UNIVERSITY SYSTEM OF GEORGIA

GEORGIA SCHOOL OF TECHNOLOGY

ANNOUNCEMENTS 1946-1947

ATLANTA GEORGIA
### UNIVERSITY SYSTEM OF GEORGIA

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**BULLETIN**

**GEORGIA SCHOOL OF TECHNOLOGY**

Atlanta, Georgia

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A School of Aeronautical, Ceramic, Chemical, Civil, Electrical, General, Industrial, Mechanical, Public Health and Textile Engineering; Architecture, Chemistry, Physics, and Industrial Management.

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### ANNOUNCEMENTS

1946 - 1947

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CALENDAR 1946-1947

FALL QUARTER 1946

September 24
All entering freshmen required to report for orientation.
September 26-28
Registration of upper classmen.
September 30
Classes begin. Late registration fees apply.
October 3
Last day for registration.
October 5
Last day for adding a subject to study list.
October 19
Last day for dropping a subject from study list without penalty.
November 9
End of deficiency report period.
November 28-30
Thanksgiving recess.
December 14
Classes end.
December 16-19
Examinations and preregistration.
December 20
Christmas holidays begin.

WINTER QUARTER 1947

January 2
Registration.
January 3
Classes begin. Late registration fees apply.
January 7
Last day for registration.
January 9
Last day for adding a subject to study list.
January 23
Last day for dropping a subject from study list without penalty.
February 15
End of deficiency report period.
March 15
Classes end.
March 17-20
Examinations and pre-registration.
March 21-22
Spring recess.

SPRING QUARTER 1947

March 24
Registration.
March 25
Classes begin. Late registration fees apply.
March 28
Last day for registration.
March 31
Last day for adding a subject to study list.
April 14
Last day for dropping a subject from study list without penalty.
May 3
End of deficiency report period.
June 5
Classes end.
June 6-10
Examinations and pre-registration.
June 8
Baccalaureate Sermon.
June 11
Commencement Day.

SUMMER QUARTER 1947

June 13-14
Registration.
June 16
Classes begin. Late registration fees apply.
June 19
Last day for registration.
June 21
Last day for adding a subject to study list.
July 4
Holiday
July 6
Last day for dropping a subject from study list without penalty.
July 26
End of deficiency report period.
August 26
Classes end.
August 27-30
Examinations.

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Honors and Prizes—Rainey (2), Chapin, R.L. Hill (1), Whitley (3).
Infirmery—Morris, Narmore, Griffin, Alexander, Dr. Floyd W. McRae.
Professional Degrees—Emerson, Narmore, Chapin, and Heads of Degree Granting Departments.
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<th>Position</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

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</tr>
</thead>
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<tr>
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</tr>
</tbody>
</table>

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<table>
<thead>
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<th>Address</th>
<th>Position</th>
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</thead>
<tbody>
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</table>

### Laboratory Personnel

<table>
<thead>
<tr>
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<th>Position</th>
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<tbody>
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GENERAL INFORMATION

HISTORICAL SKETCH

On November 24, 1882, the General Assembly passed a resolution, introduced by Honorable N. E. Harris, to consider the establishment of a technical school in Georgia. A commission of ten was appointed to visit the leading engineering institutions of the country, and in 1885, the law was passed appropriating $65,000 for the institution. In January, 1886, the first commission was appointed, consisting of Honorable N. E. Harris, S. M. Inman, O. S. Porter, E. R. Hodgson and Columbus Heard. Five places, Athens, Atlanta, Macon, Milledgeville and Pensfield, offered bids for the new school, and on October 20, 1886, Atlanta was chosen as the location. Professor M. P. Higgins of the Worcester Institute was secured to supervise the new work, and on October 7, 1888, the installation ceremonies were held at the Opera House in Atlanta.

CAMPUS

Five acres were purchased from the Peters Land Company at the outset, and later Mr. Richard Peters donated four additional acres. The campus has been increased by purchase and gifts from time to time until it now comprises about 132 acres. The original shop buildings destroyed by fire in 1891 were replaced in 1892, and at present there are on the campus the following:

<table>
<thead>
<tr>
<th>Year</th>
<th>Constructed</th>
<th>Estimated Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Building</td>
<td>1888</td>
<td>$80,000</td>
</tr>
<tr>
<td>Old Shop Building</td>
<td>1892</td>
<td>$40,000</td>
</tr>
<tr>
<td>Knowles Dormitory</td>
<td>1898</td>
<td>$55,000</td>
</tr>
<tr>
<td>Textile Building</td>
<td>1898</td>
<td>$60,000</td>
</tr>
<tr>
<td>Swann Building</td>
<td>1900</td>
<td>$60,000</td>
</tr>
<tr>
<td>Electrical Building</td>
<td>1901</td>
<td>$50,000</td>
</tr>
<tr>
<td>President-Emeritus’ House</td>
<td>1903</td>
<td>$15,000</td>
</tr>
<tr>
<td>The Lyman Hall Laboratory</td>
<td>1906</td>
<td>$50,000</td>
</tr>
<tr>
<td>Carnegie Library Building</td>
<td>1906</td>
<td>$30,000</td>
</tr>
<tr>
<td>Whitehead Memorial Hospital</td>
<td>1910</td>
<td>$30,000</td>
</tr>
<tr>
<td>Y. M. C. A. Building</td>
<td>1911</td>
<td>$80,000</td>
</tr>
<tr>
<td>Power Plant</td>
<td>1914</td>
<td>$80,000</td>
</tr>
<tr>
<td>Military Building</td>
<td>1917</td>
<td>$10,000</td>
</tr>
<tr>
<td>Automobile Building</td>
<td>1918</td>
<td>$5,000</td>
</tr>
<tr>
<td>Mechanical Building</td>
<td>1920</td>
<td>$190,000</td>
</tr>
<tr>
<td>Physics Building</td>
<td>1923</td>
<td>$225,000</td>
</tr>
<tr>
<td>Ceramics Building</td>
<td>1924</td>
<td>$35,000</td>
</tr>
<tr>
<td>Julius Brown Memorial Hall</td>
<td>1925</td>
<td>$85,000</td>
</tr>
<tr>
<td>Grant Field Stadium</td>
<td>1925</td>
<td>$300,000</td>
</tr>
<tr>
<td>Emerson Addition to Chemistry Building</td>
<td>1925</td>
<td>$100,000</td>
</tr>
<tr>
<td>N. E. Harris Dormitory</td>
<td>1926</td>
<td>$75,000</td>
</tr>
<tr>
<td>Army Headquarters Building</td>
<td>1927</td>
<td>$30,000</td>
</tr>
<tr>
<td>Dining Hall</td>
<td>1928</td>
<td>$150,000</td>
</tr>
<tr>
<td>Rose Bowl Building</td>
<td>1928</td>
<td>$75,000</td>
</tr>
<tr>
<td>Guggenheim Building</td>
<td>1930</td>
<td>$100,000</td>
</tr>
<tr>
<td>Cloudman Dormitory</td>
<td>1931</td>
<td>$75,000</td>
</tr>
<tr>
<td>Naval Armory</td>
<td>1934</td>
<td>$130,000</td>
</tr>
<tr>
<td>*Techwood, Inc., Dormitory</td>
<td>1935</td>
<td>$250,000</td>
</tr>
</tbody>
</table>

*Owned by the Federal agency, Techwood, Inc., for use of the Georgia School of Technology.

Gifts

Part of several of the above buildings and much of the machinery and apparatus have been given by generous friends. Some of these are the Knowles and Swann Buildings, the A. French Textile Building, Electrical Building, Lyman Hall Laboratory of Chemistry, Carnegie Library, Y. M. C. A. Building, Grant Field and Stadium, the Joseph Brown Whitehead Memorial Hospital, and the Physics Building, towards which the Carnegie Corporation made an appropriation of $150,000; the remainder of the $200,000 expended upon this structure was received from the Alumni and friends of the school through subscriptions to the Greater Tech Campaign Fund of 1920-22. By will, Honorable Julius L. Brown left two-thirds of his estate to the school, and this it is believed will be when realized in full approximately $200,000. Mrs. Josephine Cloudman left the residue of her estate to the endowment fund in an amount believed to be approximately $70,000. In 1936, the Guggenheim Board gave $300,000 for the establishment of a Department of Aeronautical Engineering at Georgia Tech. In addition, generous friends have contributed loan funds to help needy students, as will be shown under the head of Scholarships and Prizes. George W. Harrison, Jr., left by will $16,000 which is invested in the purchase of two lots near the campus and in improvement of the Ceramic Building. Almost 90 acres have been added to the campus through the purchase of land with funds realized through the operation of Radio Station WGST, which was given to the School in 1923 by Clark Howell and The Atlanta Constitution Publishing Company.

GENERAL INFORMATION

| W.P.A. Addition to Chemistry Building | 1936 | $40,000 |
| Auditorium-Gymnasium (in part) | 1937 | $225,000 |
| Civil Engineering Building | 1938 | $150,000 |
| Engineering Drawing Building | 1938 | $130,000 |
| Clark Howell Dormitory | 1939 | $106,000 |
| George W. Harrison, Jr. Dormitory | 1939 | $100,000 |
| Engineering Experiment Station | 1939 | $100,000 |
| Athletic Office Building | 1941 | $70,000 |
| Chemistry Annex | 1942 | $75,000 |

Total: $3,461,000
PRESIDENTS AND TRUSTEES

Dr. I. S. Hopkins was the first President of the Georgia School of Technology. Previously the President of Emory College, he had established there the first shop for technical training of college men in this state, and was chosen by the Trustees to assume the important responsibility of directing the newly established engineering college. During his administration the present academic building, one of Atlanta's landmarks, was built.

Doctor Hopkins was succeeded in 1896 by Dr. Lyman Hall, Professor of Mathematics at the School, and a graduate of West Point. A dormitory structure, Knowles Dormitory, was added to the plant of the new college during Doctor Hall's term of service, as well as the present Textile Building, Swann Hall, Electrical Building, and other buildings. Doctor Hopkins and Doctor Hall laid the foundation for the sound development of the school, and at the time of Doctor Hall's death in 1905, it had attained an assured standing.

Dr. K. G. Matheson, who at the time was Professor of English, was selected by the Trustees to succeed Doctor Hall. Doctor Matheson continued as President until April 1, 1922, when he resigned to become President of Drexel Institute in Philadelphia. The principal additions to the campus during Doctor Matheson's incumbency were the Lyman Hall Chemical Laboratory, the present Library Building, the Whitehead Memorial Hospital, the Y.M.C.A. Building, Power Plant, and the Mechanical Engineering Building. Under Doctor Matheson the college expanded rapidly and acquired its national reputation as an engineering school of the first rank.

Dr. N. P. Pratt, Chairman of the Executive Committee of the Board of Trustees, served as Administrative Executive Ad Interim for four months, after Doctor Matheson's resignation, until the Board elected Dr. Marion Luther Brittain as President, effective August 1, 1922. Soon after Doctor Brittain became President, the College was admitted to membership in the Southern Association of Secondary Schools and Colleges, and entered into a period of rapid growth. Increased legislative appropriations made possible a notable strengthening of the faculty. During Doctor Brittain's administration twenty-two buildings were added to the plant of the College, and enrollment in collegiate courses increased from 1673 in 1921 to 2910 in the fall of 1941, the highest peace-time enrollment. On July 1, 1944, Doctor Brittain was named President Emeritus by the Board of Regents, and was succeeded as President by Dr. Blake Ragsdale Van Leer. President Van Leer was officially inaugurated in a ceremony on the campus of the college on July 7, 1944.

Governor N. E. Harris served as chairman of the Board of Trustees until his death, September 21, 1929. Other trustees besides the four already mentioned on the first commission who have rendered service are: D. N. Speer, W. B. Miles, George Winship, George W. Parrott, Walter M. Kelley, N. P. Pratt, Hal G. Nowell, E. R. Hodgson, Sr., and Jr., George G. Crawford, L. W. Robert Jr., Floyd Furlow, E. R. Black, Harrison J. Baldwin, J. S. Akers, John W. Grant, George H. Carswell, W. H. Glenn, John H. Porter, Frank Freeman, G. M. Stout, Harrison Hightower and John S. Cohen. Besides these regular members, there were three ex-officio trustees appointed each by the Chairman of the Board of Trustees of the University of Georgia, and in addition the Governor and State Superintendent of Schools served ex-officio. On January 1, 1932, all State Boards of Georgia State Colleges were abolished and a Board of Regents for the entire University System was appointed. See page 5.

COURSES AND DEGREES

From 1888 until 1896 the Georgia School of Technology offered only one curriculum which led to the degree of Bachelor of Science in Mechanical Engineering. From time to time other curricula have been added and the following degrees were first granted in the year indicated:

*Bachelor of Science in Mechanical Engineering 1888
*Bachelor of Science in Electrical Engineering 1896
*Bachelor of Science in Civil Engineering 1896
*Bachelor of Science in Textile Engineering 1899
*Bachelor of Science in Chemical Engineering 1901
Bachelor of Science in Chemistry 1906
Bachelor of Science in Architecture 1908
*Bachelor of Science in Engineering Courses, Cooperative Plan 1912
Master of Science 1922
Bachelor of Science 1923
*Bachelor of Science in Ceramic Engineering 1924
*Bachelor of Science in Aeronautical Engineering 1930
Bachelor of Science (General Engineering) 1934
Bachelor of Architecture 1934
Bachelor of Science (Industrial Management) 1934
Bachelor of Science in Public Health Engineering 1939
Bachelor of Science in Physics 1942
Bachelor of Science in Basic Engineering 1945
Bachelor of Science in Naval Science 1945
Bachelor of Industrial Engineering 1946

*Effective with the class graduating as of July 1945 the following changes in nomenclature of certain of the degrees listed above have been adopted by action of the faculty:

Bachelor of Aeronautical Engineering
Bachelor of Architectural Engineering
Bachelor of Ceramic Engineering
Bachelor of Chemical Engineering
Bachelor of Chemical Engineering (Cooperative Plan)
Bachelor of Civil Engineering
Bachelor of Civil Engineering (Cooperative Plan)
Bachelor of Electrical Engineering
Bachelor of Electrical Engineering (Cooperative Plan)
Bachelor of Mechanical Engineering
Bachelor of Mechanical Engineering (Cooperative Plan)
Bachelor of Science in Textiles
Bachelor of Science in Textiles (Cooperative Plan)
GENERAL REGULATIONS

Although the war emergency and the post-war adjustment have made necessary many changes in the college's general plan, there has been no change in its requirements for admission, and no fundamental change in the requirements for a Georgia Tech degree in a designated field of engineering. In other words, work submitted for credit must be checked against a series of requirements which are basic and which have not been altered.

Although the number of applicants who may be accepted will be limited by the physical capacity of the college, every effort will be made to permit men whose education has been interrupted by their service to their country to make up entrance deficiencies and to proceed as rapidly as possible with their education.

A Division of Emergency Training has been created to enable veterans to receive the maximum service from the Georgia School of Technology. Under its direction veterans who have been out of high school or college for a considerable time may take refresher courses.

Veterans who have not completed the equivalent of the fourth year in high school, may take high school courses in mathematics, physics, chemistry, and English in the Division of Emergency Training prior to entering the regular College Division. See page 168.

ENTRANCE REQUIREMENTS

The Georgia School of Technology offers courses in Aeronautical, Ceramic, Chemical, Civil, Electrical, General, Industrial, Mechanical, Public Health and Textile Engineering; Architecture; Chemistry; Physics; and Industrial Management.

An applicant may be admitted to the freshman class by certificate under the following conditions:

(1) He must have graduated from an accredited school with a record high enough to indicate that he is prepared for college work.

(2) He must meet the requirements in units as shown below.

(3) He must be at least sixteen years of age.

The institution reserves the right to reject or require further preparation or entrance examinations of any applicant whose record indicates that he is not adequately prepared for college work.

Those who have attended a college or other educational institution since graduation from preparatory or high school must present a record of such attendance with the credits received. See Admission with Advanced Standing.

SPECIFIED OR REQUIRED UNITS

It is very important that all of these be presented on entrance. A qualitative condition, if allowed, must be made up within one year.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Algebra</td>
<td>2</td>
</tr>
<tr>
<td>Plane Geometry</td>
<td>1</td>
</tr>
<tr>
<td>History</td>
<td>1</td>
</tr>
<tr>
<td>Physics</td>
<td>1</td>
</tr>
<tr>
<td>Optional Units</td>
<td>7</td>
</tr>
</tbody>
</table>
English .................................. 1
Sol. Geometry .......................... ½
Trigonometry .......................... ½
Adv. Arithmetic ......................... ½
His. and Civics ........................ 1 to 3
Economics ................................ ½ to 3
Latin or Greek .......................... 1 to 4
Ger., French or Span. .................... 2 to 4
Biology .................................. ½ to 1
Chemistry ................................ ½ to 1
Gen. Science ........................... ½ to 1
Physiography ........................... ½ to 1
Drawing .................................. ½ to 2
CommerCE ............................... 1 to 3
Shop Work ................................ ½ to 2
Agriculture ............................. 1 to 2
Military ................................ ½ to 1

Ordinarily not more than three units will be allowed from the group including drawing, commerce, agriculture, military and shop work.

Special attention is called to the required units in algebra, as a great many students are conditioned in this subject. To receive entrance credit for the second year in algebra the course must have included logarithms, ratio, proportion, variation, binomial theorem and progressions.

It is urged that students have a good working knowledge of all mathematics required for entrance. It frequently happens that members of the freshman class must turn back to review their foundation work in algebra. During the last half year of the high school course the prospective engineering freshman should be given a thorough review of simplifications, exponents, radicals and equations. Such a review will be of great value and may prevent discouragement and failure in college work.

ADMISSION BY EXAMINATION

An applicant with fifteen or more units or their equivalent who is not eligible for admission by certificate but whose general record is approved, may qualify for admission by passing qualifying examinations in English, advanced algebra, plane geometry, and physics, or by satisfactorily completing remedial and refresher courses in these subjects.

The number of applicants who are permitted to qualify for admission by entrance examination or by passing remedial courses will be subject to any limitations imposed by the capacity of the college.

Entrance examinations are normally held on the campus preceding the registration period in September. Applicants who have been granted permission to take entrance examinations may make special arrangements, if necessary, to take the examinations under the supervision of the principal at their local high schools.

GENERAL REGULATIONS

ADMISSION WITH ADVANCED STANDING

Applicants who have made satisfactory records in scholarship and in conducting at other colleges or in service schools may enter with advanced standing provided the subjects satisfactorily passed cover in time and content certain of the required subjects in the courses they expect to enter at Georgia School of Technology. No definite statement of advanced standing can be given until an official transcript of record is received from the proper authority or official.

1. Navy V-12 and Army STP. These courses are usually given on a college level and carry college credit. If such courses have been taken at any institution, the student should request the registrar of such institution to send an official transcript of his record to Georgia Tech. This will be appraised in terms of Georgia Tech courses, and credit will be granted for that work which is equivalent to those at this college in time and content and in which the grade is satisfactory.

2. The Armed Forces Institute. The Georgia School of Technology does not give courses by correspondence nor has it been its policy to grant credit for correspondence work except by examination. It is suggested that the entering student request the Armed Forces Institute to send a transcript of credit to Georgia Tech where a record will be maintained. It may be necessary for the student to take an examination in such subjects in order to apply credit toward a degree.

3. Other College Work. Certain work other than V-12 or ASTP done at other colleges is recognized by the institution which gives it as regular college work. If such work has been taken in an accredited institution, the student should request the registrar there to send a transcript to Georgia Tech. This will be appraised in terms of those at this college in time and content and in which the grade is satisfactory.

4. Training in Service. Any veteran, who believes that he has received training in fields which may be the equivalent of college work, may apply to the Armed Forces Institute for a form on which to file a request for a Report of Educational Achievement. When the report is filed at Georgia Tech, the Director of Admissions will determine what, if any, college credit can be granted. In addition, the veteran should file with the Registrar's Office an application for admission and request the high school or college last attended before entering the service to send an official statement of the record there. This will establish a basis for considering the applicant for admission to the Georgia School of Technology.

VETERANS' PROGRAM

The Congress has passed two bills and amendments which specifically affect college training of the discharged service man. One of these bills (Public Law 16) as amended, provides for the rehabilitation and training of disabled veterans. The subsistence allowance under this bill is $105 per month for a single man, $115 for a man with a dependent, plus $10 for the first child, $7 for each additional child, and $10 for a dependent parent. Veterans who seek the benefits of this bill must apply directly to the nearest Veterans Administration Office. The other bill (Public Law 346) as amended, is the so-called "G. I. Bill of Rights" which basically provides that any veteran who can meet certain requirements may receive a minimum of one year's training at government expense. In addition to paying the cost of tuition, books and supplies, the government will make a monthly allowance for subsistence of $65; if the veteran is married the allowance is $90. For veterans who have been in the service for
more than three months, the minimum training of one year may be extended by
as many months as the veteran has served, up to a maximum of 48 months of
training. Any veteran regardless of age who has served ninety days or more in
any branch of the services exclusive of the Army and the Navy College Training
Programs and who has received an honorable discharge is automatically eligible
for the school or college program.

Any veteran desiring to further his education under Veterans Benefits at the
Georgia School of Technology should complete the following separate and inde­
pendent forms promptly:

1. To Georgia Tech:
   a. An official transcript of his academic record at any other college or
      university he may have attended prior to entry upon active service.
   b. A certificate of record and recommendation (obtainable from the Geor­
ga Tech Registrar's Office) from his high school if he did not go to
      college.
   c. A formal application for admission to Georgia Tech (obtainable from
      the Registrar's Office.)
   d. A complete statement of academic and military training (see above
      section on “Admission with Advance Standing”) while in the military
      or naval service.
   e. If a former Georgia Tech student, the veteran should make application
      for re-admission by letter, stating therein whether he has any scholastic
      deficiencies to remove prior to return.

2. To Veterans Administration:
   a. An application under Public Law 346 (G. I. Bill of Rights) on Vet­
erans Administration Rehabilitation Form 1950, complete with photo­
static copies of separation papers. This should be taken to the local
      Veterans Administration Office.
   b. A marriage certificate in the case of a married veteran. This certifi­
cate may be obtained from the courthouse in the county where married.

The Veterans Administration will issue a Certificate of Eligibility and En­
titlement for benefits. This certificate should be brought with the veteran at the
time he registers at Georgia Tech and surrendered to the institution, at which
time it will be accepted in lieu of cash for tuition, academic fees, books and
school supplies. The subsistence of $65 or $90 per month will be paid directly
to the veteran by the Veterans Administration.

The Georgia School of Technology is assisting the incoming veteran in his
transition from the service to college. On the campus are a Veterans Guidance
Center, a Coordinator of Veterans Affairs, Division of Emergency Training (see
page 168) and administrative officials to counsel and aid the veteran student.

TUITION AND FEES

The rates for fees, board and room are subject to change at the end of any
quarter.

The Board of Regents of the University System of Georgia on August 14,
1946, authorized the following schedule of matriculation, tuition, student
activity, and other fees, effective with the opening of the 1946-1947 academic
session which begins September 30, 1946:

<table>
<thead>
<tr>
<th></th>
<th>Matriculation</th>
<th>Tuition Fee</th>
<th>Activity Fee</th>
<th>Medical Fee</th>
<th>Total Fee Per Quarter</th>
<th>Total Fee Per Academic Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents of Georgia</td>
<td>$46.50</td>
<td>$7.50</td>
<td>$3.50</td>
<td>$57.50</td>
<td>$172.50</td>
<td>$472.50</td>
</tr>
<tr>
<td>Non-Resident Cooperative Students</td>
<td>$46.50</td>
<td>$57.50</td>
<td>$3.50</td>
<td>$67.00</td>
<td>$197.50</td>
<td>$472.50</td>
</tr>
<tr>
<td>Non-Residents of Georgia</td>
<td>$46.50</td>
<td>$100.00</td>
<td>$3.50</td>
<td>$103.50</td>
<td>$333.00</td>
<td>$472.50</td>
</tr>
</tbody>
</table>

NOTE: (a) Matriculation, tuition, student activity and medical fees of vet­
erans enrolled under PL 16 and PL 346 are paid by the Veterans Adminis­
tration in accordance with the terms of those laws.
(b) An extra fee may be charged in special courses.

SUMMARY OF EXPENSES
( Estimated for Academic Year)

<table>
<thead>
<tr>
<th></th>
<th>Resident of Georgia</th>
<th>Non-Resident Cooperative Student</th>
<th>Non-Resident of Georgia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matriculation, tuition, and other fees</td>
<td>$172.50</td>
<td>$333.00</td>
<td>$472.50</td>
</tr>
<tr>
<td>Board, Room and Laundry</td>
<td>$500.00</td>
<td>$500.00</td>
<td>$500.00</td>
</tr>
<tr>
<td>Uniform (if required)</td>
<td>$35.00</td>
<td>$35.00</td>
<td>$35.00</td>
</tr>
<tr>
<td>Books and equipment</td>
<td>$70.00</td>
<td>$70.00</td>
<td>$70.00</td>
</tr>
<tr>
<td>Total for Academic Year</td>
<td>$777.50</td>
<td>$938.00</td>
<td>$1,077.50</td>
</tr>
</tbody>
</table>

OTHER FEES

Each member of the Senior Class must pay a diploma fee of $5.00 before
graduating.

Examinations at other than the regular examination times will be granted
in exceptional cases only and by Faculty action. A fee of $2.00 will be charged
in all such cases.

A fee of $2.00 will be charged to old students reporting late for registration
or late payment of fees without a valid excuse.

REFUND OF FEES

Refunds may be made only upon written application for withdrawal. If ap­
plication is filed within ten days after registration, all fees will be refunded ex­
cept $10 which constitutes a charge for registration and medical examination.
If application is filed after ten days and within four weeks, two-thirds of the quarter's fees will be refunded. No fees will be refunded after four weeks except for disabling illness properly certified by a reputable physician and except for induction into the military service under the selective service law—in these cases, an equitable prorated amount of the quarter's fees will be refunded, provided the student is not able to return to the school before the end of the quarter in which he withdraws.

PHYSICAL EXAMINATIONS

Each student upon registration and before attendance at any class is required to take a physical examination, which is given by a corps of specialists. Veterans who have been separated less than one year from the service will not be required to undergo a physical examination on entrance.

Each student is required to submit, to the examining physician, a certificate from his family doctor, stating that he has had satisfactory smallpox immunization within the past four years. All students are also urged to have typhoid-paratyphoid prophylaxis before entering school.

The examinations for new students will be held during the registration week preceding the opening of the quarter. Old students will take the examination annually.

An additional fee of $2.00 will be charged each student who fails to take his examination when scheduled. Medical certificate from elsewhere will not be accepted.

R.O.T.C.

All freshmen and sophomores, except aliens, veterans, and those physically unfit, are required to take military or naval training. The freshman military uniform is furnished at a cost of $35.00, which amount must be paid to the Treasurer by every new freshman or sophomore at the beginning of the fall term. Veterans may enroll for the advanced course with the approval of the War Department or Navy Department.

For details regarding the military R.O.T.C. see page 140, and the naval R.O.T.C., see page 146.

A student who is physically disqualified for military or who is not a citizen of the United States must present for graduation eight hours of extra credit for the two-year basic course in military training.

DORMITORIES

All single students in the freshman class who do not reside with their parents, near relatives, or bona fide guardians legally appointed, are required to live in the school dormitories for the entire school year. This applies also to transfers who are rated as freshmen. At present, the college has dormitory accommodations for about 1,000 students. In addition, the school authorities are now working out arrangements with the Federal Public Housing Authority to make surplus housing off the campus available to Georgia Tech students. Single upperclassmen may secure rooms in the dormitories, fraternities and approved roaming houses.

The college dormitories on the campus include Harris Dormitory, Julius Brown Memorial Hall, Clark Howell Dormitory, Cloudman Dormitory, Georgia W. Harrison Dormitory, and Techwood Dormitory. Starting September 1946, an additional 750 single students will be housed in dormitories at the Georgia Tech Naval Air Station Campus. There are now under construction three new dormitories which should be completed by September 1947.

Address all correspondence about dormitory accommodations and reservations to the Superintendent of Dormitories, Georgia Tech. A request for a dormitory reservation should be accompanied by a deposit of $45.00 which represents one quarter's rent and is subject to refund if the applicant does not enter. Since dormitory space is limited, early reservations for September are suggested.

Two students are assigned to each room. The student should bring from home a heavy blanket or comfort, a light blanket, bedspread, sheets, pillow, pillow cases, towels, and any other small portable objects needed in his room.

The college has no dormitory facilities for married students, but the office of the Dean of Students will assist married students in finding suitable quarters off the campus, probably at the Marietta Place Housing Project, Marietta, Ga., and at the Georgia Tech Lawson Apartments.

OTHER INFORMATION

Laundry: Laundry is handled by contract. The student receives a discount on his bill, which averages about $1.50 a week. All students in dormitories are required to send their laundry to the company holding the contract.

Dining Hall: Brittain Hall is a modern dining hall. Well-balanced meals are furnished at an approximate cost of $35.00 per month, cafeteria service. Coupon books may be purchased at a discount from the Treasurer’s office.

Reports: Reports of the standing of students are issued at the close of each term.

Examinations: Final examinations are held at the end of each quarter. Students may be dropped from the roll of their classes at any examination, when they do not meet the requirements, as well as at any time they neglect their studies and fall hopelessly behind their classes. No fees are refunded under such circumstances.

The General Assembly of Georgia requires each Senior to pass a satisfactory examination on the State and Federal Constitutions as a prerequisite for graduation. Instruction is given by lecture and otherwise in these subjects, and the required examination is given in March or April.

Beginning with the Class of 1945, all students are required to learn how to swim before graduation.

Marking or Grading System:

The following marking system is now in effect: A—Excellent; B—Good; C—Fair; D—Barely Passing; E—Conditioned; F—Failure. A mark of E will entitle the student to a re-examination at the next regular re-examination period if he is otherwise eligible to continue. However, a student having a mark of E in a first term subject will ordinarily repeat it if offered during the second term. A subject carrying a mark of F must be repeated.

A mark of D is passing in a single subject but a general average of approximately C is required for graduation.
CURRICULA

In the following pages there will be found in alphabetical order a tabulation of the work required for a degree in the courses offered by the Georgia School of Technology. The basic Freshman course given below is required in all the engineering courses except Architecture for which see page 54.

FRESHMAN YEAR

Uniform in all Engineering Courses

NOTE: Under Quarters, 3-3-4 means 3 hours class, 3 hours lab., 4 hours credit.

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Subject</th>
<th>1st Q.</th>
<th>2nd Q.</th>
<th>3rd Q.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem.</td>
<td>101-2-3</td>
<td>3-3-4</td>
<td>3-3-4</td>
<td>3-3-4</td>
</tr>
<tr>
<td>Draw.</td>
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<tr>
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<td>** Modern Language OR</td>
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*Industrial Management students take Draw. 106.

**Choice of M.L. 101-2-3, German; M.L. 107-8-9, French; or M.L. 113-14-15, Spanish.

DEPARTMENT OF AERONAUTICAL ENGINEERING

Daniel Guggenheim School of Aeronautics

Professor Donnell W. Dutton, Department Head; Associate Professors Alan Pope and G. K. Williams; Assistant Professors Lawrence V. Carlinson and John J. Harper; Instructor A. L. Ducotte; Assistant Instructors H. W. S. LaVier and M. F. Towsley; Shop Personnel William C. Slocum and Olin W. Rogers

GENERAL INFORMATION

The Department of Aeronautical Engineering, which is known as the Daniel Guggenheim School of Aeronautics, was established in 1930 through a gift of $300,000 from the Daniel Guggenheim Fund for the Promotion of Aeronautics. The purpose of this award was to establish opportunities at the Georgia School of Technology for study and research of the highest order in the field of aeronautics.

The recent progress in the field of jet propulsion and rocket powered flight and the advent of supersonic speeds make the course in aeronautical engineering especially significant. The nation is also faced with an unparalleled expansion in civil and commercial flying as a result of the rapid strides made by the aviation industry during the war.

The number of students accepted as candidates for the Aeronautical Engineering degree is limited. The selection will be made at the beginning of the Junior year.

Two alternatives are offered to qualified applicants.

1. A twelve-quarter curriculum leading to the degree of Bachelor of Aeronautical Engineering, so arranged as to enable the student to qualify in the design and manufacture and maintenance of aircraft, aeronautical accessories, and air transport equipment. It is usually possible for applicants who already possess the degree of Bachelor of or Bachelor of Science in Mechanical, General, Electrical or Civil Engineering to complete the additional work toward the degree of Bachelor of Aeronautical Engineering in one additional year if they so desire.

2. Students who have received the degree of Bachelor of or Bachelor of Science in Aeronautical, General, Mechanical, Electrical, or Civil Engineering may obtain the degree of Master of Science in Aeronautical Engineering by completing a course consisting of intermediate and graduate subjects plus a thesis, the curriculum in each case to be approved by the Committee on Graduate Courses.

This advanced work will prepare the student for research or teaching in aeronautics. Most candidates for this degree, and especially those who have not taken undergraduate courses in aeronautics, will find it necessary to spend more than one year in fulfilling the requirements. For information on graduate courses see page ... of this catalogue.

EQUIPMENT

The School of Aeronautics is well equipped for offering laboratory work to augment and lend interest to the theoretical courses. Most of this equipment is also suitable for research projects conducted by graduate students and members of the staff.

The School is housed in a large building designed especially for it. Among other things this building contains a nine foot wind tunnel, a two and a half
foot wind tunnel, an aircraft structural testing laboratory, an instrument laboratory, and a laboratory for the testing of high speed blowers. The School also has its own machine and woodworking shop in which all its models and special apparatus are constructed. A large drafting room is provided adjacent to which is a room containing structural exhibits for the use of design students. A comprehensive and completely indexed reference library on aeronautical subjects is also located in the building. In addition, the Mechanical Engineering Department possesses several large aeronautical engines and dynamometer equipment.

FRESHMAN YEAR
See Page 46

SOPHOMORE YEAR

NOTE: Under Quarters, 3-3-4 means 3 hours class, 3 hours lab., 4 hours credit.

<table>
<thead>
<tr>
<th>Course</th>
<th>No.</th>
<th>Subject</th>
<th>1st Q.</th>
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<th>3rd Q.</th>
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<td>G.E.</td>
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<td>5-5-6</td>
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<td>ROTC</td>
<td>201-2-3</td>
<td>Military or Naval Instruction</td>
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<td>Physical Training</td>
<td>0-4-1</td>
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<td>*A.E. 205 may be substituted.</td>
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Total: 13-21-20 13-21-20 13-18-20

JUNIOR YEAR

| A.E.   | 325-3-4 | Aerodynamics of the Airplane | 3-0-3  | 3-0-3  | 3-0-3  |
| Ch.E.  | 324-3  | Metallurgy | 5-0-3  | 5-0-3  | 5-0-3  |
| Eng.   | 323 | Technical Writing | 2-0-3  | 2-0-3  | 2-0-3  |
| E.E.   | 322-1 | D.C. and A. C. | 3-0-3  | 3-0-3  | 3-0-3  |
| Math.  | 311 | Differential Equations | 4-0-4  | 4-0-4  | 4-0-4  |
| M.E.   | 322-3 | Thermodynamics | 5-0-6* | 5-0-6* | 5-0-6* |
| Mech.  | 331-2-3 | Mechanics of Materials | 3-0-3  | 3-0-3  | 3-0-3  |
| Mech.  | 304 | Graphic Statics | 0-5-1  | 0-5-1  | 0-5-1  |
| Elective |   | Military or Economics | 3-0-3  | 3-0-3  | 3-0-3  |

Total: 21-0-6 18-0-21 20-3-21

*Not required of students having had M.E. 44 and M.E. 46

SENIOR YEAR

| A.E.   | 407-8 | Seminar | 1-0-1  | 1-0-1  | 1-0-1  |
| A.E.   | 431-2-3 | Theory of Aircraft Structures | 3-0-3  | 3-0-3  | 3-0-3  |
| A.E.   | 440-1-2 | Airplane Design | 0-9-3  | 0-9-3  | 0-9-3  |
| A.E.   | 442-3 | Dynamic Stability | 5-0-3  | 5-0-3  | 5-0-3  |
| A.E.   | 451 | Aircraft Materials | 3-0-3  | 3-0-3  | 3-0-3  |
| A.E.   | 452 | Wind Tunnel Laboratory | 1-8-2  | 1-8-2  | 1-8-2  |
| A.E.   | 447 | Airplane Detail Design | 0-5-1  | 0-5-1  | 0-5-1  |
| A.E.   | 436 | Aircraft Structures Laboratory | 1-3-2  | 1-3-2  | 1-3-2  |
| A.E.   | 472 | Aircraft Propulsion System | 3-3-4  | 3-3-4  | 3-3-4  |
| M.E.   | 438 | Aero. Engines | 6-0-4  | 6-0-4  | 6-0-4  |
| M.E.   | 454 | Aero. Eng. Lab. | 5-0-1  | 5-0-1  | 5-0-1  |
| Electives |   |   | 3-0-3  | 3-0-3  | 3-0-3  |

Total: 14-12-18 15-12-18 15-12-18

AERONAUTICAL ENGINEERING

Courses of Instruction

NOTE: 4-3-5 means 4 hours class, 3 hours laboratory, 5 hours credit.

A.E. 211. APPLIED AERONAUTICS I 3-0-3. Sophomore Year, to be scheduled.

Prerequisites: Physics 203, or concurrently, and Math. 102 or equivalent.

(Not open for credit to students in Aeronautical Engineering.) Elementary aerodynamics, including properties of air, forces on wings, drag, engine power, propellers, and levels of flight, climbing and gliding flight, elementary performance calculation, high lift devices, and weight and balance problems. Stresses on airplane structures; types of construction, airplane materials, maintenance and care of airplane.

Text: Lecture notes and Appropriate CAA Bulletins.

A.E. 202. APPLIED AERONAUTICS II 3-0-3. Sophomore Year, to be scheduled.

Prerequisites: Physics 203, or concurrently, and Math. 102 or equivalent.

(Not open for credit to students in Aeronautical Engineering.) Fundamental power plant requirements; engine nomenclature, elementary engine design and construction, installation; fuel and lubrication systems; carburetion, supercharging, starting, ignition systems, and powerplant operation and maintenance; propeller types and operation.

Text: Lecture notes and Appropriate CAA Bulletins.

A.E. 203. INTRODUCTION TO AERONAUTICAL ENGINEERING 1-3-2. Sophomore Year, Third Quarter.

Prerequisites: Physics 207, Math. 102, M.E. 201-202.

Lectures by members of staff on the equipment, instruments and tools used in Aeronautical Engineering. Conducted tours of A.E. Building facilities and local airline shops. Simple experiments in Departmental Laboratories.

Text: Lecture Notes.

A.E. 210. AIR NAVIGATION 3-0-3. Sophomore Year, to be scheduled.

Prerequisites: Physics 201 and Math. 102 or equivalent.

A study of the theory and problems of modern air navigation; position and time in relation to the earth's surface; projections and charts; navigation instruments; applied aerial navigation and radio; problems in applied air navigation including radius of action, off course, alternate airport, interceptor, moving base, radio fix, etc.; theory and use of navigation computers and plotting boards.

Text: Lecture notes and Appropriate CAA Bulletins.

A.E. 215. METEOROLOGY 3-0-3. Sophomore Year, to be scheduled.

Prerequisites: Physics 203, or concurrently, Math. 102 or equivalent.

Physical properties of the atmosphere; principles involved in the motion of the atmosphere, cyclones, anticyclones and storms, fronts and frontal analysis;
stability, air masses, clouds and map study, weather observations and basic
principals of weather forecasting.

Text: Lecture notes and Appropriate CAA Bulletins.

A.E. 322. AERODYNAMICS OF THE AIRPLANE I 3-0-3. Junior Year, First
Quarter.
Mr. Pope, Mr. Ducoffe

Applied aerodynamics including properties of the air, airfoil theory, Reyn-
olds Number, induced drag and downwash, aspect ratio corrections and auxi-
liary lift devices.

Text: Woods; Technical Aerodynamics.

A.E. 323. AERODYNAMICS OF THE AIRPLANE II 3-0-3. Junior Year, Second
Quarter.
Prerequisites: A.E. 322 and Mech. 301. Mr. Pope, Mr. Ducoffe

Airplane efficiency factor, static stability performance, horsepower required
and available, advanced performance, constant speed propellers and section
coefficients.

Text: Woods; Technical Aerodynamics.

A.E. 324. AERODYNAMICS OF THE AIRPLANE III 3-0-3. Junior Year, Third
Quarter.
Prerequisites: A.E. 323 and Mech. 302. Mr. Pope and Mr. Ducoffe

Boundary layer, effect of Reynolds Number on coefficients, ground effect,
landing and take-off runs, compressibility, terminal velocity, span-wise and
chord-wise loadings, maneuvers, gliding flight and aerodynamics of engine
cooling.

Text: Woods; Technical Aerodynamics.

A.E. 421. ADVANCED AERODYNAMICS 3-0-3. Senior and Graduate A.E., To
be scheduled.
Prerequisites: A.E. 324, Math. 301. Mr. Pope

A combination of theory and practice intended for those students expecting
to go into aerodynamics. It includes basic perfect fluid theory, basic compres-
sible flow, and design problems of the rudder, aileron and elevators.

Text: To be assigned.

A.E. 425. WIND TUNNEL LABORATORY 1-3-2. Senior Year, First Quarter.
Prerequisites: A.E. 324, may parallel A.E. 324. Mr. Ducoffe, Mr. Johnson

Experiments in the 2½ foot wind tunnel including; survey of the jet; static
stability; drag by the momentum method; pressure distribution over a wing, etc.

Text: Lecture Notes.

A.E. 427. ADVANCED WIND TUNNEL LABORATORY 1-3-2. Senior Year
and Graduate A.E., To be scheduled.
Prerequisites: A.E. 425, A.E. 453. Mr. Pope

More advanced experiments in the available wind tunnels.

Text: Lecture Notes.

A.E. 431. THEORY OF AIRCRAFT STRUCTURES I 3-0-3. Senior Year, First
Quarter.
Prerequisites: Mech. 303 and 333 and A.E. 323, Parallels A.E. 461.
Mr. Williams

Development of the basic theory of aircraft structural design and analysis,
covering plane stress and strain theory; riveted joints; loads, shears and mo-
mments in beams, wings and fuselages; tubes in shear, bending and torsion;
aircraft trusses and space frameworks; unsymmetrical bending and shear center.

Text: Timoshenko and MacCullough, Elements of Strength of Materials;
Niles and Newell, Airplane Structures, Vol I.

A.E. 432. THEORY OF AIRCRAFT STRUCTURES II 3-0-3. Senior Year, Second
Quarter.
Prerequisites: A.E. 431, Math. 301 and A.E. 461. Mr. Williams

Thin metal aircraft structural theory, theory of buckling, design stresses
and analysis of stressed skin aircraft, applications to design of fuselages, wing
structures, nacelles, empennages and other aircraft components.


A.E. 433. THEORY OF AIRCRAFT STRUCTURES III 3-0-3. Senior Year, Third
Quarter.
Prerequisites: A.E. 432. Mr. Williams

Slopes and deflections, continuous beams, virtual work, least work, Castig-
liano's Theorems, beam columns.

Text: Niles and Newell, Airplane Structures, Vol I and Vol II.

A.E. 436. AIRCRAFT STRUCTURAL LABORATORY 1-3-2. Senior Year, Third
Quarter.
Prerequisites: A.E. 432. Mr. Johnson, Mr. Williams

Testing of aircraft materials and structural elements to show agreement be-
tween theory and experiment and to acquaint the student with aircraft struc-
tural testing methods.

Text: Lecture Notes.

A.E. 439. ADVANCED AIRCRAFT STRUCTURES 3-0-3. Senior Year and Gradu-
ate A.E., Third Quarter.
Prerequisites: A.E. 432. Mr. Williams

Continuation of A.E. 432. Advanced shear web theory, shear webs with cut-
outs, torsion in single and multi-cell structures, and in open sections, stress dis-
tribution around cut-outs in fuselages, wings and nacelles, miscellaneous thin
metal structural problems.

Text: Niles and Newell, Airplane Structures, Vol II; Sechler and Dunn,
Airplane Analysis and Design.

A.E. 440. AIRPLANE DESIGN I 0-9-3. Senior Year, First Quarter.
Prerequisites: A.E. 323, Parallels A.E. 431. Mr. Dutton, Mr. Harper

Design of stressed skin type airplane in accordance with the U. S. Civil
Aeronautics Administration airworthiness requirements including a stress analy-
sis for several important loading conditions. Three view, weight and balance,
and structural loading report.


A.E. 441. AIRPLANE DESIGN II 0-9-3. Senior Year, Second Quarter.
Prerequisite: A.E. 440, Parallels A.E. 432. Mr. Dutton, Mr. Harper

Continuation of A.E. 440 to unit and critical loadings on fuselage, wing and
other parts of the structure.

A.E. 442. AIRPLANE DESIGN III 0-9-3. Senior Year, Third Quarter.
Prerequisites: A.E. 441, Parallels A.E. 433. Mr. Dutton, Mr. Harper
Continuation of A.E. 441 to a stress of the basic fuselage and wing components.

A.E. 447. AIRPLANE DETAIL DESIGN 0-3-1. Senior Year, Second Quarter.
Prerequisites: A.E. 432, A.E. 441. Mr. Harper
Aeronautical drafting practices; fitting analysis; study of forging and casting
design; sheet metal development; preparation of production drawings of
small fittings.
Text: Lecture Notes; Thompson's Drafting Room Manual.

A.E. 452. DYNAMICS OF THE AIRPLANE I 3-0-3. Senior Year, First Quarter.
Prerequisites: A.E. 324, Mech. 303 and 333, Math. 301.
Mr. Pope, Mr. Ducoff
Mathematical study of dynamic stability in power-off flight.
Text: Lecture Notes.

Prerequisites: A.E. 452. Mr. Pope, Mr. Ducoff
Power on flight and the application of power on and power off theories to
actual airplanes.
Text: Lecture Notes.

A.E. 455. APPLIED INSTRUMENTATION 2-3-3. Senior Year, To be scheduled.
Prerequisites: A.E. 323, Mech. 303, Math. 301. Staff
Application of all types of instruments to research work, including lectures
on their basic design and construction and laboratory practice in their use.
Text: Lecture Notes.

A.E. 461. AIRCRAFT STRUCTURAL MATERIALS 3-0-3. Senior Year, First Quarter.
Prerequisites. Ch.E. 326, Mech. 302. Mr. Williams
Study of properties and uses of aircraft materials with reference to Army-Navy
specifications including consideration of fatigue and corrosion limits.
Text: Wells, Manual of Aircraft Materials and Manufacturing Processes,
ANC-5 Bulletin.

A.E. 467-468. SEMINAR 1-0-1 Senior Year, First and Second Quarters.
Prerequisites: A.E. 324, Parallels A.E. 431. Staff
Scheduled meetings at which individual students present technical papers
on important current aeronautical developments, the reading of each paper
being followed by group discussion.
Text: None.

A.E. 472. AIRCRAFT PROPULSIVE SYSTEMS 3-3-4. Senior Year, Third Quarter.
Prerequisites: A.E. 324 and A.E. 431. Mr. Dutton, Mr. Pope
Study of the various theories used in propeller design, and of the structural
requirements of a propeller. Reference is made to the associated problems
of jet-engines, wind tunnel fans, and helicopter rotors.
Text: Lecture Notes.

DEPARTMENT OF ARCHITECTURE

Architecture, Construction, Industrial Design

Professor Harold Bush-Brown, Department Head; Professors J. H. Gailey
and P. M. Heffernan; Associate Professor James J. Pollard; Assis-
tant Professors E. A. Moulthrop and Julian H. Harris; Design
Critics R. L. Acke; Instructor Sam T. Hurst; Student As sis-
tants J. M. Hoffman, J. M. Boyd, J. E. Phillips, W. Connor
Thompson and F. S. Weeks

GENERAL INFORMATION

The Department of Architecture was established as a separate degree granting
course in 1908. In 1934 Architecture was made a five year course leading
to the degree of Bachelor of Architecture and at the same time a new four year
option in Architectural Engineering, Option 2, was offered. Since then (1945)
Option 2 has also been increased to five years.

Now four options are listed herewith coming under this Department.

The original objective and first aim of the Department is to prepare students
for the profession of architecture; this is served by Option 1, Architec-
tural Design. There is also the need for men who will specialize in structure
whose field of service may be in architecture or in the engineering phases of
contracting, for which Option 2, Architectural Engineering, is offered as prep-
paration. For those who wish to enter the new field of Industrial Design, dealing
with the products of industry, Option 3 has been inaugurated. A complete de-
scription does not appear in this catalogue as a full offering of courses must
serve the completion of a new architectural building, construction of which is
planned for the near future. The needs of the building industry, other than
those covered by the above options, are being further provided for by a new
Option 4, a course entitled The Light Construction Industry, dealing with or-
ganization, manufacture and marketing of building materials and finished
products.

All options lead to a B.S. Degree (without designation), at the end of four
years. For those taking Options 1 or 2, candidates for an architectural degree,
an additional year is required leading to the degree of Bachelor of Architecture.

* * * *

Except for Option 4, courses in design, including the prerequisites and paral-
lel courses in drawing, are of paramount importance and form the central core
of the curriculum. It is in these courses that the student is given an opportunity
to develop his creative as well as his analytical powers by finding solutions to
problems outlining the conditions and requirements of contemporary problems,
such as will be encountered later on in actual practice. This is what is known
as the problem method, instruction being generally in the form of guidance and
suggestion on the part of the instructor given individually to each student. The
solutions submitted in the form of drawings or models are judged, each one on
its merits, by a jury of teachers and practicing architects or designers.

Closely allied to design and, insofar as possible, integrated with it, are the courses in construction, which, in turn, are dependent on the basic prerequisites
mathematics, physics, and mechanics.

Other fields of professional or technical instruction include history, the
mechanical plant, (plumbing, heating, air conditioning, refrigeration, electrical), office and field practice, and in the case of Option 3 (I.D.), elementary
technological courses in Ceramics, Chemical Engineering, Textile, Industrial
Engineering, Mechanical Engineering, etc.

* * * *

The recently constituted National Architectural Accrediting Board has officially accredited the architectural course of the Georgia School of Technology
leading to the degree of Bachelor of Architecture.

*On Leave.
GEORGIA SCHOOL OF TECHNOLOGY

FRESHMAN YEAR
(Uniform for all four options)

NOTE: Under Quarters, 3-3-4 means 3 hours class, 3 hours lab., 4 hours credit.

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<th>Course</th>
<th>No.</th>
<th>Subject</th>
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<th>3rd Q.</th>
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<tr>
<td>Chem.</td>
<td>101</td>
<td>Chemistry</td>
<td>3-3-4</td>
<td>3-3-4</td>
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<td>101</td>
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<td>3-0-3</td>
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<td>Arch.</td>
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<td>Arch. Drawing: Introduction to</td>
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<td>Math.</td>
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<td>Algebra, Trigonometry, and Anal.</td>
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<td>Military or Naval Training</td>
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Total: 15-18-20

*NOTE: The student may select any two of Chem., M.L. or S.S. In case of M.L. selection, advanced M.L. is required.

SOPHOMORE YEAR

OPTION I AND II

<table>
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JUNIOR YEAR

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ARCHITECTURE

SENIOR YEAR

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FIFTH YEAR

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### GEORGIA SCHOOL OF TECHNOLOGY

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COURSES OF INSTRUCTION

NOTE: 4-3-5 means 4 hours class, 3 hours laboratory, 5 hours credit.

ARCH. 102. ARCHITECTURAL DRAWING (INTRODUCTION TO DESIGN) 0-6-2
Freshman Year, Second Quarter.
Prerequisites: Drawing 101, or concurrently. Mr. Gailey
An introductory study in drawing and in the principles of visual design.
Text: None.

ARCH. 103. ARCHITECTURAL DRAWING (INTRODUCTION TO DESIGN) 0-6-2
Freshman Year, Third Quarter.
Prerequisite: Arch. 102. Mr. Gailey
Continuation of Arch. 102.
Text: None.

ARCH. 201. ARCHITECTURAL DESIGN: INTRODUCTORY 1-0-1. Sophomore Year, First Quarter.
Prerequisite: None. Mr. Bush-Brown.
An introduction to design and structure. Lecture and assigned reading.
Text: Faulkner, Art Today.

ARCH. 202. ARCHITECTURAL DESIGN: ELEMENTARY 1-6-3. Sophomore Year, Second Quarter.
Prerequisite: Arch. 201 or concurrently. Mr. Heffernan.
Beginning theory of planning and circulation. Lecture with assigned plates and detail drawings.
Text: None.

ARCH. 203. ARCHITECTURAL DESIGN: ELEMENTARY 1-9-4. Sophomore Year, Third Quarter.
Prerequisite: Arch. 202. Mr. Heffernan.
Text: None.

ARCH. 301. ARCHITECTURAL DESIGN: RESIDENTIAL 1-12-5. Junior Year, First Quarter.
Prerequisite: Arch. 203. Mr. Aeck.
Problems dealing with general housing theory and residential planning, grouping and adaptation to specific topography.
Text: None.

ARCH. 302. ARCHITECTURAL DESIGN: RESIDENTIAL 1-12-5. Junior Year, Second Quarter.
Prerequisite: Arch. 301 (Except in Arch. Option No. 4)
A continuation of Arch. 301, with emphasis on construction models, working drawings and specifications.
Text: None.

ARCH. 303. ARCHITECTURAL DESIGN: INTERMEDIATE 1-12-5. Junior Year, Third Quarter.
Prerequisite: Arch. 302. Mr. Aeck.
Class B Design problems from varied architectural programs.
Text: None. Fee $5.00

ARCH. 310. FREEHAND DRAWING 0-3-1. Junior Year, First Quarter.
Prerequisite: Arch. 212. Mr. Harris.
Freehand drawing from compositions arranged by the students.
Text: None.

ARCH. 311. FREEHAND DRAWING 0-3-1. Junior Year, Second Quarter.
Prerequisite: Arch. 310. Mr. Harris.
Freehand drawing, continuation of 310.
Text: None.

ARCH. 312. FREEHAND DRAWING 0-3-1. Junior Year, Third Quarter.
Prerequisite: Arch. 311. Mr. Harris.
Continuation of Arch. 311.
Text: None.

ARCH. 322. CONSTRUCTION: BUILDING MATERIALS 2-0-2. Junior Year, First Quarter.
Prerequisite: None. Mr. Gailey.
This course is devoted to the study of the materials of construction, with attention given to the effect which the nature of materials has upon design, and the various ways of using materials in modern construction.
Text: Gay & Parker, Materials and Methods of Architectural Construction.

ARCH. 323. CONSTRUCTION: BUILDING MATERIALS 2-0-2. Junior Year, Second Quarter.
ARCHITECTURE

ARCH. 403. ARCHITECTURAL DESIGN: SPECIAL PROBLEM 1-15-6. Senior Year, Third Quarter.
Prerequisite: Arch. 402.
Solution of an advanced architectural program integrated with structural and working drawings and serving as a thesis for those who are candidates for the degree of Bachelor of Science.
Text: None.

ARCH. 408. WORKING DRAWINGS & STRUCTURAL DESIGN 1-15-6. Senior Year, Second Quarter.
Prerequisites: Arch. 401, Arch. 327. Mr. Pollard.
Design of structures in wood and masonry with study of method of preparation of working drawings and the completion of working drawings for a structure in wood and masonry.
Text: None.

ARCH. 409. WORKING DRAWINGS & STRUCTURAL DESIGN 1-18-7. Senior Year, Third Quarter.
Prerequisite: Arch. 425. Mr. Pollard.
Design of structures in steel with study of method of preparation of working drawings and the completion of working drawings for a structure in steel.
Text: None.

ARCH. 410. FREEHAND DRAWING 0-3-1. Senior Year, First Quarter.
Prerequisite: Arch. 312. Mr. Harris.
Freehand drawing from casts of heads and figures.
Text: None.

ARCH. 411. FREEHAND DRAWING 0-3-1. Senior Year, Second Quarter.
Prerequisite: Arch. 410. Mr. Harris.
Freehand Drawing, continuation of Arch. 410.
Text: None.

ARCH. 412. FREEHAND DRAWING 0-6-2. Senior Year, Third Quarter.
Prerequisite: Arch. 411. Mr. Heffernan.
Outdoor subjects in various media including pencil and water color.
Text: None.

ARCH. 413. WATER COLOR 0-3-1. Senior Year, First Quarter.
Prerequisite: Arch. 311. Mr. Gailey.
Water color drawings are made from nature, still life objects, and architectural details.
Text: None.

ARCH. 416. INTRODUCTION TO LANDSCAPE ARCHITECTURE 2-0-2. Elective.
Prerequisite: None. Mr. Heffernan.
A brief history of landscape architecture is followed by a study of principles of landscape design as applied to contemporary problems.
Text: None.

Prerequisites: Elective for Juniors and Seniors. Mr. Pollard.
Preparation of Material and labor quantity surveys from actual working drawings and specifications. Computing of bids and collection of cost data. 

**ARCH. 425. CONSTRUCTION: STEEL 3-0-3.** Senior Year, First Quarter. 
Prerequisites: Arch. 327, Mech. 333. Mr. Pollard.
Study of theory of steel structures with practical application of theory carried out in design of non-fireproof and fireproof steel building frames. 
Text: Hauf, *Design of Steel Buildings; AISC, Steel Construction*.

**ARCH. 426. CONSTRUCTION: STEEL 3-0-3.** Senior Year, Second Quarter. 
Prerequisites: Arch. 425. Mr. Pollard.
A continuation of Arch. 425 with particular reference to the design of statically indeterminate steel frames of a continuous nature. 

**ARCH. 430. HISTORY OF ART 2-0-2.** Elective. Mr. Harris.
This course of lectures, with the aid of lantern slides, consists of a survey of the more important manifestations of artistic expressions from primitive man to and including our own day. 
Text: *None*.

**ARCH. 431. HISTORY OF ARCHITECTURE 2-1-2.** Senior Year, First Quarter. 
Prerequisite: Arch. 333. Mr. Bush-Brown.
Continuation of Architecture 333, covering Medieval Architecture of Western Europe, Romanesque and Gothic. 
Text: *Hamlín, and Lecture Notes*.

**ARCH. 432. HISTORY OF ARCHITECTURE 2-1-2.** Senior Year, Second Quarter. 
Prerequisite: Arch 431. Mr. Bush-Brown.
Continuation of Architecture 431, covering Italian Renaissance. 
Text: *Hamlín, and Lecture Notes*.

**ARCH. 433. HISTORY OF ARCHITECTURE 2-1-2.** Senior Year, Third Quarter. 
Prerequisite: Arch 432. Mr. Bush-Brown.
Continuation of Architecture 432, covering European Renaissance and American Colonial. 
Text: *Hamlín, and Lecture Notes*.

**ARCH. 441. PROFESSIONAL PRACTICE 2-0-2.** Senior Year, Second Quarter. 
Prerequisite: None. Mr. Bush-Brown.
This course deals with professional ethics, office organization, competitions, contracts, and the customary procedure in architectural practice. 
Text: *AIA Handbook*.

**ARCH. 442. OFFICE PRACTICE: SPECIFICATIONS 3-0-3.** Senior Year, Third Quarter. 
Prerequisite: None. 
Principles and practice of the writing of specifications. 
ARCH. 514. FREEHAND LIFE DRAWING 0-6-2. Fifth Year, Second Quarter.  
Prerequisite: Arch. 513.  
Continuation of Arch. 513.  
Text: None.

ARCH. 522. CONSTRUCTION: STRUCTURAL DESIGN INTEGRATION 3-3-4. Fifth Year Elective.  
Mr. Pollard  
Prerequisites: Fifth Year Elective; Steel and Reinforced Concrete required.  
This course brings together the information obtained in the previous courses in structural design and presents the subject matter as an integrated whole.  
Text: Grinter, Elementary Structural Analysis and Design.

ARCH. 531. HISTORY OF ARCHITECTURE 2-1-2. Fifth Year, First Quarter.  
Prerequisite: Arch. 433.  
Mr. Bush-Brown.  
Continuation of Arch. 433, covering 19th Century American and Contemporary Architectural History.  
Text: Hamlin and Lecture Notes.

ARCH. 538. CITY AND COMMUNITY PLANNING 2-0-2. Fifth Year, Second Quarter.  
Prerequisite: None.  
Mr. Bush-Brown.  
This course consists of lectures and discussions dealing with the history of town and city planning in Europe and America, and includes study and reports on present day planning problems. Special attention is given to the needs of housing and urban communities.  
Text: None.

ARCH. 540-41. SPECIAL RESEARCH 0-6-2; 0-9-3; 1-9-4 Fifth Year Elective.  
Prerequisite: Fifth Year Elective.  
Mr. Heffernan or Mr. Moulthrop.  
A clearly stated program by the student describing in detail the nature, purpose and extent of the proposed problem must be submitted for approval. If this course is taken for credit, faculty approval must be obtained. The major portion of the work will be conducted in shop or photo dark room.  
Text: None.

ARCH. 542. OFFICE PRACTICE: SUPERVISION 2-0-2. Fifth Year, Second Quarter.  
Prerequisite: None.  
Mr. Pollard.  
This course includes information and guidance in job management and architectural supervision of construction.  
Text: None.

DEPARTMENT OF BIOLOGY AND PUBLIC HEALTH ENGINEERING

PROFESSOR HUGH A. WYCKOFF, Department Head; ASSOCIATE PROFESSOR GEO. W. REID; ASSISTANT PROFESSOR ALBERT E. CANNON; VISITING LECTURERS

JUSTIN ANDREWS, S.C.D., Director, Division of Malaria and Hookworm Service, State Dept. of Public Health.

ROY J. BOSTON, Public Health Engineer, Division of Preventable Diseases, State Dept. of Public Health.

L. M. CLARKSON, C.E., Director, Division of Public Health Engineering, State Dept. of Public Health.

N. V. HENDRICKS, Ch.E., Chemical Engineer, Industrial Hygiene Service, State Dept. of Public Health.

W. H. EDWARDS, Jr., Sanitary Engineer, Atlanta Dept. of Health.

GUY C. LUNSFORD, M.D., Director, Division of Local Health Organizations, State Dept. of Public Health.

PAUL WEIR, Superintendent of Water Purification, Atlanta Water Works.

D. M. WOLFE, M.E., Director, Division of Information and Statistics, State Dept. of Public Health.

The course in Public Health Engineering is arranged to meet the increasing demand for men who have knowledge of bacteriology and the principles of sanitation, public health, industrial hygiene, and public health administration, together with sound basic training in engineering. Men with such training should be of immediate value in such fields as the various public health agencies; consulting sanitary engineers organizations and other private engineering practice; manufacturing industries where water supply and stream pollution from industrial wastes are problems of the first magnitude; sales engineering positions representing manufacturers of equipment used in sanitary engineering structures; and other organizations having special problems in sanitation.

In conjunction with the course outlined below will be numerous inspection trips to water and sewage treatment plants, public health laboratories, industrial plants presenting problems in sanitation, and field trips to projects dealing with mosquito eradication, rat-proofing, etc.

Satisfactory completion of the course leads to the degree of Bachelor of Science in Public Health Engineering.

FRESHMAN YEAR

See Page 46

SOPHOMORE YEAR

NOTE: Under Quarters, 3-3-4 means 3 hours class, 3 hours lab., 4 hours credit.

<table>
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<tr>
<th>Course</th>
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GEORGIA SCHOOL OF TECHNOLOGY

JUNIOR YEAR

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SENIOR YEAR

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<td>Biol. 402</td>
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<td>Biol. 404</td>
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COURSES OF INSTRUCTION

BIOL. 201-202. INTRODUCTION TO ANIMAL BIOLOGY 3-4-4. Sophomore Year, First and Second Quarters.
Prerequisite: None.
Fundamental principles, theories and problems of biology, vital phenomena as exhibited in the lower animals, with the purpose of giving the students a broader and more accurate conception of those processes at work in the higher forms of life, including man himself. In the laboratory special study is made of representatives of the various invertebrate forms.
Text: Hegner, College Zoology.

BIOL. 203. VERTEBRATE ZOOLOGY 3-4-4. Sophomore Year, Third Quarter.
Prerequisites: Biology 201 and 202.
Mr. Cannon and Staff.
A continuation of Biol. 202, dealing specifically with the vertebrate animals. In the laboratory representatives of the Vertebrate Classes are studied, stressing comparative anatomy.
Text: Hegner, College Zoology; Walters, Biology of the Vertebrates.

BIOL. 306. HUMAN PHYSIOLOGY 4-0-4. Sophomore Year, Third Quarter.
Mr. Cannon and Staff.
To give the student definite information as to the structure and functioning of the human body, together with those conditions which may interfere with normal functioning.
Text: Crandall, Introduction to Human Physiology.

BIOL. 307. GENERAL BACTERIOLOGY 3-4-4. Junior Year, Every Quarter.
Prerequisite: None.
Mr. Wyckoff and Staff.
An elementary course to familiarize the student with the characteristics of bacteria and their relation to disease and sanitation, and the place they occupy in everyday life. The methods and practices used in the study of bacteria in the laboratory.
Text: Greaves, Elementary Bacteriology.

BIOL. 308. BACTERIOLOGY 4-4-5. Junior Year, Third Quarter.
Prerequisite: Biol. 202 (For P.H.E. majors). Mr. Wyckoff and Staff.
The principles of microbiology and the relation of micro-organisms to fermentation, putrefaction and disease; the principles of infection and immunity; the practice of bacteriological techniques.
Text: To be selected.

BIOL. 316. INDUSTRIAL HYGIENE 3-0-3. Junior Year.
Prerequisite: Biol. 307 (For I. M. Students). Mr. Reid and Staff.
Problems of health administration in industry: Industrial poisons, occupational hazards and diseases, industrial fatigue, ventilation, and accident prevention.
Text: References.

BIOL. 407. SANITARY BACTERIOLOGY 3-4-4. Senior Year, First Quarter.
Prerequisite: Biol. 309. Mr. Wyckoff and Staff.
The bacteriology of water, sewage, milk, and foods. Standard Methods of examination.
Text: Standard Methods of Examination of Water and Sewage, Standard Methods of Examination of Dairy Products, References.

BIOL. 411. SANITATION 3-0-3. Senior Year, Second Quarter.
Prerequisites: Biol. 307 or 309.
Mr. Wyckoff and Staff.
The principles of sanitation, water supplies, sewage and refuse disposal, milk and food sanitation, housing, swimming pools, and inspection methods.
Text: References.

BIOL. 414. SANITARY CHEMISTRY 3-4-4. Senior Year, Second Quarter.
Prerequisite: Chem. 203.
Chemical examination of water and sewage; the sanitary significance and practical applications.
**BIOL. 418.** **INDUSTRIAL HYGIENE** 3-3-4. Junior Year.  
Prerequisite: BIOL. 309 (For P.H.E. majors). Mr. Reid.  
Same as 311, with the addition of practice in inspection methods and laboratory techniques.  
Text: References.

**BIOL. 421.** **PUBLIC HEALTH ADMINISTRATION AND STATISTICS** 3-0-3. Senior Year, Third Quarter.  
Prerequisite: BIOL. 309. Staff.  
Text: To be selected.

**BIOL. 423.** **EPIDEMIOLOGY** 3-0-3. Senior Year.  
Prerequisite: BIOL. 309. Staff.  
Detailed consideration of the natural history of disease epidemics and their causation in relation to water and milk supplies, insects, and personal causative factors.  
Text: To be selected.

**BIOL. 424.** **PARASITOLOGY** 3-3-4. Senior Year, Third Quarter.  
Prerequisites: BIOL. 202, 309. Mr. Cannon and Staff.  
Survey of the parasites of man, consisting of three approximately equal parts; protozoology, helminthology, insects of medical importance. Special attention to the public health aspects of the subject.  
Text: Chandler, Parasitology.

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**DEPARTMENT OF CERAMIC ENGINEERING AND GEOLOGY**

PROFESSOR LANE MITCHELL, *Department Head*; ASSOCIATE PROFESSOR H. W. STRALEY, III; ASSISTANT PROFESSORS CHARLES F. WYSONG, W. CAREY HANSARD, AND JULIAN H. HARRIS

**GENERAL INFORMATION**

A four-year curriculum leads to the degree of Bachelor of Science in Ceramic Engineering. Graduate work leading to the Master of Science in Ceramic Engineering is also offered. A broad basic training is given in the fundamental and engineering courses, thus preparing the student to enter successfully any division of ceramic engineering. However, the necessary cultural courses are included. The classroom, laboratory and library work are coordinated to combine theoretical and practical knowledge. Periodic contacts with the clay-working industries of the State enlarge the practical viewpoint of the student.

The department is vitally concerned with future development of the ceramic industry in the South. Through research, the use of Georgia minerals has been extended so that almost every ceramic industry may find the greater proportion of its raw materials within the state boundaries. Demonstration of a stable market and the many industrial advantages of Georgia are encouraging the establishment of new industries. In this program the department is using its facilities to aid proper development.

The courses in Geology are designed to give the student a thorough grounding in the basic principles of Geology and Mineralogy and their application to the particular field of engineering the student is preparing to enter. The department has type collections for Mineralogy and Geology; a collection of building stones and ceramic clays; maps, charts and folios; and the usual Mineralogy laboratory equipment. Those students majoring in Ceramic Engineering and Civil Engineering are required to take Geology subjects. Students in other major curricula may elect Geology courses.

**FRESHMAN YEAR**  
See Page 46

**SOPHOMORE YEAR**

**NOTE:** Under Quarters, 2-3-3 means 2 hours class, 3 hours lab, 3 hours credit.

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<td>201</td>
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<td>Products and Materials</td>
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### JUNIOR YEAR

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### SENIOR ELECTIVES

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### COURSES OF INSTRUCTION

**NOTE:** 4-3-5 means 4 hours class, 3 hours laboratory, 5 hours credits.

**Cer. E. 201.** INTRODUCTION TO CERAMICS 2-3-3. Sophomore Year, First Quarter.
Prerequisite: None. Mr. Hansard or Mr. Harris.
History, theory and practice of color and design composition; their functional values in utilitarian ceramic products.
Text: *None.*

**Cer. E. 202.** PRODUCTS AND MATERIALS 2-3-3. Sophomore Year, Second Quarter.
Prerequisite: Chem. 103. Mr. Wysong or Mr. Mitchell.
An engineering survey of ceramics; relationship between industrial service requirements and the properties of ceramic products. The common ceramic materials are classified according to mineralogical character; their influence on each other and the effects of size, physical, and pyro-physical properties of particles are stressed.
Text: McNamara, *Ceramics II and III*.

**Cer. E. 203.** EQUIPMENT AND TESTS 2-3-3. Sophomore Year, Third Quarter.
Prerequisite: Chem. 103. Mr. Wysong
Testing of ceramic raw materials and products; requirements of proper test methods and practical applications to industry. Interpretation of results and writing of formal reports. Uses, operation, and calibration of machinery, apparatus, and equipment for ceramic manufacture or testing. Mathematical analysis of data; inherent errors.
Text: McNamara, *Ceramics II and III*.

**Cer. E. 301.** PROCESSING AND FORMING 4-3-5. Junior Year, First Quarter.
Prerequisite: Cer.E. 203. Mr. Wysong.
Winning, refining and preparation of ceramic raw materials, methods and mechanism of processing and forming ceramic products; their effects on the control of the properties of the products and adaptation to service requirements.
The relation of laboratory technique to plant practice including properties of materials, machines, processing and products. Commercial raw materials and products are provided and analyzed and, where practical, the corresponding plants are visited.
Text: McNamara, *Ceramics II and III*.

**Cer. E. 302.** BODIES 3-3-4. Junior Year, Second Quarter.
Prerequisite: Cer.E. 301. Mr. Mitchell.
The physical and chemical properties of earthy materials throughout common processes used in the production of ceramic wares. Control of phases of manufacture to introduce in the product those properties service conditions require. Principally concerned with whitewares, but terra cotta, heavy clay products and glass are included. Body, mold, and sagger composition and processing are studied in the laboratory.
Text: *Course Notes.*

**Cer. E. 303.** CALCULATIONS 3-0-3. Junior Year, Third Quarter.
Prerequisites: Cer.E. 302; Chem. 320. Mr. Mitchell.
Text: Andrews, *Ceramic Calculations, another to be prescribed.*

**Cer. E. 306.** ENAMELS 2-6-4. Junior Year, Third Quarter.
Prerequisite: Cer.E. 302.
Covers metallurgy and foundation materials, and the processing of the metal
and enamels for sheet iron and cast iron enamel ware. Past and current theory and practice are included.


Cer. E. 307. CERAMIC TECHNOLOGY 2-3-3.
Prerequisite: General elective for non-ceramic majors. Mr. Mitchell, Mr. Harris

A survey is made of the classification and physical properties of ceramic products. The physical properties of raw materials are studied briefly with emphasis on qualities and limitations which relate to design. In the laboratory actual experience is gained in producing ware by each of the usual methods.

Text: Course Notes by Mr. Mitchell.

Cer. E. 401. PSYCHROMETRY AND DRYING 4-0-4. Senior Year, First Quarter.
Prerequisites: Cer. E. 302; Physics 209.

Fundamental consideration of water removal from unfired ceramic products by heat and air. Control of humidity, temperatures, air velocity and volume; economy and efficiency of drying and driers; problems to be met in safe drying.

Text: Carrier, Fan Engineering; Greaves-Walker, Drying Ceramic Products.

Cer. E. 402. FUELS, FURNACES AND REFRactories 4-3-5. Senior Year, Second Quarter.
Prerequisites: Physics 209. Mr. Wysong.

Objectives of firing; combustion behavior of gaseous, liquid and solid fuels; the mechanics of heat transfer, physical and chemical properties of clay and other raw materials under heat treatment; design, operation and heat accounts of periodic and continuous kilns. The utilization of refractories in industry; the control of properties of refractories through raw materials and all phases of manufacture to best meet industrial requirements; fundamentals of aggregate packing and photo-elastic study of expansion and contraction.


Cer. E. 403. DESIGN AND CONSTRUCTION 1-6-3. Senior Year, Third Quarter.
Prerequisites: Cer. E. 401; Drawing 103. Mr. Harris, Mr. Hansard.

Design and working drawings of ceramic manufacturing equipment and plant layouts for specified products. The student makes his own selection under the supervision and with the approval of the instructor.

Text: Garve, Factory Design and Equipment.

Cer. E. 404. VITREOUS CERAMIC COATINGS 4-6-6. Senior Year, First Quarter.
Prerequisite: Cer. E. 303. Mr. Wysong, Mr. Hansard.

Phase relations of the important oxides and the properties of these oxides in siliceous melts are studied. The fundamental underlying methods of calculating, compounding, manufacturing and using silicate coatings on ceramic and metallurgical bodies are covered as well as the methods commonly employed to correct faults.

Text: To be selected.

Cer. E. 405. WHITERWATES LABORATORY 1-6-3. Senior Year, Second Quarter.
Prerequisite: Cer. E. 302. Mr. Hansard.

Fundamental laboratory studies to determine the control characteristics and properties of whitewares and slips by experiment and conclusions. Discussion of current ceramic and scientific literature and reports of investigation.

Text: Journal of American Ceramic Society.
GEOL 308. GENERAL GEOLOGY 3-3-4.
Prerequisite: Geol. 304.
Mr. Straley.
A course of recitations and lectures in Historical Geology with a laboratory.
Text: Schuchert and Dunbar, Textbook of Geology, Part II.

GEOL 311. ECONOMIC GEOGRAPHY 3-0-3. Elective.
Prerequisite: None.
Mr. Straley.
A course of lectures, elective for Juniors and Seniors.
Text: To be selected.

GEOL 312. ECONOMIC GEOLOGY 3-0-3. Elective.
Prerequisite: None.
Mr. Straley.
A Geographical and Economic study of all commercially valuable minerals and rocks.
Text: Tarr, Introductory Economic Geology.

GEOL 414. MINERALOGY 2-3-3.
Prerequisite: Geol. 301.
Mr. Straley.
A course in descriptive and determinative mineralogy which includes an introduction to crystallography, blow-piping, and the determination of important minerals and rocks by their chemical and physical properties.
Text: Rogers, A Study of Minerals and Rocks.

DEPARTMENT OF CHEMISTRY


GENERAL INFORMATION

Included in the Department are:
1. The courses in chemistry required in the various engineering curricula.
2. A curriculum leading to the degree of Bachelor of Science in Chemistry.
3. Graduate courses which may be used in meeting the requirements for the Master's Degree. (See page 164)

The number of students accepted as candidates for the degree in chemistry is limited. A selection will be made at the beginning of both the Sophomore and the Junior years.

The degree, Bachelor of Science in Chemistry, will be awarded upon the completion of the following prescribed courses and 51 quarter hours of elective work chosen from approved courses in conference with the head of the Department. No elective course will be given for less than six applicants. A student must have had the prerequisites for any course he elects.

FRESHMAN YEAR

See Page 46. Chemical German must be selected.

SOPHOMORE YEAR

NOTE: Under Quarters, 2-6-4 means 2 hours class, 6 hours lab., 4 hours credit.

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### COURSES OF INSTRUCTION

**NOTE:** 4-3-5 means 4 hours class, 3 hours laboratory, 5 hours credit.

**CHEM. O.**  **GENERAL CHEMISTRY**, No college credit allowed. Freshman Year, First Quarter.

Prerequisite: None.  
Mr. W. S. Taylor and Staff.  
Students unprepared to take the Freshman Chemistry course may be placed in Chem. O.


**CHEM. 101, 102, 103.**  **GENERAL CHEMISTRY 3-3-4.** Freshman Year, First, Second, and Third Quarter.

Prerequisite: Entrance requirements.  
Dr. Taylor and Staff.

A lecture and laboratory study of the fundamental laws and theories of Chemistry with abundant descriptive matter included to illustrate them. Quantitative relations are stressed in the solution of problems.


**CHEM. 201, 202, 203.**  **ANALYTICAL CHEMISTRY 2-6-4.** Sophomore Year, First, Second, and Third Quarter.

Prerequisites: Chem. 103 with a minimum grade of C, and Math. 102 .  
Mr. Daniel, Mr. Wells.

A classroom and laboratory study of the laws, theories, and reactions of analytical chemistry and practice work in inorganic reactions and the identifications of positive and negative ions. The quantitative determinations will be selected to illustrate typical analytical procedures.

Text: Mahin, *Quantitative Analysis.*

**CHEM. 310, 311, 312.**  **ORGANIC CHEMISTRY 3-6-5.** Sophomore Year, First, Second, and Third Quarter.

Prerequisite: Chem. 103.  
Mr. Wroth and Mr. Calaway

The principal classes of organic compounds, aliphatic and aromatic, are studied. The laboratory work includes the preparation of typical compounds and the study of their properties.


**CHEM. 204.**  **ELEMENTARY QUALITATIVE ANALYSIS 2-6-4.** Sophomore Year, First, Second, and Third Quarters.

Prerequisite: Chem. 103.  
Mr. Edwards.

The lectures deal with the fundamental laws and theories of analytical chemistry. The practice work includes the identification of the common positive and negative ions.


**CHEM. 307, 308, 309.**  **ORGANIC CHEMISTRY 3-3-4.** Junior Year, First, Second, and Third Quarters.

Prerequisite: Chem. 103.  
Mr. Calaway

A study of the various classes of organic compounds. The laboratory work
is similar to Chem. 310, Chem. 311, Chem. 312 but not as extended.

Text: Wertheim, Textbook of Organic Chemistry,
Adkins, McElvain, and Klein, Practice of Organic Chemistry.
Curtman, Qualitative Analysis; Hamilton and Simpson, Calculation of Quantitative Chemical Analysis.

CHEM. 319, 320, 321. PHYSICAL CHEMISTRY 3-3-4, 3-6-5, 3-6-5. Senior Year, First, Second and Third Quarters.
Prerequisites: Chem. 203; Phys. 209, Math. 203.
Mr. Spicer and Mr. Eberhardt.
Courses in theoretical chemistry similar to Chem. 328, 329, and 330, but not as comprehensive, and with some stress on engineering applications. A laboratory course illustrating the principles studied accompanies the lectures.
Text: Getman and Daniels, Outlines of Physical Chemistry.

CHEM. 322, 323, 324. PHYSICAL CHEMISTRY 4-0-4, 4-0-4, 3-0-3. Senior Year, First, Second, and Third Quarters.
Prerequisites: Chem. 203, Phys. 209, Math. 203.
Mr. Spicer and Mr. Eberhardt.
These courses consist of the lectures only of Chem. 328, 329, and 330.
Text: Getman and Daniels, Outlines of Physical Chemistry.

CHEM. 325, 326, 327. PHYSICAL CHEMISTRY 3-3-4. Junior Year, First, Second, and Third Quarters.
Prerequisites: Math. 203, Chem. 203, Phys. 209.
Mr. Spicer and Mr. Eberhardt.
Lectures of Chem. 319, 320, 321, but less laboratory work.
Text: Getman and Daniels, Outline of Theoretical Chemistry.

CHEM. 328, 329, 330. PHYSICAL CHEMISTRY 4-3-5, 4-6-6, 3-6-5. Senior Year, First, Second, and Third Quarters.
Prerequisites: Chem. 203, Phys. 209, Math. 203.
Mr. Spicer and Mr. Eberhardt.
Physico-chemical properties of matter in the gaseous, liquid, solid, and colloidal states; equilibrium, kinetics, and thermodynamics of chemical reactions; electrochemistry. A laboratory course illustrating the principles studied accompanying the lectures.
Text: Getman and Daniels, Outlines of Physical Chemistry.

CHEM. 401. TECHNICAL ANALYSIS 2-12-6. Senior Year, First Quarter.
Prerequisite: Chem. 203. Mr. Wells.
Test and analysis of commercial products and methods used in the control of plant operations will be studied in class and laboratory.
Text: Mahin, Quantitative Analysis.

CHEM. 402. INSTRUMENTAL METHODS OF ANALYSIS 0-12-4. Senior Year, Any Quarter.
Prerequisite: Chem. 330. Mr. Edwards, Mr. Spicer and Mr. Whitley.
The course treats both the theory and practice of modern instrumental methods; spectroscopy, polarography, colorimetry, microscopy, electrometric, titration, polarimetry, refractometry, measurement of Hydrogen Ion concentration.
Text: Beneditti-Pichler, Microtechnique of Inorganic Analysis, References, Brode, Chemical Spectroscopy.

Prerequisites: Chem. 203, Chem. 312. Mr. Calaway.
The methods of identification of compounds and characteristic groups are studied.

CHEM. 419. COLLOID CHEMISTRY 3-6-5. Senior Year, Any Quarter.
Prerequisite: Chem. 330. Mr. Whitley and Mr. Spicer.
Lectures, recitation, and laboratory work on the preparation, properties, and practical applications of colloidal substances.
Text: To be selected.

CHEM. 431. INORGANIC PREPARATIONS 0-12-4. Senior Year, Any Quarter.
Prerequisite: Chem. 330. Mr. Edwards.
This course is designed to acquaint the student with the apparatus and techniques used in the preparation of pure inorganic compounds.
Text: To be selected.

CHEM. 434, 435, 436. ADVANCED INORGANIC CHEMISTRY 3-0-3. Senior Year, First, Second, and Third Quarters.
Prerequisite: Chem. 330. Mr. Edwards and Mr. Whitley.
The chemical reactions of atoms and ions; the periodic law; the electronic theory of valence; history of chemistry.
Text: Briscoe, Structure and Properties of Matter,
Caven and Lander, Systematic Inorganic Chemistry.

CHEM. 437, 438, 439. SPECIAL PROBLEMS 0-6-2. Senior Year, Any Quarter.
Prerequisites: Chem. 203, Chem. 312. Staff.
The instruction will be individual and will include library, conference, and laboratory work. The time and fees will vary with the problem studied.
Text: None.

CHEM. 440. FOOD CHEMISTRY 2-6-4. Senior Year, Any Quarter.
Prerequisites: Chem. 203, Chem. 312. Mr. Wells.
A study of the chemistry of plants, animals, foods, nutrition, and the processing and use of foods for man.
Text: Sherman, Chemistry of Food and Nutrition.

CHEM. 441. INDUSTRIAL CHEMISTRY 4-0-4. Senior Year, Second Quarter.
Prerequisite: Chem. 312. Mr. Weber.
The Chemistry of the Process Industries is studied, as well as the orientation of the chemist in industry.
Text: Riegel, Industrial Chemistry.
DEPARTMENT OF CHEMICAL ENGINEERING

PROFESSOR J. W. MASON, Department Head; PROFESSOR PAUL WEBER; ASSOCIATE PROFESSOR FREDERICK BELLINGER AND W. T. ZIEGLER; ASSISTANT PROFESSORS R. N. MILLER AND H. V. GRUBB; STUDENT ASSISTANT J. F. KINNEY.

GENERAL INFORMATION

The degree, Bachelor of Chemical Engineering, may be obtained upon the completion of the following curriculum. The number of students who will be permitted to register for the Junior and Senior work in Chemical Engineering will be strictly limited. The selection will be made on the basis of the student's ability as demonstrated in two years of previous work.

FRESHMAN YEAR

See Page 46. Chemical German must be selected.

SOPHOMORE YEAR

NOTE: Under Quarters, 3-6-4 means 2 hours class, 6 hours lab., 4 hours credit.

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JUNIOR YEAR

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SENIOR YEAR

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<td>Unit Operations</td>
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<td>Ch.E.</td>
<td>425-3</td>
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<td>M.E.</td>
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CHEMICAL ENGINEERING

COURSES OF INSTRUCTION

CH.E. 301. GAS AND FUELS, INDUSTRIAL STOICHIOMETRY 3-3-4. Junior Year, First Quarter.
Prerequisite: Chem. 203. Mr. Weber.
A study of the utilization of fuels, their evaluation, analysis, calorific value, as well as the examination of petroleum products and boiler water. Heat and materials balances are introduced, and combustion process heat balances are interpreted.

CH.E. 314. UNIT OPERATIONS 3-3-4. Junior Year, Second Quarter.
Prerequisites: Mech. 301, Chem. 203, Ch.E. 301. Mr. Grubb and Mr. Miller.
The types of equipment used for the Unit Operations of Chemical Engineering are discussed, the fundamental theory developed, and numerous problems solved in this connection. Problems are also given which involve the specification of equipment after consideration of the economic factors involved. The laboratory work follows the class work in actual performance tests of equipment. First quarter covers heat and fluid flow.
Text: Badger and McCabe, Elements of Chemical Engineering.

CH.E. 315. UNIT OPERATIONS 3-3-4. Junior Year, Third Quarter.
Prerequisite: Ch.E. 314. Mr. Grubb and Mr. Miller.
Continuation of Ch.E. 314. Evaporation, filtration, crushing and grinding, size separation, and introduction to diffusional processes.
Text: Badger and McCabe, Elements of Chemical Engineering.

CH.E. 325. METALLURGY 3-0-3. Junior Year, First and Second Quarters.
Prerequisites: Chem. 103 and Physics 207. Mr. Miller.
A study of the fundamental principles of ferrous metallurgy and metallography, and the heat treatment of steels, alloy steels, and cast iron, which furnishes the theory for a subsequent course in heat treatment. Ferrous production metallurgy and the more important non-ferrous alloys are included.
Text: Coonan, Principles of Physical Metallurgy.

CH.E. 326. METALLURGY 2-3-3. Junior Year, Second Quarter.
Prerequisite: Ch.E. 325. Mr. Grubb.
A continuation of Ch.E. 325. Laboratory work covering the classroom work of Ch.E. 325 and 326.
Text: Williams and Homerberg, Principles of Metallography.

CH.E. 328. CHEMISTRY OF ENGINEERING MATERIAL 3-0-3. Junior Year, First Quarter.
Prerequisite: Chem. 103. Mr. Miller.
A survey of materials of construction with emphasis on non-metallics. The fundamental properties of plastics, and all types of surface coatings are studied.

CH.E. 339. CHEMICAL ENGINEERING LITERATURE 1-0-1. Junior Year, Third Quarter.
Prerequisites: Ch.E. 301, Chem. 203. Mr. Weber and Mr. Well.
This course has as its objective the training of students in the use of the
sources of information and an introduction to the finding of information in the library.


**CHE.M. 407-8-9. CHEMICAL TECHNOLOGY 3-0-3.** Senior Year, First, Second, and Third Quarter.
Prerequisites: Ch.E. 315 and Chem. 312. Mr. Weber and Mr. Bellinger.
The chemical and chemical engineering principles which underlie the process industries are studied. Economic factors which have a bearing are included.


**CHE.M. 413. UNIT OPERATION 3-3-4.** Senior Year, First Quarter.
Prerequisite: Ch.E. 315. Mr. Bellinger and Mr. Grubb.
Continuation of Ch.E. 314-315. Diffusional processes are completed.

Text: Badger and McCabe, *Elements of Chemical Engineering*.

**CH.E. 419-20-21. CHEMICAL ENGINEERING CALCULATIONS 3-0-3.**
Prerequisites: Chem. 321, Ch.E. 315. Mr. Mason and Mr. Bellinger.
The application of chemical principles and thermodynamic methods to the problems of industry.


**CH.E. 425. ENGINEERING MATERIALS 3-0-3.** Senior Year, First Quarter.
Prerequisite: Chem. 321. Mr. Grubb.
An introduction to the properties, preparation, and treatment of materials used in chemical plant equipment. Physical Metallurgy, heat treatment and corrosion are included in the classwork.


**CH.E. 426. ENGINEERING MATERIALS 3-3-4.** Senior Year, First Quarter.
Prerequisite: Ch.E. 425. Mr. Grubb.
A continuation of Ch.E. 425 with the addition of laboratory work.


**CH.E. 432-433. DESIGN OF CHEMICAL MACHINERY AND APPARATUS 0-6-2.**
Senior Year, Second and Third Quarters.
Prerequisites: Ch.E. 413, Mech. 332. Mr. Bellinger.
Plant layouts, equipment and production cost estimates are made by the student. Special equipment for a specific purpose is calculated and sketched by each student as a basis for a machine drawing.

Text: *Trade Literature and Chemical Engineering Library*.

**CH.E. 443-444-445. SPECIAL PROBLEMS 0-3-1.** Senior Year, First, Second, and Third Quarters.
Prerequisite: Ch.E. 314.
The student is given an opportunity to develop initiative and to apply fundamental principles by doing semi-original laboratory investigation of a chemical engineering research nature.

Text: *None*.
DEPARTMENT OF CIVIL ENGINEERING

Professor T. H. Evans, Department Head; Professor J. M. Smith; Associate Professors R. P. Black, C. E. Kinds vessel, J. H. Lucas and G. W. Reed; Assistant Professors R. T. Jennings and K. M. Thrash

Civil Engineering is the oldest of the engineering professions. The civil engineer works in the broad fields of surveying and mapping, sanitation, transportation, hydraulics, structures, mining, irrigation and reclamation.

It is the civil engineer who designs and builds highways, railways, airports, structures of all types and sizes, dams, sewerage and water supply systems, harbors, bridges, docks, tunnels, aqueducts, reclamation systems for swamps and wastelands, river system developments, irrigation projects.

The civil engineer is the master builder of the professions. Boulder and Grand Coulee Dams, the Panama Canal, the Empire State Building, the Tennessee Valley development, the George Washington and Golden Gate Bridges, the Southern California and New York City Aqueducts, the world's great airports, the artificial invasion harbors used on D-Day, and the vast world-wide war mapping projects are only a few of the more spectacular works of the civil engineer.

There are three functional phases of the profession in which a man may work. These involve planning and design, construction, operation and management. In school the civil engineer is trained broadly as an engineer, with emphasis on the basic foundations of civil engineering. As an undergraduate of Georgia Tech the student will be trained thoroughly in the physical sciences of physics, mathematics, and chemistry, the basic engineering sciences of mechanics, hydraulics, and thermodynamics, and the basic technical subjects indicated in the curriculum below. He is also trained to be adept in reading, writing, and speaking the English language, to have an appreciation of economic and social problems and their solution, and to be a good citizen of a world largely developed by engineers and scientists. An attempt is made in the curriculum outlined below to train the civil engineering student broadly enough that he can fit well into any engineering niche in which he later finds himself.

For those who do not elect advanced ROTC in the junior and senior years, there will be the opportunity of taking six subjects from among the electives which are shown following the curriculum schedule.

Each civil engineering student is expected to provide himself with a slide rule and a set of drawing instruments.

Satisfactory completion of the curriculum leads to the degree of Bachelor of Civil Engineering.

FRESHMAN YEAR

See Page 46

SOPHOMORE YEAR

NOTE: Under Quarters, 2-6-4 means 2 hours class, 6 hours lab., 4 hours credit.

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CIVIL ENGINEERING

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<tr>
<td>Electives</td>
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<td>18-6-20</td>
<td>19-6-20</td>
<td>16-12-20</td>
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</table>

*Not required of men who have had BioI. 38.

SENIOR YEAR

<table>
<thead>
<tr>
<th>Course No.</th>
<th>Subject</th>
<th>1st Q.</th>
<th>2nd Q.</th>
<th>3rd Q.</th>
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<tr>
<td>CE. 401-2</td>
<td>Reinforced Concrete</td>
<td>2-6-4</td>
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<tr>
<td>CE. 404-6</td>
<td>Steel and Tim. Design</td>
<td>2-6-4</td>
<td></td>
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<tr>
<td>CE. 417</td>
<td>Water Supply</td>
<td>2-6-4</td>
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<td>CE. 418</td>
<td>Sewerage</td>
<td>2-6-4</td>
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<tr>
<td>CE. 421</td>
<td>Hydraulic and Sanitary Design</td>
<td>1-3-2</td>
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<td>C.E. 425</td>
<td>Highway Engineering</td>
<td>2-6-4</td>
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<tr>
<td>C.E. 427</td>
<td>Contracts and Specifications</td>
<td>2-6-4</td>
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<tr>
<td>C.E. 434-5-6</td>
<td>Seminar</td>
<td>1-0-1</td>
<td>1-0-1</td>
<td>1-0-1</td>
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<td>Ee. 204</td>
<td>Economics for Engineering</td>
<td>4-0-4</td>
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<tr>
<td>E.E. 519-321</td>
<td>Applied Electricity</td>
<td>5-3-3</td>
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<td>**T. H. 403</td>
<td>Personnel Administration</td>
<td>5-3-3</td>
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<tr>
<td>M.E. 564</td>
<td>Heat Power Laboratory</td>
<td>4-0-4</td>
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*Not required for men who have had C.E. 159.
**Not required for men who have had C.E. 164.

ELECTIVES

GROUP A—Three from this group.

<table>
<thead>
<tr>
<th>Course No.</th>
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<td>City Planning</td>
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<tr>
<td>C.E. 426</td>
<td>Highway Economics</td>
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<td>Biol. 501</td>
<td>General Bacteriology</td>
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<td>Ch.E. 567</td>
<td>Metallurgy</td>
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<td>Ch.E. 568</td>
<td>Metallurgy</td>
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<td>Mech. 551</td>
<td>Advanced Strength of Materials</td>
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<td>Chem. 201</td>
<td>Qualitative Analysis</td>
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<td>6</td>
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<td>Chem. 208</td>
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GROUP B—Three from this group.

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<tr>
<td>Ec.</td>
<td>496</td>
<td>Business Law for Engineers</td>
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<td>Ec.</td>
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<td>Finance for Engineers</td>
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<td>Technology and Society</td>
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<td>S.S.</td>
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<td>Ec.</td>
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<td>Accounting for Engineers</td>
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<td>S.S.</td>
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<td>Contemporary History of the U. S.</td>
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<tr>
<td>I.M.</td>
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<td>Labor Problems</td>
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<td>I.M.</td>
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<td>Personnel Management</td>
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<td>Industrial Management</td>
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COURSES OF INSTRUCTION

NOTE: 4-3-5 means 4 hours class, 3 hours laboratory, 5 hours credit.

C.E. 201. PLANE SURVEYING 2-6-4. Sophomore Year, First Quarter.

Prerequisites: Math. 101, 102. Mr. Thrash.


For the final project a complete topographic survey is made for a small area and the notes plotted. A finished map is required of each student.

Text: Davis and Kelley, Short Course in Surveying.

C.E. 202. ROUTE SURVEYING 2-6-4. Sophomore Year, Second Quarter.

Prerequisite: C.E. 201. Mr. Black.

Reconnaissance, preliminary, location and construction surveys for routes of all kinds, including simple compound and reverse curves, spirals and case- ment curves as used on railroads and highways. Super-elevation of curves. Computations of earthwork. Construction of quantity, haul and mass diagrams.

For a final project a complete railroad or highway location must be made and drawings of plan and profile submitted.

Text: Ruby, Route Surveying.

C.E. 204. PLANE SURVEYING 1-3-2. Sophomore Year, All Quarters.

Prerequisites: Math. 101, 102. Mr. Thrash and Mr. Jennings.

Theory and practice in chaining, differential and profile leveling, traversing, topographic surveying, reduction and plotting of field notes, and mapping. A course for students not taking Civil Engineering.

Text: Davis and Kelley, Short Course in Surveying.

C.E. 303. ADVANCED SURVEYING 2-6-4. Junior Year, Third Quarter.

Prerequisites: C.E. 201, 202. Mr. Black.

Theory, description and use of advanced surveying instruments and methods. The practice and use of the state and local co-ordinate systems for cadastral surveys and construction work. The field work required for design and construction of engineering projects. The use of the plane table and methods of topographic surveys. The description of geodetic surveys with their applications to triangulation and precise leveling.

The description of aerial surveying and mapping. Use of instruments and computations on astronomical observations for geographic co-ordinates. The theory, description, and purposes of the many types of maps, plans, and profiles used by engineers.

Text: Raynor, Advanced Surveying.

C.E. 304. CIVIL ENGINEERING DRAWING 0-3-1. Mr. Lucas.

Prerequisite: Draw. 103.

Mapping, profile plotting, topography, plotting from field notes, reinforced concrete, isometric drawing, titles and map lettering.

Text: French, Engineering Drawing (Reference only).

C.E. 306. STRUCTURAL ANALYSIS 3-3-4. Junior Year, Third Quarter.

Prerequisites: Mech. 301, 302, 303, 331, 332. Mr. Evans.

A course covering the analytical and graphical determination of stresses and deflections in framed structures for both fixed and moving loads. A few cases of simple indeterminate structures are taken up to illustrate the use of the methods of work, moment distribution, column analogy, and slope deflection. The laboratory period is used as a supervised problem period to teach the application of theory taken up in class.

Text: Sutherland and Bowman, Structural Theory.

C.E. 307. ENGINEERING MATERIALS 3-0-3. Junior Year, First Quarter.

Prerequisite: None. Mr. Lucas.

A course designed to familiarize the student with the physical properties of the materials generally used in the manufacture of machines and the erection of structures, together with brief descriptions of their manufacture and fabrication. This includes the source, production, properties and uses of these materials.

Text: Moore, Materials of Engineering.


Prerequisites: Phys. 207, 208, 209; Math. 202; Mech. 301, 302, 331. Mr. Kindsvater.

Elements of fluid mechanics. Physical properties of fluids, hydrostatics, kinematics, flow of ideal and real fluids in open and enclosed conduits.

Text: To be selected.

C.E. 318. HYDRAULICS 2-3-3. Junior Year, Third Quarter.

Prerequisite: C.E. 317. Mr. Kindsvater.

Lecture: Continuation of C.E. 317, including principles of hydraulic machinery. Laboratory: Study and demonstration of fundamental principles of fluid mechanics, laboratory devices and technique, hydraulic machinery.

Text: To be selected.

C.E. 319. HYDRAULICS 2-0-2. Junior Year, Third Quarter.

Prerequisite: C.E. 317. Mr. Kindsvater.

Lectures of C.E. 318 without laboratory.

Text: To be selected.
Prerequisite: None. Mr. Smith.
An introduction to the problem of economic selection of machines and structures. Interest, annuities, depreciation, sinking funds, salvage value, repairs, renewals, annual costs, capitalized costs, bonds and valuations.
Text: Grant, Engineering Economics.

C.E. 401. Reinforced Concrete 3-3-4. Senior Year, First Quarter.
Prerequisite: C.E. 306. Mr. Smith.
Properties of concrete and reinforcing steel, stresses in beams, transformed section, bond, shear and web reinforcement. Continuous beams, design of beams, composite beams, floor slabs and columns. Direct stress and bending. Applications to building design and simple highway bridges.
Text: Dunham, Reinforced Concrete.

C.E. 402. Reinforced Concrete 2-6-4. Senior Year, Second Quarter.
Prerequisite: C.E. 401. Mr. Smith.
Text: Dunham, Reinforced Concrete.

C.E. 404. Steel and Timber Design 3-3-4. Senior Year, First Quarter.
Prerequisite: C.E. 306. Mr. Jennings.
Designs and detail plans of timber roof truss, welded and riveted steel trusses, bill of materials and costs.
Text: Grinter, Design of Modern Steel Structures, AISC Handbook.

C.E. 405. Steel and Timber Design 2-6-4. Senior Year, Second Quarter.
Prerequisite: C.E. 404. Mr. Jennings.
Design and detail plans of deck plate-girder highway bridge, and design and details of typical members, joints, and portal of through truss railroad bridge.
Text: To be selected.

Prerequisites: C.E. 317, 318. Mr. Reid.
Methods of impounding water and designing city water systems. The designs of dams and standpipes. Water purification processes and plants. Water softening.

C.E. 418. Sewerage and Sewage Disposal 3-0-3. Senior Year, Third Quarter.
Prerequisites: C.E. 317, 318; Chem. 103. Mr. Reid.
A course dealing with the design, construction, and operation of sewer systems and sewage disposal plants. Various methods of disposal and treatment are studied.
Text: Hardenbergh, Sewerage and Sewage Treatment.

C.E. 421. Hydraulic and Sanitary Design 1-3-2. Senior Year, Third Quarter.

C.E. 425. Highway Engineering 3-3-4. Senior Year, First Quarter.
Prerequisite: None. Mr. Lucas.
Includes the historic, economic and structural phases of highway engineering. Study of traffic census, traffic classification as related to the type of highway, methods of construction and design of highway and road types, including grades, curves, sight distance and other safety features, as well as a study of soils, road machinery, materials and equipment. The laboratory course is intended to teach the student how to test materials of construction such as cement, sand, gravel, slag, rock, asphalt, tar, etc., suitable for use in roads, buildings or other structures.
Text: Bateman, Highway Engineering; Mimeographed Notes.

Prerequisite: C.E. 425.
Includes the study of the economics involved in highway construction, operation of vehicles, maintenance of various type surface, methods of financing road construction and selection of proper type pavement. The final project is based on a complete estimate, including the proper selection of type and estimate of cost for the pavement.
Text: Johanneson, Highway Economics.

Prerequisite: None. Mr. Evans.
A course in business law for engineers and the writing of engineering specifications. A complete set of specifications, contract, proposal, advertisement, etc. is required of each student as a final project.
Text: Allen, Business Law for Engineers.

C.E. 430. City Planning 2-3-3. Senior Year, Third Quarter.
Prerequisites: C.E. 201, 202, 303, 425. Mr. Black.
The history, theory, and practical use of city planning in urban and city communities. Theory of charter rights, laws and zoning, master plans, all utilities and functions of a complete city plan are discussed.
The student submits a general plan and thesis of an up-to-date airport. He also submits drawings and descriptions of such work as a proposed city street and traffic layout with access highway connections, etc.
Text: Sert, Can Our Cities Survive?; Sharp, Shaw, & Dunlay, Airport Engineering.
C.E. 434, 435, 436. CIVIL ENGINEERING SEMINAR 1-0-1. Senior Year, All Quarters.
Prerequisite: None.
Staff.
These seminars are set up to give the faculty and seniors an opportunity to get together in discussions of all phases of civil engineering, including employment. Particular emphasis will be placed on discussions of going or well-known projects which illustrate civil engineering problems and solutions of a nature that cannot be covered in any formal course. Each student will be required to prepare and present one or more papers during the three quarters on some specified subjects of worthwhile nature. Following presentation there will be a general discussion by students and faculty.
Text: None.

THE CO-OPERATIVE PLAN
COURSES IN CHEMICAL, CIVIL, ELECTRICAL, MECHANICAL, AND TEXTILE ENGINEERING
J. E. McDaniel, Director of the Co-operative Plan; Virginia Hamilton Peed, Secretary

Since 1912 the Georgia School of Technology has offered two courses in engineering, the standard four-year course as given by other engineering colleges, and a five-year co-operative course for those students who wish to combine practical experience with technical theory.

The Co-operative Plan originally offered only the Mechanical and the Electrical courses; but, during the period between September, 1920, and September, 1928, the Civil, Textile, and Chemical courses were added, making five engineering courses available to students under this Plan. This work is arranged to equip students for positions in designing, production, and sales departments of industry. Although the Aeronautical Engineering course is not offered under the Co-operative Plan, students who complete their Co-operative Mechanical Engineering course with a record acceptable to the Aeronautical Engineering department can get an Aeronautical degree by one additional year of study in that department.

Under the Co-operative Plan the students are divided into two sections: While section one is on college class work three months, section two is at work for the same length of time in the various shops throughout the Southeast. The two sections alternate or exchange places with each other every three months until the second semester of the senior and fifth year when they merge, remaining at college continuously until graduation exercises in June.

The students always remain on the jobs assigned them until the shop and college officials advance them to a higher grade of work. By the time they graduate they will have received training in practically all departments of an industry. Three weeks vacation on college time is given within a year, one week coming during the Christmas holidays, and two weeks within the month of June.

No applicant will be placed at work until he has attended classes under the Co-operative Plan three months. Without permission from the co-operative office, no student is allowed to seek a position which another student has held; neither is he allowed to leave or change his job.

The school is co-operating with about one hundred and sixty firms, including power companies, gas companies, railroads, manufacturers of machinery and mechanical equipment, pulp and paper companies, chemical industries, foundries, steel mills, construction and engineering firms, textile mills, electric and telephone companies. The area covered by these industries includes the Southern States and many sections of the Middle Atlantic and Western States.

These co-operating firms offer a wide variety of practical training and many lines of specialization. It is expected that by the end of the first year the student will have found the career in which he is most interested; the school will then use every effort to place him in the work for which he is best fitted. A high percentage of students located and trained in this way follow and succeed in their chosen profession.

The co-operative student receives wages for his work at the prevailing rate in the particular shop in which he is employed. The school does not guarantee work nor stipulate any certain amount of compensation, but uses every effort to
place students to their best financial and educational advantage. The employers pay the wages directly to the students for the actual time worked in the shops. Before the freshmen are sent to work in the practical field, members of the co-operative department instruct and advise them how they should make friends with regular shop employees. Harmony and good will between the co-operative apprentices and regular shop forces are necessary for efficiency and production. Sometimes a personal interview with a superintendent or foreman will clear up a difficulty that might be aggravated through a letter. The increase or adjustment of wages, the transfer of a student from one department to another may be accomplished only by a personal visit to the shop.

The correlation of practical work with a course of study at college can be obtained only when the shop and college officials find common interest in each other, particularly in the work of student apprentices. Personal contact arouses this interest and brings about co-ordination.

The average freshman should have at least $400 subject to checking account, in addition to what he will earn from his practice work. Upperclassmen should need less additional money each year as they advance in their practice field.

For co-operative students who live in cities away from Atlanta it is obviously advantageous to work in the shops of their home town, thus reducing the cost of room and board.

Freshmen who do not live in Atlanta should, if space is available, lodge in the school dormitories.

The entrance requirements for co-operative engineering courses include all specified units on page 9. Seven optional units on page 10 must be selected to make a total of fifteen units. However, an applicant must be a graduate of an accredited secondary school and must specifically recommend his principal. Only applicants who are in the upper third of their high school or preparatory class and who expect to graduate under the Co-operative Plan are accepted for this course.

Anyone interested in making application for admission into the co-operative courses should write for the department bulletin which gives full particulars about fees, living expenses, wages paid the students while at work, discipline, school activities, etc.

### Department of Economics and Social Science

**Professor Hubert E. Dennison, Department Head; Professor Fred B. Wenn; Associate Professors Maurice R. Brewster, William J. Proctor, Noah Warren; Assistant Professors Edward R. Bowden, J. Carl Brown, Joseph B. Harrington, †William R. McGeehe, Glen N. Sisk; Instructors Francis Carberry, Harold Garfinkel, Edward A. Gaston, Jr., George Hendricks, Max L. Hibbs; Special Lecturers R. J. Brooke and H. A. Woodward**

**General Information**

The Department of Economics and Social Science is a non-degree granting department. The department was established as a service department and gives courses which are taken by every degree granting department in the institution. In the case of the Industrial Management Department, the Economics and Social Science Department provides most of the specialization courses given in the Junior and Senior Years.

**Courses of Instruction**

**NOTE**: 4-3-5 means 4 hours class, 3 hours laboratory, 5 hours credit.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Text:</th>
</tr>
</thead>
</table>

This course opens with a study of the fundamental theory of economics and continues with a survey of our present economic system. It includes during the third quarter the application of economic principles to contemporary business and industrial problems.

Text: Furniss, Fairchild, and Buck, Principles and Problems of Economics, Vols. I and II.

<table>
<thead>
<tr>
<th>Course Code</th>
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<td>Ec. 204</td>
<td>Economics 4-0-4. First, Second and Third Quarters.</td>
<td>None. Mr. Brown, Mr. Carberry, Mr. Harrington.</td>
<td>Bowers and Rountree, Economics for Engineers. First, Second and Third Quarters.</td>
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This course is designed for engineering students who are unable to take the full year's course in economics. Economic problems relating to engineering are given special emphasis.

Text: Bowers and Rountree, Economics for Engineers.

<table>
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<tr>
<th>Course Code</th>
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<th>Prerequisites</th>
<th>Text:</th>
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<tr>
<td>Ec. 307</td>
<td>Industrial Marketing 4-0-4. First, Second and Third Quarters.</td>
<td>None. Mr. Brewster, Mr. Brown, Mr. Carberry.</td>
<td>Elder, Principles of Industrial Marketing.</td>
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</table>

This course describes the methods used in distributing industrial goods. It is an elective for junior and senior engineering students.

Text: Elder, Principles of Industrial Marketing.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Text:</th>
</tr>
</thead>
</table>

This course treats of organization, financing and managing a partnership and corporation, with special emphasis upon raising and managing the investment in the business. Other types of business organizations are studied.

Text: Bonneville and Dewey, Organizing and Financing a Business. First, Second, and Third Quarters. Mr. Wenn. "† Deceased."
This is an abbreviated course covering in a general way the subject matter covered in Ec. 313 and 314.

Prerequisite: None. Mr. Harrington, Mr. Sisk.
This course deals with city growth, appraising problems, and urban land utilization. Housing problems are given special attention.

Prerequisite: None. Mr. Harrington, Mr. Warren.
After a brief consideration of the processes followed in founding the Government, the course takes up the framework and the functions of its branches, the regulation of business and industry through bureaus, statutes and commissions, and the relationship between the states and the Federal Government.
Text: Munro, *United States Government*.

Prerequisite: None. Mr. Dennison, Mr. Proctor, Mr. Warren, Mr. Wenn.
This course covers during the first quarter the law of contracts, agency and negotiable instruments; during the second quarter a study is made of partnership and corporation law; during the third quarter, sales, property and bankruptcy law are studied.

Ec. 328. Survey in Business Law 4-0-4. Junior or Senior Year, First, Second, and Third Quarters.
Prerequisites: Junior or Senior Engineering Standing.
In this course a study is made of those law cases which pertain strictly to legal questions arising out of engineering operations. It is designed for students who are not able to take a more extended course in business law.
Text: None.

Ec. 331, 332, 333. Introductory Accounting 3-3-4. First, Second, and Third Quarters.
Prerequisite: None. Mr. Bowden, Mr. Warren.
This course runs throughout three quarters. The first part deals with the theory of debits and credits, the construction of the trial balance, the profit and loss statement, and the balance sheet. During the course accounting for a proprietaryship, a copartnership, and a corporation are covered in detail in class and laboratory.

Ec. 334. Accounting Survey 4-0-4. Senior Year Elective; First, Second, and Third Quarters.
Prerequisite: Senior Engineering Standing. Mr. Bowden, Mr. Warren.
This is a brief survey of the analysis and the recording of business transactions, the preparation of financial statements and their interpretations.

Ec. 335. Cost Accounting 4-3-5. Junior Year, Second Quarter.
Prerequisite: None. Mr. Warren.
A brief course in cost calculations for machine tool engineers.
Text: None.

Prerequisite: Senior Standing. Mr. Brewster, Mr. Carberry.
The first and second quarters cover material that is descriptive in nature and deals with location, production and assembling of materials for processing; with manufacturing, assembling, and distribution of finished products together with a description of the marketing machinery of our distribution system. The third quarter is a problem course.

Prerequisite: None. Mr. Bowden, Mr. Warren.
The first part of this course covers such subjects as public revenue, public expenditures, borrowing, the different forms of taxation, Federal and state. During the second part of the course a study is made of the income tax laws, state and federal.
Text: Schultz, *Public Finance*.

Ec. 431, 432. Industrial Accounting 3-0-3. Senior Year, First and Second Quarters.
Prerequisite: Senior Standing. Mr. Warren.
The course deals with the application of cost analysis to manufacturing and distribution. Problems and exercises are used to illustrate methods of compiling and analyzing materials, labor and manufacturing costs. Considerable time is given to the preparation of and interpretation of financial statements of industrial organizations as a means of executive control.
Text: Neuner, *Cost Accounting*.

Ec. 434, 435. Principles and Problems of Accounting 3-3-4. Senior Year, First and Second Quarters.
Prerequisite: Elective senior advanced accounting students. Mr. Warren.
This course is a continuation of Ec. 334 and covers corporation accounting in detail. Much of the subject matter is composed of examinations given by Certified Public Accounting Boards in the different states. A study is made of single entry bookkeeping.

Ec. 438, 439. Factory Cost Accounting 3-3-4. Senior Year, Second and Third Quarters.
Prerequisite: None. Mr. Warren.
A study is made of cost finding, direct and indirect expense, wage systems, recording labor and material expense and devising costs systems. Special emphasis will be given to problems relating to textile and cotton oil mills and other distinctly southern industries.
Ec. 443, 444. Investments 3-0-3. Senior Year, First and Second Quarters.
Prerequisite: Senior Standing.
Mr. Wenn.
The first quarter deals with such subjects as the financial policy of corporations, the various classes of public and corporate securities, investment trust companies, building and loan associations, operation of the New York Exchange. Underwriting. During the second quarter analysis of different types of securities is made in detail.
Text: Jordan, Investments; source materials.

Prerequisite: Ec. 447 is a prerequisite to Ec. 448.
Mr. Bowden, Mr. Brown, Mr. Dennison.
The first part of the course deals with the development and use of simple mathematical statistical formulae and their use and application. The second part of the course covers the principles of gathering, summarizing, and interpreting quantitative data in the fields of economics, business, and industry.

Ec. 449, 450. Insurance 3-0-3. Junior or Senior Year, First and Second Quarters.
Prerequisites: Ec. 449 is a prerequisite to Ec. 450.
Mr. Carberry, Mr. Dennison.
During the first part of the course a study is made of life insurance, while during the second part casualty and fire insurance are studied.
Text: Riegel and Lowman, Principles of Insurance.

Ec. 452. Labor Problems 5-0-5. Junior or Senior Year, First, Second and Third Quarters.
Prerequisite: None.
Mr. Brown, Mr. Sisko.
The purpose of the course is to acquaint the student with the history and growth of the labor movement, the present status of labor organizations, the methods used by labor organizations to achieve their objectives, the federal and state laws applying to labor, the forces which undertake to combat labor in its aims and objectives, with a study of possible solutions for the labor-management problem.

Prerequisite: None.
Mr. Gaston, Mr. Harrington, Mr. Hendricks, Mr. Hibbs, Mr. Proctor, Mr. Sisko.
A study of the development of social institutions from primitive and early historical periods as a background for an understanding and appreciation of existing culture. It attempts to describe man's life with particular emphasis upon life in America at the present time.
Text: None.

Prerequisite: None.
Mr. Gaston, Mr. Harrington, Mr. Hendricks, Mr. Hibbs, Mr. Proctor, Mr. Sisko.
This course is a world-wide contemporary history covering the beginnings of the First World War, the war itself, the unsettled peace, the second World War, and post-war problems. Special emphasis is placed on the United States in World Affairs.
Text: None.

S.S. 103. Social Science 3-0-3. Third Quarter.
Prerequisite: None.
Mr. Gaston, Mr. Harrington, Mr. Hendricks, Mr. Hibbs, Mr. Proctor, Mr. Sisko.
A study is made of the effects of the machine on society. It brings together relevant facts from the world of science and technology and relates them to the facts of human living. It attempts to give the student some perspective of the kind of world which he will face.
Text: None.

Prerequisite: None.
Mr. Gaston, Mr. Hendricks, Mr. Hibbs, Mr. Proctor.
A study of the development of the English parliamentary institutions, the industrial revolution, the social and political effects of that revolution in the nineteenth century, the expansion of England's colonial empire and her policies as a world power.
Text: To be selected.

Prerequisite: None.
Mr. Dennison and Staff.
Special attention is given to the rise of our industrial system, the western movement, the development of our banking system, the rise of our industrial system, and government regulation of industry. The questions are treated historically.
Text: To be selected.

S.S. 311, 312. Technology and Society 3-0-3. Junior or Senior Year, Second and Third Quarters.
Prerequisites: Junior or Senior Standing (Elective). Mr. Proctor.
This is an advanced course covering our complex society based as it is on the machine and complex transportation and production agencies. A study is made of the conflict of interest of groups and means of reconciling their differences. The main point in the course is to show how the machine has influenced the whole of human life in the United States.
Text: To be selected.

Prerequisite: None.
Mr. Sisko.
This course is designed to acquaint the prospective naval officer and others with the United States' position of power in world affairs and the steps necessary to preserve it.
Text: Materials furnished by Navy Department.
DEPARTMENT OF ELECTRICAL ENGINEERING

Professor D. P. Savant, Department Head; Professors H. B. Duling, R. A. Galbraith, M. A. Honnell, and T. G. Sidelli; Associate Professors J. L. Ellis* and A. W. Stalnaker; Assistant Professors B. J. Dasher* and H. L. McKinley; Instructor A. Hagedorn

The curriculum is planned in order to give a comprehensive training in the fundamental sciences of chemistry, physics, mathematics and applied mechanics. It provides for adequate training in the scientific and applied aspects of important branches of engineering other than electrical.

ELECTRICAL POWER ENGINEERING OPTION

This option has to do with the theoretical and practical phases of power generation, distribution and utilization. It deals with the principles of alternators, transformers, motors, converters and the transmission and distribution of electric power.

The option leads to the degree of Bachelor of Electrical Engineering.

COMMUNICATIONS AND ELECTRONICS OPTION

Mr. M. A. Honnell (in charge)

Students desiring to specialize in radio, electronics and telephony may choose the Communications and Electronics option at the beginning of the Senior year.

This option offers theory and laboratory courses in radio, electronics, telephony, wave filters, transmission lines, antennas and radiation, and leads to the degree of Bachelor of Electrical Engineering.

The course of study for the sophomore, junior and senior years is given in the following pages. For the freshman year, see page 46.

SOPHOMORE YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>No.</th>
<th>Subject</th>
<th>1st Q.</th>
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<td>E.E.</td>
<td>203</td>
<td>Elementary Electrical Engineering</td>
<td>3-0-3 3-0-3 3-0-3</td>
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<td>1-3-2</td>
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<td>Math.</td>
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<td>Machine Shop</td>
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<td>Phys.</td>
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<td>P.T.</td>
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<td>Physical Training</td>
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<td>ROTC</td>
<td>201-2-3</td>
<td>Military or Naval Training</td>
<td>0-6-2 0-6-2 0-6-2</td>
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* On Leave.

JUNIOR YEAR

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<td>204</td>
<td>Economics</td>
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<td>E.E.</td>
<td>301-2-3</td>
<td>A. C. Circuits</td>
<td>3-3-4 3-3-4 3-3-4</td>
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<td>E.E.</td>
<td>310</td>
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<td>Differential Equations</td>
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<td>320</td>
<td>Thermodynamics</td>
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<td>Mech.</td>
<td>301-2</td>
<td>Applied Mechanics</td>
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<td>Mechanics of Materials</td>
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SENIOR YEAR

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<td>Hydraulics</td>
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<td>Illumination</td>
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<td>E.E.</td>
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<td>Electrical Design</td>
<td>3-6-4</td>
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<td>E.E.</td>
<td>448</td>
<td>Electrical Power Trans.</td>
<td>3-6-4</td>
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<td>Eng.</td>
<td>316</td>
<td>Public Speaking</td>
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<td>Eng.</td>
<td>322</td>
<td>Technical English</td>
<td>4-0-4</td>
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<td>302</td>
<td>Elementary Steam Power Engr.</td>
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<td>M.E.</td>
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COMMUNICATIONS AND ELECTRONICS OPTION

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<td>U.H.F. Techniques</td>
<td>3-6-4</td>
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<td><strong>16-9-19</strong> 16-9-19 15-9-19</td>
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</table>
The study of the elementary principles of alternating-current machinery, including laboratory periods.


**E.E. 319.** **APPLIED ELECTRICITY 3-0-3.**
Prerequisites: Physics 209; Non-electrical Engineering Students.

The course comprises a study of the principles of electric and magnetic circuits and the principles of operation of direct-current machinery.


**E.E. 320.** **APPLIED ELECTRICITY 3-3-4.**
Prerequisites: Physics 209; Non-electrical Engineering Student.

This course is similar to E.E. 319 but contains laboratory.


**E.E. 321.** **APPLIED ELECTRICITY 4-3-5.**
Prerequisites: E.E. 319 and 320; Non-electrical Engineering Students.

This course comprises a study of the elementary principles of single and polyphase circuits and the principles of alternating current machinery, including laboratory periods.


**E.E. 322.** **INDUSTRIAL ELECTRONIC CONTROL 3-3-4.**
Prerequisites: E.E. 317 or 321; Non-electrical Engineering Students.

A study of electronic and control devices applied to electrical machinery.

**Text:** Cockrell, *Industrial Electronic Control.*

**E.E. 323.** **ENGINEERING ELECTRONICS 3-0-3.** Junior Year, Second Quarter.
Prerequisite: E.E. 301.

A basic study of the control of free electrons, electron emission, electron currents in gases and electron tubes. Lectures and computing periods.

**Text:** Reich, *Principles of Electron Tubes.*

**E.E. 324.** **ENGINEERING ELECTRONICS 3-3-4.** Junior Year, Third Quarter.
Prerequisite: E.E. 323.

An analytical study of rectifier systems, on equivalent plate circuit, simple amplifiers, oscillators, thyatron control and phototube circuits. Problems and laboratory work are included.

**Text:** Reich, *Principles of Electron Tubes.* Fee $3.00.

**E.E. 342.** **ELECTRICAL MEASUREMENTS 3-3-4.** Junior Year, Third Quarter.
Prerequisite: E.E. 302.

This course includes the modern methods of measuring resistance, current, capacity, inductance and iron losses. The calibration of electrical instruments.

**Text:** Marshall, *Measurements in Electrical Engineering, Vols. I and II.*
E.E. 401. **ALTERNATING-CURRENT MACHINERY 3-6-5.** Senior Year, Option I, First Quarter.
Prerequisites: E.E. 303 and E.E. 310.
Mr. Savant and Staff.
The construction, operation, characteristics and application of alternators and transformers. Lectures, recitations, computing and laboratory periods.
Text: Puchstein and Lloyd, *A. C. Machinery, Laboratory Notes.*

E.E. 402. **A. C. MACHINERY 3-6-5.** Senior Year, Option I, Second Quarter.
Prerequisite: E.E. 401.
Mr. Savant and Staff.
The construction, operation and characteristics of alternating-current motors and synchronous motors. Lectures, recitations, computing and laboratory periods.
Text: Puchstein and Lloyd, *A. C. Machinery, Laboratory Notes.*

E.E. 403. **ELEMENTS OF A. C. MACHINERY 3-6-5.** Senior Year, Option I, Third Quarter.
Prerequisite: E.E. 402.
Mr. Savant and Staff.
The construction, operation, characteristics and application of synchronous converters and mercury-vapor rectifiers. Lectures, recitations, computing and laboratory periods.
Text: Puchstein and Lloyd, *A. C. Machinery, Laboratory Notes.*

E.E. 404. **ELEMENTS OF A. C. MACHINERY 3-3-4.** Senior Year, Option II, First Quarter.
Prerequisites: E.E. 303 and E.E. 324.
Mr. Stalnaker and Staff.
The study of elementary principles, construction and application of alternators and transformers. Lectures and laboratory work.
Text: Hehre and Harness, *Electrical Circuits and A. C. Machinery, Vol. II.*

E.E. 405. **ELEMENTS OF A. C. MACHINERY 3-3-4.** Senior Year, Option II, Second Quarter.
Prerequisite: E.E. 404.
Mr. Stalnaker and Staff.
The construction and application of induction and synchronous motors. Lectures and laboratory work.
Text: Hehre and Harness, *Electrical Circuit and A. C. Machinery, Vol. II.*

E.E. 406. **ELEMENTS OF A. C. MACHINERY 3-3-4.** Senior Year, Option II, Third Quarter.
Prerequisite: E.E. 405.
Mr. Stalnaker and Staff.
The construction and application of synchronous converters and rectifiers. Lectures and laboratory work.
Text: Hehre and Harness, *Electrical Circuits and A. C. Machinery, Vol. II.*

E.E. 422. **INDUSTRIAL ELECTRONICS 3-3-4.** Senior Year, First Quarter.
Prerequisites: E.E. 303 and E.E. 324.
Mr. Galbraith and Staff.
The theory and operation of industrial electronics apparatus. Laboratory and problem work is included.
Text: *Notes and current literature.*
E.E. 442. **Electrical Design** 3-3-4. Senior Year, Option I, Third Quarter.
Prerequisites: E.E. 403 or parallel. Mr. Seidell and Mr. Savant.
Design problems of various types of apparatus involving the electric and magnetic circuits. Lectures and computing periods.
Text: Kuhlmann, *Electrical Design and Notes*.

Prerequisites: E.E. 403 and Math. 301. Mr. Honnell and Staff.
An analytical study of the transient state in D.C. and A.C. Circuits.
Text: Skilling, *Transient Electric Currents*.

E.E. 448. **Electrical Power Transmission** 3-3-4. Senior Year, Option I, Third Quarter.
Prerequisite: E.E. 401. Mr. Savant and Staff.
The electrical characteristics of transmission line circuits. Lectures, recitation, computing and laboratory periods.

Prerequisites: E.E. 402 and parallel E.E. 403. Mr. Savant.
Considerations governing the selection of electrical equipment for industrial purposes.
Text: None.

E.E. 452-453-454. **Special Problems** 0-3-1. Senior Year, First, Second and Third Quarters.
Prerequisite: Senior E.E. Standing. Mr. Honnell and Staff.
Special engineering problems will be assigned to the student according to his needs and capabilities.
Text: None.

E.E. 452-453-454. **Industrial Management Drawing** 0-6-2. Freshman Year, Third Quarter.
Prerequisite: Draw. 102. Mr. Bogle and Staff.
Topics of study include technical sketching piping and fittings; working drawings; ink tracing on cloth; working drawings from assemblies; assemblies from working drawings.
DRAW. 202. APPLIED DESCRIPTIVE GEOMETRY 0-3-1. Sophomore Year, Second Quarter.
Prerequisite: Draw. 201.
Topics of study include the solution of problems involving points, lines, and planes by rotation methods; simple intersections; the development of surfaces. Practical applications are emphasized.

DRAW. 203. APPLIED DESCRIPTIVE GEOMETRY 0-3-1. Sophomore Year, Third Quarter.
Topics of study include the intersection of surfaces; warped surfaces. Practical applications are emphasized.

Rental Per Quarter for Drawing Instruments
For a course meeting 6 hours per week $2.00
For a course meeting 3 hours per week $1.00

ENGINEERING MECHANICS

NOTE: 4-3-5 means 4 hours class, 3 hours laboratory, 5 hours credit.

MECH. 301. APPLIED MECHANICS 2-0-2. Junior Year, First Quarter.
Prerequisites: Physics 207 and Math. 202. Mr. Johns and Staff.
Topics of study include elements of statics; laws of equilibrium applied to machines and structures; laws of friction applied to simple machines. Problems solved analytically and graphically.
Text: Seely and Ensign, Analytical Mechanics for Engineers.

MECH. 302. APPLIED MECHANICS 2-0-2. Junior Year, Second Quarter.
Prerequisite: Mech. 301.
Topics of study include elements of kinematics and kinetics of particles and bodies, with applications.
Text: Seely and Ensign, Analytical Mechanics for Engineers.

MECH. 303. APPLIED MECHANICS 3-0-3. Junior Year, Third Quarter.
Prerequisite: Mech. 302.
Topics of study include kinematics and kinetics of rotating bodies; kinematics of plane motion; work, power, energy, and relationships.
Text: Seely and Ensign, Analytical Mechanics for Engineers.

MECH. 304. APPLIED MECHANICS 0-3-1. Junior Year, First or Second Quarter.
Prerequisite: Mech. 301.
Topics of study include composition and resolution of forces and couples; equilibrium criteria; analysis of simple structures, trusses and cranes; friction; if possible, string polygon through three points; emphasis on graphical solutions but computations may be required.
Text: Notes of instructor and departmental work sheets.

MECH. 331. MECHANICS OF MATERIALS 3-0-3. Junior Year, First Quarter.
Prerequisites: Mech. 301, or concurrently.
Topics of study include simple stresses and strains; shear and bending moment diagrams; flexure stresses in beams; shafts; columns.

MECH. 332. MECHANICS OF MATERIALS 2-0-2. Junior Year, Second Quarter.
Prerequisite: Mech. 331.
Topics of study include deflection of beams; longitudinal shear; combined stresses.

MECH. 333. MECHANICS OF MATERIALS 3-0-3. Junior Year, Third Quarter.
Prerequisite: Mech. 332.
Topics of study include statically indeterminate cases of beams, including continuous beams, by moment area methods and by moment distribution methods; oblique loads on beams; introduction to analysis by energy methods.

MECH. 423. MECHANICAL VIBRATIONS 4-0-4. Senior Year, Elective.
Prerequisites: Mech. 303 and Math. 301. Mr. Johns.
Topics of study include kinematics of vibration; the single degree of freedom system; two degrees of freedom; multicylinder engines; rotating machinery; self-excited vibrations.
Text: Den Hartog, Mechanical Vibrations.

MECH. 601. DYNAMICS 4-0-4. Senior Year, Elective.
Prerequisites: Mech. 303 and Math. 301. Mr. Hill.
Topics of study include kinematics of a particle; rectilinear translation; curvilinear translation; rotation of a rigid body about a fixed axis; plane motion of rigid bodies; relative motion.
Text: Timoshenko and Young, Engineering Mechanics-Dynamics.

MECH. 631. ADVANCED MECHANICS OF MATERIALS 4-0-4. Senior Year, Elective.
Prerequisite: Mech. 333.
Topics of study include theories of failure; thick cylinders; general case of combined bending and direct stress; bending of curved bars; flat plates; general case of torsion; stress concentration; the elements of stress analysis of statically indeterminate members by elastic strain energy methods.
Text: To be selected.
COURSES OF INSTRUCTION

NOTE: 3-4-5 means 3 hours class, 4 hours laboratory, 5 hours credit.

COMMENT ON FRESHMAN AND OTHER ENGLISH COURSES

Since ability to use a correct and clear English prose is fundamental for all successful study, the English courses of the freshman year are directed mainly toward this end. At the beginning of the term all incoming freshmen are required to take a placement test in English. On the basis of this test the freshmen are grouped into sections according to their ability. Students found to be deficient in the fundamentals of English composition may be assigned to a non-credit course; those notably proficient may be assigned to advanced sections.

Every student is required to have credit for three quarters of Freshman English. Students in more advanced classes whose work in composition is unsatisfactory may be required to take any composition courses, in part or as a whole, even though they have credit for the course.

The schedule of every student in Freshman Composition provides for a consultation hour with his instructor.

In addition to the composition courses required of freshman, the department offers courses in communication, written and oral, to students in the junior and senior classes.

Such courses are highly utilitarian. The department, however, requires of all sophomores, and offers to juniors and seniors, courses of a more general nature, in several fields of literature, which seek for the student a broadening of the intellect and a deepening of the emotions.

ENG. 10. REMEDIAL ENGLISH 3-0-0. Freshman Year, First Quarter.
Prerequisite: None. Mr. Perry and Staff; under direction of Mr. Walker.
Review of essentials of grammar, punctuation, and composition. Recitation, written exercises, quizzes, short themes.

ENG. 101. COMPOSITION AND RHETORIC 3-0-3. Freshman Year, First Quarter.
Prerequisite: None. Mr. Perry and Staff; under the direction of Mr. Walker.
Correctness and accuracy in writing short papers, with emphasis on grammar, spelling, and punctuation. Recitation, themes, written exercises and quizzes.

ENG. 102. COMPOSITION AND RHETORIC 3-0-3. Freshman Year, Second Quarter.
Prerequisite: Eng. 101. Mr. Perry and Staff; under direction of Mr. Walker.
Larger units of composition, with emphasis on diction, effective sentences and paragraphs, and study of vocabulary. Recitation, written exercises, quizzes.

ENG. 103. COMPOSITION AND RHETORIC 3-0-3. Freshman Year, Third Quarter.
Prerequisite: English 102.
Mr. Perry and Staff; under direction of Mr. Walker.
Outlining, use of library, the research paper with footnotes and bibliography, reading for comprehension and vocabulary. Recitation, exercises, quizzes, themes, research paper.
Text: *Same as English 102*.

ENG. 104. ADVANCED COMPOSITION 3-0-3. Freshman Year, Third Quarter.
Prerequisite: Eng. 103. Mr. Perry and Staff; under direction of Mr. Walker.
Study and practice in composition, including the uses of exposition, narration, description, argumentation in their relation to effective writing. Recitation, quizzes, exercises, themes.
Text: *To be announced*.

ENG. 201. SURVEY OF THE HUMANITIES 3-0-3. Sophomore Year, First Quarter.
Prerequisites: Eng. 101, 102, 103.
Mr. Perry and Staff; under direction of Mr. Folk.
A general survey of world literature from Homer to Chaucer, with emphasis on the culture of our civilization of the great figures and great ideas in European culture. Lectures, quizzes, reports, collateral reading.

Prerequisite: Eng. 201. Mr. Perry and Staff; under direction of Mr. Folk.
A general survey of world literature from the Renaissance to the Eighteenth Century.

ENG. 203. SURVEY OF THE HUMANITIES 3-0-3. Sophomore Year, Third Quarter.

*On Leave, U. S. Navy.*
Prerequisite: Eng. 202. Mr. Perry and Staff; under direction of Mr. Folk. A general survey of world literature from the Romantic Movement to the present. Text: Thompson and Gassner, Our Heritage of World Literature (Revised Edition).

ENG. 301. MODERN DRAMA 3-0-3. Junior or Senior Year, Quarter as announced. 
Prerequisite: Eng. 203. Mr. Walker. Dramatic theory and technique as illustrated by a number of modern playwrights. Lectures, reports, collateral reading, quizzes. Text: Buck, Gassner and Alberson: Ibsen to Odets: A Treasury of the Theatre.

ENG. 302. SHAKESPEARE 3-0-3. Junior or Senior Year, Quarter as announced. 
Prerequisite: Eng. 203. Mr. Perry and Staff. A brief treatment of the life and times of Shakespeare and a careful study of certain of his principal works. Lectures, reports, collateral reading, quizzes. Text: To be announced.

ENG. 303. AMERICAN LITERATURE 3-0-3. Junior or Senior Year, Quarter as announced. 
Prerequisite: Eng. 203. Mr. Perry and Staff. A general study of American Literature. Text: To be announced.

ENG. 304. CONTEMPORARY LITERATURE 3-0-3. Junior or Senior Year, Quarter as announced. 
Prerequisite: Eng. 203. Mr. Perry and Staff. A careful study of major figures and movements in contemporary literature, with emphasis on Britain and America. Text: To be announced.

ENG. 316. PUBLIC SPEAKING 4-0-4. Junior or Senior Year, Each Quarter. 
Prerequisite: Eng. 203. Mr. Perry and Staff; under direction of Mr. Rainey. Instruction in the basic principles of effective public speaking, with emphasis on practice and criticism. Text: To be announced.

ENG. 317. RADIO SPEAKING AND WRITING 3-0-3. Junior or Senior Year, 
Quarter as announced. 
Prerequisite: Eng. 316; admission by consent of instructor. Practice in preparing and delivering various types of radio speeches. Lectures by outside speakers. Frequent recordings. Text: Abbott, Handbook of Radio.

ENG. 322. TECHNICAL ENGLISH 4-0-4. Junior or Senior Year, Each Quarter. 
Prerequisites: Eng. 103, 203. Mr. Perry and Staff; under direction of Mr. Anderson. Study and practice of effective English in business letters, technical papers, engineering reports. Letters, reports, quizzes. Text: To be announced.
## SENIOR YEAR

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### ELECTIVES

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## GENERAL ENGINEERING

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Elective groups must be selected for a definite objective; no random selection can be approved. Other elective groups may be selected with the approval of the Director.

### DEPARTMENT OF INDUSTRIAL ENGINEERING

#### Professor Frank F. Groseclose, Department Head

#### Associate Professor Donald B. Wilcox

#### Assistant Professor Joseph S. Dwyer

The increasing magnitude and complexity of modern industrial plants has demanded the development of a new branch of engineering now widely recognized as Industrial Engineering. The field of the industrial engineer is that of the process and production expert engaged in planning, organizing, improving, managing, and operating various processes for producing manufactured products of all kinds and varieties.

New problems have arisen and new techniques have been developed during recent years, which are peculiar to and characteristic of industrial engineering. These include the analysis of a proposed product with regard to the possible steps and sequences of operations involved in its manufacture, a selection of the most efficient machines to perform those operations, the layout of the plant and shops to provide for the flow of the product from one machine to another, organization of the material supply, avoidance or elimination of bottlenecks, together with the related problems of quality and cost control, testing, inspection and personnel relations.

Industrial engineering coordinates men, materials, machines and methods, so as to solve problems met in the conversion, transformation and fabrication of raw materials into the products of industry.

The successful industrial engineer must possess special interests and abilities in the analysis of the human, technical, and financial problems of modern manufacturing. In addition he must possess the essential personality and attributes of character which will enable him to work with and direct others in the planning and operation of manufacturing enterprises.

The successful completion of the curriculum leads to the degree of Bachelor of Industrial Engineering.

### FRESHMAN YEAR

See Page 46

### SOPHOMORE YEAR

#### NOTE: Under Quarters, 2-6-4 means 2 hours class, 6 hours lab., 4 hours credit.

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### JUNIOR YEAR

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**Total:** 15-9-15

### SENIOR YEAR

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**Total:** 16-9-18

**Courses of Instruction**

*NOTE: 3-4-5 means 3 hours class, 4 hours laboratory, 5 hours credit.*

I.E. 301. **Introduction to Industrial Engineering 3-0-3.** Junior Year, First Quarter.

Prerequisite: None.

The development and nature of industrial engineering and tool engineering, of mass production, types of organizations, advantages and disadvantages, etc. General plant operation and enterprise structure.


I.E. 304. **Organization for Production 3-0-3.** Junior Year, First Quarter.

Prerequisite: None.

The principles of organization and administration which are applicable to various engineering and industrial enterprises. An excellent course for all engineering students.


I.E. 306. **Production Control 3-0-3.** Junior Year, Second and Third Quarter.

Prerequisites: I.E. 301 or I.E. 304.

A practical lecture course covering production control systems, work routing, dispatching, time keeping, inventory control, stores, etc.

Text: Koepke's *Plant Production Control.*

I.E. 307. **Factory Planning 0-3-1.** Junior Year, First Quarter.

Prerequisites: I.E. 304 or concurrently.

Mr. Wilcox.

The location, design, selection and layout of factory buildings and equipment.


I.E. 308. **Factory Planning 0-3-1.** Junior Year, Second Quarter.

Prerequisite: I.E. 307.

Mr. Wilcox.


Text: Same as I.E. 307.

I.E. 309. **Factory Planning 0-3-1.** Junior Year, Third Quarter.

Prerequisite: I.E. 308.

Mr. Wilcox.


Text: Same as I.E. 307.

I.E. 402. **Production Problems 3-0-3.** Senior Year, Second Quarter.

Prerequisite: I.E. 304.

Mr. Groseclose and Staff.

A case method study of modern production plant problems. A wide variety of problems are used but stress is laid on the consideration of original and unusual cases.

Text: *Lecture Notes.*

I.E. 410. **Industrial Surveys and Reports 1-3-2.** Senior Year, First Quarter.

A study of some of the problems which engineers encounter in investigating and reporting on various industrial operations.

Text: Rautenstrauch, *Industrial Surveys and Reports.*

I.E. 416. **Motion and Time Study 2-3-3.** Senior Year, Any Quarter.

Prerequisites: Senior Standing; Non-Industrial Engineering Students.

Mr. Dwyer.

Principal aims and application of time and motion study, job analysis, standardization, formula construction, job and wage evaluation. Laboratory application and practice of the subject matter.

Text: Barnes, *Motion and Time Study.*

I.E. 417. **Motion and Time Study 3-6-5.** Senior Year, First and Second Quarters.

Prerequisite: Junior Standing.

Mr. Dwyer.

Principal aims and application of time and motion study, job analysis, standardization, formula construction, job and wage evaluation. Laboratory application and practice of the subject matter given to a degree which enables a student to function as a time and motion study man in industry.

Text: Barnes, *Motion and Time Study.*
IE. 419. COST AND PRODUCTION ESTIMATING 2-0-2. Senior Year, First and Third Quarters.
Prerequisite: Senior Standing. Mr. Groseclose and Mr. Wilcox.
A course in the development of estimating technique for tool and equipment costs, production rates, costs, production rates, cost ratios, establishment of basic time charts, etc.
Text: To be announced.

IE. 423. MATERIAL HANDLING EQUIPMENT AND METHODS 3-0-3. Senior Year, Second Quarter.
Prerequisite: M.E. 304. Mr. Groseclose.
A lecture course on modern material handling methods, systems, equipment, and control.
Text: None.

IE. 424. MATERIALS HANDLING EQUIPMENT AND METHODS 2-3-3. Senior Year, Third Quarter.
Prerequisite: Senior Standing. Mr. Groseclose.
A combined lecture and laboratory course on modern material handling methods, systems, equipment, and control. Laboratory work covers layout of material handling systems for specific problems.
Text: Stocker, MATERIALS HANDLING.

IE. 425. EQUIPMENT SELECTION AND INVESTMENT 3-0-3. Senior Year, First Quarter.
Prerequisite: None. Mr. Groseclose and Mr. Wilcox.
Mathematics of investments; methods of financing; output and life of equipment; depreciation methods; elements of manufacturing costs; machine rates; economic selection of equipment; determination of the economic lot.
Text: Grant, PRINCIPLES OF ENGINEERING ECONOMY.

IE. 427. EQUIPMENT SELECTION AND INVESTMENT 2-0-2. Senior Year, Third Quarter.
Prerequisite: None. Mr. Groseclose and Mr. Wilcox.
The practical economy of the selection of various types of equipment and the establishment and presentation of an investment analysis.
Text: To be announced.

INDUSTRIAL MANAGEMENT DEPARTMENT
Professor H. E. Dennison, Department Head

This course, which leads to the degree, Bachelor of Science in Industrial Management, provides training for those students who intend to do executive work in industry. The first two years lay the foundation for a liberal education, with English, History, Social Science, Biology, and the basic physical sciences. The mathematical training given enables the student to master the important work in Finance, Accounting, Statistics, and Management courses given in the junior and senior years. Strong courses are given in Economics, Business Law, Distribution of Products, Industrial Management, and Production.

This course of study has been planned to give the student good preparation for positions in the field of business or industrial management, including managerial positions in sales, marketing, accounting, personnel, and production.

There are three options offered in this course:
1. Option 1 with Biology as the basic course.
2. Option 2 with physical and chemical science and technology as the basic science.
3. Option 3 which is the Hotel Management option.

FRESHMAN YEAR
See Page 46

OPTION 1
SOPHOMORE YEAR
NOTE: Under Quarters, 0-0-1 means 0 hours class, 0 hours lab., 1 hour credit.

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JUNIOR YEAR

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Total: 17-6-19 15-7-21 17-6-19

GEORGIA SCHOOL OF TECHNOLOGY
### SENIOR YEAR

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### OPTION 2

### SOPHOMORE YEAR

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*Technical electives may not be selected at random, but must make up a coordinated program in either physical science and technology or chemical science and technology. All electives must amount to credit hours shown, and may be taken as class hours or class and laboratory hours.

### INDUSTRIAL MANAGEMENT

### SENIOR YEAR

<table>
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<tr>
<th>Course</th>
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<td>Economics of Marketing</td>
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*Technical electives may not be selected at random, but must make up a coordinated program in either physical science and technology or chemical science and technology. Total electives must amount to credit hours shown, and may be taken as class hours or class and laboratory hours.

### OPTION 3—HOTEL MANAGEMENT

### SOPHOMORE YEAR

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### SENIOR YEAR

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<td>Hotel Office Management and Practice</td>
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### COURSES OF INSTRUCTION

**NOTE:** 3-4-5 means 3 hours class, 4 hours laboratory, 5 hours credit.

**I.M. 207.** Organization for Distribution 3-0-3. First Quarter.
Prerequisite: None.
Mr. Dennison.

This is a study of the means by which producers select, organize and train their personnel for purposes of distributing the manufactured product.

Text: To be selected.

**I.M. 208, 209.** Distribution Management 3-0-3. Second and Third Quarters.
Prerequisite: None.
Mr. Brewer, Mr. Carberry.

In this course a study is made of the management of sales. It is a problem course covering all those aspects of distribution met with by distributing and manufacturing organizations.

Text: None.

Prerequisites: None.

This is a study of the nutritional value of different vegetable and animal foods.

Text: To be selected.

**I.M. 302.** Introduction to Industrial Management 4-0-4. Junior Year, Second Quarter.
Prerequisite: None.
Mr. Brown, Mr. Carberry.

A study is made of the principles of planning, organizing and managing an industrial enterprise. Charts of different types of organization plans are made. The student will be required to make plant inspections singly and in groups to observe first hand industrial organizations at work. Some parts of the course are taught by means of industrial films.

Text: Knowles and Thompson, Industrial Management.
I.M. 434. HOTEL MANAGEMENT: HOTEL ACCOUNTING 3-0-3. Senior Year, First Quarter.
Prerequisites: Ec. 333, 334, 335. Mr. Warren.
This is a study of accounting as applied to hotel operations.
Text: To be selected.

I.M. 435. HOTEL MANAGEMENT: SPECIAL PROBLEMS 3-0-3. Senior Year, Second Quarter.
Prerequisite: None.
This course takes up such questions as hotel stewarding, catering, menu planning, and managing the personnel of a hotel.
Text: To be selected.

I.M. 436. HOTEL MANAGEMENT: OFFICE MANAGEMENT AND PRACTICE 3-0-3. Senior Year,
Prerequisite: None.
A study is made by text and by actual visits and study of the hotel by the student first hand. The purpose of the course is to give the student fundamental knowledge of office management as applied to hotels.
Text: To be selected.

I.M. 437. HOTEL MANAGEMENT: SERVICE AND PLANNING 3-0-3. Junior or Senior Year, First, Second, and Third Quarters.
Prerequisite: Elective.
This course undertakes to present to the student all those basic principles and practices of hotel management which characterize the better hotels. It covers guest service in detail.
Text: To be selected.

Prerequisite: None.
A study is made of types of hotel structures, a study of materials of construction, and accepted methods used to maintain the structures.
Text: To be selected.

NOTE: 4-3-5 means 4 hours class, 3 hours laboratory, 5 hours credit.

DEPARTMENT OF MATHEMATICS


COURSES OF INSTRUCTION

MATH. 3. ENTRANCE ALGEBRA 5-0-0. Freshman Year, First Quarter.
Prerequisite: None. Staff.
A non-credit course for students not prepared to take Math. 101.
Text: Sewell, Review Algebra.

MATH. 101. COLLEGE ALGEBRA 5-0-5. Freshman Year, First Quarter.
Prerequisite: Entrance Algebra. Staff.
A review of fractions, exponents, simplifications and quadratics, followed by the binomial theorem, complex numbers and elementary theory of equations.
Text: Rosenbach and Whitman, College Algebra.

MATH. 102. TRIGONOMETRY 5-0-5. Freshman Year, Second Quarter.
Prerequisite: Math. 101. Staff.
A standard college course in plane trigonometry.
Text: Ballou and Steen, Trigonometry.

MATH. 103. PLANE ANALYTIC GEOMETRY 5-0-5. Freshman Year, Third Quarter.
Prerequisite: Math. 102. Staff.
Analytic geometry of point, line and circle; elementary conic sections; polar coordinates; transcendental curves useful in engineering.
Text: Steen and Ballou, Analytic Geometry.

MATH. 201. DIFFERENTIAL CALCULUS 5-0-5. Sophomore Year, First Quarter.
Prerequisite: Math. 103. Staff.
Theory of differentiation, with applications to tangents; maxima and minima; rates; curvature; velocity and acceleration; approximations; and Newton's method.
MATH. 202. \textbf{INTEGRAL CALCULUS} 5-0-5. Sophomore Year, Second Quarter. 
Prerequisite: Math. 201. Staff.
Formulas and methods of integration; single integration applied to areas and lengths; volumes and surfaces of revolution; centroids and moments of inertia; pressure and work.

MATH. 203. \textbf{DIFFERENTIAL AND INTEGRAL CALCULUS} 5-0-5. Sophomore Year, Third Quarter.
Prerequisite: Math. 202. Staff.
The law of the mean and indeterminate forms; series, with applications; partial and total derivatives, with applications; essentials of solid analytic geometry; multiple integration, applied to areas, volumes, centroids and moments of inertia.

Prerequisite: Freshman Mathematics. Staff.
Short methods of computation; interest and discount; annuities; amortization; depreciation; valuation and yield of bonds.
Text: Simpson, Pirenian and Crenshaw, \textit{Mathematics of Finance, Part II}.

MATH. 301. \textbf{DIFFERENTIAL EQUATIONS} 4-0-4. Junior Year.
Prerequisite: Sophomore Calculus. Staff.
Ordinary differential equations of the first and second orders; special types of higher order; applications to problems in chemistry, physics, mechanics.
Text: Phillips: \textit{Differential Equations}.

MATH. 601, 602, 603. \textbf{ADVANCED CALCULUS} 3-0-3. First, Second, and Third Quarters.
A three-quarter presentation of selected topics in advanced calculus such as implicit functions, line integrals, Bessel functions, Fourier series, complex variables, vector analysis and elliptic integrals.
Text: Franklin, \textit{Methods of Advanced Calculus}.

\section*{DEPARTMENT OF MECHANICAL ENGINEERING}


Mechanical Engineering entails hard work, physical and mental, and demands from the successful engineer native ability, technical training, determination, and willingness to take responsibility. Its courses of study are not designed to cover the entire field of technical thought and achievement, but to impress basic principles upon the student and train his mind to assimilate new ideas and draw correct conclusions from given facts.

The Mechanical Engineering Curriculum is arranged for those students who desire to enter the field of production, mechanical design, and heat power, with emphasis on the pure and engineering sciences that form the background for professional work in mechanical engineering.

Two options are offered; the regular option covering a thorough education in design and heat power, and the Tool Engineering option covering a thorough education in the application and design of tools for production.

Satisfactory completion of the curriculum leads to the degree of Bachelor of Mechanical Engineering.

\section*{FRESHMAN YEAR}
See Page 46

\section*{SOPHOMORE YEAR}

\textbf{NOTE}: Under Quarters, 1-3-2 means 1 hour class, 3 hours lab., 2 hours credit.

\begin{table}
\begin{tabular}{|l|l|l|l|}
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Draw. & 201-2 & Descriptive Geometry & 0-3-1 & 0-3-1 & \\
Eng. & 201-3-3 & Humanities & 3-0-3 & 3-0-3 & 3-0-3 \\
Math. & 201-2-3 & Calculus & 4-0-6 & 5-0-6 & 5-0-6 \\
M.E. & 203 & Pattern Laboratory OR & & & \\
M.E. & 201 & Machine Laboratory & 0-3-1 & & \\
M.E. & 204 & Foundry \ OR & & & \\
M.E. & 202 & Machine Laboratory & 0-3-1 & & \\
M.E. & 201-2 & Machine Laboratory OR & & & \\
M.E. & 203 & Pattern Laboratory and & & & \\
M.E. & 204 & Foundry \ OR & & & \\
Phys. & 207-3-9 & Physics & 5-3-6 & 5-3-6 & 5-3-6 \\
P.T. & 201-2-3 & Physical Training & 0-4-1 & 0-4-1 & 0-4-1 \\
ROTC & 201-2-3 & Military or Naval Training & 0-6-2 & 0-6-2 & 0-6-2 \\
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### JUNIOR YEAR

#### Tool Engineering Option

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#### JUNIOR YEAR

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### SENIOR YEAR

#### Tool Engineering Option

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</table>
A continuation of M.E. 201.

This course consists of instruction in the proper care and use of woodworking tools, machines and their safe operation, in benchwork, turning and elementary pattern work, giving a thorough understanding of the fundamental principles of woodworking.

Text: None.

M.E. 204. Foundry Laboratory 0-3-1. Sophomore Year, Second and Third Quarter.

This course in foundry practice consists of the elements of bench and floor work, with projects in simple mould building, in which two and three part flasks are used. Machine and other methods of mass production are put through with moulding machines, core presses and other equipment, mixing and pouring non-ferrous metals, such as brass and aluminum. Computation of charges, and operation of the cupola and brass furnaces are also taught.

Text: None.

M.E. 205. Welding Laboratory 0-3-1. Junior Year, First Quarter.

Prerequisite: None. Mr. Harrelson and Staff.

In this course is given a brief survey of the whole field of welding practice, including the fundamentals of electric arc and resistance, oxy-acetylene, forge, thermit and atomic hydrogen arc welding. By actual practice, the student is taught to use the oxy-acetylene torch, the electric arc and the electric resistance spot welding equipment.


Prerequisite: Draw. 103. Mr. Trotter.

This course includes an analysis of the motion chains and linkages, and the graphical determination of the velocities, accelerations and relative motions in these mechanisms.

Text: Keown and Faires, *Kinematics and Mechanisms*.

M.E. 301. Advanced Machine Laboratory 0-3-1. Junior Year, First Quarter.

Prerequisite: M.E. 202. Mr. Case and Staff.

In the lecture and demonstration work, a study is made of cutting speeds and feeds on necessary parts by simple and multiple methods which include milling, gear cutting, cam cutting, cylindrical grinding, internal grinding and the use of the boring mill. Emphasis is given to the production of various types of gears andcams.

Text: None.

M.E. 302. Advanced Machine Laboratory 0-3-1. Junior Year, First and Second Quarter.

Prerequisite: M.E. 301. Mr. Case and Staff.

A continuation of M.E. 301.

Text: None.

M.E. 303. Tool and Die Making 0-6-2. Junior Year, Second Quarter.

Prerequisite: M.E. 302. Mr. Case and Staff.

A combined lecture and laboratory course covering modern tools and die making methods, tools and die shop technique and equipment. Principal objective is to develop knowledge and not skill.

Text: None.


Prerequisite: M.E. 302. Mr. Case.

A lecture course in the practical application utilizing motion pictures, slides, catalogs and technical journals, and where possible, inspection trips. (Purpose: to supplement work on machines in college shops.)

Text: None.
M.E. 305. HEAT TREATING EQUIPMENT AND CONTROLS 0-6-2. Junior Year, Second Quarter.
Prerequisite: Ch.E. 325.
A general lecture and laboratory course covering fundamental principles and practice, types of heat treating furnaces, fuels, pyrometers and other control instruments; quenching media; conveyor systems and mechanical handling.
Text: Campbell, Heat Treating.

M.E. 306. HEAT TREATING 1-4-2. Junior Year, Second Quarter.
Prerequisite: Ch.E. 325.
This course presents the principles and practice related to working, heat treating and welding of steels, the steel making process and the classification of steels. The laboratory work includes the use of oxy-acetylene torch, electric arc, resistance spot welder, the forge, gas furnace, electric furnace, polishing and micro-photographic equipment. Physical tests are made upon welded joints before and after heat treating.
Text: None.

M.E. 320. THERMODYNAMICS 4-0-4.
Prerequisites: Phys. 207; Math. 203 or parallel.
This course includes the fundamentals of engineering thermodynamics. The development of equations for transformation of energy of gases and vapors is studied.
Text: Faires, Applied Thermodynamics.

M.E. 322. THERMODYNAMICS 3-0-3. Junior Year, First Quarter.
Prerequisite: Phys. 207; Math. 203 or parallel.
This course embraces a study of engineering thermodynamics. The fundamental laws are developed and the properties of fluids are studied.
Text: Faires, Applied Thermodynamics.

M.E. 323. THERMODYNAMICS 3-0-3. Junior Year, Second Quarter.
Prerequisite: M.E. 322.
A continuation of M.E. 320.
Text: Faires, Applied Thermodynamics.

M.E. 324. THERMODYNAMICS 3-0-3. Junior Year, Third Quarter.
Prerequisite: M.E. 323.
This course is a continuation of M.E. 323, dealing with the practical application of engineering thermodynamics. Compressors, internal combustion engines, vapor engine and refrigeration cycles are studied.
Text: Faires, Applied Thermodynamics.

M.E. 329. MECHANICAL EQUIPMENT OF BUILDINGS 2-0-2.
Prerequisite: Phys. 207.
A study of the principles of heating, ventilating, and plumbing, with the application of special problems.
Text: None.

M.E. 330 AIR CONDITIONING AND REFRIGERATION 3-0-3.
A study of the theory of heating, ventilation and refrigeration as applied to buildings.
Text: None.
M.E. 367. MACHINE DESIGN 4-3-5. Junior Year, Third Quarter.
Prerequisites: Mech. 302 and 332.
Mr. Trotter.
This course includes an analysis of motions and forces occurring in gearing, cams, belts, chains, linkages, and the graphical determination of velocities, accelerations and relative motion in mechanisms. The study of fundamental principles underlying the design of machines is begun.
Text: None.

M.E. 371. CUTTING TOOL DESIGN 2-3-3. Junior Year, Third Quarter.
Prerequisites: M.E. 303 and 304 parallel.
Mr. Case.
A combined lecture and drafting room course, coupled with shop tests on various designs of cutting tools. Stress laid on the importance of cutting angles, strength, accuracy, cutting tool materials—their heat treatment, etc.
Text: None.

M.E. 390. INSPECTION TRIP 0-3-1. Junior Year, Third Quarter.
Prerequisite: Junior Standing.
Selected trips for the observation and study of machine tools.
Text: None.

M.E. 430. HEATING, VENTILATION AND AIR CONDITIONING 3-0-3. Senior Year, Any Quarter.
Prerequisite: M.E. 324.
Mr. Holland and Mr. Mason.
This course includes the theory of heating, ventilating and air conditioning. Problems of a practical nature apply the theory to different types of buildings and conditions.
Text: Jennings, Heating, Ventilating and Air Conditioning.

M.E. 431. REFRIGERATION 3-0-3. Senior Year, Any Quarter.
Prerequisite: M.E. 324.
Mr. Mason and Mr. Holland.
This course is a study of the compressor, condenser, piping and accessories of the refrigeration plant, and other practical applications of the principles of refrigeration.
Text: Macintyre, Refrigeration Engineering.

M.E. 432. STEAM TURBINES 3-0-3. Senior Year, Any Quarter.
Prerequisites: M.E. 333 and 324.
Mr. Holland.
This course includes a detailed study of the design and operation of steam turbines.
Text: Church, Steam Turbines.

M.E. 433. POWER PLANT DESIGN 3-0-3. Senior Year, Any Quarter.
Prerequisites: M.E. 324 and 333.
Mr. Holland.
This course covers the design of a power plant. Load curves are analyzed in order that the proper type and size of steam generator, prime movers and all auxiliary equipment may be selected for the given requirements. Due consideration is given to the financial side of the problem. Specifications are considered with the purpose of limiting uncertainties and approaching the standards of modern practice.
Text: Morse, Power Plant Engineering Design.

M.E. 434. FLUID MECHANICS 5-0-5. Senior Year, First Quarter.
Prerequisites: M.E. 324 and Mech. 303.
Mr. Allen and Mr. Sweigert.
This course includes the study of: Statics and dynamics of fluids; Impulse and momentum of fluids; Flow of viscous fluids through pipes, orifices, etc., and dynamic similarity. It includes the study of compressible as well as non-compressible fluids. Use is made of dimensional analysis and thermodynamics. Elementary aerodynamics is included.

M.E. 435. HEAT TRANSFER 3-0-3. Senior Year, First Quarter.
Prerequisites: M.E. 324.
Mr. Allen and Mr. Sweigert.
This course covers the fundamentals of conduction, convection, and radiation of heat, with special emphasis on their practical application.
Text: None.

M.E. 436. INTERNAL COMBUSTION ENGINES 4-0-4. Senior Year, Any Quarter.
Prerequisites: M.E. 324; Mech. 303.
Mr. Allen and Mr. Sweigert.
A study of the mechanical construction, engine cycles, ignition, fuels, fuel feeds, combustion, vibration and balancing, and performance of internal combustion engines with reference to aeronautical, automotive, and industrial use.
Text: Polson, Internal Combustion Engines.

M.E. 437. DIESEL ENGINES 2-3-3. Senior Year, Any Quarter.
Prerequisite: M.E. 324.
Mr. Allen.
This course includes a study of the theory of diesel engines, maintenance and design of engines, fuel injection and lubrication system, fuels and combustion, combustion chambers, and testing of the engine in the laboratory.
Text: None.

M.E. 438. AERONAUTICAL ENGINES 4-0-4. Senior Year, Second Quarter.
Prerequisites: M.E. 323; Mech. 303.
Mr. Allen.
This course deals with the latest type of aeronautical engines with emphasis on such features as weight, economy, performance, fuels, testing, thermodynamics, vibration and noise.
Text: None.

M.E. 439. GAS TURBINES 3-0-3. Senior Year, Second and Third Quarters.
Prerequisite: M.E. 434.
Mr. Allen and Mr. Sweigert.
This course covers a study of gas turbines, operation and design including the application to jet engines.
Text: None.

M.E. 440. LOCOMOTIVES AND TRANSPORTATION 3-0-3. Senior Year, Any Quarter.
Prerequisite: M.E. 333.
Staff.
A study of the steam locomotive, diesel locomotive, steam turbine locomotives and gas turbine locomotive as power plants, is made. A study of the transportation problem is made especially as to resistance, tonnage rating, tractive force, etc.
Text: None.
M.E. 450. HEAT POWER LABORATORY 0-3-1. Senior Year, First Quarter.  
Prerequisites: M.E. 333 and M.E. 324. Staff.  
Air compression, boiler testing, feedwater treatment, internal combustion engines and steam turbine experiments.  
Text: None.

M.E. 451. HEAT POWER LABORATORY 0-3-1. Senior Year, Second Quarter.  
Prerequisites: M.E. 333 and M.E. 324. Staff.  
Experiments on refrigeration machinery, air conditioning equipment, air meters, etc.  
Text: None.

M.E. 452. HEAT POWER LABORATORY 0-3-1. Senior Year, Third Quarter.  
Prerequisites: M.E. 333 and M.E. 324. Staff.  
Experiments on heat transfer, pipe friction, combustion, etc.  
Text: None.

M.E. 453. INTERNAL COMBUSTION ENGINES LABORATORY 0-3-1. Senior Year.  
Prerequisite: M.E. 436. Staff.  
This course involves a study of the effect on power output and economy with varying engine temperatures, pressures, air-fuel ratios, etc.  
Text: None.

M.E. 454. AERONAUTICAL ENGINE LABORATORY 0-3-1. Senior Year.  
Prerequisites: M.E. 438 or M.E. 436. Staff.  
Economy and power tests of in-line and radial type engines together with testing of fuels and lubricants.  
Text: None.

M.E. 455. JIG AND FIXTURE DESIGN I 0-6-2. Senior Year, First Quarter.  
Prerequisite: M.E. 304. Mr. Case.  
A combined lecture and drafting room design course utilizing practical examples from industry, sample jigs and fixtures, etc.  
Text: None.

M.E. 456. JIG AND FIXTURE DESIGN II 0-12-4. Senior Year, Second Quarter.  
Prerequisite: M.E. 465. Mr. Case.  
A continuation of M.E. 465.  
Text: None.

M.E. 465. MACHINE DESIGN 3-3-4. Senior Year, First Quarter.  
Prerequisites: Mech. 303, 332. Mr. Trotter.  
This course includes an analysis of motions and forces occurring in gearings, cams, belts, chains, linkages, and the graphical determination of velocities, accelerations and relative motion in mechanisms. The study of fundamental principles underlying the design of machines is begun.  

M.E. 467. MACHINE DESIGN 4-3-5. Senior Year, Second Quarter.  
Prerequisite: M.E. 467. Mr. Trotter.  
A continuation of M.E. 467.  

M.E. 469. MACHINE DESIGN 4-3-5. Senior Year, Third Quarter.  
Prerequisite: M.E. 467. Mr. Trotter.  
A continuation of M.E. 468. The course continues with the study of fundamental principles underlying the design of machines, and takes up the solution of many problems in machine design. The data for many of these problems are taken from existing machines.  

M.E. 470. MOTOR VEHICLES 3-0-3. Senior Year, Any Quarter.  
Prerequisites: M.E. 436 and 468 or parallel. Mr. Sweigert.  
This course takes up the general layout of cars, including a study of clutches, transmissions, universal joints, differentials, front and rear axles, worm drive, brakes, steering gears, controls, frames, springs, etc. supplemented with assigned problems of design.  
Text: None.

M.E. 471. MACHINE TOOL DESIGN 3-0-3. Senior Year, First Quarter.  
Prerequisite: M.E. 367. Mr. Case.  
A lecture and recitation course on the design of modern machine tools utilizing previous courses taken in mechanics, strength of materials, engineering drawing, machine design, etc.  
Text: None.

M.E. 472. INSPECTION AND GAGING 2-0-2. Senior Year, First Quarter.  
Prerequisite: M.E. 367. Mr. Case.  
Inspection methods and systems. Principles of interchangeable manufacturing, systems of fits, limits and tolerance, design and application of inspection and gaging equipment.  
Text: None.

M.E. 473. METAL FORMING 3-0-3. Senior Year, First Quarter.  
Prerequisite: M.E. 367. Mr. Case.  
A lecture course covering the design and application of equipment for the nature and application of the following processes—flat die forging, drop forging, hot and cold heading and upsetting, coining, swaging, hot and cold rolling, wire drawing, extruding, etc.  
Text: None.

M.E. 474. HYDRAULICS AND PNEUMATICS APPLIED TO MACHINE TOOLS 3-0-3. Senior Year, Second Quarter.  
Prerequisite: M.E. 471. Mr. Case.  
Practical application of hydraulic and pneumatic circuits to machine tool controls; fixed and variable feed pumps and hydraulic motors; pistons, valves and electric solenoid controls; press applications; compressed air tools, chucks and clamps; air compressors, etc.  
Text: None.

M.E. 475. SHEET METAL WORKING AND DIE DESIGN 3-6-5. Senior Year, Third Quarter.  
Prerequisite: M.E. 367. Mr. Case.  
A course covering rolling mill practice and materials, punching and blanking dies and presses; forming, drawing and embossing dies and presses, shea-
ing, bending, beading, rolling, slitting and spinning, riveting, etc.; laboratory course in sheet metal and forging die design, utilizing practical examples borrowed from industry.

Text: None.

M.E. 476. Welding and Welded Structures 1-6-3. Senior Year, First Quarter.
Prerequisite: Mech. 333. Mr. Harrelson.
This course deals with the use of various methods of welding and makes a study of the strength of welded structures and applies welding to design.

Text: None.

M.E. 477. Tool Engineering Problems 0-12-4. Senior Year, Third Quarter.
Prerequisite: M.E. 475. Mr. Case.
The complete tooling of a product including selection of equipment and design of fixtures, selection of cutting tools, speeds and feeds, operating time, cost estimates, etc.

Text: None.

M.E. 490. Legal and Ethical Phases of Engineering 3-0-3. Senior Year, Any Quarter.
Prerequisite: Senior Standing. Staff.
This course covers the subject of contracts, patents, copyrights and trademarks, agency, sales agreements, and engineering specifications. The engineer and his relations to the law, to the public and the ethics of his profession.

Text: Harding and Canfield, Legal and Ethical Phases of Engineering.

M.E. 491. Seminar 1-0-1. Senior Year, First Quarter.
Prerequisite: Senior Standing. Mr. Sweigert.
Believing that the student branch of the National Engineering Society known as the A.S.M.E. should have an opportunity to meet at a regular scheduled period, one hour per week is set aside for their use. Members hold their meetings under the direction of their own officers. Students who are not members of the student branch are required to attend the regular seminar recitation.

Text: None.

M.E. 492. Seminar 1-0-1. Senior Year, Second Quarter.
Prerequisite: Senior Standing. Mr. Sweigert.
See M.E. 491.
Text: None.

M.E. 493. Seminar 1-0-1. Senior Year, Third Quarter.
Prerequisite: Senior Standing. Mr. Sweigert.
See M.E. 491.
Text: None.

M.E. 494. Special Problems in Mechanical Engineering 0-9-3. Senior Year, First Quarter.
Prerequisite: Senior Standing in Mechanical Engineering. Staff.
This course provides an outlet for the student fitted for original or research work. Opportunity is provided for him to determine his aptitude along various lines of endeavor. Only those students who have shown by their previous work that they can qualify are permitted to elect this course. They may elect any subject dealing with the field of Mechanical Engineering theory or practice.

Text: None.

M.E. 495. Special Problems in Mechanical Engineering 0-9-3. Senior Year, Second Quarter.
Prerequisite: Senior Standing in Mechanical Engineering. Staff.

See M.E. 494.
Text: None.

M.E. 496. Special Problems in Mechanical Engineering 0-9-3. Senior Year, Third Quarter.
Prerequisite: Senior Standing in Mechanical Engineering. Staff.
See M.E. 494.
Text: None.
DEPARTMENT OF MILITARY SCIENCE AND TACTICS

RESERVE OFFICERS TRAINING CORPS

The War Department maintains a Senior Division of the R.O.T.C. at this school. All physically fit students, except veterans, are required to take the basic course (first and second year). The Advanced Course is optional with qualified students.

Subjects covered in the Basic Course include: Infantry Drill Regulations; Organization of the Army; Military Discipline and Courtesy; Customs of the Service; Safe Guarding Military Information; Military Laws and Articles of War; Care of Clothing and Equipment; Interior Guard Duty; Military Sanitation and Sex Hygiene; First Aid; Mechanical Training, Rifle, Cal. 30-03; Mechanical Training, Rifle, Cal. 30-M-1; Drills and Ceremonies; Extended Order; Map and Aerial Photograph Reading; Rifle Marksmanship; Defense Against Mechanized Attack; Defense Against Chemical Attack; Field Fortifications; Individual Security; Scouting and Patrolling; Night Operations; Mechanical Training, BAR; Protection Against Carelessness; Marches and Bivouacs; Tactics and Small Units; Mechanical Training, HMG.

The Advanced Course of the R.O.T.C. has been reactivated. Authority has been granted to reestablish at this school units in the Coast Artillery, Infantry, Signal Corps and Ordnance. The program of the second year advanced course will consist principally of subcourses peculiar to arm or service concerned. The program of the advanced camp, which is usually given between the first and second years of the Advanced course, will consist principally of subcourses peculiar to the arm or service concerned, supplemented by practical, technical and tactical training and training in leadership.

Consideration is being given to establishing units in Air Corps, Corps of Engineers, Chemical Warfare Service and Quartermaster Corps. These Units, if approved, should be reactivated by September, 1946.

EQUIPMENT

The United States has placed equipment valued at several hundred thousand dollars at "Tech" for the use of the R.O.T.C. This equipment consists of .30 caliber rifles, machine guns, Browning Automatic Rifles, .22 caliber rifles and ammunition for small bore rifle shooting, surveying instruments and other types of military equipment.

The War Department plans to authorize the issue of arms, equipment, and special training aids in numbers and variety which will add greatly to the training efficiency of the R.O.T.C.

BENEFITS

Each advanced course student receives a monetary allowance (about $20.00 per month, paid monthly) in lieu of subsistence, equivalent to the current value of the garrison ration except during the period of the advanced camp when he receives the pay of the seventh enlisted grade and travel pay from the institution to and from camp at the rate of 5 cents per mile.

UNIFORM

Basic course (Freshman and Sophomore years): The approximate cost of winter uniforms is $35.00, which must be deposited with the school treasurer upon registration. Because of increasing prices, the cost of the uniform may exceed this amount slightly, in which case the student will be called upon for the difference. The uniform consists of cap, tie, coat or field jacket, shirt, trousers, and belt. In addition to the articles enumerated above, each student is required to provide himself with one pair of serviceable tan or russet shoes and tan or brown socks to be worn with the uniform. Each student is required to maintain his uniform in good condition and must replace lost articles and those articles that become unserviceable. The government makes allowances of $9.00 for each of the two years to each student who completes the year.

Students are not allowed to wear the uniform except on drill days or when special orders are given by the P.M.S. & T.

Advanced Course: For the Advanced Course the uniform is a standard United States Army Officer's Uniform consisting of a belt, garrison cap, coat, gloves, necktie, short overcoat, shirt, shoes, (Lowquarter and service) and trousers. These uniforms will either be furnished upon requisition by the institution or commutation in lieu of uniforms will be furnished.

COLLEGE CREDITS

The following college credits are allowed for Military Science and Tactics:

<table>
<thead>
<tr>
<th></th>
<th>Freshman or First Year (Basic)</th>
<th>Sophomore or Second Year (Basic)</th>
<th>Junior or Third Year (Advanced)</th>
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<td>(2 per term)</td>
<td>(2 per term)</td>
<td>(3 per term)</td>
<td>(3 per term)</td>
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BENEFITS

Each advanced course student receives a monetary allowance (about $20.00 per month, paid monthly) in lieu of subsistence, equivalent to the current value of the garrison ration except during the period of the advanced camp when he receives the pay of the seventh enlisted grade and travel pay from the institution to and from camp at the rate of 5 cents per mile.

UNIFORM

Basic course (Freshman and Sophomore years): The approximate cost of winter uniforms is $35.00, which must be deposited with the school treasurer upon registration. Because of increasing prices, the cost of the uniform may exceed this amount slightly, in which case the student will be called upon for the difference. The uniform consists of cap, tie, coat or field jacket, shirt, trousers, and belt. In addition to the articles enumerated above, each student is
Professor Robert M. Ervin, Department Head; Professor M. Gordon Brown; Associate Professors J. A. Campoamor and James Dixon Wright; Assistant Professor George F. Walker; Instructor E. B. Ellis.

The Department of Modern Languages seeks first to give the student sufficient mastery of a foreign language to enable him to read and understand with reasonable facility the scientific and technical literature of that language. Further, it seeks to inform the student, through the medium of the foreign language, of the civilization and literature of the countries where that language is spoken.

In addition to conventional methods, the instruction of the Department is supplemented by regular work in its sound room. This laboratory, with a collection of recordings and containing instruction tables equipped with headphones, enables the Department to make available to its students the most recent oral-aural methods of foreign language instruction.

### Courses of Instruction

**M.L. 101. Elementary German 3-0-3.** Freshman Year, First Quarter.
*Prerequisites:* None. Mr. Ervin and Staff.

- Pronunciation; essential principles of German grammar; rapid acquisition of vocabulary by conversation and reading of simple texts; elementary composition.

**M.L. 102. Elementary German 3-0-3.** Second Quarter.
*Prerequisites:* M.L. 101 or equiv. Mr. Ervin and Staff.

- Continuation and extension of the work of M.L. 101, completing the presentation of the principles of German grammar; introduction of scientific and technical reading texts through supplementary material provided by the instructor.

**M.L. 103. Elementary German 3-0-3.** Third Quarter.
*Prerequisites:* M.L. 101 and 102 or equiv. Mr. Ervin and Staff.

- Reading of German scientific and technical material and the acquisition of a large scientific vocabulary; review of German grammar; composition.
- Text: Morgan and Strothman, *Reading German*; Flechtnert, *Die Elemente*.

**M.L. 107. Elementary French 3-0-3.** Freshman Year, First Quarter.
*Prerequisite:* None. Mr. Ervin and Staff.

- Essential principles of French Grammar; acquisition of vocabulary through simple conversational exercises, reading and the use of French language recordings.
- Text: Swanson, *Concise French Grammar*; Hills and Dondo, *La France*.

**M.L. 108. Elementary French 3-0-3.** Freshman Year, Second Quarter.
*Prerequisites:* M.L. 107 or equivalent. Mr. Ervin and Staff.

- A continuation of M.L. 107; completion of the survey of French grammar; acquisition of a large general vocabulary through conversation and reading of texts dealing with French civilization and history.
- Text: Swanson, *Concise French Grammar*; Hills and Dondo, *La France*.

**M.L. 109. Elementary French 3-0-3.** Freshman Year, Third Quarter.
*Prerequisites:* M.L. 107 and 108 or equivalent. Mr. Ervin and Staff.

- Reading of selected texts; composition, extensive practice in the sound laboratory.
- Text: To be selected.

**M.L. 113. Elementary Spanish 3-0-3.** Freshman Year, First Quarter.
*Prerequisite:* None. Mr. Campoamor and Staff.

- Pronunciation; elementary grammar; reading and composition; simple conversational exercises.
- Text: Dale and Bergin, *Spanish Grammar*.

**M.L. 114. Elementary Spanish 3-0-3.** Freshman Year, Second Quarter.
*Prerequisites:* M.L. 113 or equivalent. Mr. Campoamor and Staff.

- Continuation of M.L. 113; completion of Spanish grammar; easy reading and composition; conversation.

**M.L. 115. Elementary Spanish 3-0-3.** Freshman Year, Third Quarter.
*Prerequisites:* M.L. 113 and M.L. 114 or equivalent. Mr. Campoamor and Staff.

- A continuation of M.L. 114, with emphasis on the reading of selected texts.
- Text: To be selected.

**M.L. 119. Elementary Russian 3-2-3.** First Quarter.
*Prerequisite:* None. Mr. Wright.

- The course is conducted by a combination of the following methods: the use of phonographic recordings; the study of grammar as presented in the form of type sentences; the study of more conventional grammar in condensed form; and the reading of selected elementary material. The entire course which is designed to cover three quarters, will consist solely in the study of grammar for the first quarter and for the greater part of the second quarter.
- Text: Lesnin and Petrova, *Spoken Russian*.

**M.L. 120. Elementary Russian 3-2-3.** Second Quarter.
*Prerequisites:* M.L. 119 or equivalent. Mr. Wright.

- A continuation of M.L. 119.
- Text: Lesnin and Petrova, *Spoken Russian*.

**M.L. 121. Elementary Russian 3-2-3.** Third Quarter.
*Prerequisites:* M.L. 119 and M.L. 120 or equivalent. Mr. Wright.

- A continuation of M.L. 119 and M.L. 120. During this quarter the emphasis will be on the reading of simple prose.
- Text: To be selected.

**M.L. 201. Intermediate German 3-0-3.** First Quarter.
*Prerequisites:* Three Quarters of elementary German or equivalent. Mr. Ervin, Mr. Wright, Mr. Ellis.
Reading of German scientific and technical material of greater difficulty; individual problems to conform whenever possible, with the student's special branch of engineering.

Text: Schinnerer, *Continuing German*; Wizinger, *German Science Readings*.

**M.L. 202. INTERMEDIATE GERMAN 3-0-3. Second Quarter.**
Prerequisite: M.L. 201.
Mr. Ervin, Mr. Wright.
A continuation of M.L. 201. Note: Both M.L. 201 and M.L. 202 are suitable courses for graduate students who have a knowledge of elementary German and who wish to prepare for reading knowledge tests for advanced degrees.

Text: Schinnerer, *Continuing German*; Sokol and Nye, *Beruehmte Forscher und ihre Beiträge*.

**M.L. 203. ADVANCED GERMAN 3-0-3. Third Quarter.**
Prerequisites: M.L. 201 and M.L. 202 or equivalent.
Mr. Wright.
Reading and discussion of selections from the German literature of the modern period, including *Novellen* and a drama.


**M.L. 207. INTERMEDIATE FRENCH 3-0-3. First Quarter.**
Prerequisites: Three quarters of elementary French or equivalent.
Mr. Ervin, Mr. Walker.
Reading of novels and short stories intended to give the student a large general vocabulary; review of French grammar.


**M.L. 208. INTERMEDIATE FRENCH 3-0-3. Second Quarter.**
Prerequisites: M.L. 207 or equivalent.
Mr. Ervin, Mr. Walker.
A continuation of M.L. 207 with selected readings in the student's special field.


**M.L. 209. ADVANCED FRENCH 3-0-3. Third Quarter.**
Prerequisites: M.L. 207 and 208 or equivalent.
Mr. Ervin.
Selected readings from the French literature of the XIXth Century, including a survey of the scientific literature of the century.

Text: Guthrie and Diller, *French Literature and Thought Since the Revolution*.

**M.L. 213. INTERMEDIATE SPANISH 3-0-3. First Quarter.**
Prerequisite: Three quarters of Elementary Spanish.
Mr. Campoamor, Mr. Walker.
Grammar and composition review; conversation; commercial terms; reading of more difficult material; language recordings.


**M.L. 214. INTERMEDIATE SPANISH 3-0-3. Second Quarter.**
Prerequisite: M.L. 213.
Mr. Campoamor, Mr. Walker.
Reading of advanced material; continuation of grammar and composition review; conversation; applied engineering terms; language recordings.


**M.L. 215. ADVANCED SPANISH 3-0-3. Third Quarter.**
Prerequisites: M.L. 213 and M.L. 214 or equivalent.
Mr. Campoamor, Mr. Walker.
Reading of selected texts.
Text: To be selected.
DEPARTMENT OF NAVAL SCIENCE AND TACTICS

Naval Reserve Officers Training Corps

During World War II, graduates of the Georgia Tech NROTC formed a vital part of the officer structure of the Navy. Many of them went to active duty in 1941 as Ensigns and were discharged in 1945 as Commanders, after having served in many different types of duty and all theatres of war.

Legislation has been enacted which will provide a greater number of officers trained by civilian institutions for the Regular Navy and Naval Reserve than in the highly successful prewar program.

The NROTC will be composed of two types of students, Regular and Contract. A Navy bulletin is quoted:

"Regular Students. These students will be appointed Midshipmen, USNR. They will have their tuition, fees and textbooks paid for by the Navy for a period not exceeding four years, will be uniformed at Government expense, and will receive retainer pay at the rate of $600 per year. They will obligate themselves to complete the prescribed Naval Science curriculum, to attend three summer cruises or training periods of from six to eight weeks, to accept a commission as Ensign, USN or Second Lieutenant, USMC on graduation, and to serve on active duty for two years after commissioning, unless earlier released by the Navy Department. At the beginning of the third year after commissioning, they will have the opportunity to apply for retention in the Regular Navy or Marine Corps, and will be so retained if selected under the quotas then in force. Students in this classification will not be entitled to receive simultaneous educational benefits under the G. I. Bill."

"Contract Students. These students will be enrolled under the provisions of the prewar legislation, which remains in effect. They will be uniformed at Government expense, and during their junior and senior years will be paid one commuted ration a day (currently 65 cents) while under instruction. They will obligate themselves to complete the prescribed Naval Science curriculum, to make one summer cruise of approximately three weeks, if required, to accept a commission on graduation as Ensign, USNR or Second Lieutenant, USMCR. They will not be obligated to serve on active duty after graduation, unless called as part of the Naval or Marine Corps Reserve in time of national emergency. They may, however, apply for active duty on commissioning, and after six months of such active duty may apply for transfer to the Regular Navy or Marine Corps. Students in this classification are entitled to receive the benefits listed above in addition to any educational benefits to which they may be entitled under the G. I. Bill for previous service in the armed forces."

The new curriculum, representing the best thoughts of a conference of selected naval officers and of representative civilian educators, will require approximately 36 hours of Naval Science courses. However, a substantial amount of the material now included in the Naval Science curriculum may be covered on summer cruises or in short tours of duty at naval shore establishments, which will reduce the number of hours required during the academic year. The curriculum will cover Marine Engineering, Naval Ordnance, Fundamentals of Aviation, Naval History, Naval Law, Naval Administration, Communications, Seamanship, and Navigation, some of which will be covered during summer cruises.

To enroll every student must:

1. Satisfy the normal entrance requirements of the Georgia School of Technology.
2. Demonstrate officer aptitude to a board of three officers and to the Professor of Naval Science and Tactics.
3. Meet Naval physical requirements.

Examinations for enrollment will be given at the Naval Armory beginning September 24th.

Three candidates may be nominated each year by the President of the Georgia School of Technology for competitive examinations for entrance to the United States Naval Academy. Such candidates must have completed a minimum of one year's scholastic work in the N.R.O.T.C.

DEPARTMENT OF PHYSICS

Professor Joseph H. Howey, Department Head; Professors James E. Boyd*, William A. Edison, and Franklin E. Lowance; Associate Professors Earle A. Bortell and Edward T. Prosser; Assistant Professors Densil Cooper, Walter P. Ewalt, Harold M. Herreman, and L. David Wyly, Jr.; Instructors William O. Alston, Robert W. Koza, Horace W. Sturgis, Charles W. Tope, and J. Quitman Williams

The department offers a curriculum leading to the degree of Bachelor of Science in Physics in addition to the elementary courses in physics which are required in the other curricula.

The course of study for a degree in physics is planned to give a thorough general training. This will meet the needs of those who wish to enter the engineering profession in fields involving complex instruments and equipment. It is particularly suited to those who are interested in engineering or scientific research work because of the unlimited scope of the fundamental subject matter. The course is also planned to serve as a basis for graduate work in physics and for subsequent specialization in any one field of physics. Students must have the approval of the Physics Department at the beginning of the Junior year to continue the course of study after the Sophomore Year.

The sophomore courses are designed to give all engineering students the basic training in physics which is prerequisite to engineering courses. Another equally important objective is to give a general scientific background needed by engineers in a world where current practices are constantly being made obsolete by new developments and new demands.

FRESHMAN YEAR

See page 46. Elementary German or elementary French is required for graduation. It may be taken in the Freshman year or in the Junior or Senior years as an elective.

SOPHOMORE YEAR

NOTE: Under Quarters, 3-0-3 means 3 hours class, 0 hours lab., 3 hours credit.

<table>
<thead>
<tr>
<th>Course</th>
<th>No.</th>
<th>Subject</th>
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<td>Eng.</td>
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<td>3-0-3</td>
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<td>ROTC</td>
<td>201-2</td>
<td>Military or Naval Training</td>
<td>0-0-3</td>
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ECONOMICS

E.E. MECH. 381-2
E.E. 321
Phys. 412
Approved Electives

Approved

Phya. 310
Math.

Phya. 429
Phya. 422

Course No.
148

Described under Physics 201 above.
Text: Black, College Physics.

Phys. 204. MECHANICS AND HEAT 3-0-3.
Prerequisite: Entrance Physics, Math. 103, and an acceptable amount of previous credit in physics.
Departmental Staff.
An intensive course in mechanics and heat. Credit for this course is equivalent to credit for mechanics and heat as required in Physics 207 and 208.
Text: Hausmann and Slack, Physics.

Phys. 205. ELECTRICITY, SOUND AND LIGHT 3-0-3.
Prerequisite: Phys. 204, Math. 201, and an acceptable amount of other previous credit in physics.
Departmental Staff.
An intensive course in electricity, sound, and light. Credit in this course is equivalent to credit for electricity, sound and light as required in Physics 208 and 209.
Text: Hausmann and Slack, Physics.

Phys. 207. MECHANICS 5-3-6. Sophomore Year, First Quarter.
Prerequisite: Entrance Physics and Math. 103. Mr. Howey and Staff.
Physics 207-8-9 together constitute a thorough course in basic physics for engineers. The five hours of class include one or two demonstration lectures per week. The solution of a large number of problems is required, and the course includes applications of the elements of calculus.
The laboratory work is designed to give practice in the art of making precise measurements, proficiency in the manipulation of apparatus and added familiarity with some of the concepts of physics. The theory of errors is stressed enough to give students the ability to decide under what conditions the greater expense of more precise measurement is justified.
Text: Hausmann and Slack, Physics.

Phys. 208. ELECTRICITY 5-3-6. Sophomore Year, Second Quarter.
Prerequisite: Phys. 207, Math. 201. Mr. Howey and Staff.
Electricity and related phenomena taught as a part of the basic physics course described under Physics 207.

Phys. 209. HEAT, SOUND AND LIGHT 5-3-6. Sophomore Year, Third Quarter.
Text: Hausmann and Slack, Physics.
Heat, sound, light and atomic physics taught as a part of the basic physics course described under Physics 207.
Text: Hausmann and Slack, Physics.

Phys. 310. ELECTRICITY AND MAGNETISM 5-6-7. Junior Year, First Quarter.
Prerequisite: Phys. 209, Math. 301 or concurrently. Mr. Edson.
Electric and magnetic fields. Dielectrics, conductors, magnetism, thermal and chemical effects. Motion of charges in electric and magnetic fields. Steady and alternating currents, circuit elements, units and standards.
Text: Page and Adams, Principles of Electricity.

Phys. 311. ELECTRONIC PHYSICS 3-6-5. Junior Year, Second Quarter.
Prerequisite: Phys. 310. Mr. Howey.
The physics of electronic tubes and their applications. Special purpose tubes, including magnetrons, ionization gauges, electrometer tubes, etc., are studied as well as the more common types of electronic tubes.

Text: Millman and Seely, *Electronics; Lecture Notes.*

**PHYS. 312. ATOMIC PHYSICS 5-0-5. Junior Year, Third Quarter.**

Prerequisite: Phys. 209. Mr. Lowance.

Text: Stranathan, *Particles of Modern Physics; Lecture Notes.*

**PHYS. 314. INSTRUMENTS FOR MEASUREMENT AND CONTROL 1-3-2. Senior Year, Second Quarter.**

Prerequisite: Phys. 209. Mr. Prosser.
The principles and methods for the measurement and control of temperature. Use of electronic tubes and photocell applications. Humidity measurement. Inspection of products by X-rays.


**PHYS. 315. EXPERIMENTAL PHYSICS I 0-6-2. Junior Year, Third Quarter.**

Prerequisite: Concurrent with Phys. 312. Mr. Lowance.
A selected group of experiments to accompany Physics 312. Among those performed are the Oil Drop Experiment, Ratio of e/m, conduction through gases, cloud chamber, and x-ray absorption and diffraction.

Text: Department notes and manual.

**PHYS. 318. INTERMEDIATE MODERN PHYSICS 4-3-5. Senior Year, Third Quarter.**

Prerequisite: Phys. 209. Mr. Lowance.
The structure of bulk matter. Molecular and atomic structure and the nature of elementary particles. Radiation, light and x-rays, and related phenomena of practical interest.


**PHYS. 320. MECHANICS 5-0-5. Junior Year, Second Quarter.**

Prerequisites: Phys. 209, Math. 301. Mr. Lowance.


**PHYS. 412. ELECTRIC AND MAGNETIC FIELDS 5-0-5. Senior Year, Third Quarter.**

Prerequisites: Phys. 310 and 311. Mr. Boyd.
Advanced study of electric and magnetic phenomena, including Maxwell's Equation, circuit theory, transient currents, electromagnetic waves and electrical oscillations. Special emphasis is placed on the theory and technique of ultra high frequency oscillations, micro-waves, and wave guides.

Text: Harnwell, *Principles of Electricity and Electromagnetism; Lecture Notes.*
DEPARTMENT OF PSYCHOLOGY
Professor Joseph E. Moore, Department Head; Instructor, Hamilton M. Moody.

COURSES OF INSTRUCTION

PSY. 301. INTRODUCTORY PSYCHOLOGY 3-0-3. Junior Year, Each Quarter.
Prerequisite: None.
Special stress is placed on the characteristics of human behavior, heredity, individual differences, emotions, sensory functions, learning, perceiving, social behavior, thinking and personality.

PSY. 302. APPLIED PSYCHOLOGY 3-0-3. Junior Year, Each Quarter.
Prerequisite: None.
Emphasis will be given to applying psychological principles to the problems of every day life. The use of psychology in advertising, business, education, law and criminology, medicine, politics, social adjustments and selling will be discussed.
Text: To be selected.

PSY. 401. INDUSTRIAL PSYCHOLOGY 3-0-3. Senior Year, Each Quarter.
Prerequisite: None.
Critical analysis of research and investigations dealing with accident prevention, employee morale and selection, job analysis, fatigue, learning, working conditions and labor-management problems will constitute this course. Special problems will be assigned.
Text: To be selected.

DEPARTMENT OF SAFETY ENGINEERING
Professor William N. Cox, Jr., Department Head.

The development of new industrial processes and materials is daily increasing the requirements of industry, business and government for safety engineers qualified to solve the varied problems of accident and health control. To satisfy this need, the Department of Safety Engineering offers to the graduate engineer with appropriate personal attributes one year of graduate training in safety engineering, affording a combination of advanced specialized safety courses and related substantiating courses to accommodate the conditions peculiar to the individual student. Adequate opportunity is offered for independent thought and study in preparation for mature consideration of new and unusual problems.

To accomplish an awareness of the accident problems in the chosen field of each engineering student, the Department is active in the integration of safety into the study programs of all appropriate courses and the revision of laboratory and shop procedures and equipment to exemplify accepted safe practices. The engineer is thus equipped to weigh safety considerations with those of strength, efficiency and economy in problems of design, construction and operation.

S.E. 401. INDUSTRIAL ACCIDENT CONTROL 3-0-3. Senior Year, First, Second and Third Quarter.
Prerequisite: None.
The evaluation of accident-control problems in industry; the elements of the industrial safety program and typical control measures.
Text: Blake, Industrial Safety.
DEPARTMENT OF TEXTILE ENGINEERING
The A. French Textile School
HERMAN A. DICKERT, Director
Professor C. A. Jones; Associate Professors R. L. Hill and J. L. Taylor; Assistant Professor J. W. McCarty; Supervisors J. R. Brandon and D. E. Philpott

This Department offers three optional courses leading to the degree of Bachelor of Science in Textile Engineering, Textile Chemistry and Dyeing, and Textile Manufacture. These, in each option, may be taken as regular four-year courses, or in accordance with the five-year Co-operative Plan.

Graduate courses are also provided leading to the degree of Master of Science in Textiles.

The Textile Department is vitally interested in serving the expanding textile industry, and the courses provided have as their objective the training of students for employment in this industry and its related branches.

During the first year the work is largely fundamental, including the basic courses in Mathematics, Physics, and Chemistry, followed by more specialized training in the field of Textiles during the Sophomore, Junior and Senior years.

Instruction through classroom, library, and experimental laboratory practice is arranged to give both a theoretical and practical understanding of textile procedure. Original work on the part of the student is encouraged in both regular and graduate courses.

Supervised mill visits to textile plants in this area are made periodically by Junior and Senior classes, thus giving the student contact with industry, and textile operations on a production scale.

FRESHMAN YEAR
See Page 46

TEXTILE ENGINEERING OPTION

SOPHOMORE YEAR

NOTE: Under Quarters, 3-0-3 means 3 hours class, 0 hours lab., 3 hours credit.

<table>
<thead>
<tr>
<th>Course</th>
<th>No.</th>
<th>Subject</th>
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<td>Eng.</td>
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JUNIOR YEAR

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SENIOR YEAR

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TEXTILE CHEMISTRY AND DYING OPTION

SOPHOMORE YEAR

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GEORGIA SCHOOL OF TECHNOLOGY

TEXTILE ENGINEERING 157

JUNIOR YEAR

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Electives

Total | 16-12-20 | 14-12-19 | 16-12-20 |

SENIOR YEAR

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Electives

Total | 16-9-21 | 17-9-20 | 15-9-19 |

MANUFACTURING OPTION

SOPHOMORE YEAR

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Courses of Instruction

NOTE: 4-3-5 means 4 hours class, 3 hours laboratory, 5 hours credit.

T.E. 201. RAW MATERIALS 3-0-3. Sophomore Year, First Quarter, Manufacturing Option.
Prerequisite: None. Staff.

T.E. 204, 205, 206. PRINCIPLES OF FIBER PROCESSING 3-3-4. Sophomore Year, Engineering Option; Junior Year, Chemistry and Dyeing Option; First, Second, and Third Quarters.
Prerequisite: None. Staff.

T.E. 201, 206. PRINCIPLES OF FIBER PROCESSING 3-3-4. Sophomore Year, Engineering Option; Junior Year, Chemistry and Dyeing Option; First, Second, and Third Quarters.
Prerequisite: None. Staff.

T.E. 204, 205, 206. PRINCIPLES OF FIBER PROCESSING 3-3-4. Sophomore Year, Engineering Option; Junior Year, Chemistry and Dyeing Option; First, Second, and Third Quarters.
Prerequisite: None. Staff.
spinning. T.E. 204 covers briefly a study of cotton classing limited to nine white grades and average staple. Course covers processing of natural and synthetic on cotton system.

Text: Lecture Notes, Suitable Texts and Laboratory.

T.E. 207, 208, 209. YARN MANUFACTURING 3-3-4. Sophomore Year; Manufacturing Option; First, Second, and Third Quarters.
Prerequisite: None. Staff.

This course is similar to T.E. 204 going into further detail of machine construction, theory of processing and methods of process control. Covers practical machine operations and textile calculations, work on conventional and long draft equipment.

Text: Lecture Notes, Textbooks, and Laboratory.

T.E. 316. FABRIC DESIGN 0-3-1. Junior Year, Engineering Option and Chemistry and Dyeing Option, First Quarter.
Prerequisite: None. Staff.

Course covers the fundamentals of woven design, including the basic weaves and the construction of drafts.

Text: Lecture Notes, Quizzes, Problems and Plates.

Prerequisite: T.E. 316. Staff.

A continuation of T.E. 316 to give students of the Engineering Option additional basic training in design.

Text: Lectures, Quizzes, Problems and Plates.

T.E. 318. FABRIC ANALYSIS 1-3-2. Junior Year, Engineering Option and Chemistry and Dyeing Option, Third Quarter.
Prerequisite: None. Staff.

A course in yarn and cloth calculations and analysis similar to T.E. 323, but designed to meet the needs of students choosing the Engineering or Chemistry and Dyeing Option.

Text: Lectures, Quizzes, Problems, Laboratory.

T.E. 320. FABRIC DESIGN AND ANALYSIS 2-3-3. Junior Year, Chemistry and Dyeing Option, Second Quarter.
Prerequisite: T.E. 316. Staff.

A continuation of T.E. 316 to give students of the Engineering Option additional basic training in design.

Text: Lecture Notes, Quizzes, Problems and Plates.

T.E. 322. FABRIC STRUCTURE AND DESIGN 0-3-1. Junior Year, Manufacturing Option, First Quarter.
Prerequisite: None. Staff.

A study of the fundamental weaves; their structures, properties and applications to various types of fabrics. Drafting of weaves for cam and dobby looms. Production of patterns by color and weave effects.

Text: Lectures, Problems, Quizzes, and Plates.

T.E. 323. FABRIC ANALYSIS 0-3-1, Junior Year, Manufacturing Option, Second Quarter.
Prerequisite: T.E. 322. Staff.

Covers yarn and cloth calculations. Fabric samples are dissected for the weave and drafts to make student familiar with the technique of pick-outs. Fabrics from natural and synthetic fibers are analyzed.

Text: Lectures, Problems, Quizzes, and Laboratory.
T.E. 324. DOBBY DESIGN AND ANALYSIS 3-0-3. Junior Year, Manufacturing Option, Third Quarter.
Prerequisite: None. Staff.
Covers the design and analysis of dobby woven fabrics. The designing covers backed and figured weaves, double cloths, pile weaves, lenos, etc. The analysis includes fabrics of natural and synthetic fibers in a wide range of fancy cloths.
Text: Lectures, Problems, Quizzes and Plates.

T.E. 327. TEXTILE CHEMISTRY DYEING 3-0-3. Junior Year, Chemistry and Dyeing Option, Third Quarter.
Prerequisite: None. Staff.
Covers the theory of bleaching, dyeing, and finishing with stress placed on the chemistry and mechanics of the processes involved. Both natural and synthetic fibers are stressed.
Text: Lectures, Notes, Textbooks.

T.E. 332. MECHANISMS OF KNITTING 1-3-2. Junior Year, Manufacturing Option; Second Quarter Senior Year, Engineering Option; First and Second Quarters.
Text: Lecture, Notes and Laboratory.

T.E. 333. ADVANCED KNITTING 1-3-2. Junior Year, Manufacturing Option, Third Quarter.
Prerequisite: T.E. 332. Staff.
Course covers theory and practice of manufacturing fancy knit fabrics on latch and spring needle machines. The designing of fancy patterns is included in this course.
Text: Lectures, Notes and Laboratory.

T.E. 416. FANCY DESIGN AND ANALYSIS 3-0-3. Senior Year, Manufacturing Option, First Quarter.
Prerequisite: T.E. 324. Staff.
A study of the design and analysis of fancy and complex fabrics with particular emphasis upon jacquard patterns. Includes the planning of original sketches and the execution of designs for jacquard patterns such as terry, demask, upholstery, etc.
Text: Lectures, Quizzes, Problems and Plates.

T.E. 419. COLOR IN DESIGN 2-0-2. Senior Year, Manufacturing Option, First Quarter.
Prerequisite: None. Staff.
Course covers the theory of color, application of color to textiles, contrast and harmony of color, color schemes in stripes and checks, color and weave effects.
Text: Lectures, Plates, Quizzes.

T.E. 420. STANDARD FABRICS 3-0-3. Senior Year, Manufacturing Option, Second Quarter.
Prerequisite: None. Staff.
Course acquaints the student with the staple and fancy fabrics of the Textile Industry and covers those made from natural and synthetic fibers. It covers the description, construction, finishes, properties, uses, etc.
Text: Lectures, Quizzes, Samples and Plates.

T.E. 422. JACQUARD DESIGN AND WEAVING 2-3-3. Senior Year, Manufacturing Option, First Quarter.
Prerequisites: T.E. 210, 211, 212. Staff.
Course is offered to students in the Textile Manufacturing Option and covers the theory and practice of jacquard design and weaving. This is an advanced course necessary to the operating man.
Text: Lectures, Notes, Textbooks, and Laboratory.

T.E. 425, 426, 427. TEXTILE CHEMISTRY AND DYEING 3-3-4. Senior Year, Chemistry and Dyeing Option; First, Second, and Third Quarters.
Prerequisite: T.E. 327. Staff.
These courses are a continuation of T.E. 327 and stress laboratory practices in bleaching, dyeing and finishing. This portion of the course is followed with pilot plant tests where laboratory tests are translated into semi-commercial application.
Text: Lectures, Notes, Textbooks and Laboratory. Fee $1.00 per course.

T.E. 428. SYNTHETIC FIBERS 2-0-2. Senior Year, Chemistry and Dyeing Option, First Quarter.
Prerequisite: None. Staff.
Course is designed to give student necessary background for handling synthetic fibers. Covers the chemistry of the manufacturing of synthetic fibers by all major processes. It will cover all phases of manufacture.
Text: Lectures, Quizzes, Notes.

T.E. 429. SYNTHETIC FIBERS 2-0-2. Senior Year, Chemistry and Dyeing Option, Second Quarter.
Prerequisite: T.E. 428. Staff.
A continuation of T.E. 428 and covers a complete survey of textile processes for handling synthetic fibers. This includes all major processes including the cotton, wool, worsted and silk systems.
Text: Lectures, Quizzes, Notes.

T.E. 434. PHYSICAL TEXTILE TESTING 0-3-1. Senior Year, All Options; First, Second, and Third Quarters.
Prerequisite: None. Staff.
Teaches methods and techniques of testing fibers, yarns and fabrics made from natural and synthetic fibers. Covers standard A.S.T.M. methods and practices of testing as well as a study of the various machines and apparatus employed in standard testing laboratories.
Text: Lectures, Notes, Textbooks and Laboratory.

T.E. 435. PHYSICAL TEXTILE TESTING 0-3-1. Senior Year, Chemistry and Dyeing Option, Second Quarter.
Prerequisite: T.E. 434. Staff.
T.E. 448. TEXTILE COSTING 2-0-2. Senior Year, Manufacturing Option, Second Quarter.
Prerequisite: T.E. 447. Staff.
This is a more advanced course designed to give the Manufacturing Option student additional work with reference to costs in Textile Mills.
Text: Lectures, Textbooks, Discussion, Problems, and Quizzes.

T.E. 450. TEXTILE CALCULATIONS 3-0-3. Senior Year, Engineering Option, Second Quarter.
Prerequisites: T.E. 206 or 209.
Supplies the Textile Engineering student with a concentrated course of calculations dealing with machine operations, process control and mill organization.
Text: None.

T.E. 451. MILL ENGINEERING 3-0-3. Senior Year, Engineering and Manufacturing Options, Third Quarter.
Prerequisites: T.E. 308 for Manufacturing Option; T.E. 206 and T.E. 450 for Engineering Option.
Course includes problems of mill organization, equipment and layout of machinery, equipment cost, problems of conversion when changing machinery to manufacture a different product, etc.
Text: Lectures, Notes, Quizzes.

T.E. 454. SEMINAR 1-0-1, Senior Year, All Options, Third Quarter.
Prerequisite: None Staff.
Course designed to teach students use of technical literature and to develop poise in presenting problems to a group of men. Students get training in conducting discussions of current textile problems.
THE DIVISION OF GRADUATE STUDIES

Administrative Officers of the Graduate Division

John Laurence Daniel, M.A. Vice-Dean
Lloyd Walter Chapin, M.A. Registrar
Robert Strite, B.S. Comptroller

Other Administrative Officers

Phil B. Narmore, Ph.D. Executive Dean
Cherry L. Emerson, B.S. in E.E. and M.E. Dean of Engineering
Ralph A. Hefner, Ph.D. Dean of General Studies
Domenico Pietro Savant, B.S. and M.S. in E.E., E.E. Vice-Dean of Engrg.
George Griffin, B.S. in C.E. Dean of Students

Graduate Council

Robert I. Sarrbacher, Sc.D. Chairman
Lloyd W. Chapin, M.A. Secretary

Appointment Expiring June 30, 1947:
Joseph Herman Howey, Ph.D., Professor of Physics and Head of the Department
Ray L. Swiegeert, Ph.D., Professor of Mechanical Engineering and Head of General Engineering Department
Domenico Pietro Savant, B.S. and M.S. in E.E., E.E., Vice-Dean of Engineering

Appointment Expiring June 30, 1948:
Robert Lewis Allen, M.S., Associate Professor of Mechanical Engineering
Donnell Wayne Dutton, M.S., Professor of Aeronautical Engineering and Head of the Department
Paul Weber, Ph.D., Professor of Chemical Engineering

Appointment Expiring June 30, 1949:
William A. Edison, Ph.D., Professor of Physics
Jesse W. Mason, Ph.D., Professor of Chemical Engineering and Head of the Department
Homer S. Weber, Ph.D., Professor of Mechanical Engineering and Acting Head of the Department

Appointment Expiring June 30, 1950:
Phil B. Narmore, Ph.D., Executive Dean
John L. Daniel, M.A., Vice-Dean, Division of Graduate Studies
Thomas H. Evans, M.S., Professor of Civil Engineering and Head of the Department

Graduate Bulletin

The Division of Graduate Studies offers an opportunity to obtain that background of specialization, professional study, research, and independent work toward an individual objective that the increasing complexity of the engineering field has made so highly desirable.

Degrees and Fields of Study

The degree of Master of Science is offered with designation in the following fields: Aeronautical Engineering, Ceramic Engineering, Chemical Engineering, Chemistry, Civil Engineering, Electrical Engineering, Industrial Engineering, Industrial Management, Mechanical Engineering, Physics, and Textile Engineering. It may be awarded without designation when the student does not major in the field in which he has earned his bachelor's degree.

The degree of Doctor of Philosophy is offered in certain fields of specialization. It is recommended that those interested correspond with the Dean of the Division of Graduate Studies, setting forth in as much detail as possible their projected programs, before making formal application for entrance.

In addition to the fields of study listed above for the Master of Science degree, collateral study of an advanced nature is available in Architecture, Architectural Engineering, Industrial Psychology, Mathematics, Mechanics, Modern Languages, and Public Health Engineering.

Scholarship Aid

Graduate assistantships, part-time instructorships, and graduate fellowships are available to properly qualified graduate students. For details, correspond directly with the Dean of the Division of Graduate Studies.

Admission

In general, applicants for admission to graduate study should hold a bachelor's degree from a recognized university, school, or college and should have graduated with academic standing in the upper half of their class. Those applicants who plan to become candidates for the doctorate should have had an academic standing in the upper quarter of their baccalaureate class or must have demonstrated, or be prepared to demonstrate, outstanding ability in their work toward a master's degree.

Length of Study and Graduate Requirements

Thirty-six quarter hours of advanced study past the bachelor's degree plus a thesis or forty-eight quarter hours of advanced study past the bachelor's degree without a thesis are necessary in fulfillment of the requirements for the master's degree. One full academic year in residence past the bachelor's degree must be completed on campus before the master's degree can be awarded.

Three full academic years of advanced study and research past the bachelor's degree are required for the award of the doctorate. Ordinarily between 67 and 90 quarter hours of advanced work in course will be undertaken, the balance of the required time being devoted to research and the preparation of the dissertation. At least three full quarters of the doctorate program must be spent in residence at the Georgia School of Technology, and unless special permission is obtained, these must be the three immediately preceding the award of the degree.

A copy of the Graduate Bulletin, discussing requirements for advanced degrees in detail and listing advanced work in course available in the various departments, may be obtained on request from the Dean of Graduate Studies,
EXTENSION DIVISION

Office, Swann Hall, Corner North Avenue and Cherry Street

R. S. HOWELL, Director; MRS. BLANCHE B. TURNER, Registrar; MRS. EVA H. BURKE, ASSISTANT TO REGISTRAR; MRS. JEWELL D. KING, Secretary.

The Extension Division of Georgia Tech is the result of more than fifty years of experience in aiding the industries and the people of this region in securing more technical knowledge and better educational advancement, when those concerned do not have the time or money with which to pursue a full time formal academic education.

The division is designed both as a campus and an off-campus educational program to serve the people and industry of the state where a need exists for part time training. The scope of its work includes vocational training, specialized intensive courses designed to train those wishing to qualify as engineering aides and technicians, as well as college level and graduate courses in engineering.

The Extension Division administers its evening campus courses through the evening school and off-campus and other courses through the extension school.

The courses of study are offered for two purposes: first, to give those who are employed, or who seek employment, in some phase of engineering or industry, an opportunity to supplement their knowledge through part time study; second, to provide an opportunity for educational advancement for those who may subsequently continue their formal academic education.

While not all of the courses may be used for college credit, they furnish a good training in the elements of engineering. The student who receives a certificate in any of these courses should be qualified for advancement in his life work.

EVENING SCHOOL

FACULTY

The faculty of the evening school is composed of members of the day school faculty, together with special instructors who are specialists in their respective subjects.

Lecturers and Specialists

MILLARD S. ALEXANDER ........................................2239 Memorial Drive, S. E.
Radio Fundamentals and Maintenance

CHARLES THOMAS BAKER .........................................1070 Spring Street, N. W.
Refrigeration

SINDY Q. JANUS, Ph.D. .........................................851 Wildwood Road, N. W.
Personnel and Industrial Psychology

HENRY H. JORDAN, Registered Architect .....................475 Clifton Road, N. E.
Blue Print Reading and Estimating

JAMES S. MORRIS .............................................1931 Piedmont Road, N. E.
Radio Fundamentals and Maintenance

JAMES LEROY SARGENT ........................................409 Melrose Avenue, Decatur, Ga.
Radio Fundamentals and Maintenance

FEES

The admission fee for the various courses in the evening school is dependent upon the number of hours scheduled per week. Three dollars of the admission fee for any course is a registration fee which cannot be refunded.

A shop or laboratory fee is charged each student taking shop or laboratory work in order to cover cost of incidental supplies. The amount of this laboratory fee varies with the nature of the laboratory or shop work.

Projects that are constructed by the student become his property upon payment for materials used.

Calendar 1946-1947

Fall Quarter

Begins September 30, 1946 ..........................Ends December 19, 1946

Spring Quarter

Begins January 3, 1947 ..........................Ends March 20, 1947

Summer Quarter

Begins March 24, 1947 ..........................Ends June 11, 1947

Begins June 16, 1947 ..........................Ends August 29, 1947

Courses of Instruction

A copy of the Evening School catalog, giving description of courses in detail, will be sent on request.

Graduate Courses

Graduate courses may be offered in the evening with the approval of the Dean whenever they are applied for by a sufficient number of qualified students.

College Credit Courses

The following regulations concerning college subjects taken in the evening school have been approved by the day school.

1. Final examinations shall be given in the Evening School in those subjects in which final examinations are given in the day school and a record of the term grades shall be kept by the Director. For a student to qualify for a day school examination in a subject, his term grade must be "C" or better.

2. Evening School students who are not in good standing in the day school, but upon whom requirements for being reinstated have been placed, may take day school examinations for credit if otherwise eligible. Students who are "excluded" will not be permitted to take day school examinations.

Practically all subjects of the freshman and sophomore subjects are now available in the evening classes. By this arrangement for credit, the night college credit courses are used advantageously by high school students and others who find it necessary to take up employment. Such students are able, during the period of employment, to pursue studies in the evening school which may be accredited toward a degree.

Three Year Certificate Courses

Technical institute programs essentially technological in nature and intermediate between those of the high school or the vocational school and an engineering college. The curricula, offered in the various fields of engineering, are briefer, more intensive, and more specific in purpose than collegiate engineering curricula. Their aim is to prepare individuals for specific technical positions or lines of activity rather than for broad sectors of engineering practice.

Requirement for admission—High School graduation or equivalent.

Special Courses

These practical courses are designed for those men who are engaged in similar work during the day and who either have not had sufficient preparation to take one of the certificate courses, or wish a shorter course in some special subject. Elementary courses in algebra and geometry are desirable for most of these courses.

Acetylene and Electric Welding, Air Conditioning, Applied Electricity,

EXTENSION SCHOOL

VETERANS EMERGENCY TRAINING

The Division of Emergency Training has been established in the Extension Division for returning service men enrolled for veterans' training. The purpose of the Division of Emergency Training will be to make available remedial and refresher courses, college level courses, and a limited number of entrance courses for making up minor deficiencies in high school training.

Veterans may also enroll for part time training in vocational courses, refresher courses, as well as college credit courses in the Evening School.

INDUSTRIAL EDUCATION

PROFESSOR T. H. QUIGLEY AND ASSISTANT PROFESSOR JAMES F. CANNON

In conformity with the provisions of the Smith-Hughes Act, this department has the responsibility of training trade and related industrial teachers for the following types of schools and classes in the State of Georgia:

1. Evening classes in public schools and industrial plants.
2. All day public trade schools.
4. Foremanship courses.

The activities of the department include research to determine specific industrial education needs of a community, industry or plant, developing courses of study to meet these needs; selection of teachers of the required industrial experience; training these teachers for specialized service; the development of specialized instructional materials for use of such teachers; the training of local teacher trainers in the larger industrial centers; and the improvement of teachers in service after placement.

Because of the specialized local character of this extension work all activities are conducted under special arrangements between the Georgia School of Technology, the Georgia State Board for Vocational Education, local boards of education, and industrial plants. The following courses and other activities are conducted at many localities in the state: history of education, principles of industrial education, organization of trade education, organization of part time education, foremanship conferences, vocational guidance, training industrial teachers in service, journal reading, methods of teaching, methods of shop demonstration, organization of manual training, educational psychology, industrial psychology, business psychology, course planning, lesson planning, practice teaching, industrial plant surveys, shop organization, general school organization, teaching related subjects, training industrial teachers in service, and trade analysis.

SPECIAL SHORT SCHOOL AND CONFERENCES

Water Plant Operators

The Georgia School of Technology, in cooperation with the State Board of Health, conducts each year, usually in September, a Short School for Water and Sewage Plant Operators. This work is given under the supervision of Professor H. A. Wyckoff, head of the department of Biology and Public Health Engineering. The school, which lasts for four days, is conducted on the Tech campus and consists of lectures, laboratory classes and demonstrations intended to give information concerning modern theories and practices in water purification and sewage disposal. Trips for inspection are also made to nearby water and sewage plants. Instruction is given by professors chosen from the Tech faculty, members of the State Board of Health, and men prominent in related industries, who are specialists in their various fields.

Schedule for 1946—September 16-18.

Southeastern Motor Vehicle Fleet Supervisors Training Course

In cooperation with the National Safety Council, together with other national and local sponsoring agencies, this course is designed to acquaint fleet owners, operators, supervisors, and safety personnel or training directors with the most practical and productive methods of establishing and maintaining an accident prevention program.

The classes and conferences, which continue through five days, are conducted on the campus and consist of lectures, conferences, and demonstrations of testing the motor vehicle driver.

The course is given under the supervision of Professor W. N. Cox, Head of the Safety Engineering Department.

Schedule for 1946—September 23-27.
OFFICE OF DEAN OF STUDENTS

GEORGE C. GRIFFIN, Dean of Students; FRED W. AJAX, Associate Dean of Students; JOHN J. PERSHING, Assistant Dean of Students; MRS. J. W. PEARSON, Executive Secretary; MRS. ELAINE F. COOK, Assistant Executive Secretary; Secretary; MISS ELIZABETH MCCLURE, Office Secretary.

The Office of Dean of Students attempts to provide satisfactory adjustment of the students to college life and assists the men thinking through their life problems and strengthening their standards and ideals.

The Dean of Students registers all freshmen as they report on the campus to begin their college life, explaining to them the steps necessary for meeting classes, gives instruction in the topics; importance of a college record health and hygiene; campus activities; and discusses the technique of making proper social contacts through the local churches and campus social groups.

An employment service is maintained for students who need assistance to provide for their school expenses. This service provides part-time employment for worthy students; however, the average student is unable to carry a full schedule and work more than two hours per day without failure in one or more subjects. A student who must work in order to provide for his school expenses should ask for a lighter schedule and allow more than twelve quarters to secure his degree.

A personal interview is provided for each freshman after the work is well started to see that he is properly adjusted and in many cases schedules are changed, medical attention is provided, and correspondence with parents or other action assists the student in making progress in his education.

For the seniors, up-to-date contact is maintained with the leading engineering concerns of the nation who need the services of our graduates. Data is collected from all seniors and conferences are arranged with employers for personal interviews with seniors interested in securing positions.

The Office of Dean of Students is always open for any student seeking counsel in his courses or his life interest and is ready to advise these men with reference to methods of procedure and correct attitudes in securing for themselves, and their associates in the days to come, the best results for their life.

The Alumni Secretary, in his capacity as Alumni contact man, acts as a clearing house for Tech men after graduation and all Tech men are urged to keep their files in this office up-to-date, giving their location, activities, and other points of valuable information, in order that they may be consulted without delay on problems of mutual interest which arise frequently in the central office.
STATE ENGINEERING EXPERIMENT STATION

Directional Staff

Gerald A. Rosselet, Director
Paul Weber, Assistant Director


Faculty Research Associates: H. E. Dennison, Professor of Economics and Social Science; D. W. Dutton, Professor of Aeronautical Engineering; C. A. Jones, Professor of Textile Engineering; R. L. Schweigert, Professor of Mechanical Engineering; A. J. Walker, Professor of English; H. A. Wyckoff, Professor of Public Health Engineering; R. L. Allen, Associate Professor of Mechanical Engineering; Fred Bellinger, Associate Professor of Chemical Engineering; K. L. Hill, Associate Professor of Textile Engineering; Martial A. Honnell, Professor of Electrical Engineering; J. H. Lucas, Associate Professor of Civil Engineering; Alan Y. Pope, Associate Professor of Aeronautical Engineering; J. L. Taylor, Associate Professor of Textile Engineering; B. J. Dasher, Assistant Professor of Electrical Engineering; H. V. Grubb, Assistant Professor of Chemical Engineering; L. V. Johnson, Associate Professor of Aeronautical Engineering; G. N. Sisk, Assistant Professor of Economics and Social Science; C. K. Williams, Associate Professor of Aeronautical Engineering; C. F. Wysong, Assistant Professor of Ceramic Engineering; W. H. Burrows, Assistant Professor of Chemistry; J. J. Harper, Assistant Professor of Aeronautical Engineering; R. W. Koza, Instructor in Physics; D. E. Philpott, Instructor in Textile Engineering.

Research Associate Professors: B. H. Weil, Chemical Engineering, Chief, Technical Information Division; W. T. Ziegler, Chemical Engineering.


Research Engineer: R. A. Hall, Mechanical Engineering.

Research Fellows: Joseph B. Hosmer, Economics; D. A. Hutchison, Chemistry.

Consultants: Ben Akerman, Electrical Engineering; J. W. Firor, Industrial Economics; Frank P. King, Agricultural Economics; A. C. Munyan, Geology.

Research Assistants: Irvin Barnett; Bessie L. Cheek; Rebecca Christian; W. B. Cown; E. L. Eckholm; E. Margaret Fear; Frances S. Friedman; C. G. Johnson; George C. Mabry, Jr.; D. W. Mader; George S. Patrick; John R. Poer; Betsey J. White; H. L. Williams; Howard L. Wood.

Technical Assistants: George W. Cook, Jr.; Paul Disspain; Ray S. Leonard; D. M. Martin; J. B. Payne.

Secretary: Mrs. Dorothy C. Parker.
Stenographer: Miss Eleanor M. Cox.
Typist-Clerks: Mrs. Stella Brendle; Miss Dorothy Wilson.

The State Engineering Experiment Station of the Georgia School of Technology is the engineering research agency of the University System of Georgia. It serves to coordinate and advance research activities of the school through an integrated program of fundamental and applied research and development, for the purpose of contributing to the general welfare of the State. It is organized to aid directly in the development and integration of industrial and agricultural activities and better utilization of resources in the South, through its investigations and technological studies.

The Station is in a position to investigate problems financed by the State alone or wholly or in part by industries, governmental bureaus, and technical foundations, as outlined in a prospectus, "Supremacy Through Research." Funds from external sources to finance co-operative investigations are administered in trust.

The research staff of the Station is made up of faculty members of the various departments of the school, Graduate Research Assistants and Fellows, and fulltime Research Fellows, Assistants and Consultants. All interested faculty members are encouraged to undertake research work along with their teaching duties. These men have at their disposal a variety of special research equipment and facilities in addition to the regular equipment available to them in the various departments of the school. Advanced and graduate students are employed on projects, whenever feasible, to afford them direct experience and training in research and development work.

Administrative activities center in the large, new, modern, and well-equipped Research Building. This unit provides an excellent model machine shop, chemical laboratory, large and completely flexible work floor area with readily available utility services for full-scale pilot plant operations, chemical control laboratory, drafting room, conference rooms, photographic and microscopic dark rooms, and offices.

Each year a number of Research Graduate Assistantships or Fellowships are awarded. These positions carry stipends of a minimum of $325 per semester of part-time work and are open on a competitive basis to qualified graduates of accredited institutions. For information concerning academic requirements for advanced degrees applicants are requested to refer to the section of the catalogue on the Division of Graduate Studies.

The results of investigations are made available to the public by publication in technical periodicals and in the bulletins, circulars, and reprints of the Station.

During the year 1944-45 the Station utilized the full-time services of 48 persons and part-time services of 62 persons in the prosecution of 30 major and 12 minor research problems. Fundamental and applied engineering investigations were carried on in Textiles, Aeronautics, Chemical Engineering, Chemistry, Physics, Sanitation, Mechanical Engineering, and Industrial Economics. Many of the projects were supported by external agencies.
The Joseph Brown Whitehead Memorial Hospital has been in operation for thirty-six years. The hospital is a two story, steam heated, brick building located on the campus. It has a normal capacity of thirty (30) beds, and is made up of two large, comfortable wards, two smaller isolation wards and three private rooms. The hospital also houses the physician's office, examining and treatment rooms, reception room, the clinical X-ray and physiotherapy laboratories, a sun porch, diet kitchen and nurses' quarters.

The hospital staff headed by the Director of Health consists of the school physician, an associate physician, an interne, three full time registered nurses, X-ray and physiotherapy technician, laboratory technician and two orderlies. The control of the hospital is vested in a faculty committee composed of Dr. Leslie Morris, Coach W. A. Alexander, Dean G. C. Griffin and Dean Phil Narmore.

The facilities of the hospital are open to all regular undergraduate day students, graduate students and co-operative students, either in school or working in Atlanta. Free hospitalization is limited to two weeks during each quarter. Instructors, faculty members and school employees are not entitled to free treatment or hospitalization except in case of emergency.

For those eligible medical service is free of charge for all ordinary diseases or accidents and includes the following: all necessary medical care and minor surgery to outpatients and hospital patients by the school physicians, emergency dental care arising after matriculation, consultation when advised by the Director of Health, nursing care and the usual routine laboratory examinations.

Free service does not apply to the following: major surgery, elective surgery, specialist's care, orthopedic appliances, special laboratory examinations, special nurses, expensive medications, hospitalization in cases of the more serious contagious diseases, or students who are ill electing to remain outside the hospital. In these instances the student, parent or guardian is responsible for such added expense. All students who are ill are expected to report to the hospital, provided they do not prefer their own physician or another hospital. The hospital is open to all recognized physicians and consultations are welcomed at all times.

Students are charged thirty-five cents for each meal served while in the hospital.

A complete annual physical examination is compulsory for each student. This examination is conducted by a group of well trained specialists and includes a tuberculin skin test. Students who show a positive reaction are required to cooperate by having a complete X-ray examination of the lungs at the hospital.

Any student who does not present a certificate or other evidence of successful vaccination within the past five years will be vaccinated at the time of his physical examination.

Prophylactic typhoid and tetanus inoculations will be given free when such inoculations are required.

It is expected that, before matriculation, students will have corrected any errors of refraction, and dental or other conditions which, if neglected, might interfere with their curricula activities.
LIBRARY

Mrs. James Henley Crosland, Librarian; Mrs. Julia M. McMichael, Miss Vella Jane Burch, Miss Frances Muse, Miss Geraldine Purdy and Miss Elizabeth Simkins, Assistants

The library building, a gift of Mr. Andrew Carnegie, was formally opened in October, 1907. In 1932 a new stack section, housing approximately 40,000 volumes, was built and the basement renovated and made into a Periodical Room.

The Library contains over 77,000 volumes and some 14,000 unbound pamphlets. The greater part of these which are scientific and technical are used for study and research. The Library subscribes to the journals of the leading scientific societies and to the outstanding technical and scientific periodicals in this country and abroad. These, with over 18,000 bound periodicals, are kept in the Periodical Room. There is an author, title and subject catalogue for all books and periodicals in the general and departmental libraries.

There are five departmental libraries, all under the administration of the general Library. The more technical and highly specialized books are kept in these libraries. The departmental libraries are: Aeronautics, in the Daniel Guggenheim Building, opened in 1930; Ceramics, 1926; Textile, 1929, and the Experiment Station, 1938, in their respective buildings.

The library was bequeathed a part of the collection of Mr. Julius Brown. This consists of some rare and fine old volumes dating back as early as 1473. A part of the collection of the late Governor N. E. Harris was bequeathed the Library. This contains some volumes on Southern history and literature.

The Library is primarily for the use of students and members of the faculty. All books, not reference or held on reserve, may be withdrawn for home use in accordance with the rules of the Library. The General Library is open from 8:00 A. M. to 9:00 P. M. each week day except Saturday, when it closes at 1:00 P. M. It is closed on Sundays and regular school holidays. Printed Library regulations are given the freshmen at the beginning of the school year.

A Music Room has been opened on the ground floor of the Library. Here is housed the Music Set given by the Carnegie Corporation of New York and the Student Council, the Student Lecture Association, and the Phi Kappa Phi Honorary Society. The set includes a phonograph designed for use in a small room or auditorium and 450 records selected as an anthology of recorded music. The room is open to all students and faculty members.

UNIVERSITY CENTER

The following institutions are cooperating to form a University Center of the Atlanta-Athens area:

Agnes Scott College for Women, Decatur, Georgia.
Columbia Theological Seminary, Decatur, Georgia.
Emory University, Emory University, Georgia.
Georgia School of Technology, Atlanta, Georgia.
High Museum of Art, Atlanta, Georgia.
University of Georgia, Athens, Georgia.

A union library catalogue of the complete holdings of these institutions is being made. One catalogue will be at Emory University and one at the University of Georgia. This is an author catalogue. Through telephone service the other institutions may locate a book.

REGULATIONS FOR LIBRARY USE

1. The following groups may use the cooperating libraries:
   a. Faculty members.
   b. Graduate students actually enrolled.
   c. Undergraduate students enrolled in any given quarter and in good standing at the institution issuing the identification.

2. Condition under which the libraries may be used:
   a. Faculty members and students borrowing books for the first time from any library shall be given regulations of the lending library and shall be required to subscribe to the conditions therein.
   b. Faculty members shall observe the same time limit allowed to student borrowers (in any library but their own) and be subjected to similar fines. Exceptional privileges for the use of material in definite programs of research may be granted at the discretion of the librarian of the institution concerned.

3. Identification:
   a. Faculty members upon request will be given cards of introduction. These will be kept on file at the cooperating institutions.
   b. Students upon request will be given identification cards. These must be presented each time a book is requested.
GEORGIA TECH ATHLETIC ASSOCIATION

BOARD OF DIRECTORS

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CAPTAIN OF THE FOOTBALL TEAM
EDITOR OF THE TECHNIQUE
PRESIDENT OF THE STUDENT COUNCIL

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Tommy Plaxico
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J. C. HYDER
Edward Osinski

ATHLETICS

College Athletics

College athletics at the Georgia School of Technology are managed by a Board of Directors consisting of seven faculty members, three alumni members and three student members. The President is chairman of the Board and appoints the faculty and alumni members. The student members are the captain of the football team, the editor of The Technique, and the president of the Student Council. The Business Manager of Athletics, elected by the Board, also serves on the Board. The head coaches of the various sports are called into Board meetings from time to time. The Athletic Board holds regular monthly meetings and on occasion called meetings at the discretion of the President. The Board aims to secure cooperation of the faculty and students in athletic affairs, to maintain a high standard of sportsmanship and to create adequate facilities to give every student an opportunity to take part in some athletic activity.

The liberal policy adopted by the faculty towards athletics has resulted in such interest in college sports that the number engaged in some form of exercise is large.

Intercollegiate schedules are played in football, cross country, basketball, swimming, wrestling, track, golf, tennis and baseball.

ATHLETIC PLANT

The Hugh Inman Grant Field, the football stadium, is located in the center of the campus and occupies two full city blocks. The U-shaped stadium seats 30,000 and surrounds one football field and a quarter-mile cinder track. At the open end of the U are located the Naval Armory building, the gymnasium and swimming pool building, and the athletic administration building. Under the East Stand, dressing rooms and showers to accommodate 1000 men have been constructed.

The gymnasium seats 2000 for athletic indoor events and 3000 when set up as an auditorium. The swimming pool seats 400 for aquatic events. This building has adequate locker rooms and showers for both men and women.

The Naval Armory houses the Navy R. O. T. C. Unit and in addition furnishes a supplementary gymnasium for intramural and physical training activity.

The athletic administration building houses the athletic and business offices, visitors' dressing rooms, and an adequately designed and equipped rifle range for the use of the R. O. T. C. units.

The liberality of Mr. John W. Grant, whose donations have reached the sum of $50,000.00, and other moneys furnished by the Georgia Tech Athletic Association, the State of Georgia, and the government agencies—C. W. A., P. W. A. and W. P. A.—have resulted in a well equipped sports and recreation center worth well over one million dollars. Acknowledgment is also made of the money loaned by Mr. Perl M. Kaufman which made possible the construction of the Naval Armory.

In addition to Grant Field, the Board of Directors in recent years has purchased a ten-acre tract located four hundred yards north of the main plant. This field is known as Rose Bowl Field and contains three football fields, two baseball diamonds, and a baseball stand which seats 5000.

Some excellent tennis courts have been built on school property directly across from the Gymnasium in Peters Park.

Crenshaw Field is a partially constructed field located on Williams Street, two hundred yards East of the stadium. It is used principally as an intramural playground. This piece of property was purchased by the Athletic Board and named for the late Doctor James Bascom Crenshaw, for many years head of the Modern Language Department and Athletic Director of Georgia School of Technology.
DEPARTMENT OF PHYSICAL TRAINING

Professor Alexander; Associate Professors Welser, Mundorff, and Lanoue; Assistant Professors Dean, Keyes, and McArthur; Instructors Plaxico, Osinski, and Hyder.

All civilian freshmen and sophomores are required to take four hours a week of physical training, one hour credit. The schedule will call for two, two-hour periods on alternate days; one hour for physical training, thirty minutes for dressing and thirty minutes for shower. The annual physical examinations (see page 44) will determine any exemptions from physical training. Students bringing certificates of disability from personal physicians must have the certificates endorsed by the school physician before they will be accepted by the department. Students excused from physical training will be required to make up the equivalent academic hours in an academic subject.

Veterans from the Army, Navy, Marine Corps and Coast Guard are not required to take physical training, but may elect the course.

Students taking physical training will be required to purchase a standard uniform consisting of a sweat suit, gym shirt, gym pants, athletic supporter, socks and shoes. The uniform will be sold at cost and the total will not exceed ten dollars. Locker facilities for those living neither on the campus nor in nearby fraternity houses may be secured on a two-dollar deposit with a refund of $1.50 at the end of the school year if the lock and locker are surrendered in good condition. Dressing room space, showers and towels are provided for all students free of charge.

FRESHMAN PHYSICAL TRAINING

The object of this course is to put the students in sound physical condition. One quarter will be devoted to swimming, one to gymnastics, and one to track and field. Swimming, tumbling, apparatus work, calisthenics, walking, running, jumping and throwing weights are basic to well rounded, sound physical developments.

Those students who are handicapped by physical disability or below par in physical development will be required to take a special corrective course for the entire freshman year. At the end of the year, students who make sufficient progress will be sent on to sophomore physical training. The others will be excused from further participation in physical training and sent to the Dean of General Studies for the substitution of some other course.

P.T. 100. CORRECTIVES. Mr. Keyes.

The individual will be studied to determine the proper exercises best suited to his ability. Insofar as possible the individual members of this group will take as many of the regular freshman achievement tests as their ability and condition warrant. General rules of health and hygiene will be discussed and an attempt will be made to interest each student in a lifetime sport which will meet his needs and ability.

P.T. 101. SWIMMING. Mr. Lanoue.

The breast stroke, side stroke, back stroke, crawl, treading water, under water swimming, simple dives, water skills and life saving methods will be demonstrated. The minimum swimming requirements to pass this course are:

1. The distance swim, 200 yards, using any stroke.
2. Treading water, 10 minutes.

P.T. 102. GYMNASTICS. Mr. Welser.

The purpose of this course is to give coordinated exercises which will result in well rounded physical development. A number of simple gymnastic movements will be included as a matter of recreation and coordination. The minimum score to pass the following five achievement tests is an average grade of sixty points.

1. Endurance ratio (step test), a point gain of 10, 60 points.
2. The Burpee test (20 seconds), 10½ performances, 60 points.
3. The jump reach test, 15 inches, 60 points.
4. Chinning the horizontal bar, 5 performances, 60 points.
5. Push-ups, 10 performances, 60 points.

P.T. 103. TRACK AND FIELD. Mr. Dean.

Instruction and practice will be given in starting, striding, use of the arms in running, body lean, correct breathing, form in broad and high jumping, hurdling, and weight throwing. The object of the course is to build strong legs and to increase lung and heart capacity. To vary the work and keep it from being monotonous, from time to time the class will be divided into teams for games of basketball, soft ball, and touch football. The minimum score to pass the course is an average grade of 60 points covering the following seven achievement tests:

1. The 100-yard run, 14.9 seconds, 60 points.
2. The one-mile run, 6 minutes 55 seconds, 60 points.
3. The 440-yard run, 69 seconds, 60 points.
4. The 100-yard pick-a-back run, 26 seconds, 60 points.
5. The running broad jump, 13 feet 9 inches, 60 points.
6. The running high jump, 4 feet one inch, 60 points.
7. The 120-yard hurdle race, 19.9 seconds, 60 points.

In the hurdles, five hurdles twenty yards apart will be used. The height of the hurdles will be two feet, six inches.

SOPHOMORE PHYSICAL TRAINING

This is a maintenance course. The condition developed in the freshman year will be maintained and at the same time skills will be taught in games and other events that appeal to young men. No achievement tests will be required for a grade. Attendance, attitude and interest will be the factors that control the sophomore grades. One quarter will be devoted to indoor games, one to outdoor games, and one to combat.

P.T. 201. INDOOR GAMES. Mr. McArthur and Mr. Polk.

Basketball and volley ball will be the two games on which the majority of effort will be concentrated. As the physical training facilities are expanded, other games may be added. The basic fundamentals of the games will be demonstrated and practiced. After the class has developed some skill, teams will be organized for actual competition.
P.T. 202. Outdoor Games. Mr. Pittard and Mr. Hyder.
Soft ball and touch football are the basic games for this course. Baseball, soccer and tennis may be assigned those students who show enough aptitude. This course is an exact parallel to the Indoor Games in the methods used and in the instruction and play arrangement.

Wrestling will be the major factor in this course. Wrestling builds a strong body faster than any other form of exercise or sport. The class will receive instruction in a few simple holds and escapes before being matched against each other. Boys of equal weight and ability will be paired for work in actual wrestling. For the more proficient boys, boxing will be added in the latter weeks of the course. Every safeguard will be used to prevent any injuries in this body contact class.

THE STUDENT COUNCIL

The Student Council, which was put into operation in the fall of 1922, is a group of undergraduates elected by the student body. The officers and members for the School Year 1946-47 will be elected in the early fall.

PUBLICATIONS BOARD

This Board was organized July 1945 at the request of the Student Council in the spring of 1945. The purpose of this Board was to be responsible for publications of student papers on the Tech campus. Its membership consists of the editor, business manager, and faculty adviser of the Technique and the Blue Print; and a secretary-treasurer appointed by the Dean of Students. The present personnel of the Publications Board is as follows:

Technique

N. V. Millsap.................................................................Editor
I. B. Miller..............................................................Business Manager
Professor Edward Foster.............................................Faculty Advisor

Blue Print:

E. C. Johnson..............................................................Editor
B. Daniels...............................................................Business Manager
Professor A. H. Bailey..............................................Faculty Advisor
Dean John J. Pershing..............................................Secretary-Treasurer
THE YOUNG MEN'S CHRISTIAN ASSOCIATION

Purpose: The purpose of the Young Men's Christian Association is to minister to the development of the moral, social and spiritual needs of each student.

"Y" Cabinet: Every student registered at Tech is a member of the Y.M.C.A. Any student interested in taking an active part in the promotion of the "Y" program is invited to become a member of the Cabinet. The Cabinet supervises the various social and religious activities of the Association program. Only members of the Cabinet are eligible to be nominated and elected officers of the Y.M.C.A.

Freshman "Y" Council: All freshmen registered at Tech are invited to become members of the Council. Under the direction of its own officers the Council explores through discussion and social activities those areas of thinking and living which make for the highest development of personality.

Services:

1. The General Secretary is available for private conferences with students wishing to discuss in confidence their personal problems.

2. A directory of students, with name, address, telephone number, church preference and class, is kept on file in the "Y" office.

3. The supervision and administration of the building and activities are under the direction of the Secretary. Dormitory rooms on the third floor are available to students at nominal charges. In the basement are offices for the student publications, and a barber shop. The "Y" building is used by the alumni, Reserve Officers, church groups, the Glee Club, class meetings, "pep" meetings, etc. The "Y" has a radio, reading room, game rooms and handball courts.

4. The Y.M.C.A. cooperates with the various churches in helping Tech students relate themselves to church programs.

5. Through cooperation with the faculty and Tech Bible Classes a reception is held each year for the freshmen.

Activities:

1. Each year the annual Y.M.-Y.W.C.A. State Conference is held. Problems confronting the different schools are discussed.

2. The Southern Student Y.M.-Y.W.C.A. Conference is held at Blue Ridge, N. C. Blue Ridge is a place for the student to acquire the inspiration needed to live the fullest during his college year.

3. The Y.M.C.A. staff and student leaders cooperate with the Athletic and Personnel Departments in undertaking a social, athletic, and scholastic program to involve the participation of every student at Tech.

4. The Music Appreciation Club and the Camera Club are sponsored by the "Y". Meetings are held at various times during the year.

5. In a series of discussion groups held by the Y.M.C.A. throughout the year problems that confront college men are discussed. These groups are led by competent men from the faculty, upper classmen and religious leaders in the city.

6. Under the direction of the deputation committee, groups of Tech students carry religious and educational programs to churches, colleges and young people's organizations in Atlanta and nearby communities.

PROFESSIONAL AND TECHNICAL SOCIETIES

The students of Georgia Tech maintain student branches of the following national groups:

- Institute of Aeronautical Sciences
- American Institute of Chemical Engineers
- American Society of Civil Engineers
- American Institute of Electrical Engineers
- Institute of Radio Engineers
- Society for Advancement of Management
- American Society of Mechanical Engineers
- American Association of Textile Colorists and Chemists

The following departmental and professional societies maintain chapters at Georgia Tech:

- Architectural Society—Department of Architecture
- Alpha Chi Sigma—Department of Chemistry and Chemical Engineering
- Chi Epsilon—Department of Civil Engineering
- Eta Kappa Nu—Department of Electrical Engineering
- General Engineering Society—Department of General Engineering
- Industrial Management Society—Department of Industrial Management
- Pi Tau Sigma—Department of Mechanical Engineering
- Phi Psi—Department of Textile Engineering

The following general groups are also maintained at Georgia Tech:

- Phi Kappa Phi—Senior National Honor Society
- Tau Beta Pi—National Engineering Honor Society
- Omicron Delta Kappa—National Activities Honor Society
- Phi Eta Sigma—Freshman Honor Society
- Anak—Senior Group, Local
- Pi Delta Epsilon—Journalistic
- Kappa Kappa Psi—Music
- Alpha Phi Omega—Service Group
LOAN FUNDS AND SCHOLARSHIPS

THE LEWIS H. BECK FUND

The Lewis H. Beck Scholarship Fund is a student loan fund created by the late Mr. Lewis H. Beck, of Atlanta, for the benefit of students who are residents of Georgia, attending Georgia School of Technology. It is administered by a special Board of Trustees. For information write to the office of the Lewis H. Beck Scholarship, Candler Building, Atlanta, Georgia.

THE J. D. RHODES SCHOLARSHIPS

The late J. D. Rhodes left one-third of the income of the Rhodes Building, Atlanta, for the purpose of educating boys at the Georgia School of Technology. The trustees of this fund have made the scholarships available to those juniors and seniors who have excelled in athletics and in scholarship. These scholarships are patterned after the Cecil Rhodes Scholarships, Oxford University.

THE ADAIR-OLDKNOW SCHOLARSHIPS

Alumni of the school have established ten scholarships known as the George W. Adair and the William S. Oldknow Scholarships, in memory of these loyal Tech men and on the same basis as the Rhodes Scholarships.

Generous friends of the institution have established funds of varying amounts, which are used for emergency loans.

Geo. W. Adair Loan Fund $450.00
Architects Loan Fund 200.00
J. Baldwin Loan Fund 50.00
Eugene O. Batson Scholarship Fund, Int. on 10,000.00
M. R. Berry Loan Fund 2,400.00
S. F. Boykin Fund 100.00
T. P. Branch Memorial Fund 125.02
Class of Dr. M. L. Brittain Loan Fund 500.00
J. B. Campbell Loan Fund 500.00
J. L. Cloudman Fund 10,232.71
William B. Coleman Loan Fund 420.50
Holland Coleman, Jr., Loan Fund 600.00
Alice Spencer Coons Loan Fund for M.E. Students 4,000.00
A. C. Dobbs Loan Fund 75.00
The A. French Loan Fund 1,500.00
Ga. Federation of Labor Loan Fund 800.00
Mrs. A. V. Gude Loan Fund 200.00
Lyman Hall Loan Fund 1,400.00
Stanley S. Hand Loan Fund 100.00
J. M. High Loan Fund 1,850.00
Dr. and Mrs. R. P. Hinman Loan Fund 200.00
Edwin Johnson Loan Fund 400.00
Malta Lodge Loan Fund 1,050.00
Lena Mansfield Loan Fund 750.00
L. W. Robert Fund 100.00
E. P. McBurney Loan Fund 9,600.00
Gayle Nimmocks Memorial (Phi Kappa Phi) 145.50
Scottish Rite Loan Fund 1,000.00
Sam W. Small Loan Fund 100.00
T. W. Smith Loan Fund 265.00
J. P. Stevens Loan Fund 5,000.00
Joseph M. Terrell Loan Fund 5,000.00
Clark Thornton Memorial Fund 362.50
E. A. Turner Loan Fund 50.00
Mrs Fannie D. Wright Loan Fund 925.00
Irving Subway School Fund 172.50

Applicants for loans must qualify in scholarship and character, besides presenting evidence of bona fide need of financial assistance.

TEXTILE SCHOLARSHIP

The Cotton Manufacturers' Association of Georgia has given to Textile students a scholarship of $120 for tuition and books, and a loan fund not to exceed $200 annually.
MEDALS AND PRIZES

THE HONOR SOCIETY OF PHI KAPPA PHI

Among the prizes offered for scholarship by the Georgia School of Technology is membership in the honor society, Phi Kappa Phi, to which a limited number of seniors representing all departments are elected annually. Phi Kappa Phi is a national organization with chapters in many of the leading universities and colleges, and wherever it has been established it has proved a stimulus not only to scholarship but to all-round manhood.

The local chapter of Phi Kappa Phi awards annually a scholarship cup to the senior in the Textile Department who has the highest scholastic record. The Alpha Chapter from the beginning of the course. The interfraternity council awards annually a scholarship cup to the sophomore in the Textile Department whose scholarship average is the highest. The junior and senior who have the highest average for the first term.

TAU BETA PI

Tau Beta Pi is a national honorary engineering fraternity with chapters in most of the leading engineering schools of the country. The Alpha Chapter of Georgia offers membership to approximately twenty-five engineering students of each graduating class who can qualify according to standards of scholarship, character, loyalty, personality, leadership, and school activities. The fact that Tau Beta Pi is the second oldest honorary fraternity in the country and numbers among its members many of our leading engineers, makes membership in the society a coveted honor.

The local chapter of Tau Beta Pi awards annually a scholarship cup to an outstanding engineering student who ranks among the first five of his class, on the basis of all scholastic work taken in this institution. The selection is made by a committee composed of Tau Beta Pi faculty members, heads of the Engineering Departments, and a representative from the faculty Committee on Honors and Prizes.

PHI ETA SIGMA

Phi Eta Sigma is a freshman honor society in which any student is eligible for membership who has made an average grade of at least 3.5 on the work of the first term of the freshman year. The society awards a scholarship cup to the freshman who makes the highest average for the first term.

TEXTILE SCHOLARSHIP MEDALS

A medal is awarded by the National Association of Cotton Manufacturers to the senior in the Textile Department who has the highest scholastic record from the beginning of the course.

The Cotton Manufacturers' Association of Georgia awards a medal annually to a member of the senior textile class, based on scholarship throughout his course, and for original effort in the work of the Textile Department during his senior year.

BRIAREAN SCHOLARSHIP CUP

The Briarean Society of the Georgia School of Technology presents annually a scholarship cup to a senior member of the society whose scholastic average for a period of four and one-half years entitles him to rank as one of the highest three members of the class.

FRACTERNITY SCHOLARSHIP CUP

The Interfraternity Council awards annually a scholarship cup to the chapter of that organization which makes the highest scholastic average.

ARCHITECTURAL MEDAL AND PRIZE

The American Institute of Architects awards each year to a member of the graduating class a medal for excellence in architecture. The winner of this medal, who must have a general scholastic average of at least "B," is recommended to the Committee on Honors and Prizes by the Faculty of the Department of Architecture.

A set of books is offered each year to the senior in Architecture placing first in a special competition. This prize is given by the Alumni and members of the Georgia Chapter of the American Institute of Architects.

ALPHA CHI SIGMA PRIZE

The Professional Chemical Fraternity, Alpha Chi Sigma, presents annually a handbook to the junior who has made the best record in the Chemistry or Chemical Engineering course.

A. I. CH. E. AWARDS

The American Institute of Chemical Engineers awards a badge and certificate to that junior in Chemical Engineering who has made the highest record on the work of the first two years—for co-operative students the first three years. The student branch of the A. I. Ch. E. presents annually a handbook to an outstanding junior Chemical Engineering student, selected by vote of the members of the student branch.

ETA KAPPA NU

The Eta Kappa Nu Association, national electrical fraternity, awards annually an electrical engineering handbook to the regular sophomore electrical engineering student (on the basis of four quarters) or to the co-op pre-junior electrical engineering student (on the basis of four quarters) having the highest scholastic average. This award is made at the annual Honor Day exercises.

PI TAU SIGMA

Pi Tau Sigma, National Mechanical Engineering Fraternity, elects to membership outstanding mechanical engineering students in the junior and senior years.

Annual awards of two engineering handbooks are made to the highest ranking students in mechanical engineering as follows: One to a regular sophomore based on the work of four quarters and one to a pre-junior (Co-op Plan) based on the work of four quarters.

SKULL AND SCHOLARSHIP CUP

The Skull and Key Society offers a scholarship cup to the sophomore in the regular course who has made the highest average on the work of the first four quarters.

AERONAUTICAL ENGINEERING MEDAL

The James Edward Oglethorpe Chapter of the Daughters of the American Colonists presents annually a medal to the member of the graduating class in Aeronautical Engineering who has made the highest scholastic average, based on the work of at least four complete quarters.

A. S. M. E. AWARD

Each year the American Society of Mechanical Engineers awards to the student delivering the best paper before the local student branch, a trip to the spring meeting of the student branches of the A. S. M. E. At this meeting the student has the opportunity of competing for a further award. In addition the local student branch awards as second prize a Mechanical Engineer's Handbook.
INDUSTRIAL MANAGEMENT CERTIFICATE

The Industrial Management Society awards annually a certificate of scholarship to the senior in the Industrial Management Department who ranks first in his class on the basis of all scholastic work taken at Georgia Tech.

HONOR ROLL

The Honor Roll is compiled annually during the spring term and contains the names of those students who rank highest in scholarship. These names are printed in heavy type and starred in the annual catalog. Subject to certain qualifying restrictions, the name of any student with a general average of 3.2 at the end of the fall term may be included on the honor roll. (To be included in 1947-1948 Catalog).

MILITARY PRIZES AND TROPHIES

The A. B. Steele trophy, a handsome silver cup, the gift of Mrs. Ray Powers and Mr. A. B. Steele, as a memory to those "Tech" men who made the supreme sacrifice during the first World War, is awarded annually to the best drilled company in the regiment.

The Joseph Habersham Chapter of D. A. R. presents annually a medal to the senior in the Naval Science and Tactics.

The Georgia Society of Daughters of Colonial Wars presents annually three medals, one each to the Freshman in the Infantry, and in the Coast Artillery, and in the saber to the most outstanding student in Military Science and Tactics.

Two gold medals are given annually by the Army Ordnance Association, one to the member of the Junior Class who attains the highest rating for proficiency in scholarship and in Military Science and Tactics.

A medal is presented annually to each Army member of the Georgia Tech Corps of Cadets.

Gold, silver or bronze medals are awarded to students who achieve the highest individual rating for excellence in military drill.

NAVAL R. O. T. C. MEDALS

The Georgia State Society "United States Daughters of 1812" awards a gold medal each year to the senior in the Naval R. O. T. C. who achieves the highest rating in Naval Science and Tactics.

The "Sons and Daughters of the Pilgrims" awards a gold medal each year to the Naval R. O. T. C. student making the highest standing in Naval Science and Tactics during his first four terms in the N. R. O. T. C.

The Anak Society awards annually two medals: one to the junior in the Naval R. O. T. C. showing highest proficiency for the Course in Theoretical and Practical Navigation, the other to the freshman in the Naval R. O. T. C. showing highest proficiency in Naval Science during his freshman year.
SUMMARY OF ENROLLMENT 1945-1946

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NATIONAL GEORGIA TECH ALUMNI ASSOCIATION

In 1920, under the leadership of William H. Glenn, B.S., M.E., '91, the various Georgia Tech Alumni Clubs which had been previously organized in Georgia and other States, were banded together into the present National Georgia Tech Alumni Association. Today Georgia Tech alumni, consisting of graduates and former students, are found in nearly every large city in the United States, Central America, and South America.

Some of the worthwhile objectives of the Association are:

1. Maintain an up-to-date record of each alumnus of Georgia Tech.
3. Publish The Georgia Tech Alumnus, an engineering and industrial review, combined with alumni news.
4. Organize and expand local Georgia Tech Alumni Clubs.
5. Operate an employment bureau for Georgia Tech alumni and students—without cost to either employer or applicant for employment.
6. Organize special events for alumni, such as class reunions, home-coming days, and alumni participation in commencements.
7. Furnish a medium through which alumni may aid and encourage the President of Georgia Tech and his faculty in making it a bigger and better engineering school, and assist in providing scholarships for worthy students.
8. Serve as a liaison agency between the alumni and the Georgia Tech Athletic Association in relation to tickets for athletic events and related activities.
9. Through the offices of the executive secretary of the Association in Atlanta, Ga., assist visiting alumni with information, introductions to local alumni, and other such personal services.
10. Through the various media of publicity, acquaint the general public; the people of Georgia; civic, state and federal officials; industries of the United States; and institutions of secondary and higher education with the achievements of the Georgia School of Technology and its alumni, in the fields of engineering education, research, and public service.

Officers and members of the executive board of the Alumni Association for 1946-1947 are: Frank A. Hooper, Jr. '16, Atlanta, Ga., President; Lawrence Willet '19, Atlanta, Ga., Vice-President; John L. Davidson '15, New York, N. Y., Vice-President; Chas. R. Yates '35, Atlanta, Ga., Treasurer; R. J. Thiessen '10, Atlanta, Ga., Executive Secretary; Ivan Allen, Jr. ’33; Otis A. Barge '12; Charles M. Brown '25; Oscar G. Davis '22; M. A. Ferst '11; Price Gilbert, Jr. '21; J. J. Westbrook '29; and Robert H. White, Jr. '14.

GEORGIA TECH ALUMNI FOUNDATION

Organized in 1932, the Georgia Tech Alumni Foundation is a non-profit educational organization set up to administer, through a board of 21 outstanding engineers and industrial executives, funds made available by industries and friends of the Georgia School of Technology. These funds, realized through contributions, gifts and bequests, are helping the Foundation fulfill its objectives, which are:
1. To make possible the scientific and economic research and investigation necessary for the development of the resources of the South, and to utilize human and natural resources so as to make the South an economically rich and profitable part of the United States and the World.

2. To develop material tests in the laboratories of the Georgia School of Technology for the use of American Industry.

3. To train scientific and engineering leaders who will make possible the efficient utilization of manpower in the manufacture of new and better commodities for use in the South and throughout the United States.

4. To foster the continuous coordination of effort between the educational facilities of universities, and the productive facilities of industry.

5. To provide modern equipment and up-to-date facilities at the Georgia School of Technology for utilization by small and large industries, and for the training of scientific and engineering leaders.

Members of the Foundation Board of Trustees are: Frank H. Neely '04, President, Chas. A. Sweet '08, Vice-President, Wm. A. Parker '19, Secretary-Treasurer, C. L. Emerson '08, J. E. Davenport '08, Y. F. Freeman '10, Robert Gregg '05, Geo. W. McCarty '08, Frank M. Spratlin '06, James F. Towers '01, Robert B. Wilby '08, Geo. W. Woodruff '17, Thomas Fuller '06, Geo. T. Marchmont '07, John A. Simmons '15, Wm. T. Rich '10, W. Harrison Hightower '08, Fuller E. Callaway, Jr. '26, Alfred D. Kennedy '03, Frank A. Hooper, Jr. '16, and Geo. S. Jones '12.

**INCOME TAX PROVISIONS ON CONTRIBUTIONS**

Funds held by the Georgia Tech Alumni Foundation are exempt from taxation by both State and Federal Governments, because it is a non-profit educational organization. Contributions made by individuals and industries to the Foundation are deductible from income for income-tax purposes. For full details about limitations and savings in income tax, latest State and Federal tax regulations should be consulted.

**BEQUESTS**

There are various forms of bequests that can be used. Due to differences in the various state laws, an attorney-at-law should be consulted. A suggested simple form that will serve in some cases is as follows:

I hereby give and bequeath to the GEORGIA TECH ALUMNI FOUNDATION, INC., Atlanta, Georgia, the sum of __ dollars to be used by the Board of Trustees in whatever way will best advance the interests of the Georgia School of Technology.

If the bequest is intended to leave the Foundation the remainder of any estate, the form may be: All the rest, residue, and remainder of my real and personal property of any kind whatsoever, I give and bequeath to the GEORGIA TECH ALUMNI FOUNDATION, INC., Atlanta, Georgia, etcetera.

Many alumni and friends of Georgia Tech are unable to set aside any large sums but can easily pay the small premium required for a life insurance policy, the proceeds from which can be made payable to the Georgia Tech Alumni Foundation.

All money received by the Foundation will be administered and directed by the Board of Trustees according to the wishes of the donors and in the best interests of the Georgia School of Technology.

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**FURTHER INFORMATION**

*Admissions, Entrance Examinations, Transfer Credits, and General Information:* Write to Lloyd W. Chapin, Registrar, Georgia School of Technology, Atlanta, Ga.

*Graduate Studies:* Write to Robert I. Sarbacher, Dean of Graduate Studies, Georgia School of Technology, Atlanta, Ga.

*Veterans Information (except housing):* Write to Fred W. Ajax, Coordinator of Veterans Affairs, Georgia School of Technology, Atlanta, Ga.

*Engineering Studies:* For information pertaining to a particular field of engineering study, write to Head, Department of [insert name of department, such as Textile Engineering, Ceramic Engineering, etc.], Georgia School of Technology, Atlanta, Ga.

*Cooperative Plan:* Admission to the Cooperative Plan is by special consideration. Write to J. E. McDaniel, Director, Cooperative Department, Georgia School of Technology, Atlanta, Ga.

*Dormitory Accommodations on Campus and Reservations:* Write to E. H. Folk, Superintendent of Dormitories, Georgia School of Technology, Atlanta, Ga.

*Military Training Information:* Regarding cadet training in R.O.T.C. and Officers Reserve Corps commissions, write to Lt. Colonel Bird Little, Military Commandant, Georgia School of Technology, Atlanta, Ga.

*Naval Training Information:* Regarding Naval R.O.T.C. training, write to Captain J. A. Briggs, Naval Commandant, Georgia School of Technology, Atlanta, Ga.

*Housing Accommodations Off the Campus:* Write to George C. Griffin, Dean of Students, Georgia School of Technology, Atlanta, Ga.

*Division of Emergency Training, Extension Division and Evening School of Applied Science:* Write to R. S. Howell, Director of Extension Division, Georgia School of Technology, Atlanta, Ga.

*Part-time Employment:* Write to George C. Griffin, Dean of Students, Georgia School of Technology, Atlanta, Ga.

*Alumni Information:* Write to R. J. Thiesen, Executive Secretary, Georgia Tech Alumni Association, Atlanta, Ga.