STATE TECHNICAL INSTITUTE AT KNOXVILLE CATALOG 1980-81

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.

Inquiries concerning Title IX and Section 504 should be directed to the Director of Administrative Affairs, Room 113, 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 Tennessee State Board of Vocational Education through the Tennessee State Department of Education, Division of Vocational-Technical Education.

Academic Year

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

Important Notice

Statements in this catalog are for information only. The provisions of this catalog do not form a contract between the student and the State Technical Institute at Knoxville. The college reserves the right to change any provisions or requirements at any time within the student's term of residence. The college further reserves the right, at any time, to ask a student to withdraw when it considers such action to be in the best interest of the Institute.
TABLE OF CONTENTS

ACADEMIC CALENDAR, 3-5
PURPOSE, 6
RECOGNITION, 7
TECHNICIAN: A DEFINITION, 8
GENERAL INFORMATION, 9-19
Admissions, 9
Expenses, 13
Registration, 16
Requirements for an Associate Degree, 19
ACADEMIC STANDARDS, 20-24
STUDENT AFFAIRS AND ACTIVITIES, 25-28
BUSINESS TECHNOLOGIES DIVISION, 29-66
Business Data Processing, 30
Computer Accounting, 35
Marketing Technology, 43
Mid-Management Technology, 48
ENGINEERING TECHNOLOGIES DIVISION, 67-128
Chemical Engineering Technology, 68
Construction Engineering Technology, 73
Electrical Engineering Technology, 88
Mechanical Engineering Technology, 96
Certificate Programs, 106
RELATED STUDIES DIVISION, 129-134
EVENING AND SPECIAL PROGRAMS DIVISION, 135-161
Certificate Programs, 136-154
Other Courses, 155-161
STATE BOARD OF EDUCATION, 162
ADVISORY COMMITTEES, 163
FACULTY AND STAFF, 176
INDEX, 182
LOCATION (Maps to State Tech), 190

CHANGE IN REGULATION

Announcements contained within the catalog are subject to change at the discretion of the college. Any changes will be posted around the institution. An attempt will be made, however, to keep changes at a minimum.
MMER 1980
- September and Official Registration
- Meet as Scheduled
- First Day to Register/Add Classes
- First Day to Drop/Withdraw
- Monday, Labor Day
- First Day of Classes

LL 1980
- Orientation, New Students
- September and Official Registration
- Meet as Scheduled
- First Day to Register/Add Classes
- First Day to Drop/Withdraw
- Thanksgiving Holidays
- First Day of Classes
- Christmas Holidays

WINTER 1981
- Orientation, New Students
- September and Official Registration
- Meet as Scheduled
- First Day to Register/Add Classes
- First Day to Drop/Withdraw
- First Day of Classes
- Spring Recess

ACADEMIC CALENDAR

<table>
<thead>
<tr>
<th>JULY 1980</th>
<th>AUGUST 1980</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 7</td>
<td>August 18</td>
</tr>
<tr>
<td>July 8</td>
<td>September 1</td>
</tr>
<tr>
<td>July 14</td>
<td>September 19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEPTEMBER 1980</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 29</td>
</tr>
<tr>
<td>September 30-Oct. 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OCTOBER 1980</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2</td>
</tr>
<tr>
<td>October 8</td>
</tr>
<tr>
<td>November 14</td>
</tr>
<tr>
<td>November 27-28</td>
</tr>
<tr>
<td>December 17</td>
</tr>
<tr>
<td>December 18-January 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOVEMBER 1980</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 29</td>
</tr>
<tr>
<td>November 30-31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DECEMBER 1980</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 28</td>
</tr>
<tr>
<td>December 29</td>
</tr>
<tr>
<td>December 30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>JANUARY 1981</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 5</td>
</tr>
<tr>
<td>January 6</td>
</tr>
<tr>
<td>January 7</td>
</tr>
<tr>
<td>January 13</td>
</tr>
<tr>
<td>February 16</td>
</tr>
<tr>
<td>March 20</td>
</tr>
<tr>
<td>March 21-29</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FEBRUARY 1981</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 27</td>
</tr>
<tr>
<td>March 20</td>
</tr>
<tr>
<td>March 21-29</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MARCH 1981</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 21</td>
</tr>
<tr>
<td>March 22</td>
</tr>
<tr>
<td>March 23</td>
</tr>
<tr>
<td>March 24</td>
</tr>
<tr>
<td>March 25</td>
</tr>
<tr>
<td>March 26</td>
</tr>
<tr>
<td>March 27</td>
</tr>
<tr>
<td>March 28</td>
</tr>
<tr>
<td>March 29</td>
</tr>
<tr>
<td>March 30</td>
</tr>
</tbody>
</table>
SPRING 1981
Advisement and Official Registration
Classes Meet as Scheduled
Last Day to Register/Add Classes
Holiday, Good Friday
Last Day to Drop/Withdraw
Last Day of Classes
Commencement

MAY 1981
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

JUNE 1981
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

JULY 1981
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

AUGUST 1981
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

SEPTEMBER 1981
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

NOVEMBER 1981
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

DECEMBER 1981
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

SUMMER 1981
Advisement and Official Registration
Classes Meet as Scheduled
Holiday
Last Day to Register/Add Classes
Last Day to Drop/Withdraw
Holiday, Labor Day
Last Day of Classes

FALL 1981
Orientation, New Students
Advisement and Official Registration
Classes Meet as Scheduled
Last Day to Register/Add Classes
Last Day to Drop/Withdraw
Holiday, Thanksgiving
Last Day of Classes
*Commencement

MARCH 1981
March 30
March 31
April 6
April 7
May 11
June 12
June 13

JUNE 1981
June 29
June 30
July 3
July 7
August 10
September 7
September 11

SEPTEMBER 1981
September 21
September 22
September 23
September 29
November 2
November 26-27
December 9
December 12
TER 1982

Orientation, New Students
Visitation and Official Registration
Classes Meet as Scheduled
Day to Register/Add Classes
Day to Drop/Withdraw
Day of Classes

January 4
January 5
January 6
January 12
February 16
March 19

JANUARY 1982

1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31

JUNE 1982

1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30

JULY 1982

1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31

FEBRUARY 1982

1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28

MARCH 1982

1 2 3 4 5 6
7 8 9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31

MARCH 1982

1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31

AUGUST 1982

1 2 3 4
5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30

SEPTEMBER 1982

1 2 3 4 5 6 7 8 9 10 11
12 13 14 15 16 17 18
19 20 21 22 23 24 25
26 27 28 29 30

MER 1982

Orientation, New Students
Visitation and Official Registration
Classes Meet as Scheduled
Day to Register/Add Classes
Day, Good Friday
Day to Drop/Withdraw
Day of Classes
Commencement

MAY 1982

1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30

Commencement exercises for these quarters are dependent upon whether a sufficient number of graduates warrants a ceremony.
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, and

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, and

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

Services to the people of East Tennessee and services to business, industry, and government are compatible, because:

The people of East Tennessee may obtain positions as technicians at salaries. State Tech's record for placing graduates in jobs for which they were prepared is almost 100 percent, and

Business, industry and government will have available the technicians they need for their operations.
RECOGNITION

approved by the Tennessee State Board for Vocational Education, State Technical Institute at Knoxville is granted the privilege of awarding the Associate of Engineering degree, Associate of Science degree, and certificates.

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

Three associate degree engineering technology programs—mechanical, chemical, and electrical—are accredited by the Accreditation Board for Engineering and Technology. The associate degree construction engineering technology program has been granted early recognition status of candidate for accreditation by ABET.

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
* Greater Knoxville Chamber of Commerce
* National Association of College and University Business Officers
* National Association of Student Personnel Administrators
* Society for the Advancement of Management
* Western Association of Collegiate Registrars and Admissions Officers
* Western College Placement Association
* Western Association of Collegiate Registrars and Admissions Officers
* Western College Association
* Western College Placement Association
* Western College Public Relations Association
* Western Valley Personnel Association
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 and the craftworker or computer. Those who have the ability to co-theory and application serve a special and necessary function in our advanced technology.

Here are examples of technology teams:

<table>
<thead>
<tr>
<th>Professional Engineer, Scientist or Manager (4-year degree or better)</th>
<th>TECHNICIAN (two-year associate degree)</th>
<th>Craftworker (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 Architect</td>
<td>Computer Programmer Architectural Draftsperson</td>
<td>Keypunch Operator依照</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carpenter</td>
</tr>
</tbody>
</table>
REQUIREMENTS

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:

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 1-94, stating one is attending a college in the United States.
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 Office. Applicants for the associate degree programs must also submit a high school transcript certifying graduation or a copy of the GED scores and complete transcripts of any previous work from a regionally accredited college. 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 the 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 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 other colleges or universities attended. Transfer students from regionally accredited colleges need not submit high school transcripts.
5. The American College Test (ACT) is not required, but is strongly recommended for each student.

CERTIFICATE STUDENTS

Applicants for certificates should complete and submit a student application. Application forms may be obtained from the Admissions Office.

SPECIAL STUDENT

A special student is one who (1) enrolls for a special course but does not expect to complete a degree or certificate requirements or (2) has not satisfied entrance requirements for either a degree or the Engineering Graphics certificate program. College credit for special courses may be used t requirments for an associate or certificate program.

A student applying as a cert for a degree or Engineering GI certificate, who has not submitted completed entrance requiremen (high school graduation certi, previous college transcripts, o Tech placement test scores), admitted as a special student. T dent must complete entrance rements during the first qua attendance or be subject to admis dismissal.

TRANSFER STUDENTS AND C

Applicants transferring from accredited colleges or univ must present valid transcript each college. Upon receipt of the registrar’s transcript, the Registrar’s Office will grant equivalent credit, after consultation with appropriate division or department chairperson(s).

For V.A. certification, veterans have transcripts from all regi credited colleges or univ attended, and each must be beginning the second quarter attendance. Veterans will not i
fits of attendance if terminated and all admission documents are
itted.

a rule, applicants eligible for mission to the institution from a they are transferring are also eli-
for admission to State Tech.

Transfer credits are evaluated (see 22 for details on Transfer Credit), y can be related to the student's of study. Credit will be given for taken at regionally accredited institutions. No credit will be given as a grade of C or above was ved. Veterans must not register for ses which will transfer from pre-colleges. The VA will not pay fines for repeated courses if a pass-
grade was received for the original
nt.

armed forces education experience e evaluated according to guide-
of the American Council on Edua-
The college will require verifica-
rom official military records.

CEMENT TESTING

applicants must complete the college pre-admission testing prior to registration. The Engineering Techno-
applicants take the following tests:

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

The Business Technology applicants take the following tests:

1. Reading
2. Written English
3. Mathematics Computations

All or part of these tests may be waived if an applicant has any of the following:

1. Scores on the American College Test (ACT)
2. Transfer credit from a regionally accredited institution with grades of “C” or above in one course in English and one course in mathematics.

These transcripts must be submitted to the Admissions Office prior to registration, preferably with your application submission.

3. Special permission from the Admissions Coordinator waiving the placement test.

RE-AdMISSION

A former student at State Technical Institute at Knoxville must complete a new application if there has been no attendance at the Institute for four or more quarters. This application must be submitted to the Admissions Office prior to the official registration day and a letter of acceptance must be on file at that time.

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.

REGISTRATION AND ORIENTATION

All prospective new students completing application procedures are required to register on the dates shown on the academic calendar and to attend a scheduled orientation period prior to it. All new students will be notified of the orientation day and should make every effort to attend.

OFFICIAL ENROLLMENT

Credit will be granted only for courses in which the student is officially registered.
ADDITION 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 and instructor(s). A student may drop a course(s) within 41 days of the official registration date. All appropriate signatures must be affixed on the "Add/Drop/Withdrawal" form in order to make it valid and ready for processing. Each date is listed in the official college calendar.
Expenses

Fees for the State Technical Institute Knoxville are determined by the Board of Education and are subject to change without notice.

Quarterly Fees

Maintenance Fee (required of all students): The maximum maintenance fee for a full-time student (12 course credit hours or more) will be $90.00 per quarter. The part-time student will pay $7.50 maintenance fee for each course credit hour.

Out-of-State Tuition (required in addition to the maintenance fee for all out-of-state students): The maximum out-of-state tuition for a full-time student will be $408.00 each quarter. The part-time student will pay $34.00 tuition for each course credit hour.

Foreign National Tuition (required in addition to the maintenance fee for foreign nationals): The maximum foreign national tuition for a full-time student will be $486.00 each quarter. The part-time student will pay $40.50 per course credit hour.

Late Fees

A non-refundable late fee of 10 percent of the maintenance fee will be charged for any registration occurring after the official registration date published in the academic calendar. A late fee will not be charged for special and contract courses.

Returned Check Fee

A fee of $5.00 will be charged for each check returned by the bank for any reason, except for bank error.

Transcript Fee

A student may have one free copy of his/her transcript. Each additional copy will cost the student $1.00 excepting those which will be provided free to employers and schools.

Refund Policy

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 are computed as follows:

1. Curricula Courses
   If drop or withdrawal occurs before official registration day or if class is
cancelled or changed due to administrative decisions, the refund is 100 percent. If drop or withdrawal occurs during official registration and before the first day of classes, the refund is 80 percent. If drop or withdrawal occurs within one through 15 calendar days from the official registration date, the refund is 50 percent.

If drop or withdrawal occurs within 16 through 31 calendar days from the official registration date, the refund is 25 percent.

If drop or withdrawal occurs 31 or more calendar days after official registration, there is no refund.

2. Special and Contract Courses

If withdrawal occurs, the refund is the pro rata part of the course hours not attended based on the ratio of hours left after the date of withdrawal to the total hours available for the course.

The refund policy applies to all fees—maintenance, out-of-state, and foreign national fees.

Any amount due the Institute must be satisfied before the refund is made to the student. Where applicable, the refund will be made to the organization or fund paying the maintenance fee.

Refund checks for books purchased in the bookstore will be mailed from the Institute to students who are awarded scholarships after the drop date.

**ADMINISTRATIVE DISMISSAL**

Students may be administratively dismissed from State Tech if they fail to satisfy the approved fees of the Institute after due process of collection has failed to produce results.

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.

All students administratively dismissed must satisfy all fees and secure the written approval of the Dean of Student Affairs before re-admission to State Tech.

All credit hours carried that quarter will be assigned a "W" grade, if written approval for re-admission is not obtained.

**FINANCIAL AID**

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

**State Tech Temporary Student Loan:** Any student with a proven financial hardship may apply for a State Tech Temporary Student Loan. The Financial Aid Officer will approve all State Tech loans. The student will execute a non-interest-bearing promissory note in the Business Office. No provision for maintenance is made.

**Basic Educational Opportunity Grant:** This federally funded grant may be used as a basis for other grants. Applications can be obtained from high school counselors, financial aid counselors, or from Basic Educational Opportunity Grant (Basic) P.O. Box G, Iowa City, Iowa 52241.

**Tennessee Guaranteed Student Loan:** This is a low-interest loan that the student obtains through Tennessee or other lending agencies. As long as the student is at least part-time, there is no accumulation of interest. Applications may be obtained from the Financial Aid Office.
gh the lender and must be accom-
d by a letter from State Technical
ite at Knoxville.
lications may be obtained
gh the lender; then the Financial
Officer can complete the appro-
section.
ate Board Work Scholarship:
Board Work Scholarships are
ble to students who are residents
nessee and who were in the top
f their high school graduating
. The recipient must fulfill a mini-
work obligation and maintain a
A to be eligible for the scholar-
This scholarship covers tuition
imist Club Scholarship: A
umber of scholarships which
ution only are available. Ap-
ing are available from the Financial
icer in Student Affairs.
istance: Assistance is available
Social Security, Veterans Admin-
on, and Vocational Rehabilitation.
t should contact the Financial
icer to apply.
ollege Work Study: This federally
d program provides part-time em-
ment for students. To participate a
student must be a full-time student and
demonstrate financial need.
Supplemental Educational Opportu-
ity Grant: Under this program
eral grants provide financial assis-
tance to high school graduates who
demonstrate exceptional financial
need to enable them to attend college.
Robert C. Hopkins Scholarship
Fund is presented by the Oak Ridge-
Knoxville Chapter of the American
ety of Certified Engineering Tech-
nicians (ASCET). The recipient is
hen by the Oak Ridge-Knoxville
apter.
Contact the Financial Aid Officer in
Student Affairs for further information
about any programs.
SATISFACTORY PROGRESS
For the purpose of receiving financial
assistance under Title IV of the Higher
Education Act of 1965, as amended,
satisfactory progress must be main-
tained for eligibility to continue receiv-
ing financial assistance. Satisfactory
progress is defined as follows:
1. Students must maintain a cumula-
tive and quarterly GPA of:
   First Quarter of
   attendance 1.25
   All subsequent quarters of attendance 1.75
2. Academic suspension will cause a
student to be ineligible to receive
financial aid until the expiration of
one academic quarter of attendance
at State Technical Institute.
The GPA must conform to the
above standards.
3. A quarterly GPA of 0.0 will cancel
award of financial aid at the end of
the quarter in which this GPA was
received. Mitigating circumstances
may be documented by the Finan-
cial Aid Office and may allow con-
tinued awards of financial aid. A
student may receive the BEOG at
the end of the quarter following the
0.0 GPA quarter if satisfactory
progress standards are attained.

VETERANS
Veterans wishing to apply for educa-
tional benefits must submit transcripts
from the high school/GED facility
which granted a diploma or all accred-
ted colleges and universities attended.
These documents must be submitted
within the first quarter or further regis-
tration 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 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 to the Veterans Coordinator Office for processing 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 widowers, or husbands of veterans are available in the Veterans Coordinator’s 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 may 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."

Deficiency courses: Veterans may be paid for deficiency courses in math, reading, English, and Chemistry only if the college tests given through Student Affairs indicate that such courses or ACT scores will aid the student in successfully completing his course work.

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

Additional information for veterans can be found in the Veterans Handbook available at the Veterans Office.

Registration

STUDENT ADVISING

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

- The technology in which the student will probably succeed on the basis of aptitude and experience;
- The quarter hours of work which student should carry;
- The sequence of courses in student’s total academic program that will aid the student in successfully completing his course work.

Any special academic questions which should not be taught by the faculty member teaching the course.
E-REGISTRATION

Normally, a three-day pre-registration period is provided each quarter for students already enrolled. Evening students may pre-register in the evening. Students pick up the next quarter's schedule, registration packets, and tuition sheets from the Records Office or other designated areas and give their advisor's approval of their spring quarter's schedule.

Students may complete all registration requirements during pre-registration week except the payment of tuition fees. Payment dates for those who pay fees by cash or personal check will be announced during pre-registration period. A student 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 registration period to get a receipt officially enrolled.

E-REGISTRATION AND DISPENSION

Students who pre-register and are suspended after grades for the quarter are submitted will be notified of any change of status as soon as possible, hopefully, 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. 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. Owes fees or other charges to the Business Office.

2. On academic suspension from previous attendance.

3. Financial Aid Program reimbursement due.

4. Failure to submit all admission documents.

5. 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 generally five school days after the last day of official registration, and coincides with the last day for late registration.

Dropping/withdrawing from a class: Forty-one calendar days are normally provided between official registration and the last day to drop/withdraw from classes are listed in the academic calendar. A grade of "W" will be recorded to reflect withdrawal from the course. The "W" grade indicates dropping of a class after the last date to receive a refund.
<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></td>
<td></td>
<td></td>
<td>2. Instructor</td>
</tr>
<tr>
<td>Withdrawal/ Drop Class</td>
<td>Through last day to drop</td>
<td>Student</td>
<td>1. Advisor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Instructor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Head of Sti Services</td>
</tr>
<tr>
<td>Withdrawal/ Drop Class</td>
<td>After last day to withdraw/ drop</td>
<td>Student</td>
<td>1. Advisor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Instructor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Head of Sti Services</td>
</tr>
</tbody>
</table>

* Only if the withdrawal/drop involves all courses.
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 Instruction. As a candidate for the Associate of Engineering degree or Associate of Science degree, the student must satisfy the following requirements for graduation:

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

**Minimum credit Hours:** Each candidate must complete at least 90 credits 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 at the beginning of the quarter in which he 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 Instruction. This option does not exempt anyone from the general requirements of State Tech. General requirements are subject to change without notice when new requirements are necessary for a quality program.

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

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 and fall quarter, if there are 50 or more candidates.
GENERAL GRADING POLICY

Interpretation of Letter Grades: A technical grade will be given in each course. The technical 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.

Technical grades will be awarded on the four-point system as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
</tr>
<tr>
<td>B</td>
<td>Above Average</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
</tr>
<tr>
<td>D</td>
<td>Below Average</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawal</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
</tr>
<tr>
<td>P</td>
<td>Passing</td>
</tr>
<tr>
<td>NP</td>
<td>Not Passing</td>
</tr>
<tr>
<td>AU</td>
<td>Audit</td>
</tr>
</tbody>
</table>

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

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.

Audit: A student may enroll in classes on a non-credit basis as an auditor, 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 he is taking the class as an audit.
ADEMIC HONORS

Awards

The President will post, each quarter, of students attaining excellence in academic work. The President’s Honor will contain those students whose GPA is 3.50 to 4.00.

The Dean’s Honor List will likewise be issued and consist of those students whose GPA is 3.00 to 3.49.

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

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

Honor 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 at the graduation ceremonies at the end of each spring quarter.

 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 received on the "I" is computed into the grade point average at the end of the subsequent quarter. A grade of "I" must be made 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. However, veterans must conform to VA regulations.

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 unexcused absences.

PROBATION

A student will be placed on probation at the end of any quarter in which
he/she fails to maintain any of the following:

**First Quarter of Attendance**
Quarterly Grade Point Average 1.50

**Second Quarter of Attendance**
Quarterly Grade Point Average 1.75

**All Subsequent Quarters of Attendance**
Quarterly Grade Point Average 2.00

Probation will be removed once the student meets the grade point average required for non-probationary status for that quarter of attendance.

**SUSPENSION**

A student who falls under the academic probation category for two successive quarters is suspended. The first occurrence will subject the student to a one quarter suspension. The second or subsequent occurrence will subject the student to a suspension of three consecutive quarters.

All requests for re-admission from academic suspension submitted to the Dean of Instruction will be reviewed and acted upon by the Academic Standards Committee. This committee will consist of the Dean of Instruction as chairperson, the student's department head, two instructors who have taught the student and the Dean of Student Affairs.

**COLLEGE TRANSFER CREDIT**

Upon receipt of a college transcript, the Registrar's 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 those 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. This is done when it is felt that the student has fundamental knowledge of the prerequisite course and his progress in the course requiring the prerequisite will not be impeded by not having the prerequisite course.

The waiver of prerequisite is not confused with a course waiver. A prerequisite waived is a prerequisite required in the student's curriculum must be completed or substituted below) before he receives the associate degree. No fee is required waives of prerequisite.

**Course Waiver and Substitution**

Under special circumstances course may be waived by the Head of the Department. This is done in instances where a course deletes from the student's curriculum and necessitates substitute to the student's curriculum. A course of equal or greater credit must be substituted and taken in lieu of any course waived. This substitution in no way reduces the mini quarter hour required for the associate degree. The substitute should be of the same or higher level as the course being waived. Primary cooperation must be given to select...
stitute 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. Otherwise, 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 fostering the content of any independent study course.

Permission to pursue a course on an independent study basis will be given in instances where the student can demonstrate the ability to pursue the course through independent study and there is a reasonable expectation that he can successfully complete the course. Permission to register for such a course must be granted by both the student's advisor and the course department chair. 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.

If the course is passed by an independent study, the student is awarded full course credit.

A student must register for Independent Study by completing the special "Independent Study Application Form."

**Credit by Examination**

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

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

Credit by Examination will be given on a pass-fail 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 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.

**RECORD OF STUDENT WORK**

Records of each student's grades are kept on file in the student Records
Office. These 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 Student Records Office.
Service is our most important product, says the advertising slogan of one company. It could also be the slogan of 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 curriculums 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 technology. The library also has a typewriter available for student use.

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

BOOKSTORE

Located in the student lounge, at the main campus and in the lobby at Lonas Hall, the bookstores are 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. Class rings, State Tech jackets, calculators, personal items, and many accessories are also available for purchase.

Books not marked in are returnable with the proper receipt through the drop date. Supplies are non-returnable.

Graduating students must have cap and gown orders placed in the bookstore by March 1. There will be a late rental fee after this date. No orders will be taken after May 15.

STUDENT AFFAIRS AND ACTIVITIES

State Technical Institute at Knoxville is aware that State Tech creates a new challenge for students. The Student Affairs Division 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 Division coordinates the following services for students: admissions testing, counseling, recruitment, financial aid, career planning and placement, student activities, Veterans Affairs and the Student Records office. 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 Division are coordinated by the Dean of Student Affairs.

Testing and Counseling

Testing and Counseling are provided to assure that the student receives maximum results from his educational opportunities.

Academic Advising

Each curriculum department head will assign a faculty advisor for each student within the first 10 days after the student’s initial registration and provide a copy of each assignment to the Dean of Instruction. Instructors will:

1. Post office hours when they will be available to confer with advisees.
2. Have a personal conference with each advisee at least once during each quarter to insure the student’s continued academic success.
3. 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; and
   D. an updated curriculum guide indicating courses taken and required.

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

Career Planning and Placement is a program designed to offer assistance to career counseling and needs of all students and of the State Technical Institute of Knoxville.

The service places emphasis on career guidance and counseling and includes interviews, job opportunities, and curricular counseling to explore alternative and opportunities within a given occupation goal.

Students and alumni are assisted in their job search process which includes on-campus interviews, job opportunities, and placement services.

Registrar and Student Records

All past and current records at State Tech are maintained in the Student Records Office. Requests for copies of information contained in a student’s folder are directly to the Student Records Office. In accordance with the Family Educational Rights and Privacy Act of 1974, this institution provides students or their parents with the opportunity to review the student’s educational records and to seek correction.
nation contained in those records. es of college policy relating to in- nation practices are obtained in the ent Records Office.

**Counseling**

Counselors are available for career, lemic and personal counseling. aim of the counselor is to help stu- gain a better understanding of capabilities and potentialities, and ing about a better relationship with world around them so that each become “all they are capable of.”

**Student Activities**

ere are several activities on camp- for students. State Tech encour- extra-curricular activities which t individual initiative, group lea- ship and cooperation. Student nization and administration of stu- ies is a function of the en Affairs Division.

**Student Government ociety**

he purpose of the Student Govern- 1 Association (SGA) is to promote expand interest in student activi- and to serve as an advisory group ith the administration of the school and the student body. The SGA is dele- gated authority to be responsible for certain specific matters affecting student affairs and represents student opinions in working with the administra- toward the good of State Tech. The officers of SGA are the President, the Vice-President, Secretary, Treasurer, and Speaker of SGA. They are elected during the last four weeks of the Spring Quarter and serve for one year. All other members of the SGA are elected or appointed during the first four weeks of the fall quarter and serve one year. The Head of Student Services is the advisor, 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 a student chapter of the American Society of Certified Engineering Technicians (ASCE), the Data Processing Managers Association (DPMA), and the Student Managers Association (SMA). 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.

**Student Conduct**

All students are expected to maintain acceptable standards of personal conduct and honesty. Any student whose conduct is considered harmful to the rights of others or to the reputation of the college shall be subject to suspension or expulsion. Any student who is expelled or suspended will receive written notification stating the exact reason(s) for disciplinary action. The student is entitled to a hearing before the Academic Standard and Discipline Committee. A student wishing to have his case reviewed should contact the Dean of Instruction. The Dean of Instruction will notify the student of the time and place of the review proceedings and will call a meeting of the
committee to hear the student's appeal of disciplinary action. The finding of the committee will be given to the student in writing.

The following areas of misconduct are identified to clarify what constitutes unacceptable student conduct at the Institute. Misconduct may be grounds for suspension or expulsion.

1. A student shall not by use of violence, force, noise, coercion, threat, intimidation, fear, passive resistance, or other conduct intentionally cause a disruption or obstruction of any lawful mission, process or function of the school.

2. A student shall not intentionally cause or attempt to cause damage to the school and or private property or steal or attempt to steal school and or private property.

3. A student shall not intentionally cause or attempt to cause physical injury or intentionally behave in such a way which could cause physical injury to a school employee, another student or other persons not employed by the school.

4. A student shall not knowingly possess, handle or transmit any object that can reasonably be considered a weapon.

5. A student shall not knowingly possess, use, transmit or be under influence of any narcotic drug, psychotropic drug, amphetamine biturate, marijuana, alcoholic beverage or intoxicant of any kind except prescription for a registered physician.

6. A student shall not engage in bling in any form.

More details on student conduct requirements can be found in the Student Handbook, "Technical..."
BUSINESS TECHNOLOGIES DIVISION
Associate Degree Programs
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 in the data processing curriculum can expect to find careers in diverse areas such as manufacturing processes, accounting firms, hospital government installations, universities and many other public and private concerns. The well-trained data processing technician has a wide horizon of opportunities.

TYPICAL POSITIONS OPEN TO DATA PROCESSING TECHNICIANS

Applications programmer — A son, normally employed by a company, normally employed by a company, who converts a problem into a computer code of directions for a computer to solve.

Systems representative — Someone normally employed by a computer user, who provides customer representatives and who must be able to understand the requirements of the user.

Systems programmer — A person normally employed by a company, who is responsible for making programs supplied by the manufacturer, which are an essential part of the computer's operational environment.
<table>
<thead>
<tr>
<th>QUARTER</th>
<th>COURSE NAME</th>
<th>CLASS HOURS</th>
<th>LAB HOURS</th>
<th>CREDIT HOURS</th>
<th>TOTAL HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST QUARTER</td>
<td>141 Business Mathematics I</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>121 Accounting I</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>101 Introduction to Data Processing</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>101 Oral Communication</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>100 Flowcharting and BASIC</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>16</td>
<td>6</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>COND QUARTER</td>
<td>142 Business Mathematics II</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>122 Accounting II</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>112 Business Communications I</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>121 RPG Programming</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>15</td>
<td>6</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>RD QUARTER</td>
<td>143 Business Mathematics III</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>123 Accounting III</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>113 Business Communications II</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>111 Assembler Programming I</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>101 Economics</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>16</td>
<td>6</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>JRTH QUARTER</td>
<td>Social Science Elective</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>221 Systems Design and Development</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>201 Fortran</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>112 Advanced Assembler</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>124 Business Law</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td>15</td>
<td>9</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Fourth Quarter</td>
<td>Fifth Quarter</td>
<td>Sixth Quarter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------------</td>
<td>---------------</td>
<td>---------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU 201 Principles of Management</td>
<td>4</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BU 202 Accounting Systems</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DP 223 Database Management</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DP 222 Operating Systems</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DP 131 COBOL Programming</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>9</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fifth Quarter**

**Sixth Quarter**

<table>
<thead>
<tr>
<th>Course</th>
<th>Fourth Quarter</th>
<th>Fifth Quarter</th>
<th>Sixth Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP 213 Data Communications</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>DP 232 COBOL II</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>DP 234 Programming Applications (Advanced)</td>
<td>3</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9</strong></td>
<td><strong>21</strong></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL**

87  57
**INESS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 Accounting I</td>
<td>4</td>
</tr>
<tr>
<td>22 Accounting II</td>
<td>4</td>
</tr>
<tr>
<td>23 Accounting III</td>
<td>4</td>
</tr>
<tr>
<td>24 Business Law</td>
<td>4</td>
</tr>
<tr>
<td>01 Principles of Management</td>
<td>4</td>
</tr>
<tr>
<td>02 Accounting Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**BUSINESS DATA PROCESSING**

**Course Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 Flowcharting and BASIC</td>
<td>4</td>
</tr>
<tr>
<td>01 Introduction to Data Processing</td>
<td>3</td>
</tr>
<tr>
<td>11 Assembler Programming I</td>
<td>4</td>
</tr>
<tr>
<td>12 Advanced Assembler Programming</td>
<td>4</td>
</tr>
<tr>
<td>21 RPG II Programming</td>
<td>6</td>
</tr>
<tr>
<td>31 COBOL Programming</td>
<td>5</td>
</tr>
<tr>
<td>01 FORTRAN Applications</td>
<td>4</td>
</tr>
<tr>
<td>13 Data Communications</td>
<td>4</td>
</tr>
<tr>
<td>21 Systems Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>22 Operating Systems</td>
<td>4</td>
</tr>
<tr>
<td>23 Data Base Management</td>
<td>3</td>
</tr>
<tr>
<td>32 COBOL Programming II</td>
<td>4</td>
</tr>
<tr>
<td>34 Advanced Programming Applications</td>
<td>8</td>
</tr>
</tbody>
</table>

**Total**                                      | 56    

**NOMICS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Economics</td>
<td>3</td>
</tr>
</tbody>
</table>
ENGLISH
EN 101 Oral Communication
EN 112 Business Communications I
EN 113 Business Communications II

MATHEMATICS
MA 141 Business Math I
MA 142 Business Math II
MA 143 Business Math III

SOCIAL SCIENCE
SC Social Science Elective
graduate in computer accounting
tology is a technical assistant to
the accounting department and
data processing department and,
uch, must be capable of speaking
uary of the accountant and the
puter technician.
specifically, the computer account-
tecnician acts as a liaison
between the two departments by trans-
ing information collected by the
unting department into a viable
ng by the data processing personnel. By interacting with
departments, the computer
unting technician can facilitate the
ction of raw data into financial
ements that may be used by the
ant and/or management in the
ision-making process. By using the
puter, technicians not only perform
utations usually done by book-
ers or junior accountants (thereby
ucing costs of personnel), but more
ortantly, can perform them much
.
his function has a two-fold
ct on the business. First, the tech-
in is free to perform more important
ies such as the collection of raw
a. Secondly, the data upon which
agement bases its decisions is
ent.

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
ecessary skills to fill positions as com-
puter technicians will find new and
cting job opportunities limited only
by their own creativity.

The Managerial Accounting spe-
cialization is designed to provide the
student with a firm base in accounting
principles and fundamentals of
agement. Typical course work areas
clude: accounting, accounting theory
and practice, cost accounting, taxation,
ance, personnel management,
abor relations, business law, and
ervisory 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.
<table>
<thead>
<tr>
<th>QUARTER</th>
<th>Course</th>
<th>Class</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT</td>
<td>21 Principles of Accounting I</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>00 Flowcharting and Basic</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>01 Introduction to Data Processing</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>01 Oral Communication</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>41 Business Mathematics I</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>6</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QUARTER</th>
<th>Course</th>
<th>Class</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>QND</td>
<td>22 Principles of Accounting II</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>21 Computer Programming - RPG II</td>
<td>5</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>12 Business Communications I</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>42 Business Mathematics II</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>6</strong></td>
<td><strong>17</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QUARTER</th>
<th>Course</th>
<th>Class</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>23 Principles of Accounting III</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>01 Principles of Management</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>13 Business Communications II</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>43 Business Mathematics III</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Social Science Elective</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
<td><strong>3</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>
# Managerial Accounting Specialization

## Second Year Curriculum

### Fourth Quarter
- **BU 203 Taxation**: 3 Class, 0 Lab
- **BU 216 Business Finance I**: 3 Class, 0 Lab
- **BU 221 Intermediate Accounting I**: 3 Class, 0 Lab
- **EC 101 Economics I**: 3 Class, 0 Lab
- **IM 132 Personnel Management**: 5 Class, 0 Lab

Total Credit Hours: 17 Class, 0 Lab


### Fifth Quarter
- **Elective**: 3 Class, 0 Lab
- **BU 222 Intermediate Accounting II**: 3 Class, 0 Lab
- **BU 231 Cost Accounting I**: 3 Class, 0 Lab
- **IM 225 Labor Relations**: 4 Class, 0 Lab
- **IM 231 Supervisory Development I**: 4 Class, 0 Lab

Total Credit Hours: 17 Class, 0 Lab


### Sixth Quarter
- **Accounting Elective**: 3 Class, 0 Lab
- **BU 232 Cost Accounting II**: 3 Class, 0 Lab
- **BU 124 Business Law I**: 4 Class, 0 Lab
- **IM 235 Supervisory Development II**: 4 Class, 0 Lab

Total Credit Hours: 14 Class, 0 Lab

Total Credit Hours: 96 Class, 15 Lab
<table>
<thead>
<tr>
<th>( \text{URTH QUARTER} )</th>
<th>( \text{HOURS PER WEEK} )</th>
<th>( \text{PROGRAMMING SPECIALIZATION} )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \text{Class} )</td>
<td>( \text{Lab} )</td>
</tr>
<tr>
<td>203 Taxation</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>216 Business Finance I</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>221 Intermediate Accounting I</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>221 Systems Design and Development</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>101 Principles of Economics I</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>( \text{TH QUARTER} )</td>
<td>( \text{Class} )</td>
<td>( \text{Lab} )</td>
</tr>
<tr>
<td>202 Accounting Systems</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>222 Intermediate Accounting II</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>231 Cost Accounting I</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>131 COBOL</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>( \text{TH QUARTER} )</td>
<td>( \text{Class} )</td>
<td>( \text{Lab} )</td>
</tr>
<tr>
<td>124 Business Law I</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Accounting Elective</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>232 Cost Accounting II</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>232 COBOL Advanced</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>( \text{TOTAL} )</td>
<td>92</td>
<td>21</td>
</tr>
</tbody>
</table>
COMPUTER ACCOUNTING

Core Course Requirements

ACCOUNTING

BU 121 Principles of Accounting I
BU 122 Principles of Accounting II
BU 123 Principles of Accounting III
BU 203 Taxation
BU 221 Intermediate Accounting I
BU 222 Intermediate Accounting II
BU 231 Cost Accounting I
BU 232 Cost Accounting II
Accounting Elective

BUSINESS

BU 124 Business Law
BU 216 Business Finance

DATA PROCESSING

DP 100 Flowcharting and BASIC
DP 101 Introduction to Data Processing
DP 121 Computer Programming RPG II

ECONOMICS

EC 101 Principles of Economics I
**LISH**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>112 Business Communication I</td>
<td>3</td>
</tr>
<tr>
<td>113 Business Communication II</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

**USTRIAL MANAGEMENT**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>201 Principles of Management</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4</strong></td>
</tr>
</tbody>
</table>

**TH**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>141 Business Mathematics I</td>
<td>4</td>
</tr>
<tr>
<td>142 Business Mathematics II</td>
<td>4</td>
</tr>
<tr>
<td>143 Business Mathematics III</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

**ECTIVES:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Science</td>
<td>3</td>
</tr>
<tr>
<td>General</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6</strong></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>84</strong></td>
</tr>
</tbody>
</table>
PROGRAMMING
SPECIALIZATION
Course Requirements

BUSINESS
BU 202 Accounting Systems

DATA PROCESSING
DP 221 Systems Design and Development
DP 131 Computer Programming - COBOL
DP 232 Computer Programming - COBOL-Advanced

MANAGERIAL
ACCOUNTING
SPECIALIZATION
Course Requirements

MANAGEMENT
IM 132 Personnel Management
IM 225 Labor Relations
IM 231 Supervisory Development I
IM 235 Supervisory Development II
The curriculum in marketing technology offers instruction in marketing management, accounting, finance, business law, data processing, and general education studies. This program is designed to train individuals in marketing technicians with the requisite skills to fulfill the employment demands of business, industry, and government. During the two-year program, students are taught the four basic requirements for success in business: technical skills, marketing knowhow, knowledge of materials requirements, and the language of business.

Marketing, advertising, communications, and research, retail marketing, management, and purchasing are the areas to which the student will be exposed while at State Tech. Additionally, the program includes other business-related courses to enhance the graduate's ability to perform successfully within the business community.

The development of a graduate in business is limited only by one's own initiative and ability to use the skills learned.

The courses required for completion of an A.S. degree in Marketing Technology at State Technical Institute at Knoxville will be accepted toward fulfillment of the requirements of a B.S. degree in Distributive Education at the University of Tennessee upon approval by the chairman of the Distributive Education Department.

**MARKETING TECHNOLOGY**

**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**—does much of the work of buyers, such as placing orders with manufacturers and wholesalers, confirming shipping dates, and assisting buyers in the overall operation of their job duties.

**Manager or manager trainee**—accepts the responsibility of "being in charge" of the operation. With the skills of a marketing technician, opportunities for advancement are limited only by one's ability and desires.
# MARKETING TECHNOLOGY Curriculum

## FIRST QUARTER
- MA 141 Business Mathematics I  
  Class: 4  
  Lab: 0
- EN 101 Oral Communication  
  Class: 3  
  Lab: 0
- DP 101 Introduction Data Processing  
  Class: 3  
  Lab: 0
- BU 121 Principles of Accounting I  
  Class: 3  
  Lab: 1
  Social Science Elective  
  Class: 3  
  Lab: 0
  Total: 16  
  Lab: 1

## SECOND QUARTER
- EC 101 Economics I  
  Class: 3  
  Lab: 0
- EN 112 Business Communications I  
  Class: 3  
  Lab: 0
- MA 142 Business Mathematics II  
  Class: 4  
  Lab: 0
- BU 122 Principles of Accounting II  
  Class: 3  
  Lab: 1
  Department Approved Data Processing elective  
  Class: 3-4  
  Lab: 0
  Total: 16-17  
  Lab: 1

## THIRD QUARTER
- MT 100 Introduction to Marketing  
  Class: 3  
  Lab: 0
- MT 101 Salesmanship  
  Class: 3  
  Lab: 0
- EN 113 Business Communications II  
  Class: 3  
  Lab: 0
- MT 215 Advertising Theory I  
  Class: 3  
  Lab: 0
- BU 201 Principles of Management  
  Class: 4  
  Lab: 0
  Total: 16  
  Lab: 0
<table>
<thead>
<tr>
<th>COURSE</th>
<th>CLASS</th>
<th>LAB</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>211 Advanced Marketing</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>234 Sales Management</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>216 Applied Advertising II</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>209 Managerial Accounting</td>
<td>4-3</td>
<td>0-1</td>
<td>3-4</td>
</tr>
<tr>
<td>BU 123 Principles of Accounting III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>231 Supervisory Development</td>
<td>4-5</td>
<td>0</td>
<td>4-5</td>
</tr>
<tr>
<td>IM 132 Personnel Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16-18</td>
<td>0-1</td>
<td>16-18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COURSE</th>
<th>CLASS</th>
<th>LAB</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>216 Business Finance I</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>224 Public Relations</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>233 Small Business Management</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>231 Retail Merchandising</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Department Approved General Elective</td>
<td>3-4</td>
<td>0</td>
<td>3-4</td>
</tr>
<tr>
<td></td>
<td>15-16</td>
<td>0</td>
<td>15-16</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COURSE</th>
<th>CLASS</th>
<th>LAB</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>232 Retail Buying</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>221 Industrial Purchasing</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>124 Business Law I</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>213 Marketing Research</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Department Approved General Elective</td>
<td>3-4</td>
<td>0</td>
<td>3-4</td>
</tr>
<tr>
<td></td>
<td>16-17</td>
<td>0</td>
<td>16-17</td>
</tr>
</tbody>
</table>

TOTAL 95-100 2-3 97-102
MARKETING TECHNOLOGY
Course Requirements

MARKETING
MT 100 Introduction to Marketing
MT 101 Salesmanship
MT 211 Marketing (Advanced)
MT 213 Marketing Research
MT 215 Advertising Theory I
MT 216 Applied Advertising II
MT 221 Purchasing (Industrial)
MT 224 Public Relations
MT 231 Retail Merchandising
MT 232 Retail Buying
MT 233 Small Business Management
MT 234 Sales Management

BUSINESS
BU 121 Principles of Accounting I
BU 122 Principles of Accounting II
BU 123 Principles of Accounting III
or BU 209 Managerial Accounting
BU 124 Business Law
BU 201 Principles of Management
BU 216 Introduction to Finance

DATA PROCESSING
DP 101 Introduction to Data Processing
Department Approved Data Processing Elective
**ECONOMICS**
01 Principles of Economics I 3

**MANAGEMENT**
31 Supervisory Development 4-5
IM 132 Personnel Management

**ENGLISH**
01 Oral Communication 3
12 Business Communications I 3
13 Business Communications II 3

**MATHEMATICS**
141 Business Mathematics I 4
142 Business Mathematics II 4

**SOCIAL SCIENCE**
Social Science Elective 3

**HONORARY ELECTIVES**
Department Approved Electives 6

**TOTAL** 97-102
MID-MANAGEMENT TECHNOLOGY

Concepts, theories, and their application are taught in this program because they are useful to managers at all levels. Concentration is placed, however, on the application of concepts, particularly those which are useful to lower and middle-level managers in larger organizations and managers of smaller organizations. Management in all types of organizations is focused upon public, education, health care, service, retail, and manufacturing.

Because management is an exciting and challenging activity, it is believed that learning to manage should follow suit. Therefore, practical management case studies and problems are included in many courses.

How do you become an effective manager? Proper experience is one thing, but a systematic study of management can increase your chances of obtaining a successful management position. By studying concepts and ideas that managers have found useful, you can prepare yourself to meet many of the demands you will face on the job. Although studying and learning these concepts can never replace experience, you will be able to learn from your experience more and more effectively.

Other topics included in many management courses cover leadership dynamics, communication, organizational change, union relations, planning, controlling, and motivating all skills needed for supervising people, money, machines, and materials.

The two-year Management Associate of Science degree is designed for students who wish to develop their supervisory skills. The program will be especially interesting and helpful to mature students who are continuing their education on a part-time basis. This management program should prepare the student for increasing responsibility and advancement in the following areas:

Personnel Management
Office Supervision
Counselor
Management of a Small Business
Retail Management
Manufacturing
Foreman
Production Planning and Control
Materials Handling
Plant Layout
Production Planner
<table>
<thead>
<tr>
<th>QUARTER</th>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1ST QUARTER</td>
<td>16 Personal Financial Management</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>00 Marketing</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>01 Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Social Science Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>41 Business Mathematics I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>2ND QUARTER</td>
<td>21 Principles of Accounting I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>01 Introduction to Data Processing</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>01 Economics I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>12 Business Communications I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>42 Business Mathematics II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>3RD QUARTER</td>
<td>101 Principles of Management</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>22 Principles of Accounting II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>31 Methods Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>13 Business Communications II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>43 Business Mathematics III</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

The Mid-Management Technology First Year Core Curriculum is designed to build on students' business, industrial, or military experiences and varied educational backgrounds. This program addresses the dynamic nature of business and industrial occupational requirements, allowing the student with management experience to tailor a curriculum to individual or specialized needs. This provides students the flexibility of substituting, with the approval of the head of the Mid-Management Department, up to 18 hours of work within the Business Technologies Division.
# FOURTH QUARTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK 122 Accounting</td>
<td>4.5</td>
<td>0</td>
</tr>
<tr>
<td>BK 106 Principles of Banking</td>
<td>4.5</td>
<td>0</td>
</tr>
<tr>
<td>IM 231 Supervisory Development I</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>IM 132 Personnel Management</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Total: 18 hours

# FIFTH QUARTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK 201 Analyzing Financial Statements</td>
<td>4.5</td>
<td>0</td>
</tr>
<tr>
<td>BK 110 Economics</td>
<td>4.5</td>
<td>0</td>
</tr>
<tr>
<td>BU 124 Business Law</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Elective*</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Total: 16 hours

# SIXTH QUARTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK 204 Law and Banking</td>
<td>4.5</td>
<td>0</td>
</tr>
<tr>
<td>BK 131 Installment Credit</td>
<td>4.5</td>
<td>0</td>
</tr>
<tr>
<td>IM 233 Research Project</td>
<td>0</td>
<td>3-12</td>
</tr>
<tr>
<td>Electives*</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

Total: 15 hours

*Management Departmental Electives approved by Department Head.
<table>
<thead>
<tr>
<th>URTH QUARTER</th>
<th>Class</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>111 Industrial Safety</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>132 Personnel Management</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>211 Motion and Time Study</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>225 Introduction to Labor</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>231 Supervisory Development I</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>19</td>
<td>3</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TH QUARTER</th>
<th>Class</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>221 Plant Layout and Materials Handling</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>223 Engineering and Economic Analysis</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>224 Methods and Time Measurement</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>222 Statistical Quality Control</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>100 Introductory Physics</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>15</td>
<td>12</td>
<td>19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4TH QUARTER</th>
<th>Class</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>212 Wage and Salary Administration</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>232 Production Planning and Control</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>233 Research Project</td>
<td>0</td>
<td>3-12</td>
<td>1-4</td>
</tr>
<tr>
<td>100 Introduction to Technical Drawing</td>
<td>0</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>124 Business Law I</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>11</td>
<td>12-21</td>
<td>15-18</td>
</tr>
</tbody>
</table>

| TOTAL                                           | 95    | 30-39| 105-108      |
### MANAGERIAL SPECIALIZATION
#### Second Year Curriculum

<table>
<thead>
<tr>
<th>FOURTH QUARTER</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 111 Industrial Safety</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>IM 132 Personnel Management</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>IM 231 Supervisory Development I</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>IM 225 Introduction to Labor</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>IM 240 Management in Data Processing</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FIFTH QUARTER</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM 235 Supervisory Development II</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>IM 238 Labor Relations</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>IM 239 Job Analysis and Evaluations</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>IM 234 Management of Human Resources</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>BU 209 Managerial Accounting</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIXTH QUARTER</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM 212 Wage and Salary Administration</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>IM 233 Research Project</td>
<td>0</td>
<td>3-12</td>
</tr>
<tr>
<td>BU 124 Business Law I</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>IM 236 Information Systems for Management</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>IM 237 Management Readings and Problems</td>
<td>0</td>
<td>3-12</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>6-24</td>
</tr>
<tr>
<td>TOTAL</td>
<td>99</td>
<td>9-27</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>116</td>
<td>Personal Financial Management</td>
<td>4</td>
</tr>
<tr>
<td>100</td>
<td>Marketing</td>
<td>3</td>
</tr>
<tr>
<td>121</td>
<td>Principles of Accounting I</td>
<td>4</td>
</tr>
<tr>
<td>122</td>
<td>Principles of Accounting II</td>
<td>4</td>
</tr>
<tr>
<td>124</td>
<td>Business Law I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>19</strong></td>
</tr>
<tr>
<td></td>
<td><strong>A PROCESSING</strong></td>
<td></td>
</tr>
<tr>
<td>101</td>
<td>Introduction to Data Processing</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
</tr>
</tbody>
</table>

**MID-MANAGEMENT TECHNOLOGY Core Course Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>201</td>
<td>Principles of Management</td>
<td>4</td>
</tr>
<tr>
<td>31</td>
<td>Methods Analysis</td>
<td>3</td>
</tr>
<tr>
<td>32</td>
<td>Personnel Management</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>Wage and Salary Administration</td>
<td>4</td>
</tr>
<tr>
<td>25</td>
<td>Introduction to Labor</td>
<td>4</td>
</tr>
<tr>
<td>31</td>
<td>Supervisory Development I</td>
<td>4</td>
</tr>
<tr>
<td>33</td>
<td>Research Project</td>
<td>1-4</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>25-28</strong></td>
</tr>
</tbody>
</table>

**ECONOMICS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Economics I</td>
<td>3</td>
</tr>
</tbody>
</table>

**LISH**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>Business Communications I</td>
<td>3</td>
</tr>
<tr>
<td>13</td>
<td>Business Communications II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>
MECHANICAL ENGINEERING TECHNOLOGY
ME 111 Industrial Safety

MATH
MA 141 Business Mathematics I
MA 142 Business Mathematics II
MA 143 Business Mathematics III

SOCIAL SCIENCE
SC 102 Social Science Elective

TOTAL
### Banking Specialization

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>106 Principles of Banking</td>
<td>4.5</td>
</tr>
<tr>
<td>110 Economics</td>
<td>4.5</td>
</tr>
<tr>
<td>122 Accounting</td>
<td>4.5</td>
</tr>
<tr>
<td>131 Installment Credit</td>
<td>4.5</td>
</tr>
<tr>
<td>201 Analyzing Financial</td>
<td>4.5</td>
</tr>
<tr>
<td>Statements</td>
<td></td>
</tr>
<tr>
<td>204 Law and Banking</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>27</strong></td>
</tr>
</tbody>
</table>

### Drafting

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 Introduction to Technical Drawing</td>
<td>2</td>
</tr>
</tbody>
</table>

### Physics

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 Introductory Physics</td>
<td>4</td>
</tr>
</tbody>
</table>

### Management

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 Motion and Time Study</td>
<td>4</td>
</tr>
<tr>
<td>21 Plant Layout and Materials Handling</td>
<td>4</td>
</tr>
<tr>
<td>22 Statistical Quality Control</td>
<td>4</td>
</tr>
<tr>
<td>23 Engineering and Economic Analysis</td>
<td>3</td>
</tr>
<tr>
<td>24 Methods and Time Measurement</td>
<td>4</td>
</tr>
<tr>
<td>32 Production Planning and Control</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>23</strong></td>
</tr>
</tbody>
</table>
MANAGERIAL SPECIALIZATION
Course Requirements

BUSINESS
BU 209 Managerial Accounting

MID-MANAGEMENT
IM 234 Management of Human Resources
IM 235 Supervisory Development II
IM 236 Information Systems for Management
IM 237 Management Reading and Problems
IM 238 Labor Relations
IM 239 Job Analysis and Evaluation
IM 240 Management in Data Processing

TOTAL
BK 131 Installment Credit  
4.5 Credits  
4.5 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 lending, leasing, credit management, insurance, rate structure, and yields.

BK 201 Analyzing Financial Statements  
4.5 Credits  
4.5 Class Hours  
Offers the student tools and techniques necessary for the evaluation of financial conditions and operating performance of a modern business enterprise. This course is divided into four parts: Financial Statement Analysis and Accounting, Financial Statements and Business Funds Flow; Tools of Financial Statement Analysis; and the Techniques of Financial Statement Analysis.
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.

BUSINESS  

BU 116 Personal Financial Management  
4 Credits  
4 Class Hours  
This course provides an understanding of the fundamental aspects of managing one’s personal finances. Emphasis is placed on setting personal financial goals, preparing personal financial statements, protecting income and assets by using appropriate insurance, and setting up long range investment programs.

BU 120 Marketing  
5 Credits  
5 Class Hours  
An introductory study of the movement of goods from producer to consumer through various channels of distribution; the functions of marketing costs, choice of policies, and social and economic implications.

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  
3 Credits  
3 Class Hours, 3 Lab \تف
A course which includes cost accounting systems, budgetary control standard costing, cost and revenue relationship for management, management reports and special analysis, financial statement analysis, and cash flow financial statement analysis.  
Prerequisite: BU 121

BU 124 Business Law  
4 Credits  
4 Class \تف
Principles of law as applied to business transactions, including contract employment, negotiable instruments and personal property.

BU 125 Business Law II  
3 Credits  
3 Class \تف
Principles of law as applied to business transactions, including bailments, importation, sales, insurance, surety and guaranty, and partnership.  
Prerequisite: BU 124
201 Principles of Management
4 Credits
4 Class Hours
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.

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

203 Taxation
3 Credits
3 Class Hours
This 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 207 Small Business Management
3 Credits
3 Class Hours
Training in the operation of a small business concern including a practical knowledge of accepted accounting procedures, order billing, credits and collections, costs, payroll procedures, taxes, and information about standard business and office machines.

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 221 Intermediate Accounting I
3 Credits
3 Class Hours
A study of accounting records, end-of-period procedures, 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, 4 Lab 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 221-2

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: Permission of department head

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 non-profit 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 and analyzed for management.

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

BU 263 Internship
1-4 Credits
Actual work experience in industrial business. One credit for each hour worked with maximum of 6 credits.
Prerequisite: BU 123 and permission of department head

DATA PROCESSING

DP 100 Flowcharting and BASIC
4 Credits
3 Class Hours, 3 Lab H
An introduction to basic computer language and the techniques of flowcharting and file handling. BASIC is use the introductory programming language. The lab work involves programming business applications in BASIC.
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.

Computer Programming for Engineering Technology
4 Credits
3 Class Hours, 3 Lab Hours
Introduction to computer systems and applications. Survey of computer hardware history and relationship of computer and society in the future. Charting and programming concepts are taught through use of the MIAL programming language.

Computer Programming (ASSEMBLER)
4 Credits
3 Class Hours, 3 Lab Hours
Study and development of a user's assembly language. The student will write and debug programs in ASSEMBLER language and also be able of employing this language in a total programming system. The principles of debugging and core-dump reading will be given major emphasis.

Prerequisite: DP 101 or Co-requisite: DP 101

Advanced Assembler
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

Computer Programming (RPG)
6 Credits
5 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 100

Computer Programming (COBOL)
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.

Fortran Applications
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 101

Data Communication
4 Credits
3 Class Hours, 3 Lab Hours
An introduction to the hardware and software systems which support today's on-line real-time business systems. Time sharing, multi-programming, and multi-processing systems are investigated as they relate to data communications systems.

Prerequisite: DP 221
DP 221 Systems Design and Development

3 Credits
2 Class Hours, 3 Lab Hours
A study of the overall computer based systems analysis and design process, information problems of business organization and the inter-relationship of functions, nature of business problem isolation and definition, and initial phase of systems analysis and evaluation.

DP 222 Operating Systems

4 Credits
3 Class Hours, 3 Lab 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.

DP 223 Data Base Management

4 Credits
3 Class Hours, 3 Lab Hours
A presentation of the major concepts and features of software systems known generally as Data Management Systems. Emphasis is placed on the generalized self-contained capabilities of data base creation and use, as opposed to more highly specialized functions. The user environment which has led to the development of Data Management Systems (DMS) is examined and the relationship between DMS and the modern management information system is explored. Most of the major topics are supported by extensive laboratory projects.

DP 232 Computer Programming (Advanced COBOL)

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 with a local data processing installation. The requirements include: approval of work situation by data processing department chairperson, satisfactory work experience as reported by cooperating data processing manager and completion of prescribed programming of systems application related to commercial data processing.

Prerequisites: Completion of course work through fifth quarter departmental approval.

ECONOMICS

EC 101 Principles of Economics

3 Credits
3 Class Hrs
A course which includes a present of basic economic concepts including types of business organization, supply and demand determination, market structure classification, profit maximization, and microeconomic role in government.

MID-MANAGEMENT

IM 116 Management for First Line Supervisors

3 Credits
This course introduces first-level supervisors to the duties of supervisors designed to assist personnel in improving job performance and in preparing for advancement.
131 Methods Analysis  3 Credits
3 Class Hours
The application of the "questioning attitude" is studied in search for better manufacturing methods and job
practices.

132 Personnel Management  5 Credits
5 Class Hours
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 basic guiding principles, and background
of personnel management.

211 Motion and Time Study  4 Credits
3 Class Hours, 3 Lab Hours
The application of time study, standard development and formula con-
struction, and work sampling principles will be discussed.

212 Wage and Salary Administration  4 Credits
4 Class Hours
The 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.

IM 221 Plant Layout and Materials Handling  4 Credits
3 Class Hours, 3 Lab Hours
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, econ-
omic improvement procedures, justification of equipment, and special

IM 222 Statistical Quality Control  4 Credits
3 Class Hours, 3 Lab Hours
The practical application of statistics and probability theory as it applies to
acceptance sampling, control charts, and sampling plans.

IM 223 Engineering Cost Analysis  3 Credits
3 Class Hours
A study of engineering economy including fundamental economic prin-
ciples and concepts such as the Law of Supply and Demand, Law of Dimin-
ishing Return, Consumer-Producer Goods Relationships, Cost-Volume Rela-
tionships, 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.

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
direct 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 the labor force, the laws and
regulations governing its employment, programs for its improvement and
protection, and labor-management relations.
IM 231 Supervisory Development  
4 Credits  
4 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 manufacture 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 utilized. The consent of the department head or advisor is required before enrollment in this course.

IM 234 Management of Human Resources  
4 Credits  
4 Class Hours  
This course will comprehensively cover the elements of human resource management. This course will be reality-oriented because we know that practice is not always consistent with theory. Four of the key functions to be covered will be procurement, development, motivation and maintenance of human resources.

IM 235 Supervisory Development II  
4 Credits  
4 Class Hours  
This is a second course teaching the fundamental techniques supervisors or first-line managers need to know about handling people, managing their jobs, 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 237 Readings and Case Study in Management  
1-4 Credits  
Class Hours as Required  
This course will expose students to the writings of the most prominent contributors to the field of Management. The selections will be of high value encouraging classroom discussion of ideas currently important in management. The case studies are designed to illustrate certain managerial problems and provoke the thought and decision about those problems. The course may be repeated until 4 hours of credit have been used. (Consent of Department Head required).

IM 238 Labor Relations  
4 Credits  
4 Class Hours  
A study of the various aspects of relations including a study of unemployment, organized labor, collective bargaining, union policies, methods, political activities of organized labor, the labor problem of players and methods of communications between labor and management.
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 price jobs. The course will also emphasize the effect that the employee's performance have in determining differentials for the same job and for total compensation. The theory and practice of establishing job standards and employee performance as full-discussed. The objective will be to discuss why certain techniques and methods are necessary.

MKETING

100 Introduction to Marketing (previously BU 120)

3 Credits
3 Class Hours
A general but critical survey course of field of marketing, covering marketing channels, functions, methods, and institutions. Designed to introduce the marketing major, or students from other fields, to marketing.
Prerequisites: EC101

MT 101 Salesmanship

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

MT 211 Advanced Marketing

3 Credits
3 Class Hours
An in-depth study of marketing designed to bring together the theories and principles to which the student has been exposed in the lower division courses, as a preparation for study of more complex marketing theories, practices, and concepts. Prerequisite: MT100, EC101

MT 213 Marketing Research

3 Credits
3 Class Hours
The application of research techniques and procedures for measuring market opportunities. Specific attention, in addition to descriptive analysis, is given to techniques of and criteria for the identification and selection of market segments. Prerequisites: upper division standing

MT 215 Advertising Theory I

3 Credits
3 Class Hours
A study of the development of advertising, the various media, and the part advertising plays in the marketing program.

MT 216 Applied Advertising II

3 Credits
3 Class Hours
Study and practice of the technical aspects of developing advertising campaigns for business, media surveying and graphic applications. Prerequisite: MT215

MT 221 Industrial Purchasing

3 Credits
3 Class Hours
Methods of procurement of industrial and wholesale operating supplies, component parts, raw materials and product buying for inventory maintenance. Also, scheduling delivery coordination, and contracts and agreements with suppliers.
MT 224 Public Relations
3 Credits
3 Class Hours
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
3 Class Hours
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 locational considerations, promotion, advertising, and training of personnel.
Prerequisite: upper division standing

MT 232 Retail Buying
3 Credits
3 Class Hours
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.

MT 233 Small Business Manager
3 Credits
3 Class Hours
Training in the operation of a small business concern, including a knowledge of accepted accounting procedures, order billing, credits, collections, costs, payroll procedures, taxes, and information about small business and office machines.

MT 234 Sales Management
3 Credits
3 Class Hours
A study of the organization of sales staffs and departments, the techniques of campaign planning, compensation plans, other considerations primarily related to the personnel aspects of sales management.
Prerequisite: MT
ENGINEERING TECHNOLOGIES DIVISION
Associate Degree and Certificate Programs
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 new and exciting 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 to develop environmental engineering solutions to municipal or industrial air and water purification.

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

Chemical production technician—works in commercial plant with engineers and plant supervisors to 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 development of uses for chemicals.

Chemical instrument salesperson—sells and services instruments assists in the development of process control instrumentation.
# CHEMICAL ENGINEERING TECHNOLOGY Curriculum

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Class</th>
<th>Lab</th>
<th>Credit</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1ST QUARTER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101 Industrial Seminar</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>111 Inorganic Chemistry I</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>101 Oral Communication</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>101 Algebra &amp; Trigonometry I</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>102 Computer Programming for Engineering Technology</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
<td>6</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td><strong>2ND QUARTER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>112 Inorganic Chemistry II</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>131 Chemical Engineering Calculations I</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>101 Technical Drawing</td>
<td>0</td>
<td>6</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>102 Patterns of Communication</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>102 Algebra &amp; Trigonometry II</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14</td>
<td>12</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td><strong>3RD QUARTER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>121 Organic Chemistry</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>132 Chemical Engineering Calculations II</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>101 Physics of Mechanics</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>103 Technical Report Preparation</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>103 Applied Calculus</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>9</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>
### FOURTH QUARTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Class</th>
<th>Lab</th>
<th>Cr</th>
<th>Ht</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 211</td>
<td>Analytical Chemistry</td>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 241</td>
<td>Chemical Engineering Principles I</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 291</td>
<td>Industrial Safety</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Major Elective*</td>
<td></td>
<td></td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Technical Elective**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
<td>9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### FIFTH QUARTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Class</th>
<th>Lab</th>
<th>Cr</th>
<th>Ht</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 201</td>
<td>Industrial Inspection Trips</td>
<td>0</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 221</td>
<td>Chemical Engineering Materials</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 242</td>
<td>Chemical Engineering Principles II</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET 104</td>
<td>AC and DC Circuits</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Major Elective*</td>
<td></td>
<td></td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SIXTH QUARTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Class</th>
<th>Lab</th>
<th>Cr</th>
<th>Ht</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 231</td>
<td>Automatic Control of Processes</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 243</td>
<td>Chemical Engineering Principles III</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH 244</td>
<td>Unit Operations Lab</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MA 204</td>
<td>Probability and Statistics</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Major Elective*</td>
<td></td>
<td></td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>SC</td>
<td>Social Science Elective</td>
<td></td>
<td></td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Chemical Engineering Technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Industrial Seminar</td>
<td>1</td>
</tr>
<tr>
<td>131</td>
<td>Chemical Engineering Calculations I</td>
<td>4</td>
</tr>
<tr>
<td>132</td>
<td>Chemical Engineering Calculations II</td>
<td>4</td>
</tr>
<tr>
<td>201</td>
<td>Industrial Inspection Trips</td>
<td>1</td>
</tr>
<tr>
<td>221</td>
<td>Chemical Engineering Materials</td>
<td>4</td>
</tr>
<tr>
<td>231</td>
<td>Automatic Control of Processes</td>
<td>4</td>
</tr>
<tr>
<td>241</td>
<td>Chemical Engineering Principles I</td>
<td>3</td>
</tr>
<tr>
<td>242</td>
<td>Chemical Engineering Principles II</td>
<td>3</td>
</tr>
<tr>
<td>243</td>
<td>Chemical Engineering Principles III</td>
<td>3</td>
</tr>
<tr>
<td>244</td>
<td>Unit Operations Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>291</td>
<td>Industrial Safety</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Major Elective*</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

## Chemistry

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>111</td>
<td>Inorganic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>112</td>
<td>Inorganic Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>121</td>
<td>Organic Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>211</td>
<td>Analytical Chemistry</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Major Elective</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>

## TA Processing

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>102</td>
<td>Computer Programming for Engineering Technology</td>
<td>4</td>
</tr>
</tbody>
</table>

## Afting

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Technical Drawing</td>
<td>2</td>
</tr>
</tbody>
</table>

## Electronic Engineering Technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>104</td>
<td>AC &amp; DC Circuits</td>
<td>5</td>
</tr>
</tbody>
</table>
ENGLISH
EN 101 Oral Communication
EN 102 Patterns of Composition
EN 103 Technical Report Preparation

MATH
MA 101 Algebra & Trigonometry I
MA 102 Algebra & Trigonometry II
MA 103 Applied Calculus
MA 204 Probability & Statistics

PHYSICS
PH 101 Physics of Mechanics

SOCIAL SCIENCE
SC Social Science Elective
    Technical Elective**

TOTAL CREDIT HOURS REQUIRED
* The major elective will consist of a three-quarters study taken from one of the following areas:

POLYMER TECHNOLOGY
CH 251 Polymer Processing Principles I
CH 252 Polymer Processing Principles II
CH 271 Polymer Chemistry

ENVIRONMENTAL TECHNOLOGY
CH 261 Environmental Control Principles I
CH 262 Environmental Control Principles II
CH 281 Environmental Chemistry

**Technical electives will be taken from a list of approved courses.
nstruction engineering technology encompasses the broad fields of construction, construction, and civil engineering. The curriculum presents practical application, and project study instruction that will prepare graduates for direct entry into eminent in the construction industry.

The construction industry has expanded in technical innovations, by requiring technical knowledge skills to manage and solve problems involved with construction projects.

The construction engineering technology curriculum, therefore offers associate of engineering degree in areas of emphasis:

* Construction Administration Emphasis — combines course information in engineering and business technologies to provide technicians with skills to administer construction projects. Typical positions might include:

  * Structural Specialization — presents course information from construction and civil engineering technologies to train technicians to become engineering aides 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.

Superintendent’s aide — assists superintendent or project manager in monitoring construction costs.

Sales representative — sells and advises customers regarding the use of various construction materials.

Estimator aide — assists estimator in preparing quantity and pricing surveys.

Plan reviewer or building inspector — works for an agency reviewing compliance with prevailing construction guidelines.
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 aide—assists estimator in preparing quantity and pricing surveys.

Tectonics Specialization—presents course information from architecture and construction sources to train technicians in the mid-management skills of architectural design and drafting and building construction techniques. Positions requiring this expertise would include:

Architectural junior designer and draftsman—assists in the design and 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 compilation of technical information for project specification manuals.

Model builder—assists designers in building three-dimensional representations of projects.

Architectural 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.

Transportation Specialization—combines course information from construction and civil engineering technologies so that technicians can develop skills to become engineering aides on highway and similar transportation design projects. Typical positions might include the following:

Materials tester—assists engineers in testing soils, concrete, and various construction materials.

Survey party member—assists chief in performing surveying work.

Estimator's aide—assists estimator in preparing quantity and pricing surveys.

Bridge inspector and field person—assists party chief in the inspection of existing bridge work and forms field drafting.
<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>HOURS PER WEEK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CLASS</td>
</tr>
<tr>
<td>101 Oral Communications</td>
<td>3</td>
</tr>
<tr>
<td>101 Algebra &amp; Trigonometry I</td>
<td>5</td>
</tr>
<tr>
<td>101 Building Methods of Light Construction</td>
<td>3</td>
</tr>
<tr>
<td>121 Architectural Drawing Techniques I</td>
<td>1</td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>HOURS PER WEEK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CLASS</td>
</tr>
<tr>
<td>02 Patterns of Composition</td>
<td>3</td>
</tr>
<tr>
<td>02 Algebra &amp; Trigonometry II</td>
<td>5</td>
</tr>
<tr>
<td>01 Physics of Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>02 Building Methods of Heavy Construction</td>
<td>3</td>
</tr>
<tr>
<td>122 Architectural Drawing Techniques II</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COURSE TITLE</th>
<th>HOURS PER WEEK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CLASS</td>
</tr>
<tr>
<td>03 Technical Report Preparation</td>
<td>3</td>
</tr>
<tr>
<td>03 Applied Calculus</td>
<td>4</td>
</tr>
<tr>
<td>11 Construction Materials</td>
<td>3</td>
</tr>
<tr>
<td>21 Surveying I</td>
<td>2</td>
</tr>
<tr>
<td>31 Statics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>
## FOURTH QUARTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH 103</td>
<td>Physics of Heat, Light and Sound</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 251</td>
<td>Construction Documents</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>CT 257</td>
<td>Blueprint Reading &amp; Quality Surveys</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>CT 254</td>
<td>Construction Rehabilitation</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>ME 271</td>
<td>Introduction to Solar Energy</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

## FIFTH QUARTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 233</td>
<td>Heating, Ventilation &amp; Air Conditioning</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 252</td>
<td>Estimating</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 253</td>
<td>Project Control &amp; Construction Management</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>EC 101</td>
<td>Economics</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>DP 102</td>
<td>Computer Programming for Engineering Technology</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

## SIXTH QUARTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT 242</td>
<td>Building Plumbing &amp; Electrical Systems</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 255</td>
<td>Construction Safety</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>CT 256</td>
<td>Code Interpretation</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>IM 225</td>
<td>Introduction to Labor</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Technical Elective</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL CREDIT HOURS REQUIRED**

Technical Electives may be selected from the following courses after consultation with and approval by the chairperson.

CT 221, ME 271, ME 273, BU 124, BU 201, BU 207, BU 211, BU 232, IM 132, IM 212, IM 238, MT 10C, RE 244.
<table>
<thead>
<tr>
<th>QUARTER</th>
<th>HOURS PER WEEK</th>
<th>STRUCTURAL SPECIALIZATION Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class</td>
<td>Lab</td>
</tr>
<tr>
<td>1ST QUARTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>01 Oral Communications</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>01 Algebra &amp; Trigonometry I</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>01 Building Methods of Light Construction</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>21 Architectural Drawing Techniques I</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>02 Computer Programming for Eng. Technology</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>2ND QUARTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>02 Patterns of Composition</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>02 Algebra &amp; Trigonometry II</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>01 Physics of Mechanics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>02 Building Methods of Heavy Construction</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>22 Architectural Drawing Techniques II</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>3RD QUARTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03 Technical Report Preparation</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>03 Applied Calculus</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>2 Construction Materials II</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>01 Surveying I</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>01 Statics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>
### FOURTH QUARTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH 102</td>
<td>Physics of Electricity &amp; Magnetism</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PH 103</td>
<td>Physics of Heat, Light &amp; Sound</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 211</td>
<td>Soils &amp; Foundations</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 231</td>
<td>Strength of Materials</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ME 271</td>
<td>Introduction to Solar Energy</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

### FIFTH QUARTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC</td>
<td>Social Science Elective</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>CT 232</td>
<td>Structural Steel Design</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 235</td>
<td>Indeterminate Structures</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 252</td>
<td>Estimating</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Technical Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>

### SIXTH QUARTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT 233</td>
<td>Reinforced Concrete Design</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 234</td>
<td>Structural Wood Design</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 255</td>
<td>Construction Safety</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>DR 221</td>
<td>Construction &amp; Civil Drawing Techniques</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Technical Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>15</td>
</tr>
</tbody>
</table>

**TOTAL CREDIT HOURS REQUIRED**

12 15

---

Technical electives may be selected from the following after consultation with and approval by the department: CT 221, CT 251, CT 252, CT 253, CT 241, CT 242, CT 256, ME 271, ME 273
<table>
<thead>
<tr>
<th>SPECIALIZATION CURRICULUM</th>
<th>HOURS PER WEEK</th>
<th>TECTONICS SPECIALIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Credit</td>
<td>Lab</td>
</tr>
<tr>
<td>ST QUARTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>101 Oral Communications</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>101 Algebra &amp; Trigonometry I</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>101 Building Methods of Light Construction</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>121 Architectural Drawing Techniques I</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>SECOND QUARTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102 Patterns of Composition</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>102 Algebra &amp; Trigonometry II</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>101 Physics of Mechanics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>102 Building Methods of Heavy Construction</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>122 Architectural Drawing Techniques II</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>9</td>
</tr>
<tr>
<td>THIRD QUARTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>103 Technical Report Preparation</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>103 Applied Calculus</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>111 Construction Materials</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>121 Surveying I</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>131 Statics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>
### FOURTH QUARTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH 103</td>
<td>Physics of Heat, Light &amp; Sound</td>
<td>3</td>
</tr>
<tr>
<td>CT 231</td>
<td>Strength of Materials</td>
<td>3</td>
</tr>
<tr>
<td>CT 251</td>
<td>Construction Documents</td>
<td>3</td>
</tr>
<tr>
<td>CT 271</td>
<td>Introduction to Architecture</td>
<td>2</td>
</tr>
<tr>
<td>ME 271</td>
<td>Introduction to Solar Energy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### FIFTH QUARTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 233  Heating, Ventilation &amp; Air Conditioning</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 253  Project Control &amp; Construction Management</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>CT 272  Architectural Design</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>ME 273  Passive Solar Energy</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>DP 102  Computer Programming for Engineering Technology</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SIXTH QUARTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT 242 Building Plumbing &amp; Electrical Systems</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 252 Estimating</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CT 255 Construction Safety</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>CT 273 Special Projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### TOTAL CREDIT HOURS REQUIRED

18

Technical Electives may be selected from the following after consultation with and approval by the department chairman:

- CT 232, CT 233, CT 254, CT 256, CT 274, CT 275, DR 221, RE 101, RE 244, AV 111.
<table>
<thead>
<tr>
<th>Quarter</th>
<th>Course</th>
<th>Credit</th>
<th>Lab</th>
<th>Hours</th>
<th>Specialization Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Quarter</strong></td>
<td>Oral Communications</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Algebra &amp; Trigonometry I</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Building Methods of Light Construction</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Architectural Drawing Techniques I</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Computer Programming for Engineering Technology</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>15</td>
<td>9</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td><strong>Second Quarter</strong></td>
<td>Patterns of Composition</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Algebra &amp; Trigonometry II</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physics of Mechanics</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Building Methods of Heavy Construction</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Architectural Drawing Techniques I</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>15</td>
<td>9</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td><strong>Third Quarter</strong></td>
<td>Technical Report Preparation</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Applied Calculus</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction Materials II</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surveying I</td>
<td>2</td>
<td>6</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Statics</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>15</td>
<td>12</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>COURSE</td>
<td>CREDIT</td>
<td>LAB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>--------</td>
<td>-----</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 271 Introduction to Solar Energy</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 211 Soils &amp; Foundations</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 221 Surveying II</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 231 Strength of Materials</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PH 103 Physics of Heat, Light, and Sound</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FIFTH QUARTER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 232 Structural Steel Design</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 252 Estimating</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 261 Highway Design &amp; Construction</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 221 Fluid Mechanics</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Elective</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SIXTH QUARTER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 212 Hydraulics</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 233 Reinforced Concrete Design</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT 255 Construction Safety</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DR 221 Construction &amp; Civil Drawing Techniques</td>
<td>0</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL CREDIT HOURS REQUIRED</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Technical Electives may be selected from the following after consultation with and approval by the department of
CT 163, CT 164, WT 101, WT 102, CT 234, ME 202, CT 251, CT 253.
LISH
01 Oral Communication 3
02 Patterns of Composition 3
03 Technical Report Preparation 3

HEMATICS
I01 Algebra and Trigonometry I 5
I02 Algebra and Trigonometry II 5
I03 Applied Calculus 4

SICS
01 Physics of Mechanics 4
02 Physics of Electricity and Magnetism

03 Physics of Heat, Light, and Sound 4

NAL SCIENCE
Elective 3

A PROCESSING
02 Computer Programming for Engineering Technology 4

TING
21 Architectural Drawing Techniques I 3
22 Architectural Drawing Techniques II 3

ANICAL ENGINEERING TECHNOLOGY
271 Introduction to Solar Energy 4
CONSTRUCTION ENGINEERING TECHNOLOGY
CT 101 Building Methods of Light Construction
CT 102 Building Methods of Heavy Construction
CT 111 Construction Materials I
or
CT 112 Construction Materials II
CT 121 Surveying I
CT 131 Statics
CT 252 Estimating
CT 255 Construction Safety

TOTAL HOURS

CONSTRUCTION ADMINISTRATION SPECIALIZATION Course Requirements
CT 242 Building Plumbing & Electrical Systems
CT 251 Construction Documents
CT 253 Project Control & Construction Management
CT 254 Construction Rehabilitation
CT 256 Code Interpretation
CT 257 Blueprint Reading & Quality Survey

EC 101 Economics

ME 233 Heating, Ventilation & Air Conditioning

IM 225 Introduction to Labor

TECHNICAL ELECTIVES
(see curriculum requirements)

TOTAL HOURS
<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>211 Soils &amp; Foundations</td>
<td>4</td>
</tr>
<tr>
<td>231 Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>232 Structural Steel Design</td>
<td>4</td>
</tr>
<tr>
<td>233 Reinforced Concrete Design</td>
<td>4</td>
</tr>
<tr>
<td>234 Structural Wood Design</td>
<td>4</td>
</tr>
<tr>
<td>235 Indeterminate Structures</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>24</strong></td>
</tr>
<tr>
<td>221 Construction &amp; Civil Drawing Techniques</td>
<td>2</td>
</tr>
<tr>
<td>TECHNICAL ELECTIVES</td>
<td>8</td>
</tr>
<tr>
<td>(ee curriculum requirements)</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL HOURS</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>
TEC TONICS
SPECIALIZATION
Course Requirements

CT 231 Strength of Materials
CT 242 Building Plumbing & Electrical Systems
CT 251 Construction Documents
CT 253 Project Control & Construction Management
CT 271 Introduction to Architecture
CT 272 Architectural Design
CT 273 Special Projects

ME 233 Heating, Ventilation & Air Conditioning
ME 273 Passive Solar Design

TECHNICAL ELECTIVE
(see curriculum requirements)

TOTAL HOURS
<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>211 Soils &amp; Foundations</td>
<td>4</td>
</tr>
<tr>
<td>212 Hydraulics</td>
<td>4</td>
</tr>
<tr>
<td>221 Surveying II</td>
<td>4</td>
</tr>
<tr>
<td>231 Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>232 Structural Steel Design</td>
<td>4</td>
</tr>
<tr>
<td>233 Reinforced Concrete Design</td>
<td>4</td>
</tr>
<tr>
<td>261 Highway Design &amp; Construction</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>28</strong></td>
</tr>
<tr>
<td>221 Construction &amp; Civil Drawing Techniques</td>
<td>2</td>
</tr>
<tr>
<td>221 Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>TECHNICAL ELECTIVES</td>
<td>4</td>
</tr>
<tr>
<td>(ee curriculum requirements)</td>
<td><strong>38</strong></td>
</tr>
</tbody>
</table>

TOTAL HOURS 38
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 ENGINEERING 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 OPERATION AND CONTROL OF ELECTRICAL ROTATING MACHINERY AND TRANSFORMERS. 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 PERFORM 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. AN ELECTRICAL ENGINEERING TECHNICIAN CAN BE EMPLOYED BY ANY INDUSTRY WHERE THESE DEVICES ARE USED, BUT WOULD LIKELY FIND THE BEST OPPORTUNITIES IN THE FOLLOWING AREAS:

1. Power generation and transmission
2. Power distribution and utilization
3. Industrial control and electrical maintenance
4. Electrical Maintenance of 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 systems
2. Communications
3. Medical instrumentation technology
4. Consulting and engineering services
<table>
<thead>
<tr>
<th>Quarter</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST QUARTER</strong></td>
<td>EN 101</td>
<td>Oral Communication</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>MA 101</td>
<td>Algebra and Trigonometry I</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>ET 101</td>
<td>Electric Circuits I</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Social Science Elective</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>**</td>
<td></td>
<td></td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td><strong>SECOND QUARTER</strong></td>
<td>MA 102</td>
<td>Algebra and Trigonometry II</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>PH 101</td>
<td>Physics of Mechanics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ET 102</td>
<td>Electric Circuits II</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ET 121</td>
<td>Active Devices I</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>**</td>
<td></td>
<td></td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td><strong>THIRD QUARTER</strong></td>
<td>EN 102</td>
<td>Patterns of Composition</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>MA 103</td>
<td>Applied Calculus</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>ET 103</td>
<td>Electric Circuits III</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ET 122</td>
<td>Active Devices II</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>DR 101</td>
<td>Technical Drawing I</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>or</td>
<td>DR 140</td>
<td>Introductory Technical Drawing</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>ET 105</td>
<td>Seminar</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>**</td>
<td></td>
<td></td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>JRTH QUARTER</td>
<td>HOURS PER WEEK</td>
<td>ELECTRONIC SPECIALIZATION</td>
<td>Second Year Curriculum</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>---------------</td>
<td>--------------------------</td>
<td>-----------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Class</td>
<td>Lab</td>
<td>Credit Hours</td>
<td></td>
</tr>
<tr>
<td>223 Active Devices III</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>231 Introduction to Digital Logic</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>232 Pulse and Digital Circuits</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>102 Computer Programming for Engineering Technology</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>12</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>TH QUARTER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>233 Digital Computer Circuits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>251 Introduction to Communications</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>241 Introduction to Rotating Machines</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>103 Physics of Heat, Light and Sound</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>141 General Chemistry</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Technical Elective (EET)*</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>12</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>TH QUARTER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>234 Microprocessors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>252 Communication Systems</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>243 Operational Amplifiers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>241 Instrumentation</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>260 Special Project</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>126 Electronic Shop Techniques</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>103 Technical Report Preparation</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>15</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>77</td>
<td>63</td>
<td>98</td>
<td></td>
</tr>
</tbody>
</table>

*Technical elective courses must be approved by the student's advisor.
<table>
<thead>
<tr>
<th>COURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 225 Industrial Electronics and Logic</td>
</tr>
<tr>
<td>ET 246 Magnetism and Transformers</td>
</tr>
<tr>
<td>ET 248 Rotating Machinery I</td>
</tr>
<tr>
<td>DR 102 Technical Drawing II</td>
</tr>
<tr>
<td>EN 103 Technical Report Preparation</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 249 Rotating Machinery II</td>
</tr>
<tr>
<td>ET 244 Energy Systems I</td>
</tr>
<tr>
<td>DP 102 Computer Programming for Engineering Technology</td>
</tr>
<tr>
<td>ET 211 Electrical Safety</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COURSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 245 Energy Systems II</td>
</tr>
<tr>
<td>ME 241 Instrumentation</td>
</tr>
<tr>
<td>ET 280 Industrial and Commercial Distribution</td>
</tr>
<tr>
<td>ME 271 Solar Energy \ or ME 272 Water Power</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HOURS PER WEEK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Class</strong></td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>15</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
</tr>
<tr>
<td>Course Title</td>
</tr>
<tr>
<td>------------------------------------------------</td>
</tr>
<tr>
<td>SINESS DATA PROCESSING</td>
</tr>
<tr>
<td>102 Computer Programming for Engineering Technology</td>
</tr>
<tr>
<td>AFTING</td>
</tr>
<tr>
<td>101 Technical Drawing I</td>
</tr>
<tr>
<td>140 Introductory Technical Drawing</td>
</tr>
<tr>
<td>ELECTRICAL ENGINEERING TECHNOLOGY</td>
</tr>
<tr>
<td>101 Electric Circuits I</td>
</tr>
<tr>
<td>102 Electric Circuits II</td>
</tr>
<tr>
<td>103 Electric Circuits III</td>
</tr>
<tr>
<td>105 Seminar</td>
</tr>
<tr>
<td>121 Active Devices I</td>
</tr>
<tr>
<td>122 Active Devices II</td>
</tr>
<tr>
<td>GLISH</td>
</tr>
<tr>
<td>101 Oral Communication</td>
</tr>
<tr>
<td>102 Patterns of Composition</td>
</tr>
<tr>
<td>103 Technical Report Preparation</td>
</tr>
<tr>
<td>TH</td>
</tr>
<tr>
<td>101 Algebra and Trigonometry I</td>
</tr>
<tr>
<td>102 Algebra and Trigonometry II</td>
</tr>
<tr>
<td>103 Applied Calculus</td>
</tr>
<tr>
<td>PHYSICS</td>
</tr>
<tr>
<td>101 Physics of Mechanics</td>
</tr>
<tr>
<td>SOCIAL SCIENCE</td>
</tr>
<tr>
<td>Social Science Elective</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

93
ELECTRONIC
SPECIALIZATION
Course Requirements

ELECTRICAL ENGINEERING TECHNOLOGY
ET 223  Active Devices III
ET 231  Introduction to Digital Logic
ET 232  Pulse and Digital Circuits
ET 233  Digital Computer Circuits or ET 251
  Introduction to Communications
ET 234  Microprocessors or ET 252 Communication Systems
ET 241  Introduction to Rotating Machines
ET 243  Operational Amplifiers or ME 241 Instrumentation
ET 260  Special Project
  Elective

MECHANICAL ENGINEERING TECHNOLOGY
ME 126  Electronic Shop Techniques

PHYSICS
PH 103  Physics of Heat, Light and Sound or CH 141 General Chemistry

94
AFTING
102 Technical Drawing II 2

ENERGY SPECIALIZATION
Course Requirements

ELECTRICAL ENGINEERING TECHNOLOGY
211 Electrical safety 3
225 Industrial Electronics and Logic 4
244 Energy Systems I 4
245 Energy Systems II 4
246 Magnetism and Transformers 4
248 Rotating Machinery I 4
249 Rotating Machinery II 4
271 Engineering Economics and Cost Estimation 3
280 Industrial and Commercial Power Distribution Project 3

33

MECHANICAL ENGINEERING TECHNOLOGY
241 Instrumentation 4
271 Solar Energy or ME 272 Wind and Water Power 4

8

TOTAL 43
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 in great demand who assists the engineer in every phase of research, design and production.

Three specializations—machine design, thermal energy, and alternate energy—are available in the mechanical engineering technology program and are offered based on adequate student interest and participation.

TYPICAL POSITIONS OPEN TO MECHANICAL ENGINEERING TECHNICIANS

As a mechanical engineering technician, one might be involved as:

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

Engineering aide—who collects data; evaluates and makes recommendations for equipment specification, changes or replacement; eliminates technical problems.

Production assistant—who assists production engineers, design engineers and maintenance personnel with nesing and eliminating problems associated with equipment and systems.
<table>
<thead>
<tr>
<th>QUARTER</th>
<th>Course</th>
<th>Credit</th>
<th>Lab</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Oral Communication</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Algebra and Trigonometry I</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Technical Drawing I</td>
<td>0</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Shop Practices I</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Social Science Elective</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>II</td>
<td>Patterns of Composition</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Algebra and Trigonometry II</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Statics</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Physics of Mechanics</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Shop Practices II</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>III</td>
<td>Technical Report Preparation</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Applied Calculus</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Physics of Electricity &amp; Magnetism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physics of Heat, Light, &amp; Sound</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Introduction to Solar Energy and Conservation</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Technical Drawing II</td>
<td>0</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13</td>
<td>12</td>
<td>17</td>
</tr>
</tbody>
</table>
### FOURTH QUARTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 221</td>
<td>Fluid Mechanics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CH 141</td>
<td>General Chemistry</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ET 102</td>
<td>AC and DC Circuits</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>DP 102</td>
<td>Computer Programming for Engineering Technology</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>13</td>
<td>12</td>
</tr>
</tbody>
</table>

### FIFTH QUARTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 231</td>
<td>Thermodynamics and Heat Transfer</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ME 233</td>
<td>Heating, Ventilation and Air Conditioning</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ME 241</td>
<td>Instrumentation</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ME 273</td>
<td>Passive Solar Design</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Technical elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

### SIXTH QUARTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credit</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 241</td>
<td>Introduction to Rotating Machines</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ME 272</td>
<td>Wind &amp; Water Power Systems</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ME 275</td>
<td>Alternative Fuels and Systems</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ME 111</td>
<td>Industrial Safety</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Technical elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>

TOTAL 83 69
<table>
<thead>
<tr>
<th>ST QUARTER</th>
<th>HOURS PER WEEK</th>
<th>MACHINE DESIGN SPECIALIZATION Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 Oral Communication</td>
<td>3 Credit</td>
<td>Lab 0  3  Hours</td>
</tr>
<tr>
<td>101 Algebra &amp; Trigonometry I</td>
<td>5 Credit</td>
<td>Lab 0  5  Hours</td>
</tr>
<tr>
<td>101 Materials and Manufacturing Processes</td>
<td>3 Credit</td>
<td>Lab 3  4  Hours</td>
</tr>
<tr>
<td>101 Technical Drawings I</td>
<td>0 Credit</td>
<td>Lab 6  2  Hours</td>
</tr>
<tr>
<td>124 Shop Practices I</td>
<td>1 Credit</td>
<td>Lab 3  2  Hours</td>
</tr>
<tr>
<td></td>
<td>12 Credit</td>
<td>Lab 12  12  Hours</td>
</tr>
<tr>
<td></td>
<td>16 Credit</td>
<td></td>
</tr>
<tr>
<td><strong>COND QUARTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102 Patterns of Composition</td>
<td>3 Credit</td>
<td>Lab 0  3  Hours</td>
</tr>
<tr>
<td>102 Algebra &amp; Trigonometry II</td>
<td>5 Credit</td>
<td>Lab 0  5  Hours</td>
</tr>
<tr>
<td>101 Physics of Mechanics</td>
<td>3 Credit</td>
<td>Lab 3  4  Hours</td>
</tr>
<tr>
<td>125 Shop Practices II</td>
<td>1 Credit</td>
<td>Lab 3  2  Hours</td>
</tr>
<tr>
<td>131 Statics</td>
<td>3 Credit</td>
<td>Lab 3  4  Hours</td>
</tr>
<tr>
<td></td>
<td>15 Credit</td>
<td>Lab 9  18  Hours</td>
</tr>
<tr>
<td><strong>RD QUARTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103 Applied Calculus</td>
<td>4 Credit</td>
<td>Lab 0  4  Hours</td>
</tr>
<tr>
<td>141 General Chemistry</td>
<td>3 Credit</td>
<td>Lab 3  4  Hours</td>
</tr>
<tr>
<td>102 Technical Drawing II</td>
<td>0 Credit</td>
<td>Lab 6  2  Hours</td>
</tr>
<tr>
<td>102 Physics of Electricity &amp; Magnetism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>103 Physics of Heat, Light &amp; Sound</td>
<td>3 Credit</td>
<td>Lab 3  4  Hours</td>
</tr>
<tr>
<td>132 Dynamics</td>
<td>3 Credit</td>
<td>Lab 3  4  Hours</td>
</tr>
<tr>
<td></td>
<td>13 Credit</td>
<td>Lab 15  18  Hours</td>
</tr>
</tbody>
</table>

99
<table>
<thead>
<tr>
<th>COURSE</th>
<th>DESCRIPTION</th>
<th>CREDIT</th>
<th>LAB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOURTH QUARTER</strong></td>
<td>DP 102 Computer Programming for Engineering Technology</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ET 104 AC &amp; DC Circuits</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ME 201 Strength of Materials</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ME 221 Fluid Mechanics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>13</strong></td>
<td><strong>12</strong></td>
</tr>
<tr>
<td><strong>FIFTH QUARTER</strong></td>
<td>ME 211 Machine Elements</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ME 231 Thermodynamics &amp; Heat Transfer</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ME 241 Instrumentation</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Technical Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>12</strong></td>
<td><strong>12</strong></td>
</tr>
<tr>
<td><strong>SIXTH QUARTER</strong></td>
<td>EN 103 Technical Report Preparation</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>ME 111 Industrial Safety</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>ET 241 Introduction to Rotating Machines</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Social Science Elective</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Technical Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>15</strong></td>
<td><strong>6</strong></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>80</strong></td>
<td><strong>66</strong></td>
</tr>
<tr>
<td>SPECIALIZATION</td>
<td>HOURS PER WEEK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum</td>
<td>Credit</td>
<td>Lab</td>
<td>Hours</td>
</tr>
<tr>
<td>ST QUARTER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101 Oral Communication</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>101 Algebra &amp; Trigonometry I</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>101 Technical Drawing I</td>
<td>0</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>124 Shop Practices I</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>12</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C0ND QUARTER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102 Patterns of Composition</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>102 Algebra &amp; Trigonometry II</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>123 Shop Practices II</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>131 Statics</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>101 Physics of Mechanics</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>15</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RD QUARTER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103 Technical Report Preparation</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>103 Applied Calculus</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>132 Dynamics</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>102 Technical Drawing II</td>
<td>0</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>102 Physics of Electricity &amp; Magnétism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103 Physics of Heat, Light &amp; Sound</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>13</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credit</td>
<td>Lab</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------</td>
<td>--------</td>
<td>------</td>
</tr>
<tr>
<td>ME 201</td>
<td>Strength of Materials</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ME 221</td>
<td>Fluid Mechanics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ET 104</td>
<td>AC &amp; DC Circuits</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>CH 141</td>
<td>General Chemistry</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>13</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 231</td>
<td>Thermodynamics &amp; Heat Transfer</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>DP 102</td>
<td>Computer Programming for Engineering Technology</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ME 111</td>
<td>Industrial Safety</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>ME 233</td>
<td>Heating, Ventilation &amp; Air Conditioning</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Technical Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 232</td>
<td>Applied Thermodynamics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ET 241</td>
<td>Introduction to Rotating Machines</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ME 241†</td>
<td>Instrumentation</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Technical Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credit Hours</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>LISH 101</td>
<td>Oral Communication</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LISH 102</td>
<td>Patterns of Composition</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>LISH 103</td>
<td>Technical Report Preparation</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MHTM 101</td>
<td>Algebra and Trigonometry I</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>MHTM 102</td>
<td>Algebra and Trigonometry II</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>MHTM 103</td>
<td>Applied Calculus</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SICS 101</td>
<td>Physics of Mechanics</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SICS 102</td>
<td>Physics of Electricity and Magnetism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SICS 103</td>
<td>Physics of Heat, Light, and Sound</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SIAL SCIENCE</td>
<td>Social Science Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>A PROCESSING</td>
<td>Computer Programming for Engineering Technologies</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
DRAFTING
DR 101 Technical Drawing I
DR 102 Technical Drawing II

CHEMICAL ENGINEERING TECHNOLOGY
CH 141 General Chemistry

ELECTRICAL ENGINEERING TECHNOLOGY
ET 104 AC and DC Circuits
ET 241 Introduction to Rotating Machines

MECHANICAL ENGINEERING TECHNOLOGY
ME 111 Industrial Safety
ME 124 Shop Practices I
ME 125 Shop Practices II
ME 131 Statics
ME 221 Fluid Dynamics
ME 231 Thermodynamics & Heat Transfer
ME 241 Instrumentation
### HANICAL ENGINEERING TECHNOLOGY

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>33 Heating Ventilation and Air Conditioning</td>
<td>4</td>
</tr>
<tr>
<td>71 Introduction to Solar Energy and Conservation</td>
<td>4</td>
</tr>
<tr>
<td>72 Wind and Water Power Systems</td>
<td>4</td>
</tr>
<tr>
<td>73 Passive Solar Design</td>
<td>4</td>
</tr>
<tr>
<td>75 Alternative Fuels and Systems</td>
<td>4</td>
</tr>
<tr>
<td>Technical Electives*</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

* 8 or more than 8 hours selected from DR 103, ME 234, ME 261, ME 274, ME 276, or ET 244.

### HANICAL ENGINEERING TECHNOLOGY

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Engineering Materials and Manufacturing Processes</td>
<td>4</td>
</tr>
<tr>
<td>32 Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>01 Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>11 Machine Elements I</td>
<td>4</td>
</tr>
<tr>
<td>Technical Electives*</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

### HANICAL ENGINEERING TECHNOLOGY

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 Dynamics</td>
<td>4</td>
</tr>
<tr>
<td>01 Strength of Materials</td>
<td>4</td>
</tr>
<tr>
<td>33 Heating, Ventilation, and Air Conditioning</td>
<td>4</td>
</tr>
<tr>
<td>32 Applied Thermodynamics*</td>
<td>4</td>
</tr>
<tr>
<td>Technical Electives*</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

* 8 or more than 8 hours, selected from DR 103, ME 127, ME 212, ME 233, ME 251, ME 261, ME 271, ME 272, CT 121, CT 221, CT 232, CT 233, or CT 235.
CERTIFICATE PROGRAMS

In addition to the courses leading to the Associate Degree in each technology, Tech presently offers two Certificate Programs within the Engineering Techn Division. These programs are designed to prepare the student, in a minimal time, to enter industry as either a draftsperson or as an industrial electrician.
CONSTRUCTION TECHNOLOGY
Certificate Program

ENGINEERING GRAPHICS
Certificate Program

Engineering Graphics Technology offers instruction in math, technical drawing, basic engineering principles, and architectural and construction practices. This program is designed to prepare individuals to function as drafting technicians, and major emphasis focuses on understanding technical drawing as a graphic language. The technician must be versed in techniques of graphic communication, understand the technical language of the professional engineer or architect, and communicate with the skilled craftsworker.

Engineering Graphics Curriculum

<table>
<thead>
<tr>
<th>COURSE NAME</th>
<th>HOURS PER WEEK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>T QUARTER</strong></td>
<td></td>
</tr>
<tr>
<td>01 Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>01 Building Methods of Light Construction</td>
<td>3</td>
</tr>
<tr>
<td>24 Shop Practices I</td>
<td>1</td>
</tr>
<tr>
<td>00 Elementary Algebra</td>
<td>5</td>
</tr>
<tr>
<td>01 Technical Drawing</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>12</td>
</tr>
<tr>
<td><strong>QND QUARTER</strong></td>
<td></td>
</tr>
<tr>
<td>02 Patterns of Composition</td>
<td>3</td>
</tr>
<tr>
<td>02 Building Methods of Heavy Construction</td>
<td>3</td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>04 Geometry</td>
<td>4</td>
</tr>
<tr>
<td>02 Technical Drawing II</td>
<td>0</td>
</tr>
<tr>
<td>21 Architectural Drawing Techniques I</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV 113</td>
<td>Darkroom Techniques</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>CT 121</td>
<td>Surveying I</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>MA 101</td>
<td>Algebra and Trigonometry I</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>DR 103</td>
<td>Detail Drawing Layout</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>DR 122</td>
<td>Architectural Drawing Techniques II</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH 101</td>
<td>Physics of Mechanics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>MA 102</td>
<td>Algebra and Trigonometry II</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>DR 111</td>
<td>Technical Drawing for Electronics</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>DR 221</td>
<td>Construction and Civil Drawing Techniques</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>CT 241</td>
<td>Heating, Ventilation and Air Conditioning</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
<td><strong>18</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>54</strong></td>
</tr>
</tbody>
</table>
is program offers courses in industrial installations and wiring for both residential commercial applications. The courses offered cover AC and DC circuit theory, as well as practical applications and actual installation experience.

## INDUSTRIAL ELECTRICITY Certificate Program

<table>
<thead>
<tr>
<th>HOURS PER WEEK</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Class</td>
</tr>
<tr>
<td><strong>T QUARTER</strong></td>
<td></td>
</tr>
<tr>
<td>01 Reading Improvement</td>
<td>4</td>
</tr>
<tr>
<td>00 Elementary Algebra</td>
<td>5</td>
</tr>
<tr>
<td>01 Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>01 Technical Drawing I</td>
<td>0</td>
</tr>
<tr>
<td>74 Electrical Installation</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
</tr>
</tbody>
</table>

| **2ND QUARTER** |        |      |       |
|----------------|        |      |       |
| 01 Algebra and Trigonometry I | 5     | 0    | 5     |
| 01 Electric Circuits I | 3     | 3    | 4     |
| 32 Blueprint Reading and Schematics I | 3     | 3    | 4     |
| 21 Commercial and industrial Wiring I | 3     | 3    | 4     |
| **Total** | 14    | 9    | 17    |

<p>| <strong>D QUARTER</strong> |        |      |       |
|----------------|        |      |       |
| 02 Patterns of Composition | 3     | 0    | 3     |
| 02 Algebra and Trigonometry II | 5     | 0    | 5     |
| 02 Electrical Circuits II | 3     | 3    | 4     |
| Social Science Elective | 3     | 0    | 3     |
| 34 Blueprint Reading and Schematics II | 3     | 3    | 4     |
| <strong>Total</strong> | 17    | 6    | 19    |</p>
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET 103</td>
<td>Electrical Circuits III</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>IE 117</td>
<td>Electrical Code and Ordinances</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>IE 122</td>
<td>Commercial and Industrial Wiring II</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>IE 176</td>
<td>Industrial Electrical Installations I</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ET 121</td>
<td>Active Devices I</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total:**

<table>
<thead>
<tr>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>12</td>
</tr>
</tbody>
</table>
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 group discussion with outside 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, calculations using weight relationships, 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.
Co-requisite: MA 101

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 chemical kinetics, reaction rate, order of a chemical reaction, reversible reactions, chemical equilibrium, ionic equilibria, ionization of weak electrolytes, ionization constants, ionization of water, hydrogen ion concentration, buffered solutions, solubility product constant, thermochemistry, enthalpy, entropy, free energy, electrochemistry, oxidation-reduction reactions and electromotive series. Related laboratory experiments illustrate the principles involved.
Prerequisite: CH 111
Co-requisite: MA 102

CH 131 Chemical Engineering Calculations I
4 Credits
3 Class Hours, 3 Lab
An introduction to the basic methods of engineering analysis and calculation. Topics include conversion of proper format for engineering calculations, the use of graphs to represent data and functions, logarithmic rule calculations, and material balances. Material balance calculations are made on simple systems (without chemical reactions), including bypass and recycle operations. Laboratory provides an opportunity for students to work problems under supervision.
Prerequisite: MA 102

CH 121 Organic Chemistry
4 Credits
3 Class Hours, 3 Lab Hours
A course covering the physical and chemical properties of compounds of carbon with strong emphasis on the theoretical and practical understanding of the nature of organic chemical reactions. Memorization of specific reactions and of group reactions is subordinated and strong emphasis placed on understanding the factors that affect the initiation and propagation of organic reactions. Organic chemistry nomenclature is studied and the production of organic chemistry is surveyed.

CH 132 Chemical Engineering Calculations II
4 Credits
3 Class Hours, 3 Lab
A course covering elementary to
mics, energy balances (with and out chemical reactions) and the of simple process flow diagrams. A rilations laboratory provides an rtunity for students to work under supervision. Prerequisite: CH 131 and MA 102

41 General Chemistry

4 Credits
3 Class Hours, 3 Lab Hours
A course covering the basic concepts d to understand chemical ions—atomic structure, electron levels, the periodic table, cembonds, chemical formulae, ical equations, the concept of the oxidation-reduction reactions, bse reactions, electromotive s, states of matter, solutions ion-1 in aqueous solution, chemical ion rates, and chemical equilibria. ove basic concepts are used to semiconductors, electrolytic corrosion, the electrolytic capaci-nd engineering materials. The tory work emphasizes the study ctrochemical reactions with com-practical applications.
Prerequisite: MA 102

CH 151 Introduction 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 by 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 infrared 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 reactions of engineering materials with their environment are discussed. Emphasis is placed on the determination of suitable materials for use in various chemical processing applications.

**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  
Co-requisite: CH 243 and 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 viscosity, fluid statics, manometers, flow measurement, laminar and turbulent flow, Reynolds number, friction factor, pressure drop in pipes, fittings and valves, particle dynamics, pumps, NPSH, blowers, compressors, and steam jets.  
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 in heat exchangers of various configuration—including shell and tube exchangers, jacketed vessels, coils and fins, evaporators and solids processors.  
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 244 Unit Operations Lab**  
2 Credits  
6 Lab  
A course consisting of lab experimentation in the unit operations of chemical engineering. Emphasis is placed on student assembly and operation of equipment and preparation of detailed lab reports.  
Prerequisite:
Co-requisite:

**CH 251 Polymer Processing Principles I**  
4 Credits  
3 Class Hours, 3 Lab  
The first of two courses on polymer processing. This course concentrates on the theoretical and practical aspects of polymer processing, covering extrusion of thermoplastic materials, extrusion of profiles, film, sheet, and foam. Extrusion equipment is covered along with extrusion equipment.
iliary equipment used in each type of extrusion. Other continuous polymer processing operations such as calien ging and laminating are also covered.

Prerequisite: CH 271 or consent of the instructor.

**252 Polymer Processing Principles II**

4 Credits
3 Class Hours, 3 Lab Hours
Second of two courses covering polymer processing. This course covers polymer processing applications in which a polymer is used to shape the polymer. The processes studied in this course are characterized by discrete processing steps rather than continuous uninterrupted polymer flow. The processes are then placed on the special geometry of parts to be made in molds and the geometry and construction of dies. Mold cooling and part shrinkage are also covered.

Prerequisite: CH 251 or consent of the instructor.

**261 Environmental Control Principles I**

4 Credits
3 Class Hours, 3 Lab Hours
First of two courses intended as an introduction to air and water pollution control. This first course deals primarily with air pollution. Pollutants of interest or concern to local industries are emphasized, and both the methods of analysis and the methods of controlling emissions are studied for each pollutant. Subjects covered include sulfur dioxide, carbon monoxide, nitrogen oxides, odors, and noise.

Prerequisite: CH 281

**CH 262 Environmental Control Principles II**

4 Credits
3 Class Hours, 3 Lab Hours
The second of two courses intended as an introduction to air and water pollution control principles. This second course deals primarily with water pollution. The most important pollutants is covered, and both the methods of analysis and the methods of controlling emissions are studied for each pollutant. The subjects include biodegradable and non-biodegradable organic compounds, phosphates, nitrates and other nutrients, heavy metals, and dissolved salts.

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 and methyl 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 of air and water contaminants, sampling techniques and analysis of air and water for major 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, 296, 297 Research Problem
Maximum of 3 Credits Per Quarter
Investigation and reporting of a chemical engineering problem with industrial application of interest to both the student and the advisor. Based on the problem difficulty, 3, 6, or 9 credit hours are awarded. No credit is given until a report is completed and approved. Topics are presented on a demand basis.
Prerequisite: Degree standing and consent of the instructor.

CONSTRUCTION

CT 101 Building Methods of Light Construction
3 Credits
3 Class Hours
This 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 I
4 Credits
3 Class Hours, 3 Lab Hours
Emphasis is placed on using the characteristics and methods of handling construction materials to determine the advantages and disadvantages of the material in relation to the construction application. Topics covered include concrete, masonry, metals, wood, thermal protection, door and windows, and finishes. Test procedures familiarize students with physical characteristics.
Prerequisite: CT 102

CT 112 Construction Materials II
4 Credits
3 Class Hours, 3 Lab Hours
A study of materials used in highway construction and related fields including aggregates, cements, concrete, asphalts and steel. Emphasis is placed on concrete mix design and a mix design. Laboratory work includes performance of standard tests at preparation of technical reports tests.
Prerequisite: CT 102

CT 121 Surveying I
4 Credits
2 Class Hours, 6 Lab
An introductory course on surveying designed to familiarize the student with the use of the steel tape, the trans level, with emphasis on applications of these instruments in engineering and construction projects. Boundary surveys, traverse corrections, profile leveling, and field
Prerequisite: MA 102 and F

CT 131 Statics (same as ME 1: Statics)
4 Credits
3 Class Hours, 3 Lab
A study of bodies at rest or in equilibrium with their surroundings. This course will give the student appreciation and understanding of the forces act externally on structures.
Prerequisite: MA 102 and F
11 Soils and Foundations 4 Credits
3 Class Hours, 3 Lab Hours
Course 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
Corequisite: CT 231

12 Hydraulics 4 Credits
3 Class Hours, 3 Lab Hours
Topics discussed include hydrostatics, energy loss in fluids, friction, pipe flow, open channel flow, and run-off, and an introduction to design of distribution systems.
Prerequisite: ME 221

21 Surveying II 4 Credits
3 Class Hours, 3 Lab Hours
This advanced course builds on the survey and layout course as described in the previous catalog. The course covers contouring, mapping, subdivision, volume calculations, horizontal and vertical curves, precision and boundary surveying.
Prerequisite: CT 121

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.
Prerequisites: CT 111, CT 131
Corequisite: MA 103

232 Structural and 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 course involves the design of various structural systems, performing calculations, and preparing drawings related to steel design.
Prerequisites: CT 231 and MA 103

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 course involves prototyping of various structural systems, performing calculations, and preparing drawings related to reinforced concrete design.
Prerequisite: CT 231

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

235 Indeterminate Structures 4 Credits
3 Class Hours, 3 Lab Hours
A course which follows CT 231 and covers the deflections and analysis of
indeterminate beams, trusses, bents, and frames.

Prerequisite: CT 231

CT 242 Building Plumbing and Electrical Systems

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. Introduction to electrical distribution, lighting, and acoustics.

Prerequisite: ME 233

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 include legal problems, contractor relations and responsibilities, contract performance requirements, and bidding procedures.

Prerequisite: CT 102

CT 252 Estimating

4 Credits

3 Class Hours, 3 Lab Hours

This course is designed to present the student with basic principles and current practices employed in estimating construction costs. Quality surveys from working drawing and specifications are reviewed. Study includes both direct and indirect costs, with emphasis on calculating labor, material, plant, equipment, and job overhead costs and profit.

Prerequisite: CT 111 or CT 112

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 255 Construction Safety

3 Credits

3 Class Hours

The intent of this course is to introduce the student to the concept of construction safety and to draw together approaches to the problem of controlling with the Occupational Safety Health Act of 1970.

Prerequisite: CT 231

CT 257 Blueprint Reading and Quantity Surveys

4 Credits

2 Class Hours, 3 Lab

Study and interpretation of blueprints: architectural, structural, civil, and electrical. The student is taught the procedures for preparing surveys dealing with individual sections of work.

Prerequisite: CT 111 or CT 112

CT 261 Highway Design and Construction

4 Credits

3 Class Hours, 3 Lab

History of highway construction; highway planning. Elements of location, alignment, design standards; hydraulic flow and traffic controls are discussed and incorporated into highway design problems. Foundation pr
types of pavements and pavement design are stressed along with design
111 Introduction to Architecture
2 Credit Hours
2 Class Hours
through the medium of formal lectures, small discussion group meetings,
course is designed to show students how construction theory and how buildings have been
been influenced by the social, political, economic, and artistic circumstances within which they have been built.
Prerequisite: CT 102

Architectural Design
3 Credit Hours
9 Lab Hours
Individual design projects are developed by the student from conception to
entation under faculty supervision. The 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.
Prerequisite: CT 102

CT 273 Special Projects
3 Credit Hours
9 Lab Hours
Group design projects are developed by teams of students under faculty supervision. The 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.
Prerequisite: CT 272

CT 274 Architectural History I
3 Credit Hours
3 Class Hours
Traces the development of architecture and construction through historical periods. This course covers ancient architecture and the development of western architecture through the Renaissance.
Prerequisite: CT 271

CT 275 Architectural History II
3 Credit Hours
3 Class Hours
Traces the development of architecture and construction through historical periods. A continuation of Architectural History I, which begins with the Beaux Arts through the development of contemporary architecture.
Prerequisite: CT 274

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  
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 102

DR 111 Technical Drawing for Electronics  
2 Credits  
6 Lab Hours  
A brief review of lettering and dimensioning. This course covers the drawings of electronic symbols, block diagrams, schematic diagrams, cable drawings, printed circuits boards, electro-mechanical drawings, wiring diagrams, pictorials, logic diagrams, and integrated circuits.

DR 121 Architectural Drawing Techniques I  
1 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, free-hand sketching, as well as presentation techniques, is covered in this course.

DR 122 Architectural Drawing Techniques II  
1 Class Hour, 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

ELECTRICAL ENGINEERING TECHNOLOGY

ET 101 Electric Circuits I  
3 Class Hours, 3 Lab  
An introductory course in DC and AC Circuits. Topics treated include and notations, atomic structure, current and voltage, resistance, Ohm’s law, power, energy, series circuits, parallel circuits, series-parallel networks, analysis methods and network theory. The various types of electronic measuring instrumentation are introduced throughout the course as required.  
Co-requisite: MTH 102

ET 102 Electric Circuits II  
3 Class Hours, 3 Lab  
An intermediate course in electric circuits in which subject matter per to the transition from the study of AC circuits is treated as well basic AC circuit behavior. treated are capacitors, magneto circuits, inductors, sinusoidal alter
Circuits and series-parallel AC works. The various types of electric measuring instrumentation are covered throughout the course as required.

Co-requisite: MA 102
Prerequisite: ET 101

03 Electric Circuits III

4 Credits
3 Class Hours, 3 Lab Hours

This course in advanced DC Circuits is a course for non-electronics majors. The course includes basic electrical fundamentals, the atom, electron, semiconductors, conductors, current measurement, 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 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 121 Active Devices I

4 Credits
3 Class Hours, 3 Lab Hours

An introductory course in solid-state bipolar 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 102

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.

ET 223 Active Devices III

4 Credits
3 Class Hours, 3 Lab 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, opto-electronic devices and integrated circuits.

Prerequisite: ET 122
ET 225 Industrial Electronics and Logic 4 Credits
3 Class Hours, 3 Lab 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, PNP-NPN 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.
Prerequisite: ET 122

ET 231 Introduction to Digital Logic 4 Credits
3 Class Hours, 3 Lab 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 122

ET 232 Pulse and Digital Circuits 4 Credits
3 Class Hours, 3 Lab Hours
A study of wave-shaping, clipping and clamping circuits, inverter circuits, bi-stable, 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 122
Prerequisite: ET 223

ET 233 Digital Computer Circuits 4 Credits
3 Class Hours, 3 Lab 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 231 and ET 232

ET 234 Microprocessors 4 Credits
3 Class Hours, 3 Lab
A comprehensive overview of processor systems, design, programming, and applications. Intended for students with no prior experience with microprocessors. Topics include instruction sets and instruction formats for the Motorola 6800 and the Intel 8088.
Prerequisite: ET 102 or

ET 241 Introduction to Rotating Machines 4 Credits
3 Class Hours, 3 Lab
A course designed to give the student an understanding of transformation and performance of rotating motors. A comprehensive treatment of alternating current machines is presented as well as an introduction to alternating current and direct current motors and generators, single-phase motors, alternators, synchronous machines is given.
Prerequisite: ET 102 or

ET 243 Operational Amplifiers 4 Credits
3 Class Hours, 3 Lab
This course presents the theoretical concepts and practical parameters that determine the quality of operational amplifiers such as:........
3, low output impedance, high
and other attractive features.

d are differential and opera-
H amplifier circuits.
Prerequisite: ET 223

44 Energy Systems I
4 Credits
3 Class Hours, 3 Lab Hours
This course emphasizes study of
er systems and their components,
sor and transmission diagrams,
ower circuit, percent and per
quantities, current and voltage
ions on a transmission line, four ter-
etworks, and ABCD constants.
Prerequisite: ET 246

45 Energy Systems II
4 Credits
3 Class Hours, 3 Lab Hours
This course emphasizes more on power
ability, faults on power
, circuit-interrupting devices,
ands relay systems, electrical
itation, and effective grounding.
Prerequisite: ET 244

ET 246 Magnetism and Transformers
4 Credits
3 Class Hours, 3 Lab Hours
This course involves the study of mag-
fields, Ohm’s Law for magnetic
, magnetizing force, Hysteresis,
mpere’s circuit law, determining N1,
air gaps, series-parallel magnetic cir-
cuits, ideal transformers, ratio relations,
general transformer equations, prac-
tical conditions, transformer equivalent
circuits, phasor and voltage relations,
oltage regulations, short and open
ircuit tests, efficiency, and types of
formers.
Prerequisite: ET 103

ET 248 Rotating Machinery I
4 Credits
3 Class Hours, 3 Lab Hours
The main objective of this course is to
study electromechanical energy con-
version, magnetic fields, construction
and characteristics of DC Generators
and motors, Dynamos, Synchronous
alternators, operation and control of
electrical machinery.
Prerequisite: ET 103
Co-requisite: ET 246

ET 249 Rotating Machinery II
4 Credits
3 Class Hours, 3 Lab Hours
Further study of the characteristics of
electrical machinery, polyphase induc-
tion motors, single phase induction
motors, special uses of synchronous
and induction motors, motor control
and operations.
Prerequisite: ET 248

ET 251 Introduction to
Communications
4 Credits
3 Class Hours, 3 Lab Hours
This course is an introductory study of
the various circuits and devices com-
mon to the field of communications.
cluded are noise calculations, infor-
mation and bandwidth, non-sinusoidal
waveforms, fourier analysis, AM trans-
mition and reception, SSB communica-
tions and FM transmission and
ception.
Prerequisite: ET 223

ET 252 Communication Systems
4 Credits
3 Class Hours, 3 Lab 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 251

**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 271 Engineering Economics and Cost Estimating**

3 Credits
3 Class Hours
Introductory study of the various economic principles and applications common to the field of engineering. Included are some cost estimating methods and analysis.

**ET 280 Industrial and Commercial Power Distribution**

3 Credits
2 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

**INDUSTRIAL ELECTRICITY**

**IE 117 Electrical Code and Ordinances**

3 Credits
3 Class Hours, 0 Lab Hours
Study of the National Electrical Code and local ordinances regulating the installation of electrical equipment. The use of the National Electrical Code and understanding the terminology relating to the governing of the safe installation of electrical systems studied in this course.

**IE 121 Commercial and Industrial Wiring I**

4 Credits
3 Class Hours, 3 Lab Hours
This course relates to the student the fundamental circuitry used in the installation of industrial lighting, receptacles, transformers, and various electrical apparatus.

**IE 122 Commercial and Industrial Wiring II**

3 Class Hours, 3 Lab Hours
A course on the circuitry involved in the installation of motors and the magnetic control of them. The student is taught to read and design the circuits used to regulate motors in industrial circuits used in starting, stopping, and speed control of motors studied.

Prerequisite:

**IE 132 Blueprint Reading and Schematics I**

4 Credits
3 Class Hours, 3 Lab Hours
A study in the reading and interpretation of blueprints. The student is introduced to the electrical, mechanical, architectural, electrical blueprints, and the relationship to the installation of electrical systems. Basic schematic symbols are introduced in this course.

**IE 134 Blueprint Reading and Schematics II**

4 Credits
3 Class Hours, 3 Lab Hours
This course studies the use of schematics, riser-diagrams, plot specifications, and addendum drawings used in blueprint in order to
74 Electrical Installations
4 Credits
3 Class Hours, 3 Lab Hours
Introductory course in the installation of electrical systems. This course
introduces the student to the fundamental methods and materials used in
electrical industry. Installation practices of residential centers, panels, and branch cir-
cuits are studied.

Prerequisite: IE 176

IE 201 Solid State Concepts
4 Credits
3 Class Hours, 3 Lab Hours
An introductory to semi-conductors and their applications. In this course
the student studies, experimentally and systematically semi-conductor devices
and their circuit design considerations.

Prerequisite: IE 174

IE 202 Electronics in the Control of
Motors
4 Credits
3 Class Hours, 3 Lab Hours
A course in industrial control electronics. An emphasis is made in solid state
technology for the control of motors. Rectifier performance of photo
electric devices, transistors, diodes, SCR controlled DC Motors, Synchro
generators, and various electronic apparatus are studied in this course.

IE 203 Control Hydraulics in
Industry
4 Credits
3 Class Hours, 3 Lab Hours
A study in the use of hydraulics in
industry. The course introduces the
student to the types and traits of com-
ponents in hydraulic systems, how to
read hydraulic diagrams, trouble
shooting a faulty system, and how to
make needed repairs.

MECHANICAL ENGINEERING TECHNOLOGY

ME 101 Engineering Materials and
Manufacturing Processes
4 Credits
3 Class Hours, 3 Lab Hours
A study of modern materials and their production. This course covers the pro-
duction and fabrication of most common ferrous and non-ferrous metals;
hot and cold working; heat treatment; casting, forging, and other forming pro-
cesses; plastics.

Prerequisite: EN 102

ME 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 102
ME 124 Shop Practices I
2 Credits
1 Class Hour, 3 Lab 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.

ME 125 Shop Practices II
2 Credits
1 Class Hour, 3 Lab Hours
This course is a continuation of ME 124 with additional emphasis placed on the more intricate machine elements such as threads and gears.
Prerequisite: ME 124

ME 126 Shop Practices (EET majors only)
2 Credits
1 Class Hour, 3 Lab Hours
This course is an introduction into the use of machine tools. Content is the same as ME 124 with the exception that welding techniques have been replaced by coppertool techniques. Limited to Electronic Engineering Technology majors only.

ME 127 Advanced Shop Practices
3 Credits
1 Class Hour, 6 Lab Hours
This course builds on the experience of ME 124 and 125 covering more advanced shop fabrication techniques.
Prerequisite: ME 125

ME 131 Statics (Same as CT 131)
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

ME 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: ME 131
Co-requisite: MA 103

ME 201 Strength of Materials
4 Credits
3 Class Hours, 3 Lab
A study of the internal reactions to external forces. This course deals with how various materials behave loads or forces act on them. Principles of stress and strain, shear and bends are covered such that the material strength may be measured or predicted in various load carrying situations such as beams, columns, or tension structures.
Prerequisite: MA 101

ME 211 Machine Elements I
4 Credits
3 Class Hours, 3 Lab
A course covering various elements of machine elements. Bearing selection, power shaft design, gear design, and weld design are a few topics covered.
Prerequisite: ME 201 and MA 101

ME 212 Machine Elements II
4 Credits
3 Class Hours, 3 Lab
A study of more advanced elements covering camshafts,
21 Fluid Mechanics
4 Credits
3 Class Hours, 3 Lab Hours
Study of fluid mechanics with emphasis on the use of hydraulics and pneumatics for power transmission; piping theory and applications such as pressure losses in pipes, energy requirements, pressure head, viscosity and flow rate.

Co-requisite: MA 103

231 Thermodynamics and Heat Transfer
4 Credits
3 Class Hours, 3 Lab Hours
Introductory course in the fundamentals of applied thermodynamics and heat transfer. Conservation of energy (1st law of thermodynamics) is used and applied to practical heating problems. The concepts of entropy, reversibility and the second law of thermodynamics; the steam and mollier diagram; conduction, convection and radiation heat transfer; exchangers and their applications are some of the topics covered.

Co-requisite: ME 221 and ET 104

ME 232 Applied Thermodynamics
4 Credits
3 Class Hours, 3 Lab Hours
An introductory course in applied thermodynamics. Topics covered include energy transformations, heat units, gas laws, and basic heat engine cycles ranging from the Carnot cycle through the Otto, Diesel, and gas turbine cycles. Also included are the steam power cycles (fossil fired and nuclear).

Prerequisite: ME 231

ME 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: Second year standing

ME 251 Metallurgy
4 Credits
3 Class Hours, 3 Lab Hours
A course covering the properties of metals. Crystaline structure, equilibrium and phase diagrams, heat treatment are a few of the topics studied in relation to mechanical properties of metals.

Prerequisite: ME 101

ME 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: Second year standing

ME 234 Refrigeration Systems
4 Credits
3 Class Hours, 3 Lab Hours
A course that introduces the various market refrigeration systems and their components. A review of heat transfer and thermodynamic cycles, followed by discussions dealing with heat pumps, various systems, piping considerations, valve requirements and equipment specifications.

Prerequisite: ME 231
various types of solar heating systems and their applications. Water and air mediums, active and passive systems, available market products, site considerations, insulation requirements, and economic considerations are some of the topics discussed.

Prerequisite: Consent of MET department

**ME 272 Wind and Water Power Systems**

4 Credits

3 Class Hours, 3 Lab Hours

A course designed to introduce the equipment and capabilities of power production using wind and water power plants. Energy storage, electrical systems, water flow and or air flow considerations, and system performance are a few of the topics discussed.

Prerequisite: Consent of MET department

**ME 273 Passive Solar Design**

4 Credits

3 Class Hours, 3 Lab Hours

A course built on the experience gained in ME 271 which deals exclusively with passive solar systems. Existing passive structures/designs are analyzed and new passive system ideas are utilized to build a passive device.

Prerequisite: Consent of MET department

**ME 274 Active Solar Design**

4 Credits

3 Class Hours, 3 Lab Hours

While ME 273 dealt with passive system design, ME 274 covers active systems exclusively. The laboratory time is used to visit active sites and for the construction, design or installation of an active system.

Prerequisite: Consent of MET department

**ME 275 Alternative Fuels and Systems**

4 Credits

3 Class Hours, 3 Lab Hours

This course is designed to introduce and analyze the "newer" fuels on the alternative energy market. Wood energy and its industrial and household applications; Methane/Bio-Mass and its generation and uses; Alcohol fuels and their uses are a few of the topics to be discussed. The laboratory will be used to build a methane generator or to modify an existing engine or heat cation for an alternative fuel.

Prerequisite: Consent of MET department

**ME 276 Special Topics**

4 C

3 Class Hours, 3 Lab

This course introduces other alter energy sources such as geo-th photovoltaics, alternative energy, fuel cells, thermal ocean dents, waves, solar concentrators and others. Emphasis is placed on re ble energy sources. The laboratory is used to analyze the feasable of each system.

Prerequisite: 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 the skills of reading, writing, listening, speaking, and reporting—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 Sciences
The social science and psychology courses seek to prepare students to deal effectively with situations and problems encountered in a growing technical society. Emphasis is on practical knowledge and skills.

MATH-PHYSICS DEPARTMENT

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

Physics
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 technological processes depend. Understanding of basic physical principles is essential for the technician to make a proper perspective toward his environment which extends to the successful handling of new and unfamiliar tasks.

COURSE REQUIREMENTS
Related Studies requirement listed in the appropriate section of each technology.
GLISH

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.

101 Oral Communication
3 Credits
3 Class Hours
A 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, which are videotaped to facilitate self-criticism.

102 Patterns of Composition
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 spelling are employed as needed.

EN 103 Technical Report Preparation
3 Credits
3 Class Hours
A course in organizing and preparing various types of technical communications and reports, including memoranda, business letters, proposals, abstracts, oral reports, semiformal and formal technical reports.
Prerequisites: EN 101 and 102

EN 112 Business Communications
3 Credits
3 Class Hours
A course designed to give students a broad knowledge of written business communications skills. Includes an in-depth study of business vocabulary and semantics, grammatical trouble-spots, and effective sentence structure. Several types of commonly used business correspondence are analyzed and practiced.
Prerequisite: EN 101

EN 113 Business Report Writing
3 Credits
3 Class Hours
A study in research, organization, and drafting of a formal business report. Various other reports will include
investigations, inspections, proposals, and abstracts. Resumes and application letters will also be written.

**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  
5 Class Hours  
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  
4 Class Hours  
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  
4 Class Hours  
A course intended to enhance the student's comprehension of the conceptual structures, form and size, and their communication and manipulation by means of symbols. Topics covered include plane figures and their measurement, triangles and circles, geometric solids, cylinders, pyramids, cones, and spheres.

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

**MA 141 Business Mathematics**  
4 Credits  
4 Class Hours  
An introduction to mathematical systems with emphasis on business applications.

**MA 142 Business Mathematics**  
4 Credits  
4 Class Hours  
Mathematical systems are analyzed and structures of mathematics examined. Relations and operations and topics from algebra are presented.  
Prerequisite: M,

**MA 143 Business Mathematics**  
4 Credits  
4 Class Hours  
A presentation of probability and statistical techniques and applications.  
Prerequisite: M,
151 Scientific Calculations
4 Credits
4 Class Hours
Course designed for the student to use the tools of mathematics scientifically and effectively in application to the basic physical sciences. Topics include review of algebraic operations, arithms, conversions, systems of measurement, preparations of solutions, pH, colorimetry.
Prerequisite: MA 191

MA 204 Probability and Statistics
3 Credits
3 Class Hours
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 101

PH 101 Physics of Mechanics
4 Credits
3 Class Hours, 3 Lab 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 102 Physics of Electricity and Magnetism
4 Credits
3 Class Hours, 3 Lab 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 101 and MA 101

PH 103 Physics of Heat, Light and Sound
4 Credits
3 Class Hours, 3 Lab Hours
An introduction to wave motion, sound,
thermodynamics, light, and optics.
Prerequisite: PH 101 and MA 101

READING

RD 100 Study Skills Improvement
3 Credits
3 Class Hours
Explanation and applications of the SQ4R method of studying (Survey, question, read, recite, 'rite, review) plus other techniques to help the student study more efficiently.

RD 101 Reading Improvement
4 Credits
4 Class Hours
This course is designed to help students improve comprehension in reading, speed, and vocabulary. Emphasis is also placed on stimulating a lasting interest in independent study.

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.

SOCIAL SCIENCES

PS 151 Developmental Psychology I
4 Credits
4 Class Hours
This course is specifically designed for Allied Health majors and acquaints the students with concepts and theories of psychological development from infancy through adolescence. Emphasis is placed upon psychological implications and treatments of both mental and physical illness during this period.

PS 152 Developmental Psychology II
4 Credits
4 Class Hours
A continuation of PS 151 including the concepts of development through adulthood and old age. Emphasis is placed upon psychological implications of illness, old age, and dying.
Prerequisite: PS 151

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 increase productivity.

SC 102 Applied Psychology
3 Credits
3 Class Hours
An introduction to those general principles of psychology which are applicable to the everyday lives of people, emphasizing the transactional analysis approach.
The Evening and Special Programs 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 in sufficient demand. In addition to the credit courses leading to the Associate degree in each technology, special college credit and non-credit courses reflecting needs of business, industry, schools, or governmental 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
- Insurance
- Land Surveying
- Photography
- Real Estate
- Water and Wastewater
EMERGENCY MEDICAL TECHNOLOGY Certificate Program

A one-year certificate program which trains Emergency Medical Technicians and Advanced 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 support for patients with critical care needs who are being transferred into critical care hospitals.

**EMT CURRICULUM**

<table>
<thead>
<tr>
<th></th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FALL QUARTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EM 201 The EMT - Advanced</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>EM 202 Human Systems and Patient Assessment</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>EM 210 Shock and Fluid Therapy</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>EM 220 The Respiratory System</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>EM 221 The Cardiovascular System</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>17</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WINTER QUARTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EM 230 Arrhythmia Identification and Treatment</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>EM 222 The Central Nervous System</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>EM 223 The Musculoskeletal System</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>EM 224 Soft Tissue Injuries</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>EM 240 Medical Emergencies</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>EM 160 Clinical</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>14</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Class</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SPRING QUARTER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EM 225 Pharmacology</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>EM 241 OB - GYN Emergencies</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>EM 242 Pediatrics and Neonatal Care</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>EM 243 Emotionally Disturbed Patient</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>EM 250 Telemetry and Communications</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>EM 261 Clinical</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
<td>9</td>
</tr>
</tbody>
</table>
COURSE DESCRIPTIONS

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 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 respirators.

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 01 The EMT - Advanced

2 Credits
2 Class Hours
The role of Emergency Medical Technicians in the health care delivery system is discussed. The duties and responsibilities of EMT's as well as legislation affecting their job performance are covered. In addition, the students discuss issues concerning EMT, including medical ethics and the patient to death and dying.

EM 02 Human Systems and Patient Assessment

5 Credits
4 Class Hours, 3 Lab Hours
The 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 discussed. In addition, the course deals with the procedure for a patient assessment, including the patient's medical history, physical examination, and use of collected information to the assessing physician.
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 treatment discussed includes spinal immobilization in cases of trauma and the administration of diazepam in cases of seizures.

EM 223 Musculoskeletal System
3 Credits
3 Class Hours
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
3 Class Hours
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
3 Class Hours
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
4 Class Hours, 3 Lab Hours
This course prepares the paramedic for specific identification and treatment of all major cardiac arrhythmias. Specific treatment includes: use of cardiac drugs, positioning for resuscitation, and other treatment methods.

EM 240 Medical Emergencies
3 Credits
3 Class Hours
The identification and management of medical emergencies, diabetic emergencies, anaphylactic reactions, exposure to environmental extremes, alcoholism, poisoning, abdomen, genitorinary problems, medical emergencies of the gyn patient are the topics highlighted in this course.

EM 241 Obstetric Gynecologic Emergencies
4 Credits
3 Class Hours, 3 Lab
This course includes the anatomy and physiology of the female reproductive system and the technique for management of a patient with suspected obstetric and gynecologic disease. The course also includes the management of an expectant mother, delivery, and the care and transition of the mother and newborn. Abnormal deliveries such as m

138
s, premature birth, breech birth
prolapsed umbilical cord are dis-
sed. In addition, complications of
and delivery, including postpar-
hemorrhage, ruptured uterus,
mpia, and infant resuscitation are
ved.

242 Pediatrics and Neonatal Care
3 Credits
3 Class Hours

This course deals with the unique
acts of assessing pediatric
ents. It also includes the patho-
siology and management of prob-
ic which are primarily seen in
iatric patients, including asthma,
chitis, croup, epiglottis, sudden
eth syndrome and seizures in
iatric age group. In addition, the
se covers the role of the EMT in a
ram for a neonatal transport. The
ific skills include a review of infant
itation, intravenous techniques,
acheal intubation on the infant.

243 Management of the
otionally Disturbed Patient
3 Credits
3 Class Hours

This course covers the various kinds of
hological problems the EMT might
ounter, and specific procedures for
aling 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 regu-
lations established by the Federal
Communications Commission with
pect to the use of radio equipment.
In addition, the course deals with the
ocols and procedures for the
ansfer of information to the supervis-
ing 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, inten-
sive 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. The three courses are:

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 provisions, 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, ar property coverages provided by surety line contracts.

In 123 Casualty Insurance
4.5 Credits
3 Class Hours, 0 Lab
This course includes topics on coverages, policy provisions, aspects common to liability insurance policies, suretyship, and liability insurance aspects of multiple-line coverages.

A second area of certification sponsored by the Insurance Institute of America for Chartered Propriety 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 131 Principles of Risk Management and Insurance (CPCU 1)
6 Credits
3 Class Hours, 20 Week
This course will describe the ris
inent framework and discuss the ance environment, basic legal epts, and fundamentals of insurer contracts. It is strongly recom-
ded that IN 131 be taken before courses in the program. The latter ses will develop and apply the epts and principles covered in IN

132 Personal Risk Management Insurance (CPCU 2) 6 Credits
3 Class Hours, 20 Week Course
This course will apply the risk manage-
ment process and concepts to indi-
vidual and family exposures. The read-
ing and case studies will illustrate the
basis of property and liability insurance,
health insurance, social insurance,
employee benefits, and coordination
of insurance buying in personal ris-

cence

133 Commercial Property Risk Management and Insurance (CPCU 4)
6 Credits
3 Class Hours, 20 Week Course
This course will focus on the major
property and liability insurance
ources, and then examine the insurance coverages
for property and liability insurance.

134 Commercial Liability Risk Management and Insurance (CPCU 4)
6 Credits
3 Class Hours, 20 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 li-
ability and worker's compensation,
motor vehicles, and professional lia-

135 Insurance Company Operations (CPCU 5)
6 Credits
3 Class Hours, 20 Week Course
This course will examine the major
insurance marketing, underwriting, reinsurance,
risk making, claims adjusting, and other insurer functions and activities.

IN 136 The Legal Environment of Insurance (CPCU 6) 6 Credits
3 Class Hours, 20 Week Course
This course will be based on general
business law, particularly the areas of
contract and agency law, and will em-
phasize the application of business
law to insurance situations.

IN 137 Insurance Management (CPCU 7)
6 Credits
3 Class Hours, 20 Week Course
This course will cover management
principles and will include an intro-
duction to management information

IN 138 Accounting and Finance in Insurance (CPCU 8)
6 Credits
3 Class Hours, 20 Week Course
The first nine topics of this course will
provide a generalized collegiate-level
treatment of basic accounting and fi-
nance principles. The final six topics
will specifically relate to property and
liability insurance company accounting
and finance.
IN 139 Economics in Insurance  
(CPCU 9)  
6 Credits  
3 Class Hours, 20 Week Course  
This course will cover general economic principles at both the macro and micro levels.

IN 140 Insurance Issues and  
Professional Ethics (CPCU 10)  
6 Credits  
3 Class Hours, 20 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.

* The three courses in the Program of Insurance, i.e., IN 121, IN 122, and IN 123 may be substituted for IN 132.
Due to the recent increase in land development, real estate values, and approach of EXPO ’82, the demand for surveyors exceeds the number of people adequately training in this in the greater Knoxville area. In response to this need, a program in surveying was developed as part of Tech’s continuing effort to provide high-quality technical training for students of Knoxville and surrounding cities.

The program consists of five courses. Each course meets three nights a week, for ten consecutive weeks. Field work is held on other Saturday morning. Courses in the program are:

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

**LAND SURVEYING COURSE DESCRIPTIONS**

**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 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 Admissions Office on Tuesdays at 1:00 p.m. and 6:00 p.m. The placement test should be taken as soon as possible.

**Course Outline:**
1. General Information
2. Fundamentals of Algebra
3. Computations
4. Fundamentals of Geometry
5. Fundamentals of Trigonometry
6. Basic Analytic Geometry

**CT 161 Fundamentals of Surveying**

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.

Corequisite: MA 132

**Course Outline:**
1. Trigonometry
2. Measurement of Horizontal Distance
3. Measurement of Vertical Distance
4. Errors
5. Basic Surveying Computation
6. Notekeeping
7. Direction of Lines
8. Introduction to Transites and Theodolites
9. Introduction to Angles and Directions

This course may be substituted into the Construction Engineering Technology curriculum for CT 221 Surveying I.

CT 162 Transit-Tape Surveying and Computations
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.

Prerequisite: CT 161

Course Outline:
1. Use of Transites and Theodolites
2. Measurements of Angles and Directions
3. Transit-Tape Surveys
4. Traverse Computation and Special Case Computation
5. Horizontal and Vertical Curves
6. Stadia Method
7. Earth Work

CT 163 Land Surveying
3 Credits
3 Class Hours
This course places emphasis on the legal aspects of land surveying and astronomy.

Pre-requisite: CT 162

Course Outline:
1. Licensing
2. Professionalism
3. Inter-Professional Relationships
4. Surveying Documents, Legal Definitions and Laws
5. Principles of Field Astronomy
6. Solar Observations
7. Observation of Stars
8. Surveying 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
3 Class Hours
This advanced course incorporates land surveying fundamentals design project.

Pre-requisite: (Course Outline: 1. Review of Surveying Comp Procedures 2. Subdivision Regulations 3. Preliminary Subdivision Plans 4. Final Subdivision Plans 5. Utility and Grading Plans This course may be substituted into the Construction Engineering Technology associate degree curriculum as a technical elective.)
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 316 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:

### REAL ESTATE BROKERAGE
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Essentials of Real Estate</td>
<td>4.5</td>
</tr>
<tr>
<td>113</td>
<td>Real Estate Law</td>
<td>3.0</td>
</tr>
<tr>
<td>118</td>
<td>Real Estate Salesmanship</td>
<td>3.0</td>
</tr>
<tr>
<td>233</td>
<td>Real Estate Finance</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### REAL ESTATE FINANCE AND APPRAISAL
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Essentials of Real Estate</td>
<td>4.5</td>
</tr>
<tr>
<td>113</td>
<td>Real Estate Law</td>
<td>3.0</td>
</tr>
<tr>
<td>210</td>
<td>Residential Appraising</td>
<td>3.0</td>
</tr>
<tr>
<td>233</td>
<td>Real Estate Finance</td>
<td>3.0</td>
</tr>
<tr>
<td>235</td>
<td>Real Estate Investments</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### REAL ESTATE DEVELOPMENT
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Essentials of Real Estate</td>
<td>4.5</td>
</tr>
<tr>
<td>13</td>
<td>Real Estate Law</td>
<td>3.0</td>
</tr>
<tr>
<td>33</td>
<td>Introduction to Commercial Real Estate</td>
<td>3.0</td>
</tr>
<tr>
<td>110</td>
<td>Residential Appraising</td>
<td>3.0</td>
</tr>
<tr>
<td>144</td>
<td>Land Development, Marketing and Use Regulations</td>
<td>3.0</td>
</tr>
</tbody>
</table>
REAL ESTATE
COURSE DESCRIPTIONS

RE 101 Essentials of Real Estate
4.5 Credits
4.5 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 salesable 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 recordkeeping 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 standard behavior as it relates to the brokerage of real property.

RE 118 Real Estate Salesmanship
3 Credits
3 Class Hours
Examination 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 Tennessee 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 203 Advanced Closing Law
3 Credits
3 Class Hours
Real Estate brokerage sales staff and loan closing statement studied in detail. Closing procedures dealing with the proration of tax insurance, disbursement of handling of fees and escrow accounts, etc., are taken from actual site. The requirements of the Real Estate Settlement and Procedures Act are examined. This course will substitute for RE 201.

RE 210 Residential Appraising
3 Credits
3 Class Hours
This course introduces the study of three methods of appraising residential property: comparative sales, unit and gross rent multiplier. Basic concepts such as the purposes of appraisals, value of property, neighborhood and site analysis, and conditions are covered using appropriate terminology. Students will appraise their own and their classmates' properties as well as properties of different price ranges. Appraisal methods will be used and emphasis will be placed on the appraiser's role in the real estate process.
233 Real Estate Finance
  3 Credits
  3 Class Hours
Sources of lending in the field of residential and income property are reviewed, including FHA, VA and conventional loans and sources of mortgage financing for income property. Discussion of current trends in the housing and money markets are used to highlight the concepts.

35 Real Estate Investments
  3 Credits
  3 Class Hours
Fundamental principles underlying successful real estate investments are reviewed. Finding opportunities, types of ownership, income taxation and financing considerations are covered to enable the student to become knowledgeable and successful in investing.

44 Land Development, Marketand Use Regulations
  3 Credits
  3 Class Hours
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.
State Tech presents a 27 credit-hour Still Photography Certificate program. The program has arisen from the needs 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 twenty-four (24) credit hours of required course work plus three hours of electives. A student 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
3 Class Hours

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
3 Class I

Advanced work in lighting, camera controls, and use of lenses prepare the student for special topics such as slide copying, internegatives, and prints. Students are responsible for providing a camera, film, and photographic paper.

Prerequisite: AV 111

AV 113 Darkroom Techniques

3 Credits
3 Class

Students in this course will be exposed to the study of developers for film paper, developing techniques, how they relate to contrast and speed, and printing controls, including pin and burning-in. Students are responsible for providing a camera, film, photographic paper, and miscellaneous supplies.

Prerequisite: AV 111

AV 114 Creative Darkroom

3 Credits
3 Class

The study of special techniques emphasized: solarization, base
to montage, heat distortion, Kodak and posterization. Students are responsible for providing miscellaneous darkroom supplies.

Prerequisite: AV 119

115 Advanced Darkroom

3 Credits
3 Class Hours

This course is designed for persons who have completed Darkroom Techniques successfully and wish further training 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 113

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 112

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 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 ESP Division Head
A one-year certificate program provides training in the appropriate areas and prepare the student for the certification exam for class 1, 2, and 3 water and wastewater treatment plant operators. This program has been developed in conjunction with the local CETA prime sponsor and is funded by that organization. It trains time and part-time water and wastewater treatment plant technicians for Knoxville surrounding municipalities and industries.

<table>
<thead>
<tr>
<th>CURRICULUM</th>
<th>HOURS PER WEEK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Clock</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>ST QUARTER</td>
<td></td>
</tr>
<tr>
<td>100 Elementary Algebra</td>
<td>5</td>
</tr>
<tr>
<td>101 Human Relations in Industry</td>
<td>3</td>
</tr>
<tr>
<td>104 General Ecology</td>
<td>3</td>
</tr>
<tr>
<td>101 ORDL Communications</td>
<td>3</td>
</tr>
<tr>
<td>101 Operations, Maintenance, and Safety</td>
<td>3</td>
</tr>
<tr>
<td>105 On-the-Job Training</td>
<td>15</td>
</tr>
<tr>
<td>Weekly Total</td>
<td>32</td>
</tr>
<tr>
<td>Quarterly Total</td>
<td>320</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OND QUARTER</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>102 Applied Psychology</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>151 Introductory Chemistry</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>191 Algebra &amp; Trigonometry I</td>
<td>4</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>102 Hydraulics &amp; Pumping Design</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>106 On-the-Job Training</td>
<td>20</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Weekly Total</td>
<td>36</td>
<td>13</td>
<td>23</td>
</tr>
<tr>
<td>Quarterly Total</td>
<td>360</td>
<td>30</td>
<td>230</td>
</tr>
</tbody>
</table>
### THIRD QUARTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Weekly</th>
<th>Quarterly</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 154 Microbiology I</td>
<td></td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>CH 111 Inorganic Chemistry I</td>
<td></td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>MA 192 Algebra &amp; Trigonometry II</td>
<td></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>WT 103 Advanced Water &amp; Wastewater Technology</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>WT 107 On-the-Job Training</td>
<td>20</td>
<td>0</td>
<td>20</td>
</tr>
</tbody>
</table>

Weekly Total: 39  
Quarterly Total: 390

### FOURTH QUARTER

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Weekly</th>
<th>Quarterly</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 164 Microbiology I</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CH 153 Water Analysis</td>
<td>8</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>PH 101 Physics of Mechanics</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>WT 104 Advanced Waterworks Technology</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>WT 108 On-the-Job Training</td>
<td>20</td>
<td>0</td>
<td>20</td>
</tr>
</tbody>
</table>

Weekly Total: 43  
Quarterly Total: 430
TER AND WASTEWATER TECHNOLOGY COURSE DESCRIPTIONS

04 General Ecology

3 Credits
3 Class Hours, 3 Lab Hours
Course will consist of a survey of environmental problems and how the application of knowledge and understanding may be applied to these problems. Relations between organisms and their environment, including human environmental problems, will be specifically studied.

54 Microbiology I

4 Credits
3 Class Hours, 3 Lab Hours
Microbiology I is a basic course in microbiology with emphasis on the organisms found in water and wastewater.

54 Microbiology II

4 Credits
3 Class Hours, 3 Lab Hours
Continuation of Microbiology I with emphasis on applied microbiology.

101 Operations, Maintenance, and Wastewater Technology

3 Credits
3 Class Hours
This course provides the theoretical and practical laboratory experience necessary to perform chemical examinations of water and wastewater. Topics covered include turbidity, color, standard solutions, pH, acidity, alkalinity, coagulation hardness, residual chlorine, chlorine demand, and dissolved oxygen.

WT 104 Advanced Waterworks Technology—Theoretical and Operational Aspects

3 Credits
3 Class Hours
This course provides the theoretical basis and practical laboratory experience necessary to perform chemical and physical examinations of water and wastewater. Topics covered include BOC, COD, nitrogen, solids, grease, activated sludge analysis, and phosphate.

WT 105-108 On-the-Job Training

3 Credits per course
20 Lab Hours
The purpose of this training is to assist the student in learning the normal operational procedures for a wastewater and water plant and to actually perform the procedures. He will learn to recognize emergency conditions, of the waste stream and the course of these conditions, to carry out the preventive maintenance procedures, and to
recognize when corrective maintenance procedures are required. Safety features for the above operations will be stressed. Also, the student will learn how to prepare reports necessary for the plant's operations.
NKING

tate 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 only complete AIB requirements also receive college credit hours. courses are taught by instructors to meet both the college and chapter requirements.

106 Principles of Bank Operations

4.5 Credits
3 Class Hours

This course presents the fundamentals of banking 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 ownership of the commercial bank to its customers, types of bank accounts, the deposit function, the payments function, bank loans and investments, etc.

BK 131 Installment Credit

4.5 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 203 Money and Banking

4.5 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 213 Bank Management**
- 4.5 Credits
- 3 Class Hours
This course is based on the second edition of the text that presents new trends which have emerged in the philosophy and practice of management. The study and application of the principles outlined provide new and experienced bankers with a working knowledge of bank management. It touches on objectives, planning, structure, control, and the interrelationship of various bank departments.

**BU 131 Principles of Accounting I**
- 4.5 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 132 Principles of Accounting II**
- 4.5 Credits
- 3 Class Hours
A course which includes merchandise inventory, deferrals and accruals, fixed assets, systems and controls and partnership and corporate accounting.

**EC 110 Economics in Banking**
- 4.5 Credits
- 3 Class Hours
This basic course emphasizes theories and issues as they apply to banking. Class sessions are devoted to micro and macro economics and current developments in national and international arenas.

**EN 110 Oral Communications in Banking**
- 4.5 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.

**MT 110 Marketing for Bankers**
- 4.5 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, strategy, and methods of marketing planning.

**INDUSTRIAL COURSES**

**CT 197 Introduction to Building Construction Cost Estimating**
- 3 Credits
- 3 Class Hours
This course is designed for personnel responsible for making labor and time estimates from construction drawings and blueprints. Topics include plans and specifications, investigation, construction, labor, materials, and supplies, head and indirect costs, and a blueprint reading course or previous experience is suggested.

**CT 198 Basic Blueprint Reading**
- 3 Credits
- 3 Class Hours
An introduction to interpreting prints, this course is designed for personnel responsible for making labor and time estimates from construction drawings and blueprints. Topics include plans and specifications, investigation, construction, labor, materials, and supplies, head and indirect costs, and a blueprint reading course or previous experience is suggested.
99 Advanced Blueprint Reading
3 Credits
3 Class Hours

This course is designed to teach the basic blueprint reading process as a foundation, allowing students to develop a greater understanding of architectural, structural, mechanical, and electrical drawings. Course material includes, but is not limited to, an in-depth study of both reinforced concrete and steel structures. Using shop drawings, slide presentations, and field trips, students will be able to obtain a better understanding of the factors involved in reading prints.

108 Emergency Care Course
1.5 Credits
1.5 Class Hours

This course is designed for the general public who may not have had any first aid training. Subjects covered are: cardiac pulmonary resuscitation (CPR), opening obstructed airways, propering of fractures and dislocations, emergency childbirth procedures. Successful completion of this course earns participants a certificate of completion from Emergency Medical Services, Department of Public Health, 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.

EM 110 First Aid for Industry
1 Credit
9 Class Hours

This course is designed to provide instruction in first aid practices for industry. Upon completion of the course, the student should be able to give immediate first aid care to injured individuals and satisfy OSHA and TOSHA requirements stipulating that a percentage of workers with industry be trained in first aid. Successful completion of the course will earn certification in the American Red Cross, Standard First Aid Multimedia System.

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.
IM 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.

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 on 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 rates 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 either the student to visualize and elementar three-dimensional view of a machine part, read various precision measuring instruments, judge the quality of machine parts, 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 proficient in reading more complex blueprints. The student will also be taught to visualize and draw more complicated three-dimensional views of machine parts and be able to in those parts using both simple and sophisticated measuring instruments.

SC 140 Career Options for Women
3 Credits
3 Class Hours
This is a ten week in-depth course which helps the woman to learn what the jobs are; make the transition to the job market; analyze abilities and interests; manage finances; develop a resume; lea
URANCE COURSES
In addition to the two certificate programs, State Tech offers a third program in insurance. Rather than being a certificate program, it is a series of 10 courses designed to prepare students for the examination for Certified Life Underwriters (CLU). Courses are offered on a basis determined by the Westville CLU Chapter.

301 Economic Security and Individual Life Insurance
3 Credits
3 Class Hours
This course covers economic security and risk, human behavior, professionalism and ethics in life and health insurance as well as individual life, health annuity contracts and life insurance programming. Additional topics include types of insurers, investments, financial statements, risk selection, valuation, and regulation of companies.

302 Life Insurance Law and Economics
3 Credits
3 Class Hours
This course focuses on policy provisions, assignments, ownership rights, credit rights, beneficiary designations, and disposition of life insurance proceeds. Also covered is the mathematics of life insurance as related to premiums, reserves, nonforfeiture values, surplus, and dividends.

303 Group Insurance and Social Insurance
3 Credits
3 Class Hours
This course covers the economics and social aspects of contract formation, policy provisions, assignments, ownership rights, creditor rights, beneficiary designations, and disposition of life insurance proceeds. Also covered is the mathematics of life insurance as related to premiums, reserves, nonforfeiture values, surplus, and dividends.

304 Economics
3 Credits
3 Class Hours
This course covers economic principles, the governmental and banking institutions which have an effect on the national economy, national income, theory and application of price determination, business cycles, money and banking, monetary and fiscal policy, and international trade and finance.

305 Accounting and Finance
3 Credits
3 Class Hours
This course covers basic accounting principles, including data accumulation systems, income measurement, valuation of assets and liabilities, and financial statement analysis. The course includes the recording of a business transaction in the books of account to the final preparation of financial statements. Various sources of short-term, intermediate-term, and long-term funds available to business enterprise.

306 Investments and Family Financial Management
3 Credits
3 Class Hours
This course covers various aspects of investment principles and their application to family finance. Yields, limited income securities, investment markets and valuation of common stock. Also family budgeting, property and liability insurance, mutual funds, variable annuities, and aspects of other investment media.

307 Income Taxation
3 Credits
3 Class Hours
This course covers the federal income tax system with
particular reference to the taxation of life insurance and annuities. The income taxation of individuals, sole proprietors, partnerships, corporations, trusts, and estates.

**HS 308 Pension Planning**

3 Credits
3 Class Hours
Basic features of pension plans. Cost factors, funding instruments, and tax considerations involved in private pensions, profit-sharing plans, and tax-deferred annuities. Also, thrift and savings plans and plans for the self-employed. Effect of Employees Retirement Income Security Act of 1974 on covered areas.

**HS 309 Business Insurance**

3 Credits
3 Class Hours
Business uses of life and health insurance, including proprietorship, partnership, and corporation continuation problems and their solutions through the use of buy-sell agreements property funded to preserve and distribute business values. Other business uses of life and health insurance, such as key man insurance, non-qualified deferred compensation plans, and split-dollar plans.

Also covered are corporate recapitalizations, professional corporations, and business uses of property and liability insurance.

**HS 310 Estate Planning and Taxation**

3 Credits
3 Class Hours
Estate and tax planning, emphasizing the nature, valuation, disposition, administration, and taxation of property. The use of revocable and irrevocable trusts, testamentary trusts, life insurance, powers of appointment, wills, lifetime gifts, and the marital deduction. Also, the role of life insurance in minimizing the financial problems of the estate owner.

**REVIEW COURSES**

**CT 175 Certified Engineering Technician Review - Electrical**

3 Credits
3 Class Hours
A review concentrating on the general areas covered on the electrical examination administered by the Institute for the Certification of Engineering Technicians. Topics covered include basic technical concepts, electronics, solid state circuitry, computer, test equipment, power systems and power.

**ET 176 Certified Engineering Technician Review - Electrical Power**

3 Credits
3 Class Hours
A review concentrating on the general areas covered on the electrical power examination administered by the Institute for the Certification of Engineering Technicians. Topics covered include power distribution, prod transmission, and substations. In addition to codes and standards, phasing, problems and insulator requirements, and conductor selection and spacing.
01 GED Preparation
3 CEU's
3 Class Hours
The GED Preparation Program is designed to assist persons who wish to take the GED test and achieve equivalency of a high school diploma. The course covers basic skills such as reading, composition, and math. The program is a ten-week course of study.

75 Certified Engineering Technician Review—General
3 Credits
3 Class Hours
This course is designed for students who need to concentrate on the areas covered in Part A—General. It is administered by the Institute for the Certification of Engineering Technicians. Topics covered include communications skills, reading and writing, technical phrasing, business correspondence and reports, physics, mathematics, formulae and tools for physical science.

75 Certified Engineering Technician Review—Mechanical
3 Credits
3 Class Hours
This course is designed for students who need to concentrate on the general areas covered in 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
This course is designed for students who wish to lead or participate in a business meeting. The purpose of this course is to cover Robert's Rules of Order. Students will be involved in actual practices of parliamentary procedure.
STATE BOARD OF EDUCATION

Governor Lamar Alexander
Edward A. Cox, Executive Officer

100-A Cordell Hull Building
Nashville, Tennessee 37219

G. Wayne Brown
Noble C. Caudill
Stephen Dennis
Thomas E. Geraghty
H. Lynn Greer, Jr.
James W. Hawkins
Hal Henard
Hugh T. McDade
Eleanor Rooks
Mrs. Nannie G. Rucker
Mrs. C. Lentz Stevens
F. Thornton Strang
Billy Ray Vinson
Carl Crutchfield, Administration Assistant
for the State Board of Education
Paul Buckley  
President of Data Processing  
k of Maryville  
yville, Tennessee 37801

Mr. Norm L. Ransom  
Computer Section  
Robertshaw Controls Co.  
2318 Kingston Pike  
Knoxville, Tennessee 37919

Lynn Butler  
President  
C., Inc.  
5 Stephenson Drive  
xville, Tennessee 37901

Mr. Robert Wildsmith  
Systems Supervisor,  
Data Processing  
Knoxville Utilities Board  
P. O. Box 1951  
Knoxville, Tennessee 37901

Bill Mumpower  
Representative  
nee Valley Authority  
evans Building  
xville, Tennessee 37902

Mr. Tom E. Sudman,  
Sr. Vice-President  
Mr. Ralph Johnston  
United American Bank  
P.O. Box 280  
Knoxville, Tennessee 37901

Bob Welch  
Processing Manager  
hern Athletic, Inc.  
1 Red Dog Lane  
xville, Tennessee 37914

Mr. Robert L. Clark, Director  
Administrative Data Systems  
University of Tennessee  
103 Andy Holt Tower  
Knoxville, Tennessee 37916
CHEMICAL ENGINEERING TECHNOLOGY ADVISORY COMMITTEE

Mr. James M. Ford
Olin Corporation
P.O. Box 248
Charleston, Tennessee 37310

Mr. Hoyle F. Cecil
J. M. Huber Corporation
P.O. Box P
Etowah, Tennessee 37331

Dr. O. L. Culberson
Department of Chemical Engineering
University of Tennessee
Knoxville, Tennessee 37916

Mr. Robert D. Fox
IT Enviroscience Inc.
9041 Executive Park Drive
Suite 226
Knoxville, Tennessee 37923

Mr. Tommy Huskey
Vinyl Corporation
2636 Byington-Solway Road
Knoxville, Tennessee 37921

Dr. H. F. Johnson
Department of Chemical Engineering
University of Tennessee
Knoxville, Tennessee 37916

Mr. Jack Watson
Rohm and Haas Tennessee
P.O. Box 59
Knoxville, Tennessee 37902

Mr. John R. McDowell
Noll Associates Tennessee
1423 Coker Avenue
Knoxville, Tennessee 37911

Mr. Donald E. Spangler
Oak Ridge National Labor;
P.O. Box X
Building 7601
Oak Ridge, Tennessee 37831

Mr. Jerald A. Turnbow
Aluminum Company of Arr
P.O. Box 158
Alcoa, Tennessee 37701

Mr. Clyde D. Watson
Oak Ridge National Labor
P.O. Box X
Building 7601
Oak Ridge, Tennessee 37
IPUTER ACCOUNTING TECHNOLOGY ADVISORY COMMITTEE

D. Brown
Financial Officer
River Resources, Inc.
Knoxville, Tennessee 37919

Will J. Sullivan
Secretary-Treasurer
Institutional Jobbers, Inc.
Knoxville, Tennessee 37901

B. Counts
Roller
Gray's Big Boy of Knoxville, Inc.
Knoxville, Tennessee

James E. Taylor
Senior Vice-President, Finance
United American Bank
Knoxville, Tn. 37901

Les J. Kinnamon
Vice President
River Utilities Board
Knoxville, Tennessee 37901

D. J. Vaughn
Controller
Appalachian Packaging Company
Knoxville, Tennessee

Ida G. McLeod
Roller
River News Sentinel
Knoxville, Tennessee 37901

Larry E. Wheeler
Union Carbide Corp.
Oak Ridge, Tennessee

165
CONSTRUCTION ENGINEERING TECHNOLOGY ADVISORY COMMITTEE

Mr. Theodore A. Bowles  
Supervisor, Construction & Design  
Engineering Section  
Tennessee Valley Authority  
400 Commerce Ave.  
E6A2  
Knoxville, Tennessee 37902

Mr. Louis J. Colucci, Jr.  
Chief, Engineering Support Se  
Region 15, Federal Highway Administration  
P.O. Box 186  
Sevierville, Tennessee 37862

Mr. Bill Evans  
State Department of Transportation  
Bureau of Highways  
P.O. Box 58  
Knoxville, Tennessee 37901

Mr. Albert H. Barnes  
Barnes & Moorefield Architect  
P.O. Box 10863  
Knoxville, Tennessee 37919

Mr. Thomas C. Walton  
Vice-President  
Alternate: Mr. Scott Dawson  
Project Manager  
Rentenbach Engineering Co.  
P.O. Box 11087  
Knoxville, Tennessee 37919

Mr. Scott Dawson  
Rentenbach Engineering Co.  
P. O. Box 11087  
Knoxville, Tennessee 37919

Mr. Joe Miller  
West & Associates Engineers, Inc.  
1630 Downtown West Blvd.  
Knoxville, Tennessee 37919

Mr. Jim Harbin  
Jim Harbin Construction Co.  
6408 Clinton Highway  
Knoxville, Tennessee 37912
CTRICAL ENGINEERING TECHNOLOGY ADVISORY COMMITTEE

Ray D. Alexander
ices Engineer
trical and Instrumentation
ican Enka Corp.
and, Tennessee 37778

Mr. Donald Dossett
Test Supervisor
EG&G ORTEC, Inc.
100 Midland Road
Oak Ridge, Tennessee 37830

Mr. George W. Oliphant
Building 2518
Oak Ridge National Laboratories
Oak Ridge, Tennessee 37830

Mr. Glenn Turney
Tennessee Valley Authority
400 Commerce Avenue
Knoxville, Tennessee 37902

Mr. Steve Frye
Commonwealth Edison Co.
CRBR Project, P.O. Box U
Oak Ridge, Tennessee 37830

Mr. Les Hutton
Manager of Component Engineering
The Magnavox Company
Strawberry Plains, Tennessee 37871

Mr. Herbert Linginfelter
Foreman
Oak Ridge National Laboratories
Oak Ridge, Tennessee 37830

Mr. Glenn Turney
Tennessee Valley Authority
400 Commerce Avenue
Knoxville, Tennessee 37902

Harry Bannon
ager Systems Design Division
ortshaw Controls Company
1 Kingston Pike
sville, Tennessee 37919

Benny L. Boggs
essee Valley Authority
120C-K
Commerce Avenue
sville, Tennessee 37902
INSURANCE ADVISORY COMMITTEE

Ms. Glenda Setzkorn
Tom T. Pace Insurance Agency
608 S. Gay Street
Knoxville, TN 37902

Mr. Walter M. Wendel, CLU
P. O. Box 10205
Knoxville, TN 37919

Dr. W. W. Dotterweich
Finance Department
Room 429
Stokely Management Center
University of Tennessee
Knoxville, TN 37916

Mr. Pat McGlothin
Mutual Insurance Agency, Inc.
200 W. 5th Avenue
Knoxville, TN 37917

Mr. Russell G. Perkins
Commercial Insurance Dept., M:
AETNA Casualty and Surety
1401 United American Plaza
Knoxville, TN 37902

Mr. Jim Alderson
I.N.A.
P. O. Box 11146
Knoxville, TN 37919

Mr. Henry Austin
Austin & Company
P. O. Box 32
Knoxville, TN 37901

Mr. Bill Smith
The Tennessee Company
Old Kingston Pike
P. O. Box 10922
Knoxville, TN 37919
ID SURVEYING ADVISORY COMMITTEE

Dr. Harry J. Smith
University of Tennessee
Knoxville, TN 37901

Alvin L. Bowers
University of Tennessee
Knoxville, TN 37901

John Batson
Batson & Himes
4334 Papermill Road
Knoxville, TN 37919

G.T. Trotter
725 S. Gay Street, LL-2
Knoxville, TN 37902
MARKETING TECHNOLOGY ADVISORY COMMITTEE

Mr. Mark Balloff, Manager  
Balloff's, West Town Mall  
7600 Kingston Pk.  
Knoxville, TN 37919

Mr. Sam R. Cox, President  
Lazy 7 Coal Sales, Inc.  
166 Western Plaza  
Knoxville, TN 37919

Mr. Jack Kronenberg,  
General Manager  
Knoxville Manufacturing Company  
1904 Emory Road  
Powell, TN 37849

Ms. Rebecca Prince,  
Division Mdse. Mgr.  
Miller's Department Store  
600 Henley Street  
Knoxville, TN. 37901

Mr. Mitchell Robinson, Pre:  
Modern Supply Company  
P.O. Box 2644  
Knoxville, TN. 37901

Mrs. Mary Linda Schwarzb  
Comptroller  
Knox Record Rack  
P.O. Box 11167  
Knoxville, TN 37919

Ms. Ann Williams, Coordin.  
Distributive Education  
Bearden High School  
8352 Kingston Pk. N.W.  
Knoxville, Tn 37919

Ms. Pat Coleman, Buyer  
Proffitt's Department Store  
Midland Shopping Center  
Alcoa, TN
Gene Loy
Aertshaw Controls Co.
D. Box 400
Knoxville, Tennessee 37901

Robert Schilling
K-1200
Stop 253
Ridge Gaseous Diffusion Plant
K- Ridge, Tennessee 37830

W. G. Swann
American Enka Company
Wand, Tennessee 37778

Frank Weiskopf
Tennessee Valley Authority
C 158 Commerce
Knoxville, Tennessee 37902

Ron Shelton
Te Carbide-Nuclear Division
D. Box P, MS 227
K- Ridge, Tennessee 37830

Dr. Mancil W. Miligan
Mechanical & Aerospace Engineering Department
University of Tennessee
Knoxville, Tennessee 37916

Mr. Len Marlow
Solar Crafters, Inc.
Route 2, Box 285
Strawberry Plains, Tennessee 37871

Dr. David Ferguson
Chemical Separation Corp.
P. O. Box 549
Oak Ridge, Tennessee 37830

Mr. J. T. Alley
Aluminum Company of America
South Plant
Alcoa, Tennessee 37701

Mr. George Littleton
10724 Plum Creek Drive
Knoxville, Tennessee 37919
MID-MANAGEMENT TECHNOLOGY ADVISORY COMMITTEE

Mr. Rudy Vranes  
Industrial Relations Manager  
Briggs  
5040 National Drive  
Knoxville, Tn 37917

Ms. Kay T. Myers  
Personnel Officer  
Tennessee Valley Authority  
400 Commerce Avenue, W50220C  
Knoxville, Tennessee 37901

Dr. G. K. LaBorde  
College of Education  
Industrial Education  
University of Tennessee  
Knoxville, Tennessee 37916

Mr. Doug Upton  
Plant Personnel Manager  
Levi Strauss and Company  
Beaver Creek Drive  
Powell, Tennessee 37849

Ms. Eileen W. Maye  
Staff Assistant, Personnel  
Aluminum Company of America  
P. O. Box 9128  
Alcoa, Tennessee 37701

Mr. Jay Ward  
Manager, Employee Relations  
Allied Chemical  
1601 Midpark Lane  
Knoxville, Tennessee 37921

Ms. Peggy Mcbee  
Personnel Manager  
Anomalus, Inc.  
1621 E. Magnolia Avenue  
Knoxville, Tennessee 37917

Mr. Larry E. Maihos  
Personnel Manager  
Vinylex Corporation  
P. O. Box 7187  
Knoxville, Tennessee 37921

Mr. Joel D. Coates  
Sales Promotion and Training  
Cumberland Clarklift, Inc.  
P. O. Box 278  
Knoxville, Tennessee 37901

Mr. W. J. (Bill) Handel, Jr.  
Corporation Director  
Engineering and Development  
Berkline Corporation  
One Berkline Drive  
Morristown, Tennessee 37814

Mr. H. Earl Abernathy  
Director of General Services  
Knoxville Utilities Board  
P. O. Box 1951  
Knoxville, Tennessee 37901

Mr. Sam Browder  
General  
Harriman, Tennessee 37748
RAMEDIC ADVISORY COMMITTEE

James E. Henry, M. D.
3 Co-op
0 Woodview Dr. SW
xville, Tennessee 37920

Ms. Brenda Logan, R. N.
President
Emergency Department Nurses Assoc.
(E. D. N. A.)
Sevier County Hospital
Sevierville, Tennessee 37862

Larry Hutsell
Consultant
Emergency Medical Services
Tennessee Department of Public Health
xville, Tennessee 37919

Ms. Claudia Hoffner, R. N.
Director Continuing Education
East Tennessee Baptist Hospital
Knoxville, Tennessee 37920

Marie Moore, R. S. M.
Hospital Administrator
Mary’s Medical Center
xville, Tennessee 37917

Mr. Joe E. Acker, III
State of Tennessee Department of Public Health
Director—EMS
Nashville, Tennessee

Ann Turnbach, R. S. M.
Administrative Assistant
Mary’s Medical Center
xville, Tennessee 37917

Mr. Gary Delius
Executive Director
Regional EMS System
Co-operative of East Tennessee
2321 Pleasant View Lane NE
Knoxville, Tennessee 37914

Jim Decker
Hospital Administrator
Sanders Presbyterian Hospital
xville, Tennessee 37916
PHOTOGRAPHY ADVISORY COMMITTEE

Harley Ferguson
Photographer
3049 Sutherland Ave.
Knoxville, Tennessee 37919

Charles Tombras, Jr.
Tombras & Associates Advertising
815 Central Ave., S.W.
Knoxville, Tennessee 37917

Bill Tracy
Photographer
Rt. 1
Louisville, Tennessee 37777

Harry Whittington
Photographer
1318 E. Walnut Grove Rd., N.E.
Knoxville, Tennessee 37918

Ron Warwick
Photographer
2921 Pershing St., N.E.
Knoxville, Tennessee 37917

Arthur W. Lavidge
Lavidge & Associates Advertising
Bearden Park Circle S.W.
Knoxville, Tennessee 37919

Jim Thompson
Thompson Photographic Products
2019 University Ave., N.W.
Knoxville, Tennessee 37921

Ernie Roberts
Director of Photographic Services
University of Tennessee
Knoxville, Tennessee 37916

Don Dudenbostel
Davis-Newman-Payne Advertising
4700 Coster Rd., N.E.
Knoxville, Tennessee 37912

James R. Mund
Director of Graphics
Tennessee Valley Authority
Knoxville, Tennessee 37901

Professor Frank Thornburg
School of Journalism
University of Tennessee
330 Communications & Exte
Building
Knoxville, Tn 37919

Ray Wolfe
Wolfe Studio
3804 Broadway N.E.
Knoxville, Tn 37917
INTER AND WASTEWATER TECHNOLOGY ADVISORY COMMITTEE

Ed Malert, Chairman
/CST — City of Knoxville
5 Neyland Drive
Knoxville, Tennessee 37916

Mr. Charles E. Thompson
State Technical Institute at Knoxville
3435 Division Street
Knoxville, Tennessee 37919

Tony Ortega
/CST — City of Knoxville
5 Neyland Drive
Knoxville, Tennessee 37916

Mr. Hoyle E. Dake, Jr.
Allied Chemical Corporation
1601 Midpark Drive
Knoxville, Tennessee 37921

Jim Morton
/CST — County CETA
8 Magnolia Avenue
Knoxville, Tennessee 37914

Mr. Allan Gill
Halisdale Powell Utility District
3745 Cunningham Drive
Knoxville, Tennessee 37918

Giles Dye
/CST — Knoxville Utilities Board
Water Plant
Route Box 1951
Knoxville, Tennessee 37901

Mr. Gayle Hodgson
Knox County Wastewater Control
Suite 207-B
701 E. Vine Avenue
Knoxville, Tennessee 37915

Earl Leming
/CST — Knox County Water Quality Control
2 Cherokee Trail
Knoxville, Tennessee 37920

Mr. Mike Tucker
Knoxville Utilities Board
Water Plant
P. O. Box 1951
Knoxville, Tennessee 37901
FACULTY
AND STAFF
MINISTRATIVE STAFF

Student's Office

NA L. CREECH       Public Relations Coordinator
A. in Individual Directions — Carson-Newman College
S. in Journalism — University of Tennessee, Knoxville
Canditate)

J. C. JONES       President
A. in Electronics — Kellogg Community College
S. in Technical Education — Oklahoma State University
S. in Technical Education — Oklahoma State University
D. in Vocational-Technical Education — University of
Tennessee, Knoxville

NE C. MASTERS       Administrative Assistant to
the President

Academic Affairs

J. CAMERON       Librarian
A. in Math — Vanderbilt University
S. in Library Science — George Peabody College for
Teachers

W. HAYDEN       Head, Educational Resource
Center
A. in History — Arkansas State University
S. in Library Science — Florida State University

J. L. HUDSON       Industrial Coordinator
A. in Personnel — University of Tennessee, Knoxville
Ditional Graduate Study in Industrial Education —
University of Tennessee, Knoxville

JAN R. SONNER       Dean of Instruction
B.S. in Electrical Engineering — Rose Polytechnic Institute
M.S. in Electrical Engineering — University of Southern
California
Ph.D. in Higher Education — Southern Illinois University
at Carbondale
Additional Study in Electrical Engineering — University
of Illinois, Urbana

ALLAN THOMPSON       Evening Coordinator
B.A. in Psychology/Sociology — Knoxville College

RICHARD WIESEHUEGEL       Division Head, Evening and
Special Programs
B.S. in Industrial Engineering — University of Tennessee,
Knoxville
M.S. in Industrial Engineering — University of Tennessee,
Knoxville
Ph.D. in Higher Education Administration — George
Peabody College for Teachers

Business Office

NARSH BENSON       Business Manager
B.S. in Mathematics — University of Southern Mississippi
M.S. in Accounting — University of Arizona, CPA

LUTHER B. FURROW, JR.       Accountant
B.S. Accounting — University of Tennessee, Knoxville

FRANK E. SHELL       Maintenance Supervisor

MARY ANN WALKLING       Accountant
A.S. in Accounting — Indiana Vocational Technical College
GEORGE WARLICK  Accountant
B.S. in Business Administration — Carson-Newman
College

OPAL WEBB  Bookstore Manager

Development Office

CHARLES THOMPSON  Director of Development
B.S. in Zoology — University of Tennessee, Knoxville
M.S. in Biology — Tennessee Technological University
Ph. D. in Zoology — University of Tennessee, Knoxville
(Candidate)

Student Affairs

DEWEY BATSON  Registrar
A.A. in Liberal Arts — University of Tennessee, Nashville

JACK BOPP  Financial Aid Officer / V.A. Counselor,
Student Services
B.S. in Zoology — University of Southern Illinois

ALAN D. FINNEGAN  Dean, Student Affairs
B.S. in Physical Education — St. Lawrence University
M.Ed. in Administration, Guidance and Counseling — St.
Lawrence University
(Candidate)

GARY PRUETT  Counselor, Student Services
B.S. in Business — Lee College
M.S. in Guidance — University of Tennessee, Knoxville

MICHAEL R. RAGSDALE  Admissions / Student St
B.S. in Physical Education — University of Ten
M.S. in Physical Education — Auburn University
Ed.D in Physical Education / Psychology — Unive
Tennessee

INSTRUCTIONAL FACULTY (FULL-TIME)

DENNIS R. ADAMS  Assistant Profe
B.A. in Mathematics — Bowling Green State Unive
M.A. in Educational Administration — University of Alabama
Ph.D. in Secondary Education — Mathematics —
University of Alabama

BILL M. ADHAMI  Head, Department of Ei
Engineering Technology; Assistant Pr
Electrical Engineering Tech
B.S. in Electrical Engineering — University of TEN
Knoxville

ANNABEL L. AGEI  Assistant Pri
B.S. in English — University of Tennessee
M.S. in Guidance — University of Tennessee

MARION L. BAILEY  Assistant Professor of
B.S.E. in Physics — Concord College
M.S.E. in Physics — University of Tennessee, Knc
Additional Graduate Study in Physics, University
Tennessee, Knoxville
NEY BENNETT  Head and Assistant Professor of Business Data Processing  
S. in Business Administration — Middle Tennessee State University

JOHN DUNN  Assistant Professor, English
B.S. in English — University of Tennessee, Knoxville
M.A.C.T. in English — University of Tennessee, Knoxville
Additional Study in Reading — University of Tennessee, Knoxville

N BINDER  Assistant Professor of Data Processing
S. in Industrial Management — University of Tennessee, Knoxville
Certified Data Processor

JUDY EDDY  Assistant Professor, Communications
B.S. in Elementary Education — Baylor University
M.S. in Education — Baylor University

RLES L. BRYANT  Division Head, Engineering Technologies; Assistant Professor, Mechanical Engineering Technology
S. in Aerospace Engineering — Air Force Institute of Technology
S. in Aerospace Engineering — Air Force Institute of Technology

SANDRA K. EDMUND  Assistant Professor, Business Data Processing
B.S. in Mathematics — University of Tennessee, Knoxville
M.S. in Computer Science — University of Tennessee, Knoxville

G. ALAN GICK  Head, Marketing
B.S. in Business Administration — Indiana University of PA
M.S. in Marketing — University of Pittsburgh
Doctoral Coursework in Management — University of Pittsburgh and West Virginia University

RON DAY  Instructor — Construction
S. in Civil Engineering — University of Tennessee, Knoxville

SYDNEY GINGROW  Communication
B.A. in English — University of Tennessee
M.S. in English Education — University of Tennessee

NY DISNEY  Instructor, Construction Engineering Technology
S. in Civil Engineering Technology — Chattanooga Technical and Community College

DORIS J. IVIE  Head, Department of Communications; Associate Professor of Communications
B.A. in English — University of Tennessee, Knoxville
M.A. in English — University of Tennessee, Knoxville
Additional Graduate Study, University of Tennessee, Knoxville

LA DUKES  Assistant Professor, Math
S. in Math — East Carolina University
A.T. in Math — Converse College
DAVID JOB
Coordinator, Engineering Graphics
Bachelor of Architecture—University of Tennessee, Knoxville

RANDALL KIDD
Assistant Professor, Computer Accounting
B.S. in Accounting—University of Tennessee, Knoxville

WYATT KILGALLIN
Instructor/Electrical Engineering
B.S. in Physics and Math—Moorehead University, Moorehead, Kentucky

RICHARD LAUGHERTY
Coordinator/Instructor, 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 of 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

FRED M. LEWIS
Instructor, Mechanical Engineering Technology
A.E. in Mechanical Engineering—State Technical Institute at Knoxville

MATTHEW LONG
Instructor
B.S. in Industrial Education—Hampton University, Hampton, Virginia

DWIGHT R. MAGNUSON
Assistant Professor and Mechanical Engineering Technician
B.S. in Mechanical Engineering—University of Virginia
M.E. in Nuclear Engineering—University of Virginia
Registered Professional Engineer

MALCOLM McCARN
Assistant Professor
B.S. in Marketing—University of Tennessee, Knoxville
J.D.—John Marshall Law School

JAMES G. McCOIN
Assistant Professor
Head, Mid-Management Technician
B.S. in Industrial Management—University of Tennessee, Knoxville
M.P.A. in Public Administration—Webster College
ED.S. in Vocational—Technical Education with an emphasis in Industrial Education—University of Tennessee, Knoxville

WILLIAM M. MILLER
Assistant Professor
Chemical Engineering Technician
B.S. in Chemical Engineering—Mississippi State University

ROBERT E. MOBLEY, JR.
Assistant Professor
Electrical Engineering Technician
B.S. in Electronic Engineering—University of Florida
ZVANOLLAH R. OSKUI   Assistant Professor, Electrical Engineering Technology  
B.S. in Electrical Engineering — University of Tennessee, Knoxville

HN PETTYJOHN   Mechanical Engineering Technology  
B.S. in Electrical Engineering — University of Tennessee, Knoxville

JAMES D. PRICE   Assistant Professor and Head, Construction Engineering Technology  
Bachelor of Architecture — University of Tennessee, Knoxville  
Registered Licensed Architect, State of Tennessee

R. ROUSE   Instructor, Industrial Electricity  
Self-employed electrical contractor

BERT R. SCOTT, III   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

DONALD SCOTTS   Lab Technician  
Certificate in Industrial Electricity

DERICK M. STEPHENS   Assistant Professor, Mechanical Engineering Technology  
B.S. in Industrial Education — University of Tennessee, Knoxville  
B.S. in Safety Education — University of Tennessee, Knoxville

QUENTIN WEBB   Instructor  
M.S. in Distributive Education — University of Tennessee, Knoxville

JACK H. WILSON   Division Head, Related Studies; Professor of Communications  
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

R. WILLES   Math-Physics  
B.S. in Math — University of Tennessee, Knoxville  
M.A. in Math — University of Tennessee, Knoxville

GARY L. WRIGHT   Head, Department of Math Physics, Assistant Professor, Mathematics  
B.S. in Mathematics — University of Tennessee, Knoxville  
M.S. in Mathematics — University of Tennessee, Knoxville  
Additional Graduate Study, University of Tennessee, Knoxville
INDEX

A
Absences, 21
Academic Standards, 20
Accreditation, 7
Activities, student, 25
Adding a class, 12, 17, 18
Administration, 177
Admissions, 26
Advanced Paramedic (EMT) Training, 136
Advising, 16, 26
Advisory Committee, General,
Advisory Committee, Business Data Processing, 163
Advisory Committee, Chemical Engineering Technology, 164
Advisory Committee, Computer Accounting, 165
Advisory Committee, Construction Engineering Technology, 166
Advisory Committee, Electrical Engineering Technology, 167
Advisory Committee, Insurance, 168
Advisory Committee, Land Surveying, 169
Advisory Committee, Marketing, 170
Advisory Committee, Mechanical Engineering Technology, 171
Advisory Committee, Mid-Management Technology, 172
Advisory Committee, Paramedic (EMT), 173
Advisory Committee, Photography, 174
Advisory Committee, Water and Wastewater Technology, 175
Alternate Energy Specialization, 97
American College Testing (ACT), 9, 10, 11
American Society of Certified Engineering Technicians (ASCE)
Application procedure, 10
Audit, 20
Awards, 21
D
Data processing, 30-34
Data Processing Managers Associate (DPMA), 27
Degree, application, 19
Degree, Associate of Engineering, 19
Degree, Associate of Science, 19
Degree requirements, 19
Dismissal, administrative, 14
Drafting, 73, 107
Dropping a class, 12, 17, 18

E
Economics, 62
Educational Resource Center (ERC), 25
Electrical Engineering Technology, 88-95
Electronic specialization, 91
Emergency Medical Technology (EMT), 136-139
Energy specialization, 92
Engineering Graphics certificate program, 107
Engineering Technologies Division, 67-128
Engineering Technologies Division course descriptions, 111-128
English, 131
Entrance requirements, 9
Evening and Special Programs, 135-161
Evening and Special Programs, certificates programs, 136-154
Evening and Special Programs, other courses, 155-161
Expenses, 13

F
Faculty, 178
Fees, Credit by examination, 23
Independent study, 23
late, 13
quarterly, 13
returned check, 13
transcript, 13
refund, 13
Financial aid, 14
ign nationals, 9, 13
Hmen, 11, 16

General Educational Development Test (GED), 161
le Point Average, 15, 19, 21
le Reports, 21
ring Policy, 20
uation (See commencement), 19

rs, 21
an Relations, 134

nplete (grade of "I"), 21
pendent study, 23
nial courses, non-degree, 143, 144, 151-154
nial Electricity certificate program, 109
nial safety, 125, 158
nial specialization, 51, 55
ance certificate program, 140, 142
ance, other courses, 159, 160
National students, 9, 13
J
Jobs, typical, 30, 36, 43, 48, 68, 73, 74, 96

L
Land Surveying certificate program, 143
Library, 25
Loans, 14, 15

M
Machine Design specialization, 105
Managerial specialization, 52, 56
Managerial Accounting specialization, 36, 38, 42
Marketing Technology, 43-47
Math, 132
Mechanical Engineering Technology, 96-105
Mid-Management Technology, 48-56

O
Official enrollment, 11, 17
Optimist Club Scholarship, 15
Orientation, 11
OSHA compliance (See Industrial Safety), 125, 158

P
Paramedic Training (EMT), 136-139
Personnel, 177-181
Photography, 148-150
Physics, 133
Placement, job, 26
Placement testing, 11

186
Pre-registration, 17
Privacy Rights Act, inside front cover
Probation, academic, 21
Programmer, 36
Programming specialization, 39, 42
Programs of instruction (See Business Technologies Division and Engineering
  Technologies Division) 29-66, 67-128
Purpose, 6

Q
Quality points, 20
Quarterly Fees, 13

R
Reading (See English), 11, 134
Readmission, 11
Real Estate certificate program, 145
Recognition, 7
Records, student, 23, 26
Recruiting, 26
Refunds, 13
Registration, 11, 16, 17
Regulations, change in,
Related studies, 130
Related Studies course descriptions, 131-134
Repetition of courses, 21
Requirements for an associate degree, 19
Review courses, 160

S
Safety, 125, 158
Satisfactory Progress, 15
Scholarships, 15
Social science, 130
Special courses, 135-161
Special student, 10
Speech (See English), 131
Staff, 177-181
State Board of Education, 162
Still Photography certificate program, 148-150
Structural specialization, 77
Student classification and course loads, 22
Student activities, 25, 27
Student Affairs Office, 25
Student Government Association (SGA), 27
Student handbook, 28
Student Managers Association (SMA), 27
Surveying, 74, 116-117
Suspension, academic, 17, 22
Suspension, administrative, 27-28

T
Technician definition, 8
Technical drawing, 74
Technicals, 28
Techtonics, specialization, 79
Tennessee Guaranteed Student Loan, 14
Testing, 26
Textbooks, 25
Thermal Energy specialization, 105
Transcript, 13
Transfer credit, armed forces (See also Credit by Examination), 10-11
Transfer credit, college, 22
Transfer students, 10
sportation specialization, 81
(See Expenses), 13

rans, 15, 16

er, 22
er, course, 22
c and Wastewater Technology certificate program, 151-154
drawal, 17, 18
Study Program, 15
This catalog was produced at an average cost of $3.11 per copy to inform the public about State Tech and its programs.