed operations, contractual and protective liability, employers liability and worker’s compensation, motor vehicles, and professional liability will be discussed along with surety bonds. It is strongly recommended that IN 133 be taken before IN 134. The survey cases in this course will presume a knowledge of IN 133 and cover both property and liability insurance.

**IN 1351 Insurance Company Operations (CPCU 5)**  
4.5 Credits  
3 Class Hours, 15 Week Course  
This course will examine insurance marketing, underwriting, reinsurance, rate making, claims adjusting, loss control activities, and other insurer functions and activities.

**In 1361 The Legal Environment of Insurance (CPCU 6)**  
4.5 Credits  
3 Class Hours, 15 Week Course  
This course will be based on general business law, particularly the areas of contract and agency law, and will emphasize the application of business law to insurance situations.

**IN 1371 Insurance Management (CPCU 7)**  
4.5 Credits  
3 Class Hours, 15 Week Course  
This course will cover general management principles and will include an introduction to management information systems.
IN 1381 Accounting and Finance in Insurance (CPCU 8)
4.5 Credits 3 Class Hours, 15 Week Course
The first nine topics of this course will provide a generalized collegiate-level treatment of basic accounting and finance principles. The final six topics will specifically relate to property and liability insurance company accounting and finance.

IN 1391 Economics in Insurance (CPCU 9)
4.5 Credits 3 Class Hours, 15 Week Course
This course will cover general economic principles at both the macro and micro levels.

IN 1401 Insurance Issues and Professional Ethics (CPCU 10)
4.5 Credits 3 Class Hours, 15 Week Course
The first twelve assignments in this course will analyze significant problems and issues that impact on the insurance industry. The three concluding assignments will focus on professional ethics in general and the American Institute Code of Professional Ethics in particular.

Surveying

Certificate Program

Recent changes in our State laws demand that surveyors become more responsive to the demands of public welfare. A surveying program was developed as part of State Tech's continuing effort to provide high-quality technical training for residents of Knoxville and surrounding counties.

The program consists of five courses. Each course meets three hours a night, one night a week, for ten consecutive weeks. Field work is held every other Saturday morning. Courses in the program include:

MA 132 Mathematics for Surveying
CT 161 Fundamentals of Surveying
CT 162 Transit-Tape Surveying and Computations
CT 163 Land Surveying
CT 164 Route Surveying and Subdivision Design

SURVEYING COURSE DESCRIPTIONS

MA 132 Mathematics for Surveyors
The purpose of this course is to equip students with the fundamentals of mathematics required to make surveying computations. This course, or its equivalent is a prerequisite, or co-requisite for the other courses in the program. Prior to registering for this course, a student must take State Tech's algebra placement test. The test requires twenty minutes and is offered in the Evening and Special Programs Office between 8:00 a.m. and 4:00 p.m. Monday-Friday. The placement test should be taken as soon as possible. This course covers general information, fundamentals of algebra, computations, fundamentals of geometry, fundamentals of trigonometry, and basic analytic geometry.

CT 161 Fundamentals of Surveying
4 Credits 3 Class Hours
This first surveying course is designed for persons with a limited knowledge of land surveying who wish to increase their skills. Emphasis is placed on trigonometry, basic surveying computation, and the measurement of horizontal and vertical distances. Course includes: trigonometry, measurement of horizontal
distance, measure of vertical distance, errors, basic surveying computation, notekeeping, direction of lines, introduction to transites and theodolites, and introduction to angles and directions. This course may be substituted into the Construction Engineering Technology curriculum for CT 121 Surveying I.

Corequisite: MA 132

CT 162 Transit-Tape Surveying and Computations
4 Credits
This course emphasizes the use of the transit and tape in traversing and the use of data collected in the field. Horizontal and vertical curves are also covered. Other topics covered are: use of transites and theodolites, measurements of angles and directions, transit-tape surveys, travers computation, special case computation, horizontal and vertical curves, stadia method, and earth work. This course may be substituted into the Construction Engineering Technology curriculum for CT 221 Surveying II.

Prerequisite: MA 132

CT 163 Surveying
3 Credits
This course places emphasis on the legal aspects of land surveying and astronomy. The course covers licensing, professionalism, inter-professional relationships, surveying documents, legal definitions and laws, principles of field astronomy, solar observations, and OSHA. This course may be substituted into the Construction Engineering Technology associate degree curriculum as a technical elective.

CT 164 Route Surveying and Subdivision Design
3 Credits
This advanced course incorporates land surveying fundamentals into a design project. This includes: review of surveying computation procedures, subdivision regulations, preliminary subdivision plans, final subdivision plans, and utility and grading plans. This course may be substituted into the Construction Engineering Technology associate degree curriculum as a technical elective.

Still Photography

Certificate Program

State Tech presents a 27 credit-hour Still Photography Certificate program. The program has arisen due to the need of business and industry to have qualified people on staff who are able to handle photographic jobs.

This certificate program is designed to give the student practical skills in lighting, camera handling, black and white and color darkroom techniques. The program consists of 24 credit hours of required course work plus three hours of electives. A students submitting documented evidence of completing 27 hours of course work will be awarded a certificate of completion.

STILL PHOTOGRAPHY COURSE DESCRIPTIONS

AV 111 Still Photography I
3 Credits
This beginning class covers the study of the camera, film, lighting, composition, black and white film processing, contact printing and enlarging. Students are responsible for providing a camera, film and photographic paper.

AV 112 Still Photography II
3 Credits
Advanced work in lighting, camera controls, and use of lenses prepares the
student for special topics such as slide copyin, internegatives, and copy prints. Students are responsible for providing a camera, film, and photgraphic paper. Prerequisite: AV 111

**AV 113 Darkroom Techniques**
3 Credits 3 Class Hours
Students in this course will be exposed to the study of developers for film and paper, developing techniques, and how they relate to contrast and grain. Topics covered are: how surfaces and textures relate to subject and mood, and printing controls, including cropping and burning-in. Students are responsible for providing a camera, film, photographic paper, and other miscellaneous supplies.

Prerequisite: AV 111

**AV 114 Creative Darkroom**
3 Credits 3 Class Hours
The study of special techniques is emphasized: solarization, base relief, photo montage, heat distortion, Kodalith, and posterization. Students are responsible for providing miscellaneous darkroom supplies.

Prerequisite: AV 111

**AV 115 Advanced Darkroom**
3 Credits 3 Class Hours
This course is designed for persons who have completed Darkroom Techniques successfully and wish further study in black and white printing techniques. The emphasis will be on producing professional quality prints. Students are responsible for providing miscellaneous darkroom supplies.

Prerequisite: AV 119

**AV 116 Color Reversal Printing**
3 Credits 3 Class Hours, 3 Lab Hours
This course covers the study of color printing directly from slides, with darkroom experience in the additive printing system. Students are responsible for providing miscellaneous darkroom supplies.

Prerequisite: AV 119

**AV 118 Color Negative Printing**
3 Credits 3 Class Hours
The study of printing techniques from a color negative is the emphasis of this course. Darkroom experience in the subtractive printing system is also covered. Students are responsible for providing miscellaneous darkroom supplies.

Prerequisite: AV 119

**AV 119 Color Theory**
3 Credits 3 Class Hours
Students who desire additional experience in shooting color slides and advanced work in flash, copying, portraiture table top and available light should take this course. Students are responsible for providing a camera, film and photographic paper.

Prerequisite: AV 113

**AV 117 Large Format Photography**
3 Credits 3 Class Hours
This course deals with the modern view camera. Topics include four camera movements, controlling depth of field, controlling perspective, dealing with distortion and processing shut film. Students are responsible for providing a camera, film, and photographic paper.

Prerequisite: AV 112
AV 120 Nature Photography
3 Credits 3 Class Hours
Basically designed as a field course for the beginner in nature photography, this course includes techniques for lighting and photographing many plants and animals both in the field and the studio. Students are responsible for providing a camera, film, and photographic paper.
Prerequisite: AV 111

AV 275-276-277 Special Problems in Photography
3 Credits 3 Class Hours
Course provides the opportunity for individual study through the use of a customized special problem assigned by the instructor according to interest and ability of each student. Students will be expected to develop photographic projects under the guidance of the instructor. Projects can include selection of subject, lighting materials, study of composition, film developing, print preparation, and use of special darkroom techniques.
A student may register for this course a maximum of three times, using a progressively larger course number each quarter. This course may be used as an elective toward the photography certificate.
Prerequisite: Approval of BID Division Head

AV 278 Photographing Scale Models
3 Credits 3 Class Hours
This course includes techniques involved with working with various types of engineering models. It is designed to teach scale model design and photography procedures needed in working with engineers. Students are taught to photograph models for both architects and engineers.
Prerequisite: Approval of BID Division Head

AV 279 Photojournalism for Industrial Photographers
3 Credits 3 Class Hours
The purpose of the course is to teach the student to handle a variety of photojournalistic assignments for typical company publications. Course content includes, but is not limited to, meeting tight deadlines, photographing in adverse situations, and laying out jobs.
Prerequisite: Approval of BID Division Head

Real Estate
Certificate Program

The Real Estate Certificate Program is designed for the local real estate industry in compliance with the teaching objectives established by the Tennessee Real Estate Commission. The program satisfies the education requirements of the Tennessee Real Estate Broker’s License Act of 1973, Section 62-1316 paragraph F for brokers and for affiliate brokers. It is a flexible program and allows an individual to specialize in any one of three areas.

A student submitting evidence of successful completion of the courses required for one of State Tech’s three areas of certification will be issued a certificate of program completion. The three areas are:

GENERAL REAL ESTATE BROKERAGE
RE 102 Principles of Real Estate 3.0 credits
RE 113 Real Estate Law 3.0 credits
RE 118 Real Estate Salesmanship 3.0 credits
RE 225 Advanced Real Estate Techniques 3.0 credits
RE 233 Real Estate Finance 3.0 credits
REAL ESTATE FINANCE AND APPRAISAL
RE 102 Principles of Real Estate 3.0 credits
RE 113 Real Estate Law 3.0 credits
RE 210 Residential Appraising 3.0 credits
RE 233 Real Estate Finance 3.0 credits
RE 235 Real Estate Investments 3.0 credits

REAL ESTATE DEVELOPMENT
RE 102 Principles of Real Estate 3.0 credits
RE 113 Real Estate Law 3.0 credits
RE 133 Introduction to Commercial Real Estate 3.0 credits
RE 210 Residential Appraising 3.0 credits
RE 244 Land Development, Marketing and Use Regulations 3.0 credits

REAL ESTATE COURSE DESCRIPTIONS

RE 102 Principles of Real Estate
3 Credits
3 Class Hours
The course deals with establishing goals for real estate salespeople and defines the activities needed to achieve these goals. Emphasis is placed on setting long term objectives, identifying yearly goals, and converting to monthly, weekly, and daily plans of action. Stress is on the law and on the Code of Ethics as a basis for developing a referral system, time management, and required knowledge and skill. Skill development includes the study of the interaction approach to communication, techniques to acquire saleable listings, the comparative market analysis, optimum selling conditions, advertising, servicing the listing, qualifying the buyer, financing, negotiating strategies, settlement procedures, telephone techniques, market conditions, and planning the agent’s specialized market area. The use of forms and record-keeping are emphasized. Instructional methods include cassette tapes, outside reading, group discussion of actual real estate sales problems, and role playing.

RE 113 Real Estate Law
3 Credits
3 Class Hours
The legal bases, ramifications, and standing of real property contract instruments are studied in view of common law precedents, federal state statutes and miscellaneous agency interpretations. This course will also investigate at length the implications of ethical conduct, and standard behavior as it relates to the brokerage of real property.

RE 118 Real Estate Salesmanship
3 Credits
3 Class Hours
Course examines examinations of fundamental principles underlying real estate brokerage activities to provide a broad foundation for students interested in real estate and to provide sufficient coverage of materials for mastery of the Tennes-see Real Estate Commission licensing examinations. Included are appropriate arithmetic calculations, sales contracts, and closing papers. Through a combination of instructor lectures, development of model problems, and exercises, students will be able to concentrate efforts in areas of their choice.

RE 133 Introduction to Commercial Real Estate
3 Credits
3 Class Hours
This course is designed for residential brokers or affiliate brokers who wish to expand their knowledge of commercial real estate. It will include fundamentals of commercial investments, development, financing, appraisal, leasing, city planning, and zoning. The status and trends of the current commercial real estate market will be explored as well as opportunities available to brokers in commercial sales.
RE 201 Mathematics, Contracts, and Closings  
1.5 Credits  
1.5 Class Hours  
Arithmetic calculations normally associated with real estate brokerage activities and contract closing will be developed in this largely self-pace study laboratory. Through a combination of instructor lecture and presentations as well as the use of practical problems and exercises, the student will be able to concentrate his learning effort in those areas where he/she requires greater levels of expertise. This course is intended to review and practice the basic profession, as well as those on the Affiliate Broker's Exam.

The student would learn how to properly write a real estate sales contract for residential property with emphasis on "traps for the unwary."

RE 210 Residential Appraising  
3 Credits  
3 Class Hours  
This course introduces the student to three methods of appraising residential property: comparative sales, unit cost, and gross rent multiplier. Basic concepts such as the purposes of appraisals, value of property, neighborhood and site analysis, and market conditions are covered using appraisal terminology. Students will appraise their own and their classmates' properties as well as properties of decidedly high and low economic values. All three appraisal methods will be used, but emphasis will be placed on the comparative sales approach.

RE 225 Advanced Real Estate Techniques  
3 Credits  
3 Class Hours  
This course is organized to introduce the beginning real estate salesperson to the basic aspects of listing, marketing and consumating the sale of real property. It is also designed to review techniques, suggest new approaches to common problems, and further develop the existing knowledge of the experienced REALTOR.

RE 233 Real Estate Finance  
3 Credits  
3 Class Hours  
Basic sources of lending in the field of residential and income property are covered, including FHA, VA and conventional loans and sources of commercial loans for income property. Interim construction financing is also covered. Discussion of current events and trends in the housing and money markets are used to highlight the concepts.

RE 235 Real Estate Investments  
3 Credits  
3 Class Hours  
The fundamental principles underlying successful real estate investments are examined. Finding opportunities, types of ownerships, income taxation and financing considerations are covered to enable the student to become more knowledgeable and successful in investing.

RE 244 Land Development, Marketing, and Use Regulations  
3 Credits  
3 Class Hours  
The planning, development, marketing and land use strategies necessary to insure success in residential land development pertaining to clusters, planned unit developments, and regional development; road layout and lot sizing; and marketing strategies. In addition, the basic philosophies of land use, enabling legislation, zoning and subdivision ordinances, administrative policies and current environmental protection controls are reviewed.
RE 246 Real Estate Office Management
3 Credits
3 Class Hours
This course deals with the many new challenges confronting the real estate business today. As sales become more complex, so do management challenges. People in sales today demand more education, training, and better management communications to guide them toward more successful careers. The course directs itself to these points with discussions of the job of managers and their functions.

Other Special Courses

BANKING COURSES*
State Tech, in cooperation with the Knoxville Chapter of the American Institute of Banking, offers AIB national curriculum courses to employees of the banking industry. Thus, the student can not only complete AIB requirements but also receive college credit hours. The courses are taught by instructors who meet both the college and chapter qualifications.

*At this time, courses are open only to individuals employed by the banking industry.

BK 110 Typing for Bankers
2 Credits
2 Class Hours
This course is designed to introduce banking personnel to basic typing skills. The objective of the course will be to bring students with little or no typing skills to the level of 60 words per minute.

BK 1062 Principles of Bank Operations
3 Credits
3 Class Hours
This course presents the fundamentals of bank functions in a descriptive fashion so that the beginning banker may acquire a broad and operational perspective. It reflects the radical changes in banking policy and practice which have occurred in recent years. Topics covered are banks and the monetary system, negotiable instruments, the relationship of the commercial bank to its depositors, types of bank accounts, the deposit function, the payments function, bank loans and investments, etc.

BK 1202 Marketing for Bankers
3 Credits
3 Class Hours
This course presents the broad concepts and philosophies of marketing for bankers. Topics include marketing, information and research, product strategy, distribution, advertising, sales promotion, personal selling, pricing strategy, and methods of marketing planning.

BK 1312 Installment Credit
3 Credits
3 Class Hours
This modular course emphasizes the pragmatic "how-to" details of installment Credit. Topics covered are principles of credit evaluation, open-end credit, marketing bank services, collection policies and procedures, legal aspects, financial statement analysis, direct and indirect installment lending, leasing and other special situations, installment credit department management, insurance, and rate structure and yields.

BK 2012 Analyzing Financial Statements
3 Credits
3 Class Hours
This is a twelve week course designed to provide lending personnel or management with a basic knowledge of accounting. Students are taught techniques necessary for the evaluation of financial conditions and operating performances of a modern business enterprise.

122 Business and Industrial Development Division
BK 2022 Introduction to Commercial Lending
3 Credits
3 Class Hours
To provide the student with an overview of the Commercial Lending process and the special role it plays in the field of banking. Emphasis is placed on: (1) the economic environment, (2) the loan request, (3) analysis of the request, (4) structuring of the loan, (5) active loan management, (6) problem loans, (7) portfolio management, (8) the regulatory environment and (9) business development.

BK 2032 Money and Banking
3 Credits
3 Class Hours
This course presents the basic economic principles most closely related to the subject of money and banking in a context of topics of interest to present and prospective bank management. The book stresses the practical application of the economics of money and banking to the individual bank. Some of the subjects covered include: structure of the commercial banking system; the nature and functions of money; banks and the money supply; cash assets and liquidity management; bank investments, loans, earnings and capital; the Federal Reserve System and its policies and operations.

BK 2042 Law and Banking
3 Credits
3 Class Hours
A twelve-week course designed for entry-level to five years experience which presents an introduction to basic commercial law as related specifically to banking and bank transactions.

BK 2051 Trust Function in Banking
3 Credits
3 Class Hours
This course is designed for non-trust bank personnel and/or those who have recently come into the Trust Department in a support position. This course provides an overview of the Trust Department, including how the Trust Department fits into the overall banking business, the service it provides and in general how those services are delivered. Other topics covered are the role of the Trust Department in commercial banks; assets and ownership; service and operational activities of the Trust Department.

BK 2242 Savings and Time Deposits
3 Credits
3 Class Hours
A twelve-week course designed to introduce banking students to the historical development of savings institutions and the basic economic function of the savings process in order to promote an understanding of the current operations and policies of these institutions.

BU 1311 Principles of Accounting I
3.5 Credits
3 Class Hours
A course which includes basic principles of accounting theory and practice, analysis and recording of business transactions, business documents, books and controlling accounts, adjusting and closing entries and payroll accounting.

BU 1321 Principles of Accounting II
3.5 Credits
3 Class Hours
A course which includes merchandise inventory, deferrals and accruals, fixed assets, systems and controls and partnership and corporate accounting.

EN 1101 Oral Communications in Banking
3.5 Credits
3 Class Hours
This course affords the student an opportunity to develop listening and speaking skills. The initial emphasis on interpersonal and intrapersonal communication...
evolves into the assignment of formal speeches. Emphasis is practical and "bank" oriented.

**MG 117 Interactive Management**
3 Credits 3 Class Hours
This course is designed to introduce the theory and benefits of an interactive management style and is applicable to all levels of supervision. During the course, each participant will be introduced to various management styles as well as an assessment of each style. The primary focus of the course will be on a management style which has an equally high concern for both production and people.

This course will include some lecture, and heavy concentration on improving group dynamics. Participants will be involved in group problem solving and will be exposed to make group presentations.

**MG 120 Business Management for Concentrating Dealers**
3 Credits 3 Class Hours
This course consists of an overall view of the dealer contracting business from the management perspective. Topics that will be covered are finance, labor control, job estimating and organization. Practical applications will provide a strong basis for management decision-making.

**SC 161 Human Relations in Banking**
4.5 Credits 4 Class Hours
The interaction of people in the business, banking, and industrial complex and the problems confronting the student involving human relations in his social, political, and economic roles are presented here. Stress is placed on the need to satisfy human wants as applicable to the employer and the employee. Emphasis is placed on the necessity of maintaining a cooperative environment to satisfy the individual needs, yet maintaining increased productivity. This course also services as an overview to enable the student to understand a highly-developed technical society and the commensurate problem areas. Special problems related to the banking industry are discussed in detail.

**INDUSTRIAL COURSES**

**AC 161 Accounting Compilation and Review**
3 Credits 3 Class Hours
This course is designed to provide the student with a working knowledge of compilation and review of various financial statements. Auditing standards as set forth by the American Institute of Certified Public Accountants are covered in detail. This course work satisfies educational requirements of the Tennessee Society of Public Accountants.

**MACHINIST CLASSES**

**AD 101 Machinist Blueprint Reading**
3 Credits 3 Class Hours
An introduction to blueprint reading and drafting that includes class exercises in interpreting lines and view positions found on prints, use of drawing tools, simple geometric construction, fundamentals of orthographic construction, English and metric measurement, scale and precision-dual dimensioning of drawings.

**AD 102 Advanced Blueprint Reading**
3 Credits 3 Class Hours
This course is a continuation of AD 101. Assembly and detail drawings will be used to illustrate print identification, drafting conventions and symbols, holes, sections, tapers, and castings. Emphasis will be placed on reading dual dimensioned shop prints.
AD 106 Measurement, Benchwork, and Drillpress
3 Credits
3 Class Hours
This course will cover tools and technical information required by metal working tradesmen involved with layout, benchwork, and the drill press; precision and non-precision measurement; layout tools and techniques; hand tools and benchworking techniques; drill press operations; related tools and accessories.

AM 101 Advanced Machine Math
3 Credits
3 Class Hours
This course is a continuation of Am 101, with an intensive review of arithmetic including addition, subtraction, multiplication, and division of whole and mixed numbers and common and decimal fractions; English and metric units; linear and square measure; square root; percentage; and the checking of calculations by excess of nines. Practical industrial shop problems are employed.

AM 103 Machine Math II
3 Credits
3 Class Hours
An introduction to geometry that includes definitions and descriptions of geometric terms, axioms and theorems; explanations regarding propositions dealing with straight lines, triangles and circles, and applications to practical shop problems.

AM 105 Machinist Math III
3 Credits
3 Class Hours
This course involves definitions of the trigonometric functions, construction and use of trigonometric tables, interpolation, solution of right triangle problems, and applications of trigonometry to practical shop problems.

Prerequisite: AM 103

AVIATION

AR 100 Aviation Weather
3 Credits
3 Class Hours
This course provides a basic background on the subjects of air masses, fronts, thunderstorms, log, icing, etc. Products of the weather service will be explored in depth and will include: Hourly Sequence Reports, Area Forecasts, Terminal Forecasts, etc. These areas are related to practical problems of making flight decisions in flight planning and stimulated in-flight decisions. It is designed to make the student aware of weather and how it relates to safe flying.

AR 102 Aviation Navigation
3 Credits
3 Class Hours
This course is one of three courses which are required in preparing for the written test required by the FAA (Federal Aviation Administration). The successful aviation student must have a good background in the theory and practice of navigation. He/she will learn how to read the aircraft instruments and to compute information necessary to make appropriate navigation decisions. The main objective of this course is to gain sufficient information about aviation navigation to be able to successfully navigate an airplane from one point to another and return. This course is designed to teach the student the basics of navigation including; dead reckoning, pilotage and radio navigation. The secondary objective is to instill safety into the student so all judgments made in navigational decisions are made with appropriate respect to safety of the public, the airplane, any passengers, and self.

AR 104 Aviation—Federal Regulations
3 Credits
3 Class Hours
The typical aviation student must have a thorough background in the Federal
Aviation Regulations before he/she is licensed as a private pilot. This course is one of three courses which is required in preparing for the written test required by the FAA. In addition to the regulations the student will be taught other aspects which are required in the quest for this license.

AR 105 Theory of Flight I
3 Credits
This course serves as an introduction to the aviation career and covers the history of aviation as well. Topics covered include: aircraft structures, components, aircraft powerplants, basic aerodynamics, cockpit instruments, airplane performance, aviation safety, medical factors and emergencies, flight maneuvers, take offs and landings.

AR 106 Theory of Flight II
3 Credits
This course is one of the pre-requisites for the Private Pilots License. It is designed to teach the student Aviation Safety, Medical Factors as they relate to pilots and passengers, dealing with emergencies, flight maneuvers and advanced aerodynamics. In addition the student will be familiarized with the procedures for the FAA Oral and Flight Test.

AV 100 Introduction to (Audiovisual) Media
3 Credits
In this course the student receives supervised work experience in many facets of audio-visual media. It provides exposure to various types of facets of audio-visual equipment including: opaque, overhead, film-strip, 35mm, 16mm, projectors, and audio and video taping. Instruction consists of demonstration and hands-on training from basic bulb changing (projector), film threading, graphics, 35mm slide making, overhead transparency making to complete and audiovisual presentation.

BU 150 How to Start and Manage your Own Business
3 Credits
This course consists of a study of small business strategy planning, personal characteristics and objectives, sources of capital, business structures, regulations, taxes, insurance, location, records, management, training and outside assistance. This course should be the basic course and should be offered each quarter in cooperation with the SBA and SCORE.

BU 160 Time Management
3 Credits
This course is for students that need 10 percent more time to do the job they would like to do. Making the most of the limited time during the day and managing time more efficiently is the goal. Learn how to tag time wasters and their causes, manage self, plan your week, delegate, organize, handle paper, block interruptions, plan and conduct meetings, and handle decisions.

CT 170 Basic Utility Surveying
3 Credits
This course is designed to introduce the student to Basic Surveying Concepts and how they are applied to the utility industry (Electric, Water and Gas). Emphasis will be placed on measurement of angles both horizontal and vertical. Measurement of distances by various methods and the accuracy and precision required to obtain the desired results will be discussed. The student will become familiar with various types of surveying equipment, including several kinds of tapes and chains, optical measuring devices, transits, several types of levels, theodolites as well as handouts. Field work will provide the students with the
opportunity to set up and operate the equipment in various field work situations, so that basic skills learned may be applied to work related situations.

**CT 197 Introduction to Building and Construction Cost Estimating**

3 Credits 3 Class Hours

This course is designed for persons responsible for making labor, material, and time estimates from construction drawings and blueprints. Topics include plans and specifications, site investigation, construction equipment, labor, materials, and supplies, overhead and indirect costs, and profit. A blueprint reading course or previous experience is suggested.

**CT 198 Basic Blueprint Reading**

3 Credits 3 Class Hours

An introduction to interpreting blueprints, this course is designed to give the student a good foundation in determining dimensions and the designer's intent in layout by use of symbols, sections, elevations, plans and details. The course will include construction drawings in structural steel, reinforced concrete, timber, electrical, and mechanical installation.

**CT 199 Advanced Blueprint Reading**

3 Credits 3 Class Hours

Using the basic blueprint reading course as a foundation, this advanced course will develop with greater detail the student's understanding of architectural, structural, mechanical, and electrical drawings. Course material will include, but not be limited to, an in-depth study of both a reinforced concrete and a steel structure. Using shop drawings, slide presentations, and field trips to the structures under study, the students will be able to obtain a better understanding of the factors involved in reading prints.

**DP 190 Introduction to Micro-Computers**

3 Credits 3 Class Hours

This course is designed to help students to understand how computers can be used in the home and/or the office and to acquire basic computer knowledge. The student will learn what a computer is and how it works, how computers affect our lives, and how computers are used to help consumers. Hands-on experience will be provided to aid the participants with the practical application of micro-computers in home, business, technical, educational, and recreational settings.

**EM 108 Emergency Care Course**

1.5 Credits 1.5 Class Hours

Designed for the general public who may or may not have had any first aid training. Subjects covered are: Cardiopulmonary resuscitation (CPR), clearing obstructed airways, proper splinting of fractures and dislocations, and emergency childbirth procedures. Successful completion of this course will earn participants a certificate of completion from Emergency Medical Services, Department of Public Health for the State of Tennessee.

**EM 109 Emergency Medical Care Course**

4 Credits 4 Class Hours

Individuals taking this course must have a certificate of completion from Emergency Care Course (EM 108) or hold a current certification from the Standard First Aid Course (American Red Cross). This course is designed for industrial plant supervision, members of police departments, fire departments, and rescue squad personnel. Subjects covered include: review of subjects covered in EM 108 plus spine board application, extrication of victims from accident situations, use of respirators and other emergency life saving equipment, and recognition of symptoms and treatment of poisoning. Successful completion of this course
will earn participants certificate of completion from Emergency Medical Services, Department of Public Health for the State of Tennessee.

**EN 214 Business Letter Writing for Managers**
3 Credits 3 Class Hours
This course is designed to make letter writing easier and to improve business communications. It deals with eliminating outdated and overused words and phrases; punctuation and grammar; different types of business letters; improving dictation methods; and time-saving methods.

**ET 198 Industrial Electricity**
3 Credits 3 Class Hours
This course is specifically designed for persons working as industrial electricians in the industrial environment or toward that goal. It can provide refresher background for those with some experience or serve as a starting point.

**MC 161 Industrial Lubricants**
2 Credits 2 Class Hours
After completion of this course, the trainee should be able to demonstrate knowledge of lubrication by being able to discuss the need, sources, and properties of the three classifications of lubricants. The trainee should be able to itemize the more important, or the more frequently encountered, operating conditions and show the relationship between them, the physical properties of lubricants, and the standard classification of lubricants. Trainees should be able to set up a Simple Lubricative Preventive Maintenance Program and list the returns from such a program.

**MC 171 Basic Shop Mechanics I**
2 Credits 2 Class Hours
This is an introductory course designed to acquaint the student with the terms and tools necessary to perform basic mechanical operations and will include: basic hand tool use, measurements, bearings, lubricants, keys, belts and chains, couplings and shafts, hand pullers, etc.

**ME 190 Industrial Safety**
3 Credits 3 Class Hours
American industry has two jobs to perform in the safety area. First, it must provide a safe environment from a production standpoint. Since the enactment of the Occupational Safety and Health Act of 1970, it also has a new job of law compliance. It is the intent of this course to introduce the student to the concepts of industrial safety and draw together some approaches to the problem of complying with OSHA.

**ME 191 Fluid Power I**
3 Credits 3 Class Hours
This study of fluid mechanics emphasizes the use of hydraulics and pneumatics for power transmission and control purposes. The course covers fluids and their properties, hydraulic principles of linear systems, seals and packings, and an introduction to pneumatics.

**ME 192 Fluid Power II**
3 Credits 3 Class Hours
As a continuation of ME 191, this course covers the techniques for calculating the fluid flow rate and velocities in a given fluid system, methods for calculating the total energy in a fluid system, laminar and turbulent flow, and friction factors and pressure drops in systems.
ME 193 Precision Instrument and Blueprint Reading
2 Credits 2 Class Hours
This course is designed to provide the student with the basic understanding and proper use of precision measuring instruments, involving elementary blueprint reading. The course will enable the student to visualize and draw elementary three-dimensional views of a machine part, read various precision measuring instruments, judge both bilateral and unilateral tolerances, and inspect a machine part from a blueprint.

ME 194 Intermediate Precision Instrument and Blueprint Reading
2 Credits 2 Class Hours
This course is designed for the student who has a basic knowledge of blueprint reading and desires to become more proficient in reading more complicated blueprints. The student will also be taught to visualize and draw more complicated three dimensional views of machine parts and be able to inspect those parts using both simple and sophisticated measuring instruments.

MG 116 Management for First Line Supervisors
3 Credits 3 Class Hours
This course is constructed to introduce and orient a new first-level supervisor and the middle manager to the duties of supervision. It is designed to improve the performance of personnel on these jobs and to prepare them to advance to higher positions. It is also a good refresher course for a supervisor who has been on the job for some time and desires to acquire new knowledge of concepts for dealing with personnel.

MICRO-COMPUTERS

MI 180 Micro-Computer Applications
2 Credits 2 Class Hours
This course is designed to introduce students to the micro computer and its application in business, home and education. The course is geared for students with no experience on the micro-computer and will provide hands-on experience with only a brief introduction to programming.

MI 190 Introduction to Micro-Computers
3 Credits 3 Class Hours
This course is designed to introduce students to the micro-computer and its application in business, home and education. The course is geared for students with no experience on the micro-computer and will provide hands-on experience with only a brief introduction to programming.

MI 191 Micro-Computer Programming in BASIC
3 Credits 3 Class Hours
This course will provide an introduction to the BASIC Language, using the Apple II Micro-computer. The course is directed at developing skills necessary to design and write programs to manipulate data files on the Apple.

MI 192 Micro-Computer Programming in PASCAL I
3 Credits 3 Class Hours
This course is designed to introduce students to UCSD Pascal and the Pascal Operating System. The course will provide hands-on experience with the Pascal Operating System. Instruction in the syntax and structure of the Pascal language will be provided. Programming techniques and application will be emphasized.

MI 193 Micro-Computer Programming PASCAL II
3 Credits 3 Class Hours
Pascal is designed to be used as a teaching language utilizing a discipline
approach to programming and problem solving. Pascal has also been used to implement program systems.

This course is a continuation of Pascal I. The student must be proficient with the Pascal Operating System. The course is designed to provide full coverage of the Pascal language. Each student must design and write an application program related to an area of interest to the student or as specified by the instructor.

**MI 194 Survey of Micro-Data Processing**
3 Credits 3 Class Hours
This course is designed to provide a basic introduction to Data Base Management as it is implemented on a micro-computer. Various Data Base Management Systems will be discussed with respect to ease-of-use, structure and operation. The course will provide instruction in the proper use and care of the hardware and software components of a micro-computer system. Additional instruction and time will be provided to allow for hands-on-use and experience.

**MI 195 Micro-Programming in LOGO**
3 Credits 3 Class Hours
LOGO is a very useful and powerful programming language. It currently runs on a wide range of micro computers. This course is designed to provide the student with the knowledge and skill to efficiently use the LOGO language. The course assumes no previous experience with micro-computer.

**MI 196 Micro-Computer Programming in D Base II**
3 Credits 3 Class Hours
This course is designed to provide the student with an introduction to programming using d BASE II. The course will provide a theoretical as well as a practical approach in the presentation of this language. Design and structure will be stressed and students will learn to develop coding techniques.

**SC 140 Career Options for Women**
3 Credits 3 Class Hours
This is a ten week in-depth course with helps the woman to learn where the jobs are; make the transition from the home to the job market; analyze her abilities and interests; manage her finances; develop a resume; learn the do's and don'ts of interviewing; and make the most of her appearance.

**SC 150 The World of Work: Where do I Belong?**
3 Credits 3 Class Hours
This course will give the participant the tools to actively pursue a job or career in today's job market. The Strong-Campbell Interest Inventory will give direction to career interest areas. Identifying individual goals, needs and expectations are explored. Also, the strategies involved in successfully accomplishing career goals are presented. Researching specific careers/jobs, resume writing, dressing for hire, plus interviewing techniques are among the "practical" topics presented and practiced.

**SC 192 Quality of Work Life: Productivity and Work Climate**
3 Credits 3 Class Hours
The purpose of this course is to present information and experiences of Quality of Work Life Programs and relate this to each individuals own work experience. Participants will learn to be able to constructively critique their work environment. They will also survey Quality of Work Life, Quality Circles and Organizational Development, and be able to describe similarities and contrasts. Change as it relates to Quality of Work Life will also be covered.
OFFICE TECHNOLOGY

SS 101 Speedwriting I
3 Credits 3 Class Hours
Speedwriting is written with familiar letters of the alphabet and punctuation marks relieving the student of the necessity of breaking down learned habits of writing and reading and superimposing new habits as with symbol shorthand. It is not an abbreviation of longhand. It is a phonetic and logical system of shorthand-phonetic because it is based on sound, and logical because sounds are written according to principles learned lesson by lesson.

SS 102 Gregg Shorthand I
4 Credits 4 Class Hours
A beginning course in the theory and practice of reading and writing Gregg Diamond Jubilee Shorthand emphasizing phonetics, penmanship, word families, brief forms and phrases with reference to appropriate vocabulary, spelling, punctuation and grammar.

SS 130 Records Management
3 Credits 3 Class Hours
This course is a study of records administration beginning with the creation of documents and covering the basic rules of alphabetic, numeric, subject, geographic, and chronological filing methods; micro-records; card files and visible records; special purpose records; mechanical and manual retrieval; retention schedules; filing equipment, supplies and personnel; and the management of operating and controlling records programs.

SS 140 Typing Refresher Course
3 Credits 3 Class Hours
This course is designed to review and upgrade secretarial skills. Emphasis will be placed on the touch typing system, speed, accuracy, proof reading, production of mailable work, tabulations, correspondence & business/letter forms. Keyboarding techniques will also be included in the class work.

SS 201 Business Law for Secretaries
3 Credits 3 Class Hours
An introductory course study of law in relation to the proper conducting of business. Topics to be covered include the nature and source of law, courts and courtroom procedure, contracts, sales, and negotiable instruments. These topics will be explored through class discussion, case study, and field experience.

SS 238 Office Procedures
3 Credits 3 Class Hours
This course is designed to refresh or upgrade clerical knowledge and skills emphasizing efficiency in today's office with it's vast array of new equipment and new organizational patterns, and to help lead the student on a career path toward an ultimate goal. Topics covered include: public relations, telephone communication, expediting meetings, handling travel arrangement, mail and shipping responsibilities, computer technology, research, composing assignments, presenting statistical information, taking and giving dictation, word processing, reprographics, banking and legal duties, investment, insurance, payroll and tax records, and planning for a professional future.
CREDIT UNION COURSES

CU 104 Credit Union Accounting I
3 Credits 3 Class Hours
This course, as a part of the CCUE designation, includes an introduction to accounting; nature of accounting; the accounting cycle; analysis of transactions; the accounting equation; books of original entry; subsidiary ledger and controlling accounts; purchases; sales and uncollectable accounts and loans; credit instruments; voucher system; cash receipts; disbursements; accruals and deferral; payroll; closing and adjusting entries. A study guide and standard college level textbooks* will be utilized. Validation of knowledge will be accrued by examination.

CU 105 Credit Union Accounting II
3 Credits 3 Class Hours
Course emphasis is on the preparation and use of reports for management decision making. Topical areas include: management accounting, cost behavior, cost flows and capital budgeting, financial statement analysis measuring performance, planning and control, budgeting, standard costing, internal control, audits, and cost allocations. Accounting I is a prerequisite for this course.

CU 107 Credit Union Management
3 Credits 3 Class Hours
The principles of sound management are presented in this course. Topics include: motivation, organization, human factors in organization, decision making in the credit union, planning, leadership and directing, controlling management and development as it relates to credit union operation.

CU 108 Credit Union Marketing
3 Credits 3 Class Hours
The facts and principles of marketing are set forth in this course. Discussion analysis of such activities as planning, strategy and developing a marketing program are discussed. Topics include: the marketing concept and structure; market information and buyer behavior; consumer and intermediate customers buying behavior; product, packaging and branding decisions; consumer and industrial goods, product planning and time-place utility; channels of distribution; promotion; pricing; strategy and integrating the market program; controlling marketing programs and the cost-value to society.

CU 109 Credit Union Office and Personnel Administration
3 Credits 3 Class Hours
The principles of management are exemplified in the various office and personnel situations encountered in the credit union. Topics include: systems and procedures; office layout; records management; information media; supervisory skills; developing office employees; salary administration; job evaluation; labor relations; performance appraisal and training methods; benefit programs; management's responsibility in dealing with people.

REVIEW COURSES

ME 175 Certified Engineering Technician Review—Mechanical
3 Credits 3 Class Hours
A review concentrating on the general areas covered on the mechanical engineering technology examination administered by the Institute for the Certification of Engineering Technicians. Topics covered include technical fundamentals, strength of materials, machine design, heating ventilating and air conditioning, pressure vessels and piping, hydraulics, instrumentation, materials handling, power transmission, welding and fastening and basic electricity.
PA 199 Parliamentary Procedure
3 Credits 3 Class Hours
How to lead or participate in a business meeting is the purpose of this course. Aimed especially at club or organization members and officers, the course will cover Robert’s Rules of Order. Students will be involved in actual practices of parliamentary procedure.

CT 175 Certified Engineering Technician Review—Civil
3 Credits 3 Class Hours
A review concentrating on the general areas covered on the civil engineering technology examination administered by the Institute for the Certification of Engineering Technicians. Topics covered include surveying, earthwork, soil mechanics, plain concrete, hydraulics, highway design and route surveying, statics, strength of materials, environmental technology, construction materials and inspection.

ET 175-Certified Engineering Technician Review—Electrical
3 Credits 3 Class Hours
A review concentrating on the general areas covered on the electrical—electronics engineering technology examination administered by the Institute for the Certification of Engineering Technicians. Topics covered include basic technical concepts, pulse electronics, communications, electronics, solid state circuit design, computer, test equipment, electric power systems and power.

ET 176 Certified Engineering Technician Review—Electrical Power
A review concentrating on the areas covered on the electrical power technology examination administered by the Institute for the Certification of Engineering Technicians. Topics covered include power distribution, production, transmission, and sub-station operation, in addition to codes and standards, phasing, problem analysis, insulator requirements, and conductor selection and spacing.

GS 175 Certified Engineering Technician Review—General
3 Credits 3 Class Hours
A review concentrating on the areas covered on Part A—General Examination administered by the Institute for the Certification of Engineering Technicians. Topics covered include communications skills, reading and vocabulary, technical phrasing, business correspondence and reports, graphics, mathematics, formulae and symbols for physical science.

GS 101 GED Preparation
3 CEU’s 3 Class Hours
General Education Development Program is designed to assist persons who wish to take the GED test and achieve the equivalence of a high school diploma. The course covers basic skills in reading, composition, and math. The program will be a ten-week course of study.
Governance and Advisory Committees

STATE BOARD OF REGENTS

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William H. Walker, III, (ex-officio) Commissioner of Agriculture
Robert L. McElrath, (ex-officio) Commissioner of Education
G. Wayne Brown, (ex-officio) Executive Director of THEC

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Claude C. Bond
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Ross N. Faires
William W. Farris
Dale F. Glover
James H. Jones
Richard Lewis
C. Scott Mayfield
J. Howard Warf
David White

General Advisory Committee

Walter Boruff
Ernst and Whinney
P. O. Box 279
Knoxville, TN 37901

Ray Clift
Rohm & Haas
P. O. Box 591
Knoxville, TN 37901

Joe Davis
Chamber of Commerce
301 Church Avenue
P. O. Box 2688
Knoxville, TN 37901

Jeff Dyer
First American National Bank
P. O. Box 2648
Knoxville, TN 37901

John Flemings
Tennessee Valley Authority
Division of Construction
Knoxville, TN 37902

Memphis
Chattanooga
Clarksville
Johnson City
Tullahoma
Oneida
Memphis
Obion
Mt. Pleasant
Nashville
Athens
Hohenwald
Knoxville

Bruce Fowler
Knoxville News Sentinel
208 W. Church Avenue
Knoxville, TN 37901

Lee Grant
Tennessee Department of Employment Security
530 Henley Street
Knoxville, TN 37901

Carlton Little
Knoxville Utilities Board
P. O. Box 1951
Knoxville, TN 37901

Wanda Moody
Administrative Assistant
Office of the Mayor
P. O. Box 1631
Knoxville, TN 37901

Judy Malach
Union Carbide
Y-12, P. O. Box Y
Bldg. 9206, MS 001
Oak Ridge, TN 37830
Jim McCoin  
Knox County Government  
City/County Building  
Knoxville, TN 37901

A. J. Morreale  
NAP Consumer Electronics  
P. O. Box 6950  
Knoxville, TN 37914

Dr. Jack Reese  
University of Tennessee  
527 Andy Holt Tower  
Knoxville, TN 37916

James Robinson  
Vice President, Products Group, Technology for Energy Corporation  
One Energy Center  
Pellissippi Parkway  
Knoxville, TN 37922

John Schmit  
Boeing Engineering  
967 West Outer Drive  
Oak Ridge, TN 37830

John Shields  
Robertshaw Fulton Company  
2318 Kingston Pike  
Knoxville, TN 37919

Lyoren Teffeteller  
ALCOA  
P. O. Box 9158  
Alcoa, TN 37701

James White  
Union Carbide  
P. O. Box Y  
Oak Ridge, TN 37830

Charlenia Wilson  
Austein-East High School  
2800 East McCalla Avenue  
Knoxville, TN 37914

Technology Advisory Committee listings are current as of December 1, 1983. Changes may have occurred after that date.

Aviation Advisory Committee

Narsh Benson  
State Technical Institute  
At Knoxville  
P. O. Box 19802  
Knoxville, TN 37919

Art Finnerty  
State Technical Institute  
At Knoxville  
P. O. Box 19802  
Knoxville, TN 37919

Ken McCullough  
Ultralight Aviation, Inc.  
421 G-4  
Walland, TN 37886

Genie Rae O'Kelley  
Volunteer Aviation  
P. O. Box 804  
Alcoa, TN 37701

Dan Kuchta  
Volunteer Aviation  
P. O. Box 804  
Alcoa, TN 37701

Gary B. Holt  
State Technical Institute  
At Knoxville  
P. O. Box 19802  
Knoxville, TN 37919
Banking and Finance Advisory Committee

Carol Clift
Valley Fidelity Bank
601 Market Street
Knoxville, TN 37901

Wanda Coker
Administrative Assistant
United American Bank
P. O. Box 280
Knoxville, Tennessee 37901

Debra Lash
Park National Bank
P. O. Box 511
Knoxville, TN 37901

Tom Lynch
Bank of Knoxville
406 Northshore Drive
Knoxville, TN 37919

Claudia McCorkle
First American Bank
1185 Keowee Avenue
Knoxville, Tennessee 37919

Stephen Moorman
First American Bank
P. O. Box 2648
Knoxville, TN 37901

Helen Seymour
First Tennessee Bank
P. O. Box 5548
Knoxville, Tennessee 37918

Business Data Processing Technology Advisory Committee

Gene Byers
Room L119
City-County Building
400 Main Avenue
Knoxville, TN 37902

Carolyn Carson
400 E. Lake Forest Drive
Knoxville, TN 37920

Sandy Edmond
Banker's Service Group
531 Gay Street
Knoxville, Tennessee 37902

Jack Fortenberry
400 Barclay Drive
Knoxville, TN 37920

Ron Gehrts
Data One
617 Main Ave.
Knoxville, Tn. 37901

Tom Kennedy
Systec Source
8025C Kingston Pike
Knoxville, Tennessee 37919

Larry Stiles
Assistant Dean of Information Systems
University of Tennessee
414 Student Services Bldg.
Knoxville, Tennessee 37916

Robert Wildsmith
Systems Supervisor
Data Processing
Knoxville Utilities Board
P. O. Box 1951
Knoxville, Tennessee 37901
Chemical Engineering Technology Advisory Committee

James Blackburn
IT Envirosience, Inc.
9041 Executive Park Drive
Knoxville, TN 37923

R.M. Counce
University of Tennessee
Dept. of Chemical Engineering
Knoxville, TN 37916

James M. Ford
Olin Corporation
P. O. Box 248
Charleston, Tennessee 37310

Tommy Huskey
Vinylex Corporation
2636 Byington-Salway Road
Knoxville, Tennessee 37921

John R. McDowell
Noll Associates Tennessee, Inc.
1423 Coker Avenue
Knoxville, Tennessee 27917

Computer Accounting Technology Advisory Committee

Don Bright
Certified Public Accountant
Main, Hudman, & Cranstown, C.P.A.'s
1926 United American Plaza
P. O. Box 2505
Knoxville, Tennessee 37919

John D. Brown
Principle Financial Officer
Elk River Resources, Inc.
P. O. Box 10388
Knoxville, Tennessee 37919

Howard Cox
Controller
American Clothing Co.
122 W. Jackson Ave.
Knoxville, TN 37901

Charles J. Kinnamon
Superintendent of Accounts
Knoxville Utilities Board
P. O. Box 1951
Knoxville, Tennessee 37901

Randy Lowe
Pugh & Company C.P.A.'s
P.O. Box 2231
Knoxville, Tn 37901

William M. Miller
827 West Broadway
Maryville, TN 37801

Donald E. Spangler
Oak Ridge National Laboratories
P. O. Box X
Building 7601
Oak Ridge, Tennessee 37830

Boris Triko
Aluminum Company of America
P. O. Box 158
Alcoa, Tennessee 37701

Clyde D. Watson
Oak Ridge National Laboratories
P. O. Box X
Building 7601
Oak Ridge, Tennessee 37830

Jack Watson
Rohm and Haas, Tennessee, Inc.
P. O. Box 59
Knoxville, Tennessee 37901

Virginia Morrow, C.P.A.
Author Anderson & Co.
507 Gay Street, S.W.
Suite 725
Knoxville, Tennessee 37902

Marvin T. Smoot
Controller
Knoxville News-Sentinel
208 Church Street
Knoxville, Tennessee 37901

Larry E. Wheeler
Supervisor of Nuclear Control and Accounting
Union Carbide Corporation
P. O. Box P
Oak Ridge, Tennessee 37830

James G. McCoin
Knox County, Director of Purchasing and Personnel
Room 612
City-County Building
Knoxville, Tennessee 37901
Construction Engineering Technology Advisory Committee

Albert H. Barnes
Architect
1 Hillvale Circle
Knoxville, TN 37919

David Bogaty
5930 Cardan Dr.
Knoxville, TN 37919

Theodore A. Bowles
Supervisor, Construction & Design Engineering Section
Tennessee Valley Authority
400 Commerce Avenue
E6A2
Knoxville, Tennessee 37902

David Collins
Bechel National, Inc.
800 Oak Ridge Turnpike
P.O. Box 350
Oak Ridge, Tennessee 37830

Bill Evans
State Department of Transportation
Bureau of Highways
P. O. Box 58
Knoxville, Tennessee 37901

James P. Girard
Geotek Engineering Company
5039 Tenwood Drive
Knoxville, Tennessee 37921

Steve King
City of Knoxville
1400 Lorian Street
Knoxville, Tennessee 37921

Joe Miller
West, Miller, Welch Engineers
5417 Ball Camp Pike
Knoxville, Tennessee 37921

Electrical Engineering Technology Advisory Committee

Ray D. Alexander
Services Engineer
Electrical and Instrumentation
American Enka Corp.
Lowland, Tennessee 37778

Harry Bannon
Manager Systems Design Division
Robertshaw Controls Company
2318 Kingston Pike
Knoxville, Tennessee 37919

Benny L. Boggs (Chairman)
Tennessee Valley Authority
W2B120C-K
400 Commerce Avenue
Knoxville, Tennessee 37902

Benny B. Hanzelka
Electrical Engineering
Union Carbide
P. O. Box Y
Building 9737
Oak Ridge, Tennessee 37830

Robert Lenarduzzi
Magnavox Consumer Electronics
P. O. Box 6950
Knoxville, Tennessee 37914

Steve King
City of Knoxville
1400 Lorian Street
Knoxville, Tennessee 37921

Kelly Milam
Technology for Energy Corp.
10770 Dutchtown Rd.
Concord, TN

Thad Phillips
EGNG Ortec
100 Midland Road
Oak Ridge, Tennessee 37830

Bill Stevens
Graham Electronics
619 Worcester Rd.
Knoxville, Tennessee 37922

Glenn Turney
Tennessee Valley Authority
400 Commerce Avenue
Knoxville, Tennessee 37902
Engineering Graphics Advisory Committee
Walter Clothier, Supervisor
Engineering Model Shop
Tennessee Valley Authority
400 Commerce Avenue
Knoxville, TN 37901

Barbara Crotzer
Route 1
Pilgram Lane
Mascot, Tn 37806

Steve Foster
SL-42
Tennessee Valley Authority
Knoxville, Tn 37901

George Littleton
10724 Plum Creek Drive
Knoxville, Tn 37922

Woody Manley, Supervisor
Division of Engineering Design
Tennessee Valley Authority
400 Commerce Avenue
Knoxville, Tn 37901

Sally Sliger
Lockwood Greene
800 Jackson Plaza
P.O. Box 3561
Oak Ridge, TN 37830

Nevil Stoklas
United Engineering & Construction, Inc.
911 Cross Park Drive
Knoxville, TN 37917

Insurance Advisory Committee
Jim Alderson
8708 Kingsridge Dr.
Knoxville, Tennessee 37919

W. W. Dotterweich
Finance Department
Room 429
Stokely Management Center
University of Tennessee
Knoxville, Tennessee 37916

Betty Hart
Hart Insurance
8116 Asheville Hwy.
Knoxville, Tennessee 37914

Jewell B. Hicks, CP|IW
Pat Rodgers Insurance
810 State Street
Knoxville, TN 37902

Surveying Advisory Committee
Steve King
City of Knoxville
1400 Loraine Street
Knoxville, Tennessee 37921

Joe McDonald
Knoxville Utilities Board
P. O. Box 1951
Knoxville, Tennessee 37900

Don Olive
Carson Newman College
Jefferson, Tennessee 37760

G. T. Trotter
725 South Gay Street, LL-2
Knoxville, Tennessee 37902
Marketing Technology Advisory Committee

Paul Bales  
Bert Garner Road  
Maryville, Tn 37801

Carroll Coakley, Chair  
Distributive Education Dept.  
128 Henson Hall  
University of Tennessee  
Knoxville, Tennessee 37916

James Cooper  
A.D.T. Security Systems  
Knoxville Tennessee

Carol Hummel  
Bank of Knoxville  
One Regency Square  
P.O. Box 2111  
Knoxville, TN 37901

Bob Luedeka, V.P.  
J. P. Hogan & Company  
109 W. Fifth Avenue  
Knoxville, Tn 37917

Rob Schriver  
Lavidge & Associates, Inc.  
Bearden Park Circle  
Knoxville, Tn 37919

Donald Stanley  
Personnel Director  
J. C. Penney Co.  
Westtown Mall  
Knoxville, Tennessee 37919

Mechanical Engineering Technology Advisory Committee

Ned W. Belt, Jr.  
I.C. Thompson & Assoc.  
6500 Papermill Road  
Knoxville, Tn 37919

Tony Bugni  
Magnavox Consumer Electronics  
P.O. Box 6950  
Knoxville, TN 37914

Lloyd D. Randolph, Jr.  
Plant Engineer  
Sprague Electric  
Rt. 2, Graves Road  
Straw Plains, Tennessee 37871

J. J. Henry  
Oak Ridge National Laboratory  
Oak Ridge, Tennessee 37830

J. J. Henry  
Oak Ridge National Laboratory  
Oak Ridge, Tennessee 37830

John Kirkman  
Technology for Energy Corp.  
One Energy Center  
Pellissippi Parkway  
Knoxville, TN 37923

Ron Shelton  
VCCND-K25  
Oak Ridge, Tennessee 37830

Glenn Kitts  
Union Carbide  
7518 S. Whispering Oak Circle  
Powell, Tennessee 37849

Frank Weiskopf  
5463 Lance Drive  
Knoxville, Tennessee 37919

James P. Kois  
Union Carbide—Y-12  
1631 Westop Trail  
Knoxville, TN

Dennis White  
Union Carbide  
Box Y Bldg. 9201-4 MS/002  
Oak Ridge, TN 37830
H. (Joe) Wilkerson
Professor Mech. & Aerospace
University of Tennessee
4430 Dougherty
Knoxville, TN 37996-2210

Mike B. Williams
Aluminum Company of America
P.O. Box 9128
Alcoa, TN 37701
977-3579

Mid-Management Technology Advisory Committee

Tracy Cross
2705 Sanderson Road
Knoxville, TN 37919

Kaye Harris Patty
2601 Tekoa Street
Knoxville, TN 37921

W. J. (Bill) Handel, Jr.
Corporation Director
Engineering and Development
Berkline Corporation
One Berkline Drive
Morristown, Tennessee 37748

John J. Stallard
Professor
Office Systems Management
SMC 609
University of Tennessee
Knoxville, TN 37916

Joanne R. Heddleston
Organization and Compensation
Supervisor
Aluminum Company of America
P. O. Box 9218
Alcoa, Tennessee 37701

Jimmie Thompson
Personnel Associate
Northshore Center
Knoxville, Tennessee 37919

Kay T. Myers
Personnel Officer
Tennessee Valley Authority
400 Commerce Avenue, W50220C
Knoxville, Tennessee 37901

Gary Vansuch
Tennessee Valley Authority
100 Hamilton Bank Annex
Knoxville, Tn 37902

Office Technology/Secretarial Advisory Committee

Ronn Chandler
State Technical Institute
at Knoxville
P.O. Box 19802
Knoxville, TN 37919

Nora Locke
823 Gallaher View Road
Knoxville, Tn 37919

Mary Jones
Professional Secretaries International
Hodges & Wallacs
Hamilton National Bank
531 Gay Street
Suite 300
Knoxville, Tn 37902

Wanda Sellers
Technology for Energy Corp.
Pellissippi Parkway
Concord, TN

Nora Locke
823 Gallaher View Road
Knoxville, Tn 37919

Suzy Walker
Professional Secretaries International
Fort Sanders Hospital
1901 Clinch Avenue
Knoxville, TN 37901

Advisory Committees 141
Paramedic Advisory Committee
Bryce Anderson, M.D.
Ft. Sanders & Baptist
Emergency Room Physician
3315 Bunker Hill Drive
Knoxville, Tn 37920

Larry Conner
Consultant
Emergency Medical Services
Tennessee Dept. of Public Health
Johnson City, Tennessee 37601

James Decker
Assistant Administrator
Fort Sanders Hospital
1901 Clinch Avenue
Knoxville, TN 37901

Richard Harrington
Knoxville Fire Dept.
Firehall #5
Knoxville, Tennessee

Larry Huttsell
Consultant
Emergency Medical Services
Tennessee Department of Public Health
Knoxville, Tennessee 37919

Photography Advisory Committee
Russ Abbott
State Technical Institute
at Knoxville
Knoxville, TN 37919

John W. Goodwin
Eastman Kodak Company
1413 Farrington Drive
Knoxville, Tn 37923

Real Estate Advisory Committee
Bruce Clark
Eagle Realty
218 Peters Rd.
Suite A
Knoxville, TN 37923

Jean Eshbaugh
Volunteer Realty Company
7824 Kingston Pike
Knoxville, TN 37919

Darlene Kitts, RN
St. Mary's Emergency Room
4000 Pleasant Ridge N-33
Knoxville, TN 37912

Richard Laugherty
State Technical Institute
P. O. Box 19802
Knoxville, Tennessee 37919

Lonas Lindsey, R.N.
Head Nurse
East Tennessee Children's Hospital
20th Street
Knoxville, TN 37901

Lynn Massengale, M.D.
U.T. Hospital
Alcoa Hwy.
Knoxville, Tennessee

Merrill Moore, M.D.
Ft. Sanders Hospital
1901 Clinch Ave.
Knoxville, Tennessee 37901

Michael Shepard
c/o Y-12 Plant
Building 9766
Oak Ridge, TN 37830

Frank Thornburg
School of Journalism
University of Tennessee
330 Communications & Extension
Building
Knoxville, Tennessee 37916

Hal Flynt
Realty One
7824 Kingston Pike
Knoxville, TN 37919

E. L. Garnes
Ridgecrest Training Services
7536 Chatham Circle
Knoxville, TN 37919
Sally Gordon  
Southland Realty  
12257 Kingston Pike  
Knoxville, TN 37922

John Mayberry  
Volunteer Realty  
7824 Kingston Pike  
Knoxville, TN 37919

Sub-Station Maintenance Advisory Committee

R. W. Dabbs  
TVA  
Kingston Steam Plant  
Engineering Union  
Kingston, TN 37763

Frank Darwin  
State Technical Institute at Knoxville  
P.O. Box 19802  
Knoxville, TN 37919

Walter Douglas  
State Technical Institute at Knoxville  
3006 E. Hunt Road  
Maryville, TN 37801

Warren Hancock  
KUB  
2015 Karnswood Lane  
Knoxville, TN 37918

Eddy Townsend  
Knoxville Utility Board  
4504 Middlebrook Pike  
Knoxville, TN 37918

Surveying Advisory Committee

Steve King  
City of Knoxville  
City and County Building  
Knoxville, TN 37901

Joe McDonald  
Knoxville Utility Board  
P.O. Box 1951  
Knoxville, TN 37902

Don Olive  
Carson-Newman College  
Jefferson City, TN 37760

Herb Pitts  
P.O. Box 422  
Maryville, TN 37801

G. T. Trotter  
725 Gay Street, LLC  
Knoxville, TN 37902
FACULTY AND STAFF

Administrative Staff

President's Office

J. L. GOINS  President
  B.A. in Business Administration — Maryville College; M.S. in Vocational Technical Education — University of Tennessee, Knoxville; Doctoral coursework in Voc/Tech and Educational Administration

VRONDELIA G. CHANDLER  Administrative Assistant to the President
  B.A. in Business Administration — Maryville College; M.S. in Vocational Technical Education — University of Tennessee, Knoxville; Doctoral coursework in Voc/Tech and Educational Administration

CHRISTINE M. LEE  Director of Personnel
  B.A. in Political Science — Allegheny College; M.P.A. in Public Administration — Syracuse University

Administrative Affairs

VIRGINIA CARPENTER  Secretary to Dean of Administrative Affairs
  A.S. in Business Data Processing — State Technical Institute at Knoxville

ALAN D. FINNEGAN  Director of Public Information
  B.S. in Physical Education — St. Lawrence University; M.Ed. in Administration, Guidance, and Counseling — St. Lawrence University; Ph.D. in Higher Education Administration — Syracuse University. (Candidate)

DOROTHY ICE  Programmer/Analyst

ROSE ANN PRITZEL  Administrative Services Supervisor

MICHAEL R. RAGSDALE  Dean of Administrative Affairs
  B.S. in Physical Education — University of Tennessee, Knoxville; M.S. in Education — Auburn University; Ed.D. in Education/Psychology — University of Tennessee, Knoxville

JOSEPH D. WILSON  Director of Computer Services
  B.S. in Mathematics — University of North Carolina at Charlotte

Academic Affairs

JANE CAMERON  Librarian
  B.A. in Math — Vanderbilt; M.L.S. in Library Science — George Peabody College for Teachers.

REBECCA L. CARICO  Secretary to Dean of Academic Affairs

NINA W. HAYDEN  Director of Educational Resource Center
  B.A. in History — Arkansas State University; M.S. in Library Science — Florida State University

GARY HOLT  Industrial Coordinator
  B.S. in Social Science — University of Tennessee, Knoxville
MICHAEL L. HUDSON  Industrial Coordinator  
B.S. in Personnel — University of Tennessee, Knoxville; M.S. in Industrial Education — University of Tennessee, Knoxville

JOHN H. A. MAGUIRE  Evening Coordinator  
B.A. in Business Administration — Oglethorpe; J.D. in Law — John Marshall University

PEGGY E. MAHAN  Industrial Coordinator  
B.S. Home Economics—Eastern Kentucky University; M.S. Degree in Vocational Technical Education—Morehead State University.

DONALD E. McNELLY  Dean of Academic Affairs  
B.A. in Business Administration — Central Missouri State University — Warrensburg; M.S. in Distributive Education — Central Missouri State University — Warrensburg; Ed.D. in Vocational Technical Education — University of Missouri — Columbia.

Business Office

NARSH D. BENSON  Business Manager  
B.S. in Mathematics — University of Southern Mississippi; M.S. in Accounting — University of Arizona — CPA

JOHN C. CLARK, JR.  Purchasing  

LUTHER B. FURROW  Director of Accounting  
B.S. in Accounting — University of Tennessee, Knoxville

RENEE REED  Accountant  
B.S. in Business Accounting — University of Tennessee, Knoxville.

GEORGE WARLICK  Accounting Manager  
B.S. in Business Administration — Carson-Newman College

DONNA WEEKS  Secretary to Business Manager

Student Affairs

ANNABEL L. AGEE  Director of Student Development  
B.S. in English — University of Tennessee, Knoxville; M.S. in Guidance — University of Tennessee, Knoxville

DEWEY BATSON  Registrar  
A.A. in Liberal Arts — University of Tennessee, Nashville

JACK R. BOPP  Financial Aid Officer/V.A. Counselor, Student Services  
B.S. in Zoology — University of Southern Illinois

ADELLE V. COOTER  Cooperative Education Coordinator  
B.S. in Education — University of Tennessee, Knoxville; M.S. in Education — University of Tennessee, Knoxville.

EMILY F. FULLER  Director of Career Planning and Placement  
B.A. in English, Union University, Jackson, Tennessee; M.S. of Arts, The University of Tennessee, Knoxville

MALCOLM McCARN  Director of Admissions & Records  
B.S. in Marketing—University of Tennessee, Knoxville J.D. — John Marshall Law School

ILA VEE MCGAHEY  Dean of Student Affairs  
B.M.E. in Music—Delta State University, Cleveland, MS; M.Ed. in Guidance and Counseling—Delta State University; Additional Study in Student Personnel and Ed. Psychology, Memphis State University

Faculty and Staff  145
PAMELA E. MOSS
B.S. in Education — University of Tennessee, Knoxville; M.S. in College Student Personnel — University of Tennessee, Knoxville.

NORMA E. SLONE
Secretary to Dean of Student Affairs

INSTRUCTIONAL FACULTY (FULL-TIME)

DENNIS R. ADAMS
Assistant Professor, Mathematics
B.A., in Mathematics — Bowling Green State University; M.A. in Education Administration — University of Alabama; Ph.D. in Secondary Education and Mathematics — University of Alabama

MARION L. BAILEY
Assistant Professor, Physics
B.S.E. in Physics — Concord College; M.S.E. in Physics — University of Tennessee, Knoxville; Additional Graduate Study in Physics — University of Tennessee, Knoxville

BOB BALLARD
Instructor, Business Data Processing
B.S. in Mathematics — Tennessee Technological University

DAVID BLAIR
Instructor, ALCOA
Journeyman carpenter

JACKALIE L. BLUE
Instructor, Business Data Processing
A.B. in Geography — University of Illinois at Urbana — Champaign; M.S. in Library Science — University of Illinois at Urbana — Champaign; M.S. in Geography — University of Tennessee, Knoxville.

LISA BOGATY
Instructor and Department Head, Marketing
B.S. in Marketing — University of Tennessee, Knoxville; M.B.A. in Marketing/Finance — University of Tennessee, Knoxville

JAMES BOYER
Instructor, Construction Engineering Technology
B.S. Civil Engineering — University of Tennessee — Knoxville; Registered Land Surveyor, State of Tennessee.

MARY BRAU
Instructor Aide
B.A. in English and Education — University of Washington

KARLA DUKES BURDETTE
Assistant Professor, Mathematics
B.S. in Mathematics — East Carolina University; M.A.T. in Mathematics — Converse College

LINDA CALVERT
Instructor, Mathematics
B.S. in Mathematics — Mississippi University for Women

FRANK DARWIN
Instructor, Electrical Engineering Technology
B.S. in Electrical Engineering — University of Tennessee

CYNTHIA DEMPSTER
Instructor and Acting Department Head, Mid-Management Technology
B.S. in Business Administration — University of Tennessee, Knoxville; M.S. in Business Education — University of Tennessee, Knoxville.

BENNY DISNEY
Instructor, Construction Engineering Technology
A.E. in Civil Engineering Technology — Chattanooga State Technical and Community College; A.S. in Construction Engineering Technology — State Technical Institute at Knoxville; Certified Engineering Technician

JUDY EDDY
Department Head, Communications; Assistant Professor, Communications
B.S. in Elementary Education — Baylor University; M.S. in Education — Baylor University
TOM FLETCHER          Chairperson, Division of Business Technology
B.S. in Mechanical Engineering — Kansas State University; M.S. in Industrial Engineering — University of Tennessee, Knoxville

SYDNEY GINGROW       Assistant Professor, Communications
B.A. in English — University of Tennessee, Knoxville; M.S. in English Education — University of Tennessee, Knoxville

WILLIAM HAMLIN, JR.   Instructor, Mid-Management Technology
B.S. in Industrial Engineering — University of Tennessee, Knoxville.

JAME HICKMAN          Instructor, Business Data Processing
B.S. in Education — University of Tennessee, Knoxville; A.S. in Business Data Processing — State Technical Institute at Knoxville.

ROBERT HUNTER         Instructor, Marketing
B.S. in Political Science — Economics — University of Tennessee, Knoxville.

GAY HENRY             Instructor, Developmental Studies
B.A. in English — Pfeiffer College; M.A. in English — University of Tennessee, Knoxville

DORIS J. IVIE          Associate Professor, Communications
B.A. in English — University of Tennessee, Knoxville; M.A. in English — University of Tennessee, Knoxville; Additional Graduate Study — University of Tennessee, Knoxville

DAVID JOB             Department Head, Engineering Graphics Technology
Bachelor of Architecture — University of Tennessee, Knoxville

JANICE KENNEDY        Dept. Head/Instructor, Learning Support Center
B.S. in Home Economics — University of Tennessee, Knoxville; M.S. in Curriculum and Reading Specialist Certification — University of Tennessee, Knoxville

RANDAL KIDD           Assistant Professor, Computer Accounting
B.S. in Accounting — University of Tennessee, Knoxville

WYATT KILGALLIN       Instructor, Electrical Engineering Technology
A.A.S. in Electronics Technology — Morehead State University; B.S. in Physics and Mathematics — Morehead State University; Graduate Study in Mathematics and Engineering — University of Tennessee, Knoxville

RICHARD LAUGHERTY     Department Head, Emergency Medical Technology;
                        Assistant Professor, Emergency Medical Technology
B.S. in Secondary Education — University of Tennessee, Knoxville; Certificate, Intensive Coronary Care — St. Mary’s Medical Center; R.N. — St. Mary’s School of Nursing

LOUISE M. LEWALD      Assistant Professor, Mathematics
B.S. in Mathematics — University of Minnesota; M.A. in Mathematics — University of Tennessee, Knoxville; Additional Graduate Study in Computer Science — University of Tennessee, Knoxville

GEORGE C. LITTLETON  Instructor, ALCOA Program
Design Engineer

MATTHEW LONG          Instructor, Alcoa Program
B.S. in Industrial Education — Hampton University, Hampton, Virginia

JOHN C. MAUER         Assistant Prof., Mechanical Engineering Technology
A.S. Pre-Engineering — St. Bernard Jr. College — B.S. Civil Engineering — United States Military Academy, West Point — M.S. Aeronautical Engineering — Mississippi State University.
ROBERT MOBLEY  Department Head, Associate Professor, 
Electrical Engineering Technology 
B.S. in Electronic Engineering — University of Florida; Graduate Study— 
University of Tennessee, Knoxville

SAMUEL MOORE  Instructor, Electrical Engineering Technology 
B.S. in Electrical Engineering Technology — University of Tennessee Graduate 
Study in Electrical Engineering — University of Tennessee

CAROL O'FARRELL  Instructor, Communications 
B.S. in English/History — University of San Antonio, San Antonio, Texas; 
M.S. in English — Marquette University — Milwaukee, Wisconsin.

BRENDA OTT  Instructor, Mathematics 
B.S. in Mathematics and Physical Education, University of Tennessee, Knox- 
ville; M.S. in Physical Education, Auburn University; M.M. in Mathematics, 
University of Tennessee, Knoxville

MEHDI PARVARANDEH  Instructor, Electrical Engineering Technology 
B.S. in Mathematics and Physics — East Tennessee State University; B.S. in 
Electronics — University of Tennessee, Knoxville; M.S. in Communication 
Electronics — University of Tennessee, Knoxville; Additional graduate study 
in Communications Electronics — University of Tennessee, Knoxville

JOHN PETTYJOHN  Assistant Professor, Mechanical Engineering Technology 
B.S. in Electrical Engineering — University of Tennessee, Knoxville

FREDDIE D. PHILLIPS  Dept. Head, Computer Accounting Instructor, 
Computer Accounting 
B.S. in Accounting, Tennessee Wesleyan College, C.P.A.

MICHAEL D. PRICE  Acting Chairperson, Division of Engineering Technology 
Bachelor of Architecture — University of Tennessee, Knoxville; Registered 
Licensed Architect — State of Tennessee

LINDA M. RANDOLPH  Instructor, Assistant Librarian 
B.S. Psychology/Sociology, University of Kentucky; M.S.L.S. Library Science, 
University of Kentucky.

DONALD W. REEVES  Instructor, Physics 
B.S. in Civil Engineering — University of Illinois; M.S. in Civil Engineering — 
Ohio State University

KENNON ROLLINS  Instructor, Business Data Processing 
B.S. in Natural Science — University of Tennessee, Knoxville.

JESSE ROUSE  Instructor, Industrial Electricity 
Self-employed electrical contractor

ROBERT R. SCOTT, III  Department Head, Chemical Engineering Technology; 
Associate Professor, Chemical Engineering Technology 
B.S. in Chemical Engineering — University of Tennessee, Knoxville; M.S. in 
Chemical Engineering — University of Cincinnati, Registered Professional 
Engineer

THOMAS SCOTT  Lab Technician 
Certificate in Industrial Electricity
TERRY M. SISK  Assistant Professor, Mechanical Engineering Technology  
A.S. in Mechanical Engineering Technology — State Technical Institute at Knoxville; B.S. in Industrial Education — University of Tennessee, Knoxville.

JAN R. SONNER  Professor, Dept. Head Physics  
B.S. in Electrical Engineering — Rose Polytechnic Institute; M.S. in Electrical Engineering — University of Southern California; PhD. in Higher Education — Southern Illinois University, Carbondale; Additional Study in Electrical Engineering — University of Illinois, Urbana.

THOMAS SMITH  Instructor, Alcoa Program  
Teaching diploma in Electrical Installation — Salisbury, Rhodesia

SHARON SPEARS  Assistant Professor, Construction Engineering Technology  
B.S. in Civil Engineering — University of Tennessee, Knoxville.  
B.S. Industrial Education — University of Tennessee. Graduate study in Vocational Technical Education — University of Tennessee.

FREDERICK M. STEPHENS  Department Head, Associate Professor, Mechanical Engineering Technology  
B.S. in Industrial Education — University of Tennessee, Knoxville; M.S. in Safety Education — University of Tennessee, Knoxville

GWEN WALTON  Dept. Head and Assistant Professor, Business Data Processing  
B.S. in Mathematics — University of Tennessee, Knoxville; M.S. in Mathematics — University of Tennessee, Knoxville

QUENTIN WEBB  Instructor, Alcoa Program  
M.S. in Distributive Education — University of Tennessee, Knoxville

RON WILES  Assistant Professor, Business Data Processing  
B.S. in Mathematics — University of Tennessee, Knoxville; M.A. in Mathematics — University of Tennessee, Knoxville

JACK H. WILSON  Chairperson, Division of Related Studies  
B.A. in English — University of Tennessee, Knoxville; M.A.T. in English as a Second Language — University of Illinois; M. Div. in General Studies — Emory University; Ph.D. in Humanities — Emory University; Ed.D. in Curriculum and Instruction — University of Tennessee, Knoxville.

FITZ R. WINSLOW  Instructor, Engineering Graphics Technology  
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1. Gate (Main Entrance)
2. Lakesmore Administration
3. Lonas Hall - State Tech
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