

UNIVERSITY SYSTEM OF GEORGIA



BULLETIN

GEORGIA
INSTITUTE OF
TECHNOLOGY

ATLANTA, GEORGIA



ANNOUNCEMENTS

1949-1950

1949**•• 1950 ••****1951****JULY**

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BULLETIN
GEORGIA INSTITUTE
OF TECHNOLOGY

ATLANTA, GEORGIA

ANNOUNCEMENTS — 1949 - 1950

UNDERGRADUATE DIVISION

DANIEL GUGGENHEIM SCHOOL OF AERONAUTICS
SCHOOL OF ARCHITECTURE
SCHOOL OF CERAMIC ENGINEERING
SCHOOL OF CHEMICAL ENGINEERING
SCHOOL OF CHEMISTRY
SCHOOL OF CIVIL ENGINEERING
SCHOOL OF ELECTRICAL ENGINEERING
SCHOOL OF INDUSTRIAL ENGINEERING
SCHOOL OF INDUSTRIAL MANAGEMENT
SCHOOL OF MECHANICAL ENGINEERING
SCHOOL OF PHYSICS
A. FRENCH TEXTILE SCHOOL

GRADUATE DIVISION

MASTER OF SCIENCE—AERONAUTICAL, CERAMIC,
CHEMICAL, CIVIL, ELECTRICAL, INDUSTRIAL,
MECHANICAL, PUBLIC HEALTH, SAFETY, AND
TEXTILE ENGINEERING; CHEMISTRY; PHYSICS;
AND INDUSTRIAL MANAGEMENT.
DOCTOR OF PHILOSOPHY—CHEMICAL ENGINEERING
AND CHEMISTRY

ENGINEERING EXTENSION DIVISION

EVENING SCHOOL
ENGINEERING EXTENSION SCHOOL
INDUSTRIAL EDUCATION DEPARTMENT
INSTITUTE OF PUBLIC SAFETY
THE TECHNICAL INSTITUTE

RESEARCH DIVISION

ENGINEERING EXPERIMENT STATION
GEORGIA TECH RESEARCH INSTITUTE (Cooperating
Agency)

CALENDAR 1949-1950

FALL QUARTER, 1949

Sept. 19	All entering freshmen required to report for orientation. Dates for physical examinations contained in orientation schedule.
Sept. 26-27	Registration of upper classmen and transfer students.
Sept. 27	Physical examinations for transfer students and new candidates for advanced R.O.T.C. 8:00 A.M.
Sept. 28	Classes begin. Late registration fees apply.
Oct. 1	Last day for registration. Last day for adding a subject to study list.
Oct. 18	Last day for dropping subject from study list without penalty.
Nov. 5	End of deficiency report period.
Nov. 24-26	Thanksgiving recess
Dec. 17	End of term.
Dec. 18-Jan. 1	Christmas recess.

WINTER QUARTER, 1950

Jan. 2-3	Registration.
Jan. 4	Classes begin. Late registration fees apply.
Jan. 7	Last day for registration. Last day for adding a subject to study list.
Jan. 24	Last day for dropping subject from study list without penalty.
Feb. 11	End of deficiency report period.
Mar. 18	End of term.
Mar. 19-26	Spring recess.

SPRING QUARTER, 1950

Mar. 27-28	Registration.
Mar. 29	Classes begin. Late registration fees apply.
Apr. 1	Last day for registration. Last day for adding a subject to study list.
Apr. 18	Last day for dropping subject from study list without penalty.
May 6	End of deficiency report period.
June 10	End of term.
June 11	Baccalaureate Sermon.
June 12	Commencement.

SUMMER QUARTER, 1950

June 26	Registration.
June 27	Classes begin. Late registration fees apply.
July 1	Last day of registration. Last day for adding subject to study list.
July 4	Holiday.
July 17	Last day for dropping a subject from study list without penalty.
Aug. 5	End of deficiency report period.
Sept. 9	End of term.

TABLE OF CONTENTS

	PAGE
SCHOOL CALENDAR	2
BOARD OF REGENTS	5
ADMINISTRATIVE COUNCIL	6
COMMITTEES	8
ADMINISTRATION AND FACULTY	11
GENERAL INFORMATION	47
PRESIDENTS AND TRUSTEES	49
GENERAL REGULATIONS	51
SCHOOLS AND COURSES	61
CO-OPERATIVE PLAN	195
GRADUATE DIVISION	197
ENGINEERING EXTENSION DIVISION	200
ENGINEERING EXPERIMENT STATION—RESEARCH	206
HEALTH SERVICE	207
LIBRARY	209
ATHLETICS	211
DEAN OF STUDENTS	213
STUDENT ORGANIZATIONS AND ACTIVITIES	214
LOAN FUNDS AND SCHOLARSHIPS	220
ALUMNI	226
SCHOOL STATISTICS	229
INDEX	231
MAP OF CAMPUS	INSIDE BACK COVER

INFORMATION

General Information: Write to Registrar, Georgia Institute of Technology, Atlanta, Ga.

Admission, Entrance Examinations, Transfer Credits: Write to Director of Admissions, Georgia Institute of Technology Atlanta, Ga.

Graduate Studies: Write to Dean of Graduate Studies, Georgia Institute of Technology, Atlanta, Ga.

Veterans' Information (except housing): Write to Coordinator of Veterans' Affairs, Georgia Institute of Technology, Atlanta, Ga.

Engineering Studies: For information pertaining to a particular field of engineering study, write to Director, School of (insert name of school, such as Textile Engineering, Ceramic Engineering, etc.), Georgia Institute of Technology, Atlanta, Ga.

Cooperative Plan: Admission to the Cooperative Plan is by special consideration. Write to Director, Cooperative Department, Georgia Institute of Technology, Atlanta, Ga.

Dormitory Accommodations on Campus and Reservations: Write to Director of Housing, Georgia Institute of Technology, Atlanta, Ga.

Air Training Information: Regarding Air R.O.T.C. and Officers Reserve Corps Commissions. Write to Air Commandant, Georgia Institute of Technology, Atlanta, Ga.

Military Training Information: Regarding cadet training in R.O.T.C. and Officers Reserve Corps commissions, write to Military Commandant, Georgia Institute of Technology, Atlanta, Ga.

Naval Training Information: Regarding Naval R.O.T.C. training write to Naval Commandant, Georgia Institute of Technology, Atlanta, Ga.

Housing Accommodations off the Campus: Write to Director of Housing, Georgia Institute of Technology, Atlanta, Ga.

Extension Division and Evening School of Applied Science: Write to Director of Engineering Extension Division, Georgia Institute of Technology, Atlanta, Georgia.

Part-time Employment: Write to Dean of Students, Georgia Institute of Technology, Atlanta, Ga.

Alumni Information: Write to Executive Secretary, Georgia Tech Alumni Association, Atlanta, Ga.

THE UNIVERSITY SYSTEM OF GEORGIA
BOARD OF REGENTS

DR. HARMON W. CALDWELL
Chancellor

JOHN E. SIMS
Assistant to the Chancellor

- * HUGHES SPALDING, Atlanta, Georgia, State-at-Large
January 10, 1949 - January 1, 1956
- ALBERT S. HARDY, Gainesville, Georgia, State-at-Large
February 26, 1945 - January 1, 1951
- FRANK M. SPRATLIN, Atlanta, Georgia, State-at-Large
January 1, 1946 - January 1, 1953
- CAREY WILLIAMS, Greensboro, Georgia, State-at-Large
January 10, 1949 - January 1, 1955
- JOHN McDONOUGH, Rome, Georgia, State-at-Large
October 8, 1947 - January 1, 1953
- JAMES PETERSON, Soperton, Georgia, First District
January 10, 1949 - January 1, 1955
- H. L. WINGATE, Macon, Georgia, Second District
January 1, 1947 - January 1, 1954
- CASON J. CALLAWAY, Hamilton, Georgia, Third District
January 1, 1944 - January 1, 1951
- ROBERT G. ARNOLD, Covington, Georgia, Fourth District
January 10, 1949 - January 1, 1956
- RUTHERFORD L. ELLIS, Atlanta, Georgia, Fifth District
January 1, 1947 - January 1, 1954
- ** MILLER R. BELL, Milledgeville, Georgia, Sixth District
January 1, 1943 - January 1, 1950
- ROY N. EMMET, Cedartown, Georgia, Seventh District
January 1, 1945 - January 1, 1952
- FRANCIS STUBBS, SR., Douglas, Georgia, Eighth District
January 10, 1949 - January 1, 1950
- SANDY BEAVER, Gainesville, Georgia, Ninth District
January 1, 1945 - January 1, 1952
- WILLIAM S. MORRIS, Augusta, Georgia, Tenth District
January 1, 1944 - January 1, 1951
- LEONARD ROBERT SIEBERT, *Executive Secretary*, Atlanta, Georgia
- W. WILSON NOYES, *Treasurer*, Atlanta, Georgia
- † HARRY T. HEALEY, *Director of Budgets*, Atlanta, Georgia

*Chairman

**Vice Chairman

†Deceased January 3, 1949

PRESIDENT'S CABINET

1949 - 1950

BLAKE R. VAN LEER, *President*
PHIL B. NARMORE, *Executive Dean*
LLOYD W. CHAPIN, *Dean of Faculties*
CHERRY L. EMERSON, *Vice President*
WILLIAM L. CARMICHAEL, *Registrar*
JAMIE R. ANTHONY, *Comptroller*
GEORGE C. GRIFFIN, *Dean of Students*
MRS. J. H. CROSLAND, *Librarian*
WILLIAM A. ALEXANDER, *Director of Athletics*
LESLIE F. ZSUFFA, *Director of Public Relations*
R. J. THIESEN, *Alumni Secretary*

THE ADMINISTRATIVE COUNCIL

1949 - 1950

CAPTAIN JOSEPH W. ADAMS, JR. <i>Professor of Naval Science</i>	D. W. DUTTON, <i>Director</i> <i>School of Aeronautics</i>
WILLIAM A. ALEXANDER <i>Director of Athletics</i>	CHERRY L. EMERSON, <i>Vice President</i>
JAMIE R. ANTHONY, <i>Comptroller</i>	R. M. ERVIN, <i>Head</i> <i>Department of Modern Languages</i>
LEROY BARNES, <i>Student Representative</i>	GEORGE C. GRIFFIN <i>Dean of Students</i>
BRYAN S. BROWN <i>Student Representative</i>	F. F. GROSECLOSE, <i>Director</i> <i>School of Industrial Engineering</i>
HAROLD BUSH-BROWN, <i>Director</i> <i>School of Architecture</i>	RALPH A. HEFNER, <i>Dean</i> <i>General College</i>
PAUL K. CALAWAY, <i>Director</i> <i>School of Chemistry</i>	WALTER HERBERT, <i>Head</i> <i>Department of Music</i>
WILLIAM L. CARMICHAEL, <i>Registrar</i>	CLARKE W. HOOKE <i>Faculty Representative</i>
LLOYD W. CHAPIN, <i>Dean of Faculties</i>	ROGER S. HOWELL, <i>Director</i> <i>Engineering Extension Division</i>
WILLIAM N. COX, <i>Head</i> <i>Department of Safety Engineering</i>	JOSEPH H. HOWEY, <i>Director</i> <i>School of Physics</i>
MRS. J. H. CROSLAND <i>Librarian</i>	COLONEL W. Q. JEFFORDS, JR. <i>Professor of Military Science and</i> <i>Tactics</i>
H. E. DENNISON, <i>Director</i> <i>School of Industrial Management</i>	W. B. JOHNS, JR., <i>Director</i> <i>Division of Engineering Drawing</i> <i>and Mechanics</i>
HERMAN A. DICKERT, <i>Director</i> <i>A. French Textile School</i>	

MAJOR ROBERT M. LAWSON, *Professor of Air Science and Tactics*

F. E. LOWANCE, *Professor of Physics, Faculty Representative*

*JAMES E. McDANIEL, *Director Co-operative Division*

HOWARD S. MASON, *Faculty Representative*

JESSE W. MASON, *Dean Engineering College*

LANE MITCHELL, *Director School of Ceramic Engineering*

JOSEPH E. MOORE, *Head Department of Psychology*

GEORGE NALESNIK, *Student Representative*

PHIL B. NARMORE, *Executive Dean*

GERALD A. ROSSELOT, *Director Engineering Experiment Station*

D. P. SAVANT, *Director School of Electrical Engineering*

GLENN N. SISK, *Head Department of Social Science*

D. M. SMITH, *Head Department of Mathematics*

JACK M. SMITH, *Acting Director School of Civil Engineering*

RAY L. SWEIGERT, *Dean Graduate Division*

R. J. THIESEN, *Alumni Secretary*

BLAKE R. VAN LEER, *President*

ANDREW J. WALKER, *Head Department of English*

HOMER S. WEBER, *Director School of Mechanical Engineering*

PAUL WEBER, *Director School of Chemical Engineering*

JAMES G. WOHLFORD, *Acting Director Co-operative Division*

H. A. WYCKOFF, *Head Department of Public Health*

LESLIE F. ZSUFFA, *Director of Public Relations*

*On Leave

STANDING COMMITTEES OF THE FACULTY

1949 - 1950

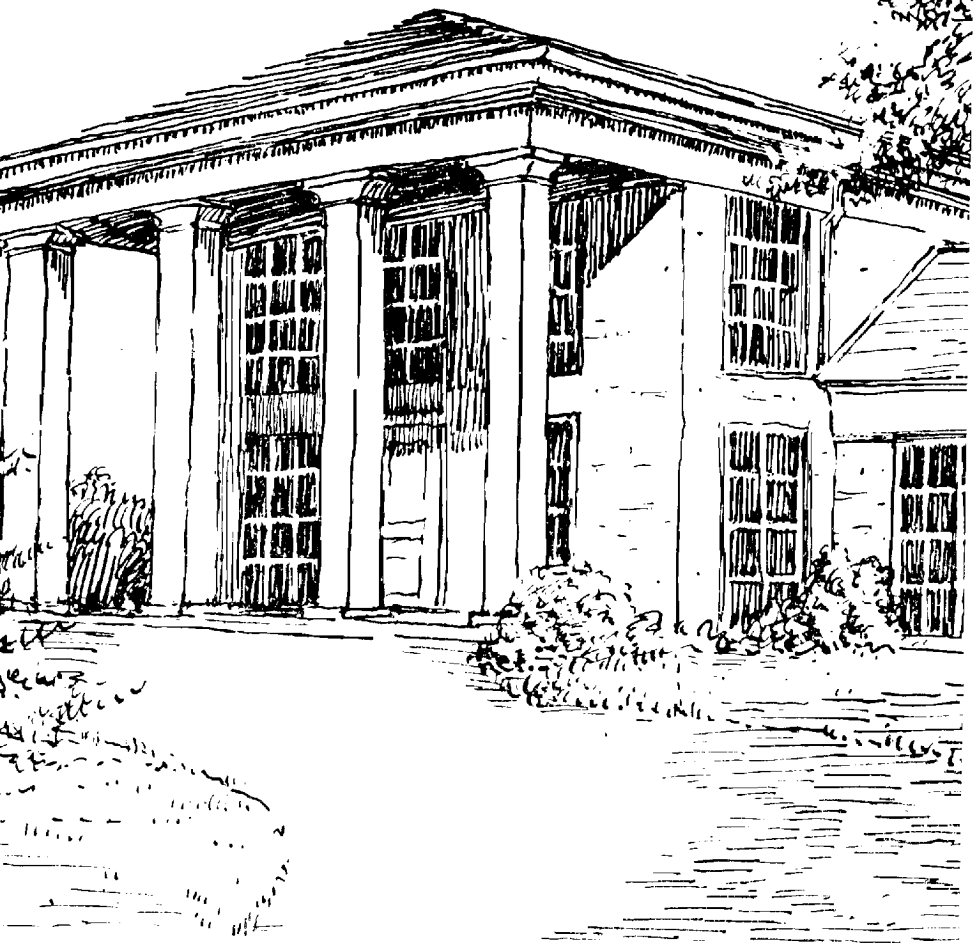
- Admission*—CARMICHAEL, HEFNER, McCARTY (3), J. C. BROOKS (2).
- Attendance*—NARMORE, G. C. GRIFFIN, SISK (2).
- Ceremonies*—NARMORE, ZSUFFA, JEFFORDS, ADAMS, MARSHALL (3), ALLEN (2).
- Curriculum*—J. W. MASON, NARMORE, CHAPIN, HEFNER, CARMICHAEL, EDSON (3), H. S. WEBER (2), SPICER (1).
- Executive*—NARMORE, EMERSON, CHAPIN, J. W. MASON, HEFNER, G. C. GRIFFIN, SWEIGERT, CARMICHAEL, STARRETT (3), RATTERREE, (2), J. E. MOORE (1).
- Honors and Prizes*—CARMICHAEL, F. M. HILL (3), HOOK (2), SISK (1).
- Infirmary*—AGATE, NARMORE, G. C. GRIFFIN, ALEXANDER, DR. S. L. MORRIS.
- Library*—CROSLAND, ROSSELOT (3), WALKER (2), EDSON (2), SWEIGERT (1).
- Professional Degrees*—J. W. MASON, NARMORE, CHAPIN, CARMICHAEL, AND HEADS OF DEGREE GRANTING DEPARTMENTS.
- Public Relations*—ZSUFFA, C. H. TAYLOR (3), WEIL (3), REID (2), COMER (1).
- Rules and Regulations*—B. L. BROWN, CARMICHAEL, H. W. ADAMS (3), J. E. MOORE (2), STARRETT (1), R. L. ALLEN (1).
- Schedule*—NARMORE, CHAPIN, J. W. MASON, HEFNER, G. C. GRIFFIN, SWEIGERT, HIBBS (3), J. D. WRIGHT (2).
- Standing*—NARMORE, CHAPIN, J. W. MASON, HEFNER, G. C. GRIFFIN (NON-VOTING).
- State Residence*—ANTHONY, G. C. GRIFFIN, CARMICHAEL.
- Student Activities*—G. C. GRIFFIN, ZSUFFA, DICKENS (3), HAMAN (2), WENN (1).
- Student Faculty Honor*—R. MILLER (3), WHITLEY (2), HOOK (1), AND THREE STUDENT MEMBERS ELECTED BY STUDENT COUNCIL.
- Student Lecture & Entertainment*—HEFFERNAN, HERBERT, NUGENT, AND FOUR STUDENT MEMBERS.
- Student Loan & Scholarship*—NARMORE, ANTHONY, G. C. GRIFFIN.
- Tenure and Advancement*—NARMORE, CHAPIN, J. W. MASON, HEFNER, FOLK (3), CALAWAY (2), H. W. MASON (2), GROSECLOSE (1).
- University Center*—ROSSELOT (3), HEFNER (2), SWEIGERT (1).

SPECIAL COMMITTEES OF THE FACULTY

1949-1950

- Advanced Planning*—EMERSON, J. W. MASON, CROSLAND, BUSH-BROWN, GROSECLOSE.
- Employee Training*—COX, JENKINS, T. H. QUIGLEY, WILSON, GROSECLOSE.
- Fire Protection*—COX, H. W. MASON, JENKINS.
- Foreign Students*—ERVIN, ALLEN, CAMPOAMOR, JOHNS, PERSHING.
- Grading System*—MITCHELL, CARMICHAEL, B. L. BROWN, G. C. GRIFFIN, J. E. MOORE, WALKER, H. S. WEBER.
- Guidance and Testing*—J. E. MOORE, NARMORE, J. W. MASON, HEFNER, PERSHING, COMMANDER, FOLK, RAINEY, POPE, CARMICHAEL.
- Insurance*—DENNISON, COX, GROSECLOSE, STARRETT, RATTERREE.
- Mailing Permits for Publications*—ZSUFFA, WEIL, LOGAN.
- Parking*—NARMORE, COX, JENKINS, ZSUFFA.
- Public Works*—EMERSON, BUSH-BROWN, HOLLAND, H. W. MASON, HEFNER.
- Radio Broadcasting*—ZSUFFA, H. C. BROWN, HONNELL, HERBERT, KELLY (WGST).
- Student Regulations*—J. W. MASON, ALEXANDER, CHAPIN, JOHNS, WENN, AJAX, STARRETT, AND STUDENT MEMBERS.
- Technical Institute*—HOWELL, COX, JOHNSON, DICKERT, H. W. MASON.
- Veterans Affairs*—AJAX, B. L. BROWN, J. E. MOORE, HOWELL, H. W. MASON, GROSECLOSE, WYSONG.
- Visual Aids to Education*—SWEIGERT, FOLK, GRUBB, ALLEN, G. K. WILLIAMS, MCKINLEY, CROSLAND, HARRIS.

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ADMINISTRATION AND FACULTY

OFFICE OF THE PRESIDENT

BLAKE RAGSDALE VAN LEER, M.E., Sc.D. (Washington and Jefferson College),
Eng.D. (Purdue University), 292 Tenth Street, N.W.

President

MARION LUTHER BRITTAI, A.B. LL.D. (Mercer University, University of Georgia,
Emory University), 204 North Avenue, N.W.

President Emeritus

ELIZABETH KOENIG, 278 Fourteenth Street, N.E.

Executive Secretary

JEAN D. HINSON, 422 Ponce de Leon Avenue, N.E.

Receptionist

OFFICE OF THE EXECUTIVE DEAN

PHIL BLASIER NARMORE, B.S. in Engineering, Ph.D. (University of Michigan),
3682 Peachtree Road

Executive Dean

NAN R. LINGLE, M.A. (Columbia University), 1396 West Peachtree Street,
N.W.

Administrative Assistant

MRS. MENA S. CLACK, 806 Sycamore Drive, Decatur, Georgia

Secretary to Executive Dean

OFFICE OF THE REGISTRAR

WILLIAM LAWSON CARMICHAEL, M.S. (Georgia Institute of Technology),
3459 Roxboro Road, N.E.

Registrar

ESTELLE ALLEN, B.C.S. (Georgia Tech Evening School), College Park, Ga.

Associate Registrar (Retired)

HORACE W. STURGIS, B.S., M.S., (University of Georgia), 2855 Peachtree
Road, Apt. 28

Associate Registrar

RICHARD J. MANLEY, B.C.S. (University of Georgia), 642 Bryan Street, S.E.

Statistician

NORMA M. JOHNSON, A.B. (University of Georgia), 978 Winall Down Road,
N.W.

Assistant Admissions Officer

HAZEL SNOWDEN BEACH, Route 5, Marietta, Georgia

Clerk

IMOGENE BULLARD CRAWFORD, 210 North Avenue, N.W., Apt. 62

Stenographer

- FLOSSIE MAYO, A.B. (LaGrange College), College Park, Georgia
Clerk
- MARY LOUISE HILL, 161 Mount Parran Road
Clerk
- NANCY A. SPENCER, 181 Spence Avenue, S.E.
Clerk
- MARY MELL FLEMING, A.B., (Agnes Scott College), 831 Techwood Drive, N.W.
Clerk
- BEVERLY GORDY, A.B. (Agnes Scott College), 812 Virginia Avenue, N.E.
Stenographer
- FLORA JONES, 569 Techwood Drive, N.W., Apt. 12
Clerk
- RUTH C. LYNNAH, 753 Williams Street, N.W.
Clerk

OFFICE OF THE COMPTROLLER

- JAMIE R. ANTHONY, 664 Darlington Circle, N.E.
Comptroller
- EWELL I. BARNES, 210 North Avenue, N.W.
Auditor
- FRANK K. HOUSTON, C.P.A., 717 Williams Street, N.W.
Comptroller-Emeritus
- FRANK B. WILSON, A.B. (Georgia Institute of Technology), 2007-A Spring
Valley Drive, Marietta
Purchasing Agent
- MILTON T. WHITFIELD, Techwood Dormitory
Assistant Auditor
- KATHARINE GRAYSON, 141 Huntington Rd., N. W.
Secretary
- CHARLES A. WYNN, Brig. General, USMC (ret.), 210 North Avenue, N.E.,
Apt. 58
Director of Housing
- A. H. BARNES, 216 Cambridge Avenue, Decatur, Georgia
Director of Dining Hall

OFFICE OF DEAN OF FACULTIES

- LLOYD WALTER CHAPIN, M.A. (Harvard University), 248 Camden Rd., N.E.
Dean of Faculties
- MARY ELEAZAR BROWN, 831 Techwood Drive, N.W.
Secretary

GENERAL COLLEGE

- RALPH A. HEFNER, Ph.D. (University of Chicago), 724 Techwood Drive,
N.W.
Dean of the General College

MRS. MARTHA Y. BOYTE, 212-F Georgia Tech Lawson Apartments, Chamblee, Ga.
Secretary to Dean of the General College

SCHOOL OF CHEMISTRY

Director

PAUL KENNETH CALAWAY, Ph.D. (University of Texas), 856 Cherry St., N.W.

Professors

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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. N. Inman, O. S. Porter, E. R. Hodgson and Columbus Heard. Five places, Athens, Atlanta, Macon, Millidgeville and Penfield, 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 initially from the Peters Land Company. Later, Mr. Richard Peters donated four additional acres. The campus has been increased by purchase and gifts from time to time until now it comprises about 130 acres, of which 84 acres were acquired since July 1, 1944, when Dr. Blake R. Van Leer became President. On the inside back cover is a map showing the campus as it appears today. As of June 30, 1948, the complete plant was valued as follows:

<i>Plant in Use</i>	
Buildings:	
Academic and General.....	\$ 3,502,900
Athletic	1,750,000
Infirmary	27,000
Auxiliary	4,615,200
Residential	177,600
	\$10,072,700
Land: (129.098 acres)	925,000
Equipment	3,186,300
Plant Under Lease	
Techwood Dormitory	\$ 250,000
Naval Air Station	1,500,000
Lawson Apartments	1,200,000
(Operated for F.P.H.A. for Ga. Tech Students and Faculty)	2,950,000
	\$17,134,000
VALUE OF PLANT IN USE.....	
	\$17,134,000
 <i>Plant Under Construction</i> (To be completed by spring quarter 1949)	
President's Home	\$ 100,000
Hightower Textile Building	1,025,000
Addition to Brittain Dining Hall	50,000
	\$18,309,000
TOTAL VALUE OF PLANT.....	
	\$18,309,000

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, toward 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 1930, 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 75 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. Lawrence Wood Robert, Jr., '07, donated land valued at \$60,000 to the School in 1946, to be used as part of the site for the proposed Student Activities Building.

Equipment for processing cotton, rayon, wool and synthetic fibres at a cost of approximately \$350,000 for use in the new Hightower Textile Building is being provided through the generosity of The Textile Education Foundation, Inc.

PRESIDENTS AND TRUSTEES

Dr. I. S. Hopkins was the first President of the Georgia Institute 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.

Dr. Lyman Hall, Professor of Mathematics at the School, and a graduate of West Point, succeeded Dr. Hopkins in 1896. 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 old 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 elected 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. Marion Luther Brittain became President on August 1, 1922, after Dr. N. P. Pratt, Chairman of the Executive Committee of the Board of Trustees, served as Administrator Executive Ad Interim for four months. During Doctor Brittain's administration, 22 buildings were added to the physical plant of the school, and enrollment in collegiate courses increased from 1673 in 1921 to 2910 in the fall of 1941. Upon his retirement in 1944, the Board of Regents honored him with the title of President-Emeritus.

Dr. Blake Ragsdale Van Leer was appointed by the Board of Regents as President on July 1, 1944. During his brief administration, the full-time student body went over 6,000; the campus area was more than tripled; three new dormitories and eight apartment houses costing \$4,000,000 were built; the West Stands of Grant Field rebuilt; a \$300,000 A.C. Network Calculator Laboratory was put into operation; and a \$1,025,000 building for the Textile Engineering School constructed. Under Doctor Van Leer's able leadership, the Institute is now the largest engineering institution in the South and the third largest in the nation. The Evening School ranks tenth, the Graduate School is thirteenth, and the Engineering Experiment Station is second among state-operated units in the United States.

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. 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.

DEGREES

The Georgia Institute of Technology at present offers curricula leading to the following degrees which are shown in the order of the establishment of the school in which the work is given:

UNDERGRADUATE DEGREES

- Bachelor of Mechanical Engineering
- Bachelor of Electrical Engineering
- Bachelor of Civil Engineering
- Bachelor of Textile Engineering
- Bachelor of Science in Textiles
- Bachelor of Chemical Engineering
- Bachelor of Science in Chemistry
- Bachelor of Architecture
- Bachelor of Science (Architecture)
- Bachelor of Ceramic Engineering
- Bachelor of Aeronautical Engineering
- *Bachelor of Science in General Engineering
- Bachelor of Science in Industrial Management
- Bachelor of Science in Physics
- Bachelor of Industrial Engineering

To graduates who have completed their courses under the Cooperative Plan, the degree is awarded with the designation "Cooperative Plan".

GRADUATE DEGREES

The degree of Master of Science (with or without designation) is offered in all fields shown above (with the exception of Architecture) and also in:

- Public Health Engineering
- Safety Engineering

The degree of Doctor of Philosophy is offered in:

- Chemical Engineering
- Chemistry

*To be discontinued with class of 1951.

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 proceed as rapidly as possible with their education.

ENTRANCE REQUIREMENTS

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

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.

English	3	History	1
Algebra	2	Physics	1*
Plane Geometry	1	Optional Units at least	7

OPTIONAL UNITS

English	1	Chemistry	½ to 1
Sol. Geometry	½	Gen. Science	½ to 1
Trigonometry	½	Physiography	½ to 1
Adv. Arithmetic	½	Physiology	½ to 1
His. and Civics	1 to 3	Drawing	½ to 2
Economics	½ to 3	Commerce	1 to 3
Latin or Greek	1 to 4	Shop Work	½ to 2
Ger., French or Span.	2 to 4	Agriculture	1 to 2
Biology	½ to 1	Military	½ to 1

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

*Another science may be substituted for Physics in Industrial Management, Options 1 and 3, and in Textile Engineering, Option 3.

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 be turned 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.

ADMISSION WITH ADVANCED STANDING

Applicants who have made satisfactory records in scholarship and in conduct 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 Institute 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 were 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 Institute 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.* The student should request the registrar of the college which he has previously attended to send a transcript to Georgia Tech for appraisal and evaluation.

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 registrar 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 Institute of Technology.

Any veteran desiring to further his education under veterans benefits at the Georgia Institute of Technology should complete the following separate and independent 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 Georgia 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 Advanced Standing) while in military or naval service.
- e. If a former Georgia Tech student, a formal application for re-admission (blank obtainable from Registrar's Office.)

2. *To Veterans Administration:*

- a. An application under Public Law 346 (G. I. Bill of Rights) on Veterans Administration Rehabilitation Form 1950, complete with photostatic 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 certificate may be obtained from the courthouse in the county where married. In case of children, a birth certificate of one child is also necessary.

The Veterans Administration will issue a Certificate of Eligibility and Entitlement 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 \$75, \$105 or \$120 per month will be paid directly to the veteran by the Veterans Administration.

The Georgia Institute 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, and administrative officials to counsel and aid the veteran student.

VETERAN'S PROGRAM

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 determined by the Veterans Administration in accordance to the pension and dependency status of the individual veteran. 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 \$75; if the veteran is married the allowance is \$105 or \$120 if more than one dependent. For veterans who have been in 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 Navy College Training Programs and who has received an honorable discharge is automatically eligible for the school or college program.

TUITION AND FEES

"To qualify for Georgia tuition the student's parents must be legal and actual residents of Georgia" together with Section 32 of the Acts of the Georgia Legislature of 1912 as follows: (Georgia Code 1933, Section 32-103, note reference to the Act 1912)

"BE IT ENACTED—That the non-resident students of the Georgia Institute of Technology who are required to pay tuition as non-residents, shall be those who reside without the limits of the State at the time when they matriculate in said institution. No student who matriculates as a non-resident shall afterwards be entitled to the benefit of resident tuition simply from the fact that he has elected to make Georgia his domicile. Any such non-resident shall be entitled to the benefit and privileges of the student as to tuition, only when the family, consisting of the parents or guardians of said non-resident student, shall remove to the State of Georgia with the intention of becoming domiciled therein."

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

Beginning with the Fall Quarter 1949, the Board of Regents of the University System of Georgia, authorized a temporary emergency matriculation fee of \$10.00 per quarter, which is shown below.

	Matriculation Fee Per Quarter	Temporary Emergency Matriculation Fee	Tuition Fee Per Quarter	Student Activity Fee Per Quarter	Medical Fee Per Quarter	Total Fees Per Quarter	Total Fees Per Academic Year
Residents of Georgia.....	\$46.50	\$10.00	.....	\$7.50	\$5.00	\$ 69.00	\$207.00
Non-Resident Cooperative Students	46.50	10.00	\$ 53.50	7.50	5.00	122.50	varies
Non-Residents of Georgia.....	46.50	10.00	100.00	7.50	5.00	169.00	507.00

NOTE: (a) Matriculation, tuition, student activity and medical fees of veterans enrolled under PL 16 and PL 346 are paid by the Veterans Administration in accordance with the terms of those laws.

(b) An extra fee may be charged in special courses.

(c) A deposit of twenty-five dollars (\$25.00) is required of each accepted applicant for admission, as evidence of good faith, within two weeks after the notification of acceptance has been issued. After enrollment this deposit will be credited to the student's fee account and in the case of veterans will be refunded, upon presentation of the receipt for the deposit at the cashier's window. An accepted applicant who has deposited twenty-five dollars and who decides not to enter may receive a refund by application to the Director of Admissions not later than thirty days before the opening of the term for which the applicant has been accepted. Thereafter, the deposit is forfeited except for instance of an act of providence.

SUMMARY OF EXPENSES

(Estimated for Academic Year)

	Resident of Georgia	Non-Resident Cooperative Student (two quarters)	Non-Resident of Georgia
Matriculation, tuition, and other fees.....	\$177.00	\$225.00	\$477.00
Board, Room, and Laundry.....	600.00	400.00	600.00
R.O.T.C. Uniform (if required).....	52.50	52.50	52.50
Books and equipment.....	80.00	50.00	80.00
Total for Academic Year.....	\$909.00	\$727.50	\$1209.50

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 LATE REGISTRATION FEE OF NOT MORE THAN SIXTEEN DOLLARS (\$16.00) IS CHARGED AT THE RATE OF TEN DOLLARS (\$10.00) FOR THE FIRST DAY AFTER REGULAR REGISTRATION, AND AN ADDITIONAL TWO DOLLARS (\$2.00) FOR EACH OF THE NEXT THREE DAYS.

REFUND OF FEES

Refunds of tuition and other educational fees may be made only upon written application for withdrawal. Student activity and medical fees are not refundable.

Students who formally withdraw during one week following the scheduled registration date are entitled to a refund of 80% of the fees paid for that quarter.

Students who formally withdraw during the period between one and two weeks after the scheduled registration date are entitled to a refund of 60% of the fees paid for that quarter.

Students who formally withdraw during the period between two and three weeks after the scheduled registration date are entitled to a refund of 40% of the fees paid for that quarter.

Students who formally withdraw during the period between three and four weeks after the scheduled registration date are entitled to a refund of 20% of the fees paid for that quarter.

Students who withdraw after a period of four weeks has elapsed from the scheduled registration date will be entitled to no refund of any part of fees paid for that quarter.

AUTOMOBILES AND MOTORCYCLES

No freshman living on the campus may operate an automobile or motorcycle. Exceptions can be made by the Dean of Students in cases of extreme hardship.

All students who operate such vehicles must register them with the Dean of Students. It is considered inadvisable for any student to own a motor vehicle unless it is absolutely necessary for transportation to and from school, or for employment.

PHYSICAL EXAMINATIONS

A complete physical examination is compulsory for each new student except in the case of veterans who have been separated from military service within the preceding year. Examination dates for new students will be included in the orientation schedule for the Fall Quarter. For all other quarters, the examination will be held on the second day of registration. All students who elect Advanced ROTC will be required to take the physical examination. The school arranges to have these examinations conducted at the times scheduled on page 2 of this bulletin. Well-trained medical specialists conduct the examinations at no additional expense to the student. A fee of approximately \$3.00 will be charged any student who for any reason fails to take his examination when scheduled. Medical certificates from elsewhere will not be accepted.

At the time of his physical examination each student will be responsible for declaring any handicap for which he wishes consideration in his military and physical training program. Each student should be prepared at time of his physical examination to give information as to his medical history as follows: (1) usual childhood diseases, (2) injuries (to include location on body and when injury occurred), (3) operations, (4) chronic diseases or allergies (such as asthma, hay fever, sinus trouble), and (5) if he has consulted a physician during the past 5 years for other than check-ups, giving dates with diagnosis.

Examination includes a tuberculin skin test. Students who show a positive reaction are required to cooperate by having an X-ray examination of the lungs at the school hospital.

ROTC

All freshmen and sophomores, except aliens, veterans, and those physically unfit, are required to complete the basic military, naval or air training on a college level. Successful completion of the course is a prerequisite to graduation. Students transferring from an accredited college with at least eighty (80) quarter credit hours are not required to pursue military or naval training. Stu-

dents transferring to this institution with sophomore standing are required to take one year of ROTC and may elect a second year if desired. New entering students in Army and Air ROTC are required to purchase a new uniform from Georgia Tech.

Students who have successfully completed the basic course, on a college level, if selected, may pursue the advanced course in the junior and senior years. Completion of the advanced course then becomes a requirement for graduation, unless the student is relieved of his contractual obligations by the Military or Naval Departments.

A student who is exempt from the basic course or any part thereof must elect additional subjects not regularly included in his course and approximating in credit hours the work from which he is exempt.

For further details regarding the army ROTC, see page 153 including purchase of a new uniform, the naval ROTC, see page 166 and for air ROTC, see page 68.

SELECTIVE SERVICE REGULATIONS

All students regularly enrolled at the Georgia Institute of Technology who are subject to the provisions of the Selective Service Act of 1948 are deferred from induction until the end of the academic year or until such time as he is dropped from the rolls of the Institute.

Eligible students in the ROTC at Georgia Tech may be deferred under the provisions of the Selective Service Act of 1948, until completion of the course of instruction (ROTC and the nonmilitary educational courses) provided they are selected for deferment by the commandant of the respective ROTC unit within the limitations of the deferment quota allotted to the unit, as follows:

a. If they have been or may be selected for admission to the advanced course, if eligible therefor and sign the written agreement to accept appointment as a commissioned officer and to serve at least two years on active duty after receipt of commission, subject to call to such duty.

b. If they have completed the first year basic course at Georgia Tech.

c. If they desire to enter or continue in the first year basic course, providing a period of two quarters will intervene between the beginning of the academic year and their final selection. Students will be required to take a Qualifying Examination as first-year basic students for deferment. During the first two quarters of their course they will be closely observed to determine leadership ability. Those judged deficient in leadership qualities may be eliminated.

d. If they remain in good standing (maintain a level of scholarship and deportment, which, if continued, would insure the graduation of the student at the normal time) and their attendance is continuous except for authorized periods of nonattendance, such as (1) regularly scheduled vacation periods, (2) periods of sick leave authorized by school officials, and (3) periods of leave from the military or naval course of instruction, when authorized by the army, navy or air commandant.

The respective ROTC Department will notify local Draft Boards of the deferred status and, in case any condition exists which will result in reclassification, of the termination thereof.

ROTC students under the cooperative plan courses of instruction are entitled to postponement from induction during regularly scheduled on-the-job training period above requirements are met. Such periods are considered as periods of leave from military course of instruction.

DORMITORIES

Dormitory room rent is payable in advance as follows:

(a) On or before the last day of regular registration for assignments made at the beginning of a quarter.

(b) Within four (4) days after date room is assigned when assignment is made after the beginning of a quarter.

A penalty fee of not more than eight dollars (\$8.00) will be charged for failure to pay rent or make satisfactory arrangements for delayed payment on or before the date due, at the rate of five dollars (\$5.00) for the first day after the last day of registration or date of assignment, and one dollar (\$1.00) for each of the next three days.

Students who fail to pay their room rent, including penalty fees, or failed to make satisfactory arrangements to do so, within four (4) days after the last day of registration or date of assignment, will be reported to the Executive Dean for disciplinary action.

All single students in the freshmen class who do not reside with their parents, near relatives, or bona fide guardians are required to live in the school dormitories for the entire school year. Other students may be required to live in dormitories.

The present school dormitory capacity provides housing for approximately 1750 single students.

BROWN, HARRIS, HOWELL and HARRISON DORMITORIES are reserved for freshmen students. Students on the Co-operative plan are assigned to TECHWOOD DORMITORY. Remaining rooms in these dormitories not required for freshmen or Co-ops, and the rooms in GLENN, TOWERS and SMITH DORMITORIES, are available to other single students.

Dormitory rooms are rented on a quarterly basis, payable in advance, and vary in price per quarter as follows: \$37.50 for rooms in BROWN and HARRIS; \$43.50 for rooms in TECHWOOD; and \$49.50 for rooms in HOWELL, HARRISON, GLENN, TOWERS, and SMITH DORMITORIES.

Most of the rooms accommodate two students each. A limited number of suites, consisting of one or two bedrooms and a study room, are assigned to four students. Students are encouraged to select their roommates.

Each student should provide himself with a heavy blanket or comfort, a light blanket, bedspreads, sheets, pillow, and pillow cases, towels, and a study lamp.

Application for dormitory rooms should be made to the DIRECTOR OF HOUSING *after* the applicant has received notification of his acceptance from the REGISTRAR. The application should be accompanied by a deposit equal to one quarter's rent, payable to THE COMPTROLLER, GEORGIA INSTITUTE OF TECHNOLOGY. In the event the applicant is assigned a room in a price range other than requested, adjustment will be made during the registration period.

Room rent deposits will be refunded only in case the applicant cannot be assigned a room or if notification of cancellation is received from the applicant prior to the first day of registration.

APARTMENTS

The school has approximately 350 apartments available from \$34.00 to \$84.25 per month for married students. These apartments vary in size from efficiency to two-bedroom apartments. It is not anticipated that any of these

units will be available for newly entering students, as the number of applications on file from presently enrolled students exceeds the number of prospective vacancies. Placement is made in the apartments according to dates of applications as vacancies arise. Applications cannot be accepted until a prospective student has been notified by the DIRECTOR OF ADMISSION that he is eligible for entrance to the school.

OFF-CAMPUS ACCOMMODATIONS

The Housing Office maintains a list of currently available rooms in private homes to assist single and married students who are unable to obtain school accommodations. The average monthly rental for off-campus rooms is \$20.00 per person, without meals. Room and board, when available, average \$12.00 weekly per person. Seldom are accommodations available for couples with children or which provide cooking facilities.

Students desiring assistance in obtaining off-campus accommodations should plan to come to the Housing Office at least a week before registration, as reservations cannot be made by the school or by mail.

OTHER INFORMATION

Dining Hall: Brittain Hall is a modern dining hall. Well-balanced meals are furnished at an approximate cost of \$40.00 to \$60.00 per month, cafeteria service.

Reports: Grade reports of students are issued at the close of each quarter.

Class Attendance: Any subject scheduled must be attended throughout the quarter by a student unless this subject is removed from the student's schedule by his College Dean.

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 when 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. Satisfactory completion of a course in national government will satisfy this requirement.

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.

The Grading System is subject to change beginning with the Fall Quarter of 1949.

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 Institute of Technology.

The basic Freshman course given below is required in all the engineering courses except Architecture for which see page 71.

FRESHMAN YEAR

Uniform in all Engineering Courses

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

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Chem.	101-2-3	Inorganic Chemistry	3-3-4	3-3-4	3-3-4
Draw	101-2-3*	Engineering Drawing	0-6-2	0-6-2	0-6-2
Eng.	101-2-3	Composition and Rhetoric	3-0-3	3-0-3	3-0-3
Math.	101	Algebra	5-0-5	.....	.....
Math.	102	Trigonometry .....	.....	5-0-5	.....
Math.	103	Analytical Geometry .....	.....	.....	5-0-5
M.L.	**	Modern Language OR			
S.S.	105-6-7	Social Science	3-0-3	3-0-3	3-0-3
P.T.	101-2-3	Physical Training	0-4-1	0-4-1	0-4-1
ROTC	101-2-3	Military or Naval Instruction	3-1-2	3-1-2	3-1-2
Gen.	101	Orientation	1-0-0	.....	.....
Total			18-14-20	17-14-20	17-14-20

*Industrial Management students option I, will take Draw. 106. Industrial Management students, option II, will take Drawing 103.

**Choice of M.L. 101-2-3, German; M.L. 107-8-9, French; or M.L. 113-14-15, Spanish. Three quarters of either M.L. or S.S. are required. A student having had two years of a language in high school and wishing to continue work in this language must schedule courses in the 200 series.

DANIEL GUGGENHEIM SCHOOL OF AERONAUTICS

GENERAL INFORMATION

The School 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 Institute 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, high level design, 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 197 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 two buildings; a three-story structure erected in 1930, and a one-story temporary annex, completed in 1947. The principal building contains, in addition to class rooms and offices, a nine-foot wind tunnel, a two and a half foot wind tunnel, an instrument laboratory, a dark room, a large drafting room and structural exhibit room for the use of design students, and a comprehensive and completely indexed reference library on aeronautical subjects. The annex houses the School's own machine and woodworking shop, in which all its models and special apparatus for research and routine programs are constructed; an aircraft structural testing laboratory, containing electric strain gauge equipment, a fatigue testing machine, and a special universal testing machine; and a classroom. In addition, the Mechanical Engineering Department possesses several large aeronautical engines and dynamometer equipment. Space has recently been acquired on the Marietta Air Force Base for laboratory expansion.

FRESHMAN YEAR

See Page 60

SOPHOMORE YEAR

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

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
C.E.	204	Surveying .....	.....	.....	1-3-2*
Dr.	201-2-3	Descriptive Drawing	0-3-1	0-3-1	0-3-1
Eng.	201-2-3	Survey of Humanities	3-0-3	3-0-3	3-0-3
Math.	201-2-3	Differential and Integral Calculus.....	5-0-5	5-0-5	5-0-5
M.E.	201-2	Machine Laboratory	0-3-1	0-3-1	.....
M.E.	205	Welding Laboratory .....	.....	0-3-1	.....
Phys.	207-8-9	Physics	5-3-6	5-3-6	5-3-6
ROTC	201-2-3	Military or Naval Instruction.....	3-1-2	3-1-2	3-1-2
P.T.	201-2-3	Physical Training	0-4-1	0-4-1	0-4-1
Total			16-14-19	16-17-20	17-14-20

*A.E. 203 may be substituted.

JUNIOR YEAR

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
A.E.	322-3-4	Aerodynamics of the Airplane.....	3-0-3	3-0-3	3-0-3
Ch.E.	325-327	Metallurgy	3-0-3	3-0-3	.....
Eng.	321	Technical Writing .....	.....	.....	3-0-3
E.E.	320-1	D.C. and A.C. ....	.....	2-3-4	4-3-5
Math.	301	Differential Equations	4-0-4	.....	.....
M.E.	322-3	Thermodynamics	3-0-3	3-0-3	.....
Mech.	301-2-3	Applied Mechanics	2-0-2	2-0-2	3-0-3
Mech.	331-2-3	Mechanics of Materials	3-0-3	2-0-2	3-0-3
Mech.	304	Graphic Statics .....	.....	0-3-1	.....
Elective	**	Military or Non-technical	3-0-3	3-0-3	3-0-3
Total			21-0-21	18-6-21	19-3-20

**If Advanced Military is the elective, credit will be 4-1-3.

If Advanced Navy is the elective, credit will be 3-2-3.

SENIOR YEAR

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
A.E.	467-8	Seminar	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.	450-1	Stability and Control	3-0-3	2-0-2	.....
A.E.	461	Aircraft Materials	3-0-3	.....	.....
A.E.	425	Wind Tunnel Laboratory	1-3-2	.....	.....
A.E.	448	Airplane Detail Design .....	.....	1-3-2	.....
A.E.	436	Aircraft Structures Laboratory .....	.....	.....	1-3-2
A.E.	472	Aircraft Propulsion System .....	.....	.....	3-3-4
M.E.	438	Aero. Engines .....	.....	4-0-4	.....
M.E.	454	Aero. Eng. Lab. ....	.....	0-3-1	.....
Electives*		.....	3-0-3	3-0-3	6-0-6
Total			14-12-18	14-15-19	13-15-18

*If Advanced Military or Advanced Navy is the elective, the class, lab. and credit hours are 3-2-3.

**If Advanced Military is the elective, credit will be 4-1-3.

If Advanced Navy is the elective, credit will be 3-2-3.

COURSES OF INSTRUCTION

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

A.E. 203. Introduction to Aeronautical Engineering 1-3-2. Sophomore Year, Third Quarter.

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

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. Mr. Bricker

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.

Mr. Bricker

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.*

A.E. 322. Aerodynamics of the Airplane I 3-0-3. Junior Year, First Quarter.

Mr. Harper

Prerequisites: Math. 203, Physics 209, Mech. 301, May parallel Mech 301.

Applied aerodynamics including properties of air, airfoil theory, Reynolds Number, airfoil characteristics, induced drag and downwash, aspect ratio corrections, effects of wing planform, and auxiliary lift devices.

Text: *Wood, 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. Harper

Boundary layer theory; scale effect; parasite drag; airplane efficiency factor; momentum and simple blade element theory of propellers, horsepower available and required, performance, take-off and landing runs, ground effect, static longitudinal stability.

Text: *Wood, 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. Harper

Effects of compressible flow on airfoil coefficients, effect of sweepback and sweepforward, gliding flight, terminal velocity, spanwise and chordwise lift distribution, load factors, V-6 diagrams.

Text: *Lecture notes.*

A.E. 421. Advanced Aerodynamics 3-0-3. Senior and Graduate A.E., to be scheduled.

Prerequisite: A.E. 324 Math. 301.

Mr. Pope

Basic supersonics, theory and applications.

Text: *Mimeographed notes.*

A.E. 422. Advanced Aerodynamics II 3-0-3. Senior and Graduate A.E. To be scheduled.

Prerequisites: A.E. 324, Math. 301.

Mr. Pope

Elementary perfect fluid and airfold theory.

Text: *Mimeographed notes.*

A.E. 425. Wind Tunnel Laboratory 1-3-2. Senior Year, First Quarter.

Prerequisites: A.E. 324, may parallel A.E. 324.

Mr. Pope, Mr. Harper

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

Text: Pope, *Wind Tunnel Testing.*

A.E. 427. Advanced Wind Tunnel 1-3-2. Senior Year and Graduate A.E., to be scheduled.

Prerequisite: A.E. 425.

Mr. Pope

Theory and design of wind tunnels, proper testing procedure.

Text: Pope, *Wind Tunnel Testing.*

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. Richmond, Mr. Williams, Mr. Dutton

Development of the basic theory of aircraft structural design and analysis, covering plane stress and strain theory; riveted joints; loads, shears and moments 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; ANC-5 Bulletin.*

A.E. 432. Theory of Aircraft Structures II 3-0-3. Senior Year, Second Quarter.

Prerequisites: A.E. 431, Math. 302 and A.E. 461.

Mr. Richmond, Mr. Williams, Mr. Dutton

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.

Text: Niles and Newell, *Airplane Structures, Vol. I; ANC-5 Bulletin.*

A.E. 433. Theory of Aircraft Structures III 3-0-3. Senior Year, Third Quarter.

Prerequisites: A.E. 432.

Mr. Richmond, Mr. Williams, Mr. Dutton

Slopes and deflections, continuous beams, virtual work, least work, Castigliano's Theorems, beam columns.

Text: Niles and Newell, *Airplane Structures, Vol. I and Vol. II; ANC-5 Bulletin.*

A.E. 436. Aircraft Structural Laboratory 1-3-2. Senior Year, Third Quarter.

Prerequisites: A.E. 432.

Mr. Richmond, Mr. Williams

Testing of aircraft materials and structural elements to show agreement between theory and experiment and to acquaint the student with aircraft structural testing methods.

Text: *Lecture notes.*

A.E. 439. Advanced Aircraft Structures 3-0-3. Senior Year and Graduate A.E., Third Quarter.

Prerequisites: A.E. 432.

Mr. Williams, Mr. Richmond

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

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

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 analysis for several important loading conditions. Three view, weight and balance, performance report, and structural loading report.

Text: *Lecture notes; CAR 04 and ANC-5 Bulletin.*

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.

Text: *Lecture notes; CAR 04 and ANC-5 Bulletin.*

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 wing components.

Text: *Lecture notes; CAR 04 and ANC-5 Bulletin.***A.E. 448. Airplane Detail Design 1-3-2.** Senior Year, Second Quarter.

Prerequisites: A.E. 432, A.E. 441. Mr. Harper, Mr. Bricker

Aeronautical drafting practices; fitting analysis; study of forging and casting design; sheet metal development; preparation of production drawings of small fittings.

Text: Anderson, *Aircraft Layout and Detail Design.***A.E. 450. Stability and Control I 3-0-3.** Senior Year and Graduate.

Prerequisites: A.E. 324, Mech. 303 and 333, Math. 301. Mr. Seacord

A study of static lateral and longitudinal stability and the effect of these stability characteristics on flying qualities, including neutral point, maneuver point, power effects and estimation of stability derivatives.

Text: *Mimeographed notes.***A.E. 451. Stability and Control II 2-0-2.** Senior Year and Graduate.

Prerequisite: A.E. 450. Mr. Seacord

A study of airplane control devices and their characteristics, including the design of controls to meet various flying qualities requirements.

Text: *Mimeographed notes.***A.E. 452. Dynamics of the Airplane I 3-0-3.** Senior Year and Graduate.

Prerequisite: A.E. 450. Mr. Seacord

A study of the equations and methods used in the analysis of the dynamic stability of an airplane, and their application to the calculation of the damping characteristics and stability boundaries for a specific airplane.

Text: *Mimeographed notes.***A.E. 453. Dynamics of the Airplane II 2-0-2.** Senior Year and Graduate.

Prerequisite: A.E. 452. Mr. Seacord

A continuation of A.E. 452 including the computations for the disturbed motions of an airplane and an introduction to frequency response methods of analysis.

Text: *Mimeographed notes.***A.E. 455. Applied Instrumentation 2-3-3.** Senior Year, To be scheduled.

Prerequisites: A.E. 323, Mech. 303, Math. 301. Mr. Bricker

Theory of measurements and application of basic 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. 327, Mech. 302. Mr. Williams, Mr. Bricker

Study of properties and uses of aircraft materials with major emphasis on the effects of fatigue and corrosion as related to aircraft components.

Text: Titterton, *Aircraft Materials and 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

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 AIR SCIENCE AND TACTICS

RESERVE OFFICERS' TRAINING CORPS

The Federal Government maintains, at the Georgia Institute of Technology, a Senior Division of the Air Reserve Officers' Training Corps. General objectives of the course of instruction are to produce junior officers possessing the qualities and attributes essential to their progressive and continued development in the Officers' Reserve Corps of the United States Air Force and in the Regular Air Force. Training in military leadership is emphasized.

The complete course of instruction of the Senior Division ROTC program comprises four years, with approximately 120 hours of instruction in each of the two years of the basic course and a minimum of 150 hours of instruction in each year of the advanced course, with the addition of a summer camp. Two courses are offered: (1) Air Force Communications and (2) Aircraft Maintenance and Engineering.

ACADEMIC CREDIT

Academic credit toward the acquisition of a degree is granted for the completion of military courses on the basis indicated below:

	1st Q.	2nd Q.	3rd Q.	Total Credit Hrs.
Basic 1st Year	2	2	2	6
Basic 2nd Year	2	2	2	6
Advanced 1st Year	3	3	3	9
Advanced 2nd Year	3	3	3	9
Total.....				<hr/> 30

UNIFORMS

Georgia Tech Air ROTC uniform requirements are the same as those prescribed for the Department of Military Science and Tactics.

ADVANCED COURSE SUBSISTENCE ALLOWANCE

Subsistence allowance for students in the advanced course, Air unit are the same as that prescribed for the Department of Military Science and Tactics.

THE BASIC COURSE

The basic course consists of formal instruction for four hours per week for two academic years of at least 30 weeks each. Honorably discharged veterans of World War II who have had six to twelve months service may be given credit for one year of the basic course, and those who have had twelve months service may be given credit for the entire basic course.

THE ADVANCED COURSE

The advanced course is a recognized elective in all departments at Georgia Tech. Completion of the advanced course, including summer camp, is a prerequisite to graduation for students electing to take advanced military science unless the student is relieved of his contractual obligations by the Air Force commander.

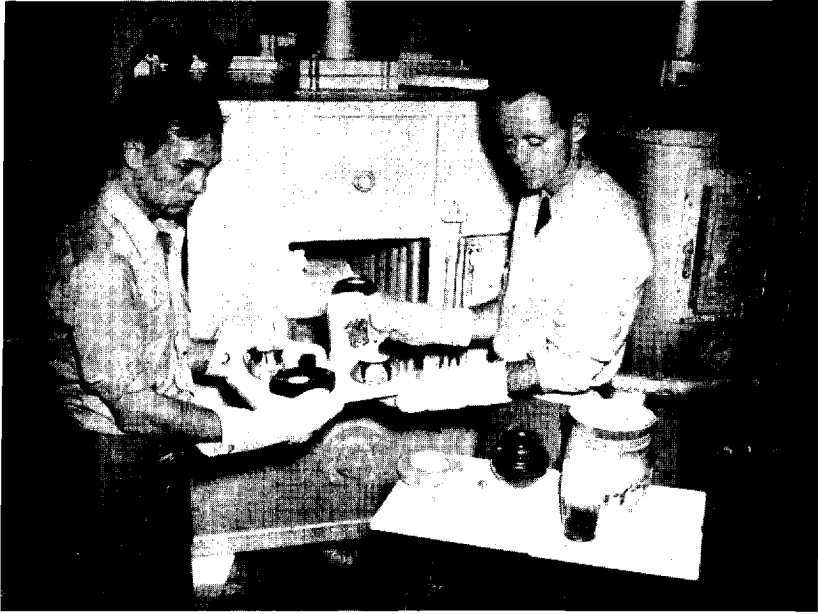
To enroll in the advanced course, a student is required (1) to have successfully completed or to have credit for the basic course and (2) to execute a contract to continue the course, including summer camp, for the two years as prescribed, provided he remains at Georgia Tech or transfers to another college



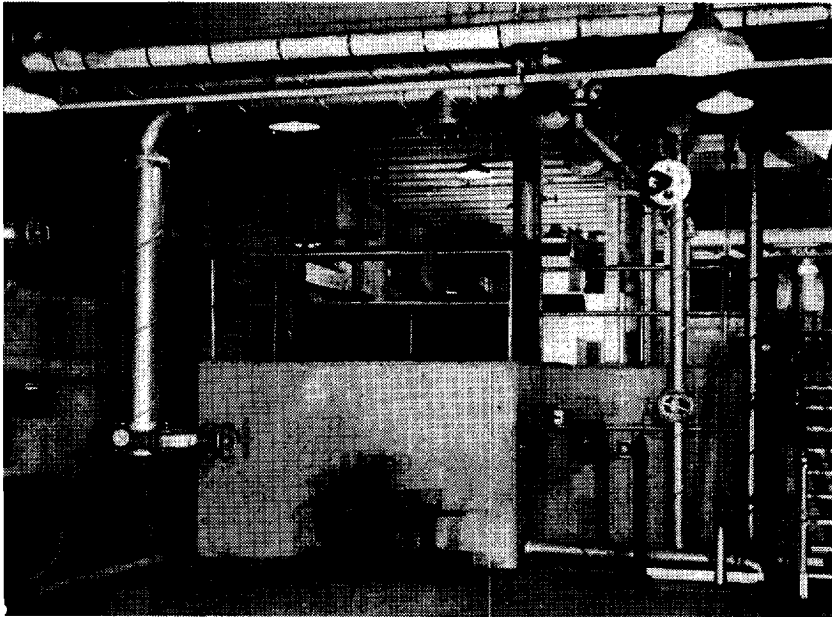
SMITH DORMITORY—*One of nine modern dormitories available to students attending Georgia Tech.*



CALLAWAY APARTMENTS—*The beautiful garden apartment group constructed by Georgia Tech in 1947 for faculty and married students is named in honor of Fuller Earle Callaway, Sr., with individual buildings named for seven prominent Georgians.*



SCHOOL OF CERAMIC ENGINEERING—*Students obtain training on latest types of laboratory and plant equipment.*



SCHOOL OF CIVIL ENGINEERING—*The new Hydraulics Laboratory is one of many available to civil engineering students.*

having a Senior Division of the Air ROTC. Students who are members of the Naval Reserve, Marine Reserve, Coast Guard Reserve, or Air Reserve are required to terminate membership therein in order to become eligible for the advanced course.

Upon the successful completion of the advanced course and of four years education at a college level, graduates will be tendered commissions as second lieutenants in the Officers' Reserve Corps of the United States Air Force. Students from the upper third of the advanced course who meet other requirements promulgated by the Air Force will be designated Distinguished Military Students, and on graduation will be offered commissions in the Regular Air Force.

Members of the advanced course are required to attend camp one summer, normally between the junior and senior years. All students going to camp receive mileage for the round trip at the rate of five (5) cents per mile and are messed, housed, uniformed, and given medical and dental attention at government expense while at camp. Students will receive the pay prescribed for soldiers of the 7th pay grade (presently \$75.00 per month) of the Regular Air Force. The duration of the camp is six weeks beginning about 20 June each year.

The advanced course consists of military instruction for five hours per week.

SCHOOL OF ARCHITECTURE

Architecture, Construction, Industrial Design

GENERAL INFORMATION

The Department of Architecture was established as a separate degree granting department 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 was offered. Since then (1945) this option has also been increased to five years.

Now four options are listed herewith coming under this School: Option 1, Architectural Design; Option 2, Architectural Engineering; Option 3, Industrial Design; Option 4, Light Construction Industry.

The original objective and first aim of the School is to prepare students for the profession of architecture; this is served by the Architectural Design Option Number 1. There is also the need for men who will specialize in structure whose field of service may be in architectural offices or closely allied therewith, for which the Architectural Engineering Option Number 2 is offered as preparation. For those who wish to enter the new field of Industrial Design, dealing with the products of industry, an option in this course has been inaugurated. A complete description does not appear in this catalogue as a full offering of courses must await 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 the Light Construction Industry Option Number 4, dealing with organization, manufacture and marketing of building materials and finished products, or with promotion or construction in housing projects.

All four options lead to a B.S. Degree (without designation) at the end of four years. For those taking the first two options, an additional year is required leading to the degree of Bachelor of Architecture.

* * * *

Except for the *Light Construction Industry Option*, courses in *design*, including the prerequisites and parallel 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 programs 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 of 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 the *Industrial Design Option*, elementary technological courses in Ceramics, Chemical Engineering, Textiles and Industrial Engineering.

* * * *

ENROLLMENT

There is a shortage of men in the profession of architecture and a need of trained personnel in the whole field of the building industry. The School of Architecture is, however, handicapped by lack of space and more men are

enrolling than can be carried along to completion of the course. This is especially true of those indicating preference for the first two options.

Every effort is being made to provide an education for men who have the special qualifications regarded as desirable and prerequisite to success. Those who are sure of their choice will be given every encouragement, but those in doubt or those whose scholastic record indicates a low average, are advised to seek other fields and thereby avoid disappointment and waste of time.

All students entering the Department should take interest and aptitude tests and, for those wishing to pursue the course of instruction under either Option 1 or Option 2, these tests will be a prerequisite of enrollment the beginning of the Junior Year. Any student failing to qualify for Option 1 or 2 may continue in Option 4.

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

FRESHMAN YEAR
(Uniform for all four options)

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

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
*Chem.	101-2-3	Chemistry	3-3-4	3-3-4	3-3-4
Draw.	101	Engineering Drawing	0-6-2	....	....
Eng.	101-2-3	English	3-0-3	3-0-3	3-0-3
Arch.	102-3	Arch. Drawing; Preliminary to Design... ..	....	0-6-2	0-6-2
Math.	101-2-3	Algebra, Trigonometry, and Anal. Geom..	5-0-5	5-0-5	5-0-5
*M.L.	201-2-3	German	}.....	3-0-3	3-0-3
*M.L.	207-8-9	French			
*M.L.	213-4-5	Spanish			
*S.S.	105-6-7	Social Science			
P.T.	101-2-3	Physical Training	0-4-1	0-4-1	0-4-1
ROTC	101-2-3	Military or Naval Training.....	3-1-2	3-1-2	3-1-2
Gen.	101-2-3	Orientation	1-0-0	....	....
Total.....			18-14-20	17-14-20	17-14-20

*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
ARCHITECTURAL DESIGN OPTION 1 AND ARCHITECTURAL ENGINEERING
OPTION 2

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
*Arch.	201-2-3	Architectural Design	1-0-1	1-6-3	1-9-4
Arch.	204-5-6	Graphics	1-4-2	1-4-2	1-4-2
Arch.	212	Freehand Drawing .....	....	....	0-3-1
Eng.	201-2-3	English	3-0-3	3-0-3	3-0-3
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
Phys.	207	Mechanics	5-3-6	....	....
Phys.	202	Electricity .....	....	3-3-4	....
P.T.	201-2-3	Physical Training	0-4-1	0-4-1	0-4-1
ROTC	201-2-3	Military or Naval Training.....	3-1-2	3-1-2	3-1-2
Total.....			18-11-20	16-18-20	13-21-18

*For as long as the postwar emergency lasts, Arch. 202, the first drafting room course in creative design, is being offered each quarter. Only those are eligible who have completed Freshman work and have, in addition, passed either Math. 201 or Phys. 207, preferably both, and who have a satisfactory point grade average.

JUNIOR YEAR
ARCHITECTURAL DESIGN AND ARCHITECTURAL ENGINEERING OPTIONS
NUMBER 1 AND NUMBER 2

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
**Arch.	301-2-3	Architectural Design	1-12-5	1-12-5	1-12-5
Arch.	310-1-2	Freehand Drawing	0-3-1	0-3-1	0-3-1
Arch.	322-3-4	Construction: Building Materials	2-0-2	2-0-2	2-0-2
Arch.	326-7	Construction: System Selection and Timber Design .....	.....	3-0-3	3-0-3
Arch.	332-3	History of Architecture .....	.....	2-1-2	2-1-2
Mech.	301	Applied Mechanics	2-0-2	.....	.....
Mech.	304	Applied Mechanics .....	.....	0-3-1	.....
Mech.	331-2-3	Mechanics of Materials	3-0-3	2-0-2	3-0-3
Phys.	203	Heat, Sound and Light	3-3-4	.....	.....
Elective	*	.....	3-0-3	3-0-3	3-0-3
Total			14-18-20	13-19-19	14-16-19

**Arch. 301, first term junior design, will be limited to seventeen or eighteen. If space is available, this course will be offered each quarter. Should it be necessary to reject Architectural Design and Architectural Engineering students for this course, the Light Construction Option would still be open to them. Selection will be made by point grade average, the total of Architectural courses being weighted as the equal of the total of all other courses.

SENIOR YEAR
ARCHITECTURAL DESIGN OPTION NUMBER 1

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Arch.	401-2-3	Architectural Design	1-15-6	1-15-6	1-15-6
Arch.	410-1-2	Freehand Drawing	0-6-2	0-3-1	0-6-2
Arch.	425-6	Construction: Steel	3-0-3	3-0-3	.....
Arch.	431-2-3	History of Architecture	2-1-2	2-1-2	2-1-2
Arch.	441	Professional Practice .....	.....	2-0-2	.....
Arch.	442	Office Practice: Specifications .....	.....	.....	3-0-3
M.E.	329-30-1	Mechanical Plant	2-0-2	2-0-2	1-3-2
Elective*	.....	.....	3-0-3	3-0-3	3-0-3
Total			11-22-18	13-19-19	11-25-18

*If Advanced Military or Advanced Navy is the elective, the class, lab., and credit hours are 3-2-3.

ARCHITECTURAL ENGINEERING OPTION NUMBER 2

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Arch.	401	Architectural Design: Intermediate	1-15-6	.....	.....
Arch.	408-9	Wk. Drawing and Structural Design .....	.....	1-15-6	1-18-7
Arch.	425-6	Construction: Steel	3-0-3	3-0-3	.....
Arch.	431-2-3	History of Architecture	2-1-2	2-1-2	2-1-2
Arch.	441	Professional Practice .....	.....	2-0-2	.....
C.E.	401	Reinforced Concrete .....	.....	.....	3-3-4
C.E.	204	Plane Surveying	1-3-2	.....	.....
M.E.	329-30-1	Mechanical Plant	2-0-2	2-0-2	1-3-2
Electives	*	.....	3-0-3	3-0-3	3-0-3
Total			12-19-18	13-16-18	10-25-18

*If Advanced Military or Advance Navy is the elective, the class, lab and credit hours are 3-2-3.

FIFTH YEAR
ARCHITECTURAL DESIGN OPTION NUMBER 1

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Arch.	501-2-3	Architectural Design: Advanced; Thesis ..	1-21-8	1-21-8	2-33-13
Arch.	513-4	Freehand: Life Drawing	0-3-1	0-6-2	....
Arch.	510	Freehand Drawing	0-3-1	....	....
Arch.	531	History of Architecture	2-1-2	....	....
Arch.	538	City and Community Planning .....	....	2-0-2	....
Arch.	542	Office Practice: Supervision .....	....	2-0-2	....
C.E.	401	Reinforced Concrete	3-3-4	....	....
E.E.	315	Mech. Plant: Electricity	3-0-3	....	....
Elective		.....	....	4-0-4	4-0-4
Total			9-31-19	9-27-18	6-33-17

ARCHITECTURAL ENGINEERING OPTION NUMBER 2

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Arch.	442	Office Practice: Specifications	3-0-3	....	....
Arch.	508-9	Structural Design; Thesis .....	....	1-21-8	2-33-13
Arch.	522	Construction: Struct. Integration .....	....	3-3-4	....
Arch.	531	History of Architecture	2-1-2	....	....
Arch.	540	Special Research	2-0-2	....	....
Arch.	542	Offices Practice: Supervision .....	....	2-0-2	....
C.E.	402	Reinforced Concrete	2-6-4	....	....
C.E.	411	Soil Mechanics	3-3-4	....	....
E.E.	315	Mech. Plant: Electricity	3-0-3	....	....
Elective		.....	....	4-0-4	4-0-4
Total			15-10-18	10-24-18	6-33-17

SOPHOMORE YEAR
INDUSTRIAL DESIGN OPTION NUMBER 3

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Arch.	201	Introduction to Design	1-0-1	....	....
Arch.	204-5-6	Graphics	1-4-2	1-4-2	1-4-2
Eng.	201-2-3	English	3-0-3	3-0-3	3-0-3
I.D.	201-2-3	Basic Design Workshop	0-6-2	0-6-2	0-6-2
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
Phys.	201-2-3	Physics	3-3-4	3-3-4	3-3-4
P.T.	201-2-3	Physical Training	0-4-1	0-4-1	0-4-1
ROTC	201-2-3	Military or Naval Training	3-1-2	3-1-2	3-1-2
Total			16-8-20	15-18-19	16-18-19

JUNIOR YEAR
INDUSTRIAL DESIGN OPTION NUMBER 3

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Arch.	322-3-4	Construction: Building Materials	2-0-2	2-0-2	2-0-2
Cer.E.	307	Ceramic Technology .....	.....	2-3-3	.....
Ch.E.	328	Metallurgy	3-0-3	.....	.....
I.D.	301-2-3	Design Workshop	1-12-5	1-12-5	1-12-5
I.D.	307-8-9	Visual Representation	0-6-2	0-6-2	0-6-2
Mech.	301	Applied Mechanics	2-0-2	.....	.....
Mech.	304	Graphic Statics .....	.....	0-3-1	.....
Mech.	331-2-3	Mechanics of Materials	3-0-3	2-0-2	3-0-3
T.E.		Elective .....	.....	.....	2-3-3
Elective	*	.....	3-0-3	3-0-3	3-0-3
Total			14-18-20	10-24-18	11-21-18

SENIOR YEAR
INDUSTRIAL DESIGN OPTION NUMBER 3

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Ec.	201-2-3	Principles of Economics	3-0-3	3-0-3	3-0-3
Eng.	321 or 325	Technical or Business English	3-0-3	.....	.....
Eng.	315	Public Speaking .....	.....	3-0-3	.....
I.D.	401-2-3	Special Design Workshop	1-18-7	1-18-7	1-18-7
I.E.	416	Time and Motion .....	.....	.....	2-2-3
M.E.	205	Welding Laboratory	0-3-1	.....	.....
M.E.	353	Materials Laboratory .....	.....	0-3-1	.....
Phys.	314	Instr. for Meas. and Control .....	.....	.....	1-3-2
Elective	*	.....	3-0-3	3-0-3	3-0-3
Total			10-21-17	10-21-17	10-24-18

*If Advanced Military or Advanced Navy is elective, the class, lab and credit hours are 3-2-3.

SOPHOMORE YEAR
LIGHT CONSTRUCTION OPTION NUMBER 4

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Arch.	206	Graphics: Perspective .....	.....	.....	1-4-2
Arch.	203	Architectural Design: Elementary .....	.....	.....	1-9-4
C.E.	204	Surveying .....	.....	.....	1-3-2
Eng.	203	English .....	.....	.....	3-0-3
Math.	203	Calculus .....	.....	.....	5-0-5
P.T.	203	Physical Training .....	.....	.....	5-0-1
ROTC	203	Military or Naval Training .....	.....	.....	3-1-2
Total .....			.....	.....	14-21-19

*NOTE: For First and Second Quarters, see Page 73 (Architectural Design Option).

JUNIOR YEAR
LIGHT CONSTRUCTION OPTION NUMBER 4

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
Arch.	322-3-4	Construction: Building Materials	2-0-2	2-0-2	2-0-2
Arch.	303	Architectural Design: Residential No. 2..	.....	.....	1-12-5
Arch.	326-7	Construction: Masonry and Wood.....	.....	3-0-3	3-0-3
S.S.	204	Economics for Engineers	3-0-3	.....	.....
I.M.	336	Accounting .....	.....	3-0-3	.....
Eng.	315	Public Speaking .....	.....	.....	3-0-3
Mech.	301	Statics	2-0-2	.....	.....
Mech.	331-2-3	Strength of Materials	3-0-3	2-0-2	3-0-3
Mech.	304	Graphic Statics .....	.....	0-3-1	.....
M.E.	205	Welding Laboratory .....	.....	0-3-1	.....
M.E.	353	Materials Laboratory .....	.....	0-3-1	.....
Phys.	203	Heat, Sound and Light.....	3-3-4	.....	.....
Elective	*	.....	3-0-3	4-0-4	3-0-3
Total.....			16-3-17	14-9-17	15-12-19

SENIOR YEAR
LIGHT CONSTRUCTION OPTION NUMBER 4

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
Arch.	425	Construction: Steel	3-0-3 ✓	.....	.....
Arch.	441-2	Professional and Office Practice.....	.....	2-0-2 ✓	3-0-3 ✓
Arch.	422	Construction: Costs and Estimates.....	2-3-3 ✓	.....	.....
Eng.	321 or 325	Technical or Business English .....	.....	3-0-3 ✓	.....
I.M.	316	Finance Survey for Engineers.....	3-0-3 ✓	.....	.....
I.M.	317	Marketing Management .....	.....	.....	3-0-3 ✓
I.M.	329	Survey in Business Law .....	.....	.....	3-0-3 ✓
I.M.	411	Industrial Mgmt. Principles and Problems.	3-0-3 ✓	.....	.....
I.M.	407 & 408	Personnel Mgmt. Principles and Problems.	.....	3-0-3 ✓	3-0-3 ✓
M.E.	329-30-31	Mechanical Plant	2-0-2 ✓	2-0-2 ✓	1-3-2 ✓
Psy.	302	Applied Psychology .....	.....	3-0-3 ✓	.....
Elective	*	.....	4-0-4	4-0-4	4-0-4
Total.....			17-3-18	17-0-17	17-3-18

*If Advanced Military or Advanced Navy is the elective, the class, lab., and credit hours are 3-2-3.

COURSES OF INSTRUCTION

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

Arch. 102. Architectural Drawing (Preliminary to Design) 0-6-2
Freshman Year, Second Quarter.

Prerequisites: Drawing 101, or concurrently.

Mr. Rabun

An introductory study in drawing and in the principles of visual design.

Text: *None.*

Arch. 103. Architectural Drawing (Preliminary to Design) 0-6-2
Freshman Year, Third Quarter.

Prerequisite: Arch. 102.

Mr. Shipley

Continuation of Arch. 102.

Text: *None*.

Arch. 201. Introduction to Design 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. Design: Elementary 1-6-3. Sophomore Year, Second Quarter.

Prerequisite: Math. 201 or Phys. 207 and Arch. 103

Mr. D. J. Edwards assisted by Mr. Shipley

Beginning theory of planning and circulation. Lecture, assigned plates, and elementary design problem.

Text: Ramsey and Sleeper, *Graphic Standards*.

Arch 203. Design: Elementary 1-9-4. Sophomore Year, Third Quarter.

Prerequisite: Arch. 202.

Mr. Hamilton and Mr. Paschall

Class C, simple architectural design problems.

Text: *None*.

B.A.I.D. Fee: \$5

Arch. 204. Graphics: Descriptive Geometry 1-4-2. Sophomore Year, First Quarter.

Prerequisite: Arch. 102.

Mr. Gailey assisted by Mr. Smith

The study of lines, planes and solids and the intersection of planes and solids, represented in two dimensional drawings.

Text: Kenison and Bradley, *Descriptive Geometry*.

Arch. 205. Graphics: Shades and Shadows 1-4-2. Sophomore Year, Second Quarter.

Prerequisite: Arch. 204.

Mr. Gailey and Mr. Vaughan

Study of light, shades and shadows produced by light rays.

Text: *None*.

Arch. 206. Graphics: Perspective 1-4-2. Sophomore Year, Third Quarter.

Prerequisite: Arch. 205.

Mr. Gailey and Mr. Vaughan

Representation of three dimensional forms in what is the architect's principal medium of expression, two dimensional drawings.

Text: *None*.

Arch. 212. Freehand Drawing 0-3-1. Sophomore Year, Third Quarter.

Prerequisite: None.

Mr. Grady and Mr. Shipley

Elementary course in freehand drawing, dealing with simple three dimensional objects.

Text: *None.*

Arch. 301. Design: Elementary 1-12-5. Junior Year, First Quarter.

Prerequisite: Arch. 203. Limited to 18 students.

Mr. Finch

A continuation of Arch. 203, Class C design problems.

Text: *None.*

Arch. 302. Design: Residential No. 1, 1-12-5. Junior Year, Second Quarter.

Prerequisite: Arch. 301.

Mr. Grady and Mr. D. J. Edwards

Problems dealing with general housing theory and residential planning, grouping and adaptation to topography and site.

Text: Nelson, *Tomorrow's House.*

Arch. 303. Design: Residential No. 2, 1-12-5. Junior Year, Third Quarter.

Prerequisite: For Option Number 1 and Number 2, Arch. 302. For Option Number 4, Arch. 203.

Mr. Pretz

This course includes working drawings, construction details and a construction model of a small house, several students collaborating, with individual reports on materials and financial prospectus.

Text: Dietz, *Dwelling House Construction.*

Arch 310. Freehand Drawing 0-3-1. Junior Year, First Quarter.

Prerequisite: Arch. 212.

Mr. Harris and Mr. Wilson

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 and Mr. Wilson

Freehand drawing, continuation of 310.

Text: *None.*

Arch. 312. Freehand Drawing 0-3-1. Junior Year, Third Quarter.

Prerequisite: Arch. 311.

Mr. Harris and Mr. Wilson

Continuation of Arch. 311.

Text: *None.*

Arch 322. Construction: Building Materials 2-0-2. Junior Year, First Quarter.

Prerequisite: None.

Mr. Tindal

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.

Prerequisite: Arch. 322.

Mr. Gailey

Continuation of course Arch. 322.

Text: Gay & Parker, *Materials and Methods of Architectural Construction*.

Arch. 324. Construction: Building Materials 2-0-2. Junior Year, Third Quarter.

Prerequisite: Arch. 323.

Mr. Gailey

Continuation of Arch. 323.

Text: Gay & Parker, *Materials and Methods of Architectural Construction*.

Arch 326. Architectural Construction 3-0-3. Junior Year, Second Quarter.

Prerequisite: Arch. 322.

Mr. Randall

An approach to the basic selection of the structural system to aid the designer in choosing the most appropriate structural elements such as building frame, floor, roof and wall construction for any building, as governed by types of occupancy, equipment and architectural design.

Text: Crane, *"Architectural Construction"*; N.B.F.U. *Building Code*.

Arch. 327. Construction: Wood 3-0-3. Junior Year, Third Quarter.

Prerequisites: Arch. 326. Mech. 332.

Mr. Randall

Study in theory of timber structures with practical application of theory carried out in design of beams, columns and trusses.

Text: Hanson, *Modern Timber Design*; Gay & Parker, *Materials and Methods of Architectural Construction*; NBFU *Building Code*; Forest Products Lab. *Wood Structural Design Data*.

Arch. 332. History of Architecture 2-1-2. Junior Year, Second Quarter.

Prerequisite: *None*.

Mr. Bush-Brown

Two lectures a week are given with the aid of lantern slides and a seminar once a week in the Library; subject, the History of Architecture from early Egypt to and including Ancient Greece. Research on the part of students both selective and assigned supplements class room lectures and illustrated reports and notes are called for from time to time.

Text: Ralph W. Hammett, *Study Guide: Books I, II and III*.

Arch. 333. History of Architecture 2-1-2. Junior Year, Third Quarter.

Prerequisite: Arch. 332.

Mr. Grady

Continuation of Architecture 332; covering Roman, Early Christian and Byzantine.

Text: *Hammett and Lecture Notes*.

Arch. 401. Architectural Design: Intermediate 1-15-6. Senior Year, First Quarter.

Prerequisite: Arch. 303.

Mr. Saporta or Mr. Wilson

Class B design problems from varied architectural programs.

Text: *None*.

B.A.I.D. Fee: \$5

Arch. 402. Architectural Design: Intermediate 1-15-6. Senior Year, Second Quarter.

Prerequisite: Arch. 401.

Mr. Wilson or Mr. Saporta

A continuation of Arch. 401.

Text: *None.*

B.A.I.D. Fee: \$5

Arch. 403. Architectural Design: Intermediate 1-15-6. Senior Year, Third Quarter.

Prerequisite: Arch. 402.

Mr. Wilson or Mr. Saporta

A continuation of Arch. 402.

This course will conclude with a test to determine the student's fitness to be promoted to Fifth Year Design.

Text: *None.*

B.A.I.D. Fee: \$5

Arch. 404. Architectural Design: Intermediate 1-15-6. Senior Year.

Prerequisite: Arch. 403.

Mr. Wilson

Continuation of Arch. 403 for those men who are considered by the staff as insufficiently prepared to qualify for Fifth Year design.

Text: *None.*

B.A.I.D. Fee: \$5

Arch. 408. Working Drawings & Structural Design 1-15-6. Senior Year, Second Quarter. Architectural Engineering Option No. 2.

Prerequisites: Arch. 401, Arch. 327.

Mr. Randall and Mr. Pretz

Design of structures in wood and masonry with study of methods 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 1-17-7. Senior Year. Third Quarter. No. 2.

Prerequisite: Arch. 425.

Mr. Randall

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: Pencil Sketching 0-6-2. Senior Year, First Quarter.

Prerequisite: Arch. 312.

Mr. Wilson

Outdoor Sketching.

Text: *None.*

Arch. 411. Freehand Drawing: Pen and Ink 0-3-1. Senior Year, Second Quarter.

Prerequisite: Arch. 410.

Mr. Gailey

Text: *None.*

Arch. 412. Freehand Drawing: Water Color 0-6-2. Senior Year, Third Quarter.

Prerequisite: Arch. 312.

Outdoor subjects and still life.

Mr. Gailey

Text: *None.*

Arch. 416. Introduction to Landscape Architecture 2-0-2. Elective.

Prerequisite: Arch. 432; Arch. 401.

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.***Arch. 422. Construction: Costs and Estimates 2-3-3. Opt. 2 and Opt. 4, Seniors.**

Prerequisites: Arch. 324 or equivalent. Elective for other Juniors and Seniors.

Mr. Tindall

Preparation of material and labor quantity surveys from actual working drawings and specifications. Computing of bids and collection of cost data.

Text: Walker, *Building Estimators Reference Book.***Arch. 425. Construction: Steel 3-0-3. Senior Year, First Quarter.**

Prerequisites: Arch. 327, Mech. 333.

Dr. Boguslavsky

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 and Pfisterer, *Design of Steel Buildings; AISC, Steel Construction.***Arch. 426. Construction: Steel 3-0-3. Senior Year, Second Quarter.**

Prerequisite: Arch. 425.

Dr. Boguslavsky

A continuation of Arch. 425 with particular reference to the design of statically indeterminate steel frames of a continuous nature.

Text: Hauf and Pfisterer, *Design of Steel Buildings; AISC, Steel Construction.***Arch. 430. History of Chinese Architecture 2-0-2. Elective.**

Prerequisites: None.

Mr. Lin Yo-i

This course of lectures, with the aid of lantern slides, consists of a brief history of the theory and character of Chinese architecture and the allied arts from the ancient period (2200 B.C.) down to modern time.

Text: *None.***Arch. 435. History of Art 2-0-2. Elective.**

Prerequisite: None.

Mr. Grady

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: Gardner: *Art Through the Ages.***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: *Hammatt, Study guide IV and V and Lecture Notes.*

Arch. 432. History of Architecture 2-1-2. Senior Year, Second Quarter.

Prerequisite: Arch. 431.

Mr. Pretz

Continuation of Architecture 431, covering Italian Renaissance.

Text: *Hammert, and Lecture Notes.*

Arch. 433. History of Architecture 2-1-2. Senior Year, Third Quarter.

Prerequisite: Arch. 432.

Mr. Pretz

Continuation of Architecture 432, covering European Renaissance and American Colonial.

Text: *Hammert Study Guide VI and Lecture Notes.*

Arch. 441. Professional Practice 2-0-2. Senior Year, Second Quarter.

Prerequisite: None.

Mr. H. G. Edwards

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. Fifth Year, First Quarter.

Prerequisite: Arch. 324 or equivalent.

Mr. H. G. Edwards

Principles and practice of the writing of specifications.

Text: *Dietz, Dwelling House Construction.*

Arch. 501. Architectural Design: Advanced 1-21-8. Fifth Year, First Quarter.

Prerequisite: Enrollment in this course and acceptance as a candidate for the B.Arch. degree on approval of the Department Staff.

Mr. Heffernan

Class A design problems from varied architectural programs.

Text: *None.*

B.A.I.D. Fee \$5.00

Arch. 502. Architectural Design: Advanced 1-21-8. Fifth Year, Second Quarter.

Prerequisite: Arch. 501.

Mr. Heffernan

A continuation of Arch. 501.

Text: *None.*

B.A.I.D. Fee: \$5.00

Arch. 503. Architectural Design: Thesis 2-33-13. Fifth Year, Third Quarter.

Prerequisite: Arch. 502 and 540.

Mr. Heffernan

Solution of an advanced architectural program prepared by the student, research, and integration of structural and working drawings, serving as a thesis for men who are candidates for the degree Bachelor of Architecture.

Text: *None.*

Arch. 508. Structural Design: Thesis 1-21-8. Fifth Year, Second Quarter. Option Numer 2.

Prerequisites: Arch. 425, C.E. 401.

Dr. Boguslavsky

A complete program for the thesis problem in architectural and structural design is prepared by the student and submitted for approval. Upon approval, a complete design and set of working drawings and specifications is then prepared under supervision and submitted at the end of the term.

Text: *None.*

Arch. 509. Structural Design: Thesis 2-33-13. Fifth Year, Third Quarter. Option No. 2.

Dr. Boguslavsky

Continuation of Arch. 508.

Text: *None.*

Arch. 510. Freehand Drawing: Advanced 0-3-1. Fifth Year, First Quarter.

Prerequisite: Arch. 411.

Mr. Heffernan

Freehand drawing of varied subjects and in various media.

Text: *None.*

Arch. 511. Freehand Drawing: Advanced 0-3-1. Elective.

Prerequisite: Arch. 510.

Mr. Heffernan

A continuation of Arch. 510.

Text: *None.*

Arch. 512. Freehand Drawing: Advanced 0-3-1. Elective.

Prerequisite: Arch. 511.

Mr. Heffernan

A continuation of Arch. 511.

Text: *None.*

Arch. 513. Freehand Life Drawing 0-3-1. Fifth Year, First Quarter.

Prerequisite: Arch. 412.

Freehand drawing from live models. Given at the High Museum of Art.

Text: *None.*

Arch. 514. Freehand Life Drawing 0-6-2. Fifth Year, Second Quarter.

Prerequisite: Arch. 513.

Continuation of Arch. 513.

Given at the High Museum of Art.

Text: *None.*

Arch. 522. Construction: Structural Design Integration 3-3-4. Fifth Year Option No. 2.

Prerequisites: Steel and Reinforced Concrete required. Dr. Boguslavsky

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. Grady

Continuation of Arch. 433, covering 19th Century American and Contemporary Architectural History.

Text: Mock and Richards: *An Introduction to Modern Architecture.***Arch. 538. City and Community Planning I 2-1-2.** Fifth Year, Second Quarter.

Prerequisite: Senior standing; May be taken for graduate credit. Mr. Saporta.

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. 539. City and Community Planning II 3-0-3.**

I. E. Saporta

A continuation of 538. An elective course for Seniors, Fifth Year and Graduates only. Analysis of contemporary cities with an emphasis on condition in Atlanta. Visits to various typical sectors and public services. Reading and group discussions on principles of regional planning, accumulation of vital statistics, resources, finances, city government, traffic, sanitation, slum clearance, public housing, recreation, green areas, civic center, public services, education, real estate policy, industrial and commercial development.

Text: *None.***Arch. 540-41. Special Research 0-6-2; 0-9-3; 1-9-4** Fifth Year Elective Required in Option 2.

Prerequisite: Arch. 403 or Arch. 408.

Mr. Heffernan

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 library, drafting room, shop or photo dark room.

Text: *None.***Arch. 542. Office Practice: Supervision 2-0-2.** Fifth Year, Second Quarter.

Prerequisite: Senior standing.

Mr. Smith

This course includes information and guidance in job management and architectural supervision of construction.

Text: *A. I. A. Handbook.*

SCHOOL OF CERAMIC ENGINEERING

GENERAL INFORMATION

A four-year curriculum leads to the degree of Bachelor of 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 School 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 school is using its facilities to aid proper development.

The School also offers to non-ceramic majors a survey course in Ceramics and service courses in Geology and Geography. The courses in Geology are designed to give the student a through 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 school has type collections for Mineralogy and Geology; a collection of building stones and ceramic clays; maps 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 60

SOPHOMORE YEAR

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

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Cer.E.	201	Introduction to Ceramics	2-3-3	....	....
Cer.E.	202	Products and Materials .....	....	2-3-3	....
Cer.E.	203	Equipment and Tests .....	....	....	2-3-3
Chem.	211-12-13	Analytical Chemistry	4-0-4	1-9-4	1-9-4
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
Phys.	207	Mechanics	5-3-6	....	....
Phys.	208	Electricity .....	....	5-3-6	....
Phys.	209	Heat, Sound, and Light .....	....	....	5-3-6
P.T.	201-2-3	Physical Training	0-4-1	0-4-1	0-4-1
ROTC		Military or Naval Training	3-1-2	3-1-2	3-1-2
Total			19-11-21	16-20-21	16-20-21

JUNIOR YEAR

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
Cer.E.	303	Calculations	.....	.....	3-0-3
Cer.E.	311	Processing and Forming	3-3-4	.....	.....
Cer.E.	312	Bodies	.....	3-0-3	.....
Cer.E.	313	Enamels	.....	.....	2-3-3
Chem.	331-32-33	Physical Chemistry	3-0-3	3-0-3	3-0-3
Chem.	334-35-36	Physical Chemistry Laboratory	0-3-1	0-3-1	0-3-1
Draw.	201-02-03	Descriptive Geometry	0-3-1	0-3-1	0-3-1
Eng.	201-02-03	Humanities	3-0-3	3-0-3	3-0-3
Mech.	301	Statics	2-0-2	.....	.....
Mech.	302	Kinematics	.....	2-0-2	.....
Mech.	331-32	Mechanics of Materials	3-0-3	2-0-2	.....
Mech.	304	Graphic Statics	.....	0-3-1	.....
Phys.	314	Instruments for Measurements and Control	.....	.....	1-3-2
Elective	*	.....	3-0-3	3-0-3	3-0-3
Total			17-9-20	16-9-19	15-12-19

SENIOR YEAR

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
Cer.E.	406	Seminar	.....	.....	2-0-2
Cer.E.	409	Microscopy	.....	.....	3-6-5
Cer.E.	414	Vitreous Ceramic Coatings	3-3-4	.....	.....
Cer.E.	410	Colloids Laboratory	.....	1-3-2	.....
Cer.E.	416	Psychrometry and Drying	3-0-3	.....	.....
Cer.E.	417	Fuels, Furnaces and Refractories	.....	3-3-4	.....
Cer.E.	431-32-33	Design and Construction	1-3-2	0-6-2	1-6-3
Ch.E.	325	Metallurgy	.....	3-0-3	.....
C.E.	204	Plane Surveying	.....	.....	1-3-2
Geol.	301	Engineering Geology	3-3-4	.....	.....
Geol.	414	Mineralogy	.....	2-3-3	.....
M.E.	320	Thermodynamics	4-0-4	.....	.....
M.E.	332	Steam Power Engineering	.....	3-0-3	.....
Elective	*	.....	3-0-3	3-0-3	5-0-5
Total			17-9-20	15-15-20	12-15-17

**SENIOR ELECTIVES

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
Cer.E.	411	Thesis	.....	1-6-3	.....
Cer.E.	412	Thesis Extension	.....	.....	0-6-2
Cer.E.	421	Cements	.....	2-3-3	.....

*If Advanced Military or Advanced Navy is the elective, the class, lab., and credit hours are 3-2-3.

**Either Thesis or Cements is required to be taken among electives in Senior year. No other restriction as to course content is made for the remaining hours of electives.

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

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 and 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 III.*

Cer. E. 203. Equipment and Tests 2-3-3. Sophomore Year, Third Quarter.

Prerequisite: Chem. 103.

Mr. Wysong and Mr. Mitchell

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. 303. Calculations 3-0-3. Junior Year, Third Quarter.

Prerequisites: Cer. E. 312; Chem. 332.

Mr. Wysong

Solutions of engineering and practical mathematical problems involved in the manufacture of ceramic wares. Statistical methods. Phase equilibria calculations.

Text: Andrews, *Ceramic Calculations; A.Cer.S., Phase Rule Compilations.*

Cer. E. 307. Ceramic Technology 2-3-3.

Prerequisite: None. General elective for non-ceramic majors.

Mr. Mitchell or Mr. Hansard

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. 308. Ceramic Survey 2-0-2.

Prerequisite: None. General Elective for non-ceramic majors.

Same as Cer. E. 307 without the laboratory. Mr. Mitchell or Mr. Hansard

Text: *Course Notes* by Mr. Mitchell.

Cer. E. 309. Ceramic Survey Laboratory.

Prerequisite: Cer. E. 308.

Mr. Hansard

Same as Cer. E. 307 laboratory. The combination of Cer. E. 308 and Cer. E. 309 is equivalent to Cer. E. 307.

Text: *None.***Cer. E. 311. Processing and Forming 3-3-4. 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 effect 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. 312. Bodies 3-0-3. Junior Year, Second Quarter.**

Prerequisite Cer. E. 311.

Mr. Hansard or 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.

Text: Courses Notes: Newcomb, *Ceramic Whitewares*; Svec, *Pottery Production Processes.***Cer. E. 313. Enamels 2-3-3. Junior Year, Third Quarter.**

Prerequisite: Cer. E. 312.

Mr. Hansard

Covers enamel compositions 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.

Text: Andrews, *Enamels.***Cer. E. 406-7-8. Seminar 2-0-2. Senior Year, Any Quarter.**

Prerequisite: Senior standing in Cer. E.

Mr. Wysong, Mr. Mitchell

Discussion of current ceramic and scientific literature and reports of investigation. Additional seminar work may be elected as Cer. E. 407, or Cer. E. 408.

Text: *Journal of American Ceramic Society.***Cer. E. 409. Microscopy 3-6-5. Senior Year, Third Quarter.**

Prerequisite: Physics 209, Geology 414.

Mr. Wysong

Involves the use of the microscope in the study and control of composition and structure of ceramic bodies and raw materials. Nature of light and crystallography are briefly studied.

Text: Rogers and Kerr, *Optical Mineralogy.*

Cer. E. 411. Thesis 1-6-3. Senior Year.

Prerequisite: Senior Standing in Cer. E.

Each senior electing to prosecute a thesis, conducts an original investigation on an approved ceramic subject under the supervision of the instructor in charge. The object of this course is to place the student upon his own initiative and to coordinate the knowledge that he has previously received.

Text: *None.***Cer. E. 412. Thesis 0-6-2. Senior Year.**

Prerequisites: Senior Standing in Cer. E.; Cer E. 411.

Extension of Cer. E. 411.

Text: *None.***Cer. E. 414. Vitreous Ceramic Coatings 3-3-4. Senior Year, First Quarter.**

Prerequisite: Cer. E. 303.

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: Parmelee, *Ceramic Glazes.***Cer. E. 410. Colloids Laboratory 1-3-2. Senior Year, Second Quarter.**

Prerequisite: Cer. E. 312.

Mr. Mitchell or Mr. Hansard

Fundamental laboratory studies to determine the control characteristics and properties of whitewares and slips by experiment and conclusions. Dispersion, viscosity, plasticity, grain size, thermal characteristics are studied.

Text: Courses Notes; Newcomb, *Ceramic Whitewares.***Cer. E. 416. Psychrometry and Drying 3-0-3. Senior Year, First Quarter.**

Prerequisites: Cer. E. 312; Physics 209.

Mr. Mitchell

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. 417. Fuels, Furnaces and Refractories 3-3-4. Senior Year, Second Quarter.**

Prerequisites: Physics 209; Geology 414.

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.

Text: Haslam and Russell, *Fuels and Their Combustion*, *ASTM Refractories Specifications*; Norton, *Refractories.*

Cer. E. 421. Cements 2-3-3. Senior or Graduate Year, Elective.

Prerequisite: Chem. 332; Cer. E. 303.

Mr. Mitchell

Includes the required properties of raw materials, processing and the hydraulic properties of cements. Portland, magnesia, high alumina, dental, and gypsiferous cements are included. This is an elective course for seniors and graduates.

Cer. E. 431-32-33. Design and Construction 1-3-2, 0-6-2, 1-6-3. Senior Year, First, Second, and Third Quarters.

Corequisite: Cer. E. 416.

Prerequisite: Drawing 103.

Mr. Hansard, Mr. Wysong

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*.**Geol. 301. Engineering Geology 3-3-4.**

Prerequisites: Chem. 103; Phys. 207.

Mr. Navarre.

A course in general, structural, and economic geology. This course emphasizes the engineering point of view.

Text: Ries and Watson, *Elements of Engineering Geology*.**Geol. 302. Physical Geology 3-0-3.**

Prerequisite: None.

Mr. Navarre or Mr. Hansard

A classroom study of geologic processes. No laboratory. Same as Geol. 304 without laboratory.

Text: Longwell, Knopf, and Flint, *Textbook of Geology, Part I*.**Geol. 303. Physical Geology Laboratory 0-3-1.**

Prerequisite: Geol. 302

Mr. Navarre or Assistant

A brief study of crystallography, mineral identification, and map interpretation. Same as Geol. 304 Laboratory.

Text: Longwell, Knopf, and Flint, *Textbook of Geology, Part I*.**Geol. 304. General Physical Geology 3-3-4.**

Prerequisite: None.

Mr. Navarre or Mr. Hansard

A somewhat detailed account of geologic processes. The laboratory includes some map interpretation. This course is presented from a cultural rather than an engineering point of view.

Text: Longwell, Knopf, and Flint, *Textbook of Geology, Part I*.**Geol. 305. Historical Geology 3-0-3.**

Prerequisites: Chem. 103; Phys. 207, Geol. 304 or Geol. 301. Mr. Navarre

A course of recitations and lectures in Historical Geology. Same as Geol. 308 without laboratory.

Text: Schubert and Dunbar, *Textbook of Geology, Part II*.

Geol. 307. Historical Geology Laboratory 0-3-1.

Prerequisite: Geol. 305

Mr. Navarre

Recognition and classification of fossils. Same as Geol. 308 Laboratory.

Text: Schubert and Dunbar, *Textbook of Geology, Part II.***Geol. 308. General Historical Geology 3-3-4.**

Prerequisite: Geology 304.

Mr. Navarre

A course of recitation and lectures in Historical Geology with a laboratory.

Text: Schubert and Dunbar, *Textbook of Geology, Part II.***Geol. 310. Crystallography and Tests 1-3-2**

Prerequisite: Math. 103; Geol. 301 or 304. Mr. Navarre or Mr. Wysong.

A study of crystal systems, Miller indices and other systems of notation; blowpipe analysis procedures; other tests for classifying crystals.

Geol. 311. Economic Geography 3-0-3. Elective.

Prerequisite: None.

Mr. Navarre

The effects of climate, location, power, soil types, mineral deposits, agriculture and manufacture upon nations, peoples, civilization, and trade routes.

Text: Bengtson and Van Royen, *The Fundamentals of Economic Geography.***Geol. 312. Economic Geology 3-0-3. Elective.**

Prerequisite: Geol. 301 or 304.

Mr. Navarre

A geographical and economic study of all commercially valuable minerals and rocks.

Text: Lilley, *Economic Geology of Mineral Deposits.***Geol. 414. Mineralogy 2-3-3.**

Prerequisite: Geol. 301 or 304.

Mr. Navarre

A course in descriptive and determinative mineralogy which includes the determination of important minerals and rocks by their chemical and physical properties.

Text: Rogers, *Introduction to the Study of Minerals and Rocks.*

SCHOOL OF CHEMISTRY

- GENERAL INFORMATION

Included in the School 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.

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 56 quarter hours of elective work chosen from approved courses in conference with the Director. 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 60. Chemical German must be selected.

SOPHOMORE YEAR

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Chem.	211-2-3	Analytical Chemistry	4-0-4	1-9-4	1-9-4
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
Math.	201	Differential Calculus	5-0-5	.....	.....
Math.	202-3	Integral Calculus .....	.....	5-0-5	5-0-5
Phys.	207-8-9	Physics	5-3-6	5-3-6	5-3-6
ROTC	201-2-3	Military or Naval Training	3-1-2	3-1-2	3-1-2
P.T.	201-2-3	Physical Training	0-4-1	0-4-1	0-4-1
Total			20-8-21	17-17-21	17-17-21

JUNIOR YEAR

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Chem.	310-1-2	Organic Chemistry	3-6-5	3-6-5	3-6-5
Chem.	331-2-3	Physical Chemistry	3-0-3	3-0-3	3-0-3
Chem.	334-5-6	Physical Chemistry Laboratory	0-3-1	0-3-1	0-3-1
Chem.	337	Physical Chemistry Laboratory Problems .....	.....	.....	0-3-1
Electives		.....	0-0-10	0-0-10	0-0-9
Total			6-9-19	6-9-19	6-12-19

SENIOR YEAR

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Chem.	403	Physical Chemistry .....	.....	3-0-3	.....
Chem.	404	Advanced Quan. Analysis	1-6-3	.....	.....
Chem.	405	Instrumental Analysis .....	.....	1-6-3	.....
Chem.	408	Organic Analysis .....	.....	.....	1-12-5
Chem.	434-5-6	Adv. Inorganic Chem.	3-0-3	3-0-3	3-0-3
Chem.	442	Industrial Chemistry	3-0-3	.....	.....
Chem.	450	Chemical Bibliography	2-0-2	.....	.....
Electives		.....	0-0-9	0-0-9	0-0-9
Total			9-6-20	7-6-18	4-12-17

ELECTIVES

Not less than 7 hours must be selected from other chemistry courses, and not less than 15 hours must be selected from nonspecialized courses other than the physical sciences and mathematics.

COURSES OF INSTRUCTION

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

Chem. 101, 102, 103. General Chemistry 3-3-4. Freshman Year, First, Second, and Third Quarters.

Prerequisite: Entrance requirements. Mr. Taylor, Mr. Topp 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.

Texts: Briscoe, *College Chemistry*; Spicer, Taylor and Clary, *General Chemistry Problems*; *Laboratory manual to be selected.*

Chem. 211. Introduction to Analytical Chemistry 4-0-4. Sophomore Year, First Quarter.

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

A classroom study of the laws, theories and reactions of analytical chemistry.

Texts: Curtman, *Qualitative Chemical Analysis*; Hamilton and Simpson, *Calculations of Analytical Chemistry*.

Chem. 212, 213. Analytical Chemistry 1-9-4. Sophomore Year, Second and Third Quarters.

Prerequisites: Chem. 211. Mr. Whitley and Mr. Edwards

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

Texts: Mahin, *Quantitative Analysis*; Hamilton and Simpson, *Calculations of Analytical Chemistry*.

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.

Texts: Wertheim, *Textbook of Organic Chemistry*; Adkins, McElvain and Klein, *Practice of Organic Chemistry*.

Chem. 310, 311, 312. Organic Chemistry 3-6-5. Junior Year, First, Second, and Third Quarters.

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.

Texts: Fieser and Fieser, *Organic Chemistry*; Adkins, McElvain and Klein, *Practice of Organic Chemistry*.

Chem. 331, 332, 333. Physical Chemistry 3-0-3. Junior Year, First, Second, and Third Quarters.

Prerequisites: Chem. 213; Phys, 209, Math. 203.

Mr. Spicer and Mr. Eberhardt

Physico-chemical properties of matter in the gaseous, liquid and solid states; solutions; equilibrium, kinetics and thermodynamics of chemical reactions, electrochemistry.

Text: Daniels, *Outlines of Physical Chemistry*.

Chem. 334, 335, 336. Physical Chemistry Laboratory 0-3-1, Junior Year, First, Second, and Third Quarters.

Prerequisites: To be taken concurrently with or following Chem. 331, 332, 333.

Mr. Spicer and Mr. Eberhardt

Text: *Laboratory Notes*.

Chem. 337. Physical Chemistry Laboratory Problems 0-3-1. Junior Year, Third Quarter.

Prerequisite: Chem. 332.

Mr. Spicer and Mr. Eberhardt

Advanced experiments in physical chemistry.

Text: *Laboratory Notes*.

Chem. 370, 371. Chemistry of Water and Sewage Analyses 2-6-4.

Prerequisites: Chem. 103, Biology 201.

Mr. Ingols

A lecture and laboratory course to acquaint Sanitary Engineers with theory and practice of the standard methods for analyzing water and sewage.

Text: *American Public Health Association Standard Methods for Water and Sewage Analyses*, 9th Edition.

Chem. 372. Elementary Organic Chemistry 3-3-4.

Prerequisite: Chem. 103.

Mr. Ingols

An introduction to the general subject of organic chemistry with special emphasis upon biological groups.

Text: *None*.

Chem. 403. Physical Chemistry 3-0-3. Senior Year, Second Quarter.

Prerequisite: Chem. 434.

Mr. Eberhardt

A study of the relation of atomic and molecular structure to the physical properties of matter and the nature of chemical bonding.

Text: To be selected.

Chem. 404. Advanced Quantitative Analysis 1-6-3.

Prerequisite: Chem. 213.

Mr. Edwards, Mr. Whitley

Tests 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. 405. Instrumental Analysis 1-6-3.

Prerequisite: Chem. 333. Mr. Edwards, Mr. Spicer, Mr. Whitley

This is an introductory course in both the theory and practice of modern instrumental methods; spectroscopy, polarography, colorimetry, Microscopy, polarimetry, measurement of hydrogen ion concentration.

Text: Gibbs, *Optical Methods of Chemical Analysis*.**Chem. 408. Characterization of Organic Compounds 1-12-5. Senior Year, Any Quarter.**

Prerequisites: Chem. 213, Chem. 312. Mr. Calloway

The methods of identification of compounds and characteristic groups are studied.

Text: Shriner and Fuson, *Systematic Identification of Organic Compounds*.**Chem. 419. Colloid Chemistry 3-6-5. Senior Year, Any Quarter.**

Prerequisite: Chem. 333. Mr. Topp

Lectures, recitation, and laboratory work on the preparation, properties, and practical applications of colloidal substances.

Text: Weiser *Colloid Chemistry*.**Chem. 431. Inorganic Preparations 0-12-4. Senior Year, Any Quarter.**

Prerequisite: Chem. 333. Mr. Edwards

This course is designed to acquaint the student with the apparatus and techniques used in the preparation of pure inorganic compounds.

Text: Henderson and Fernelius, *Inorganic Preparations, References*.**Chem. 434, 435, 436. Advanced Inorganic Chemistry 3-0-3. Senior Year, First, Second, and Third Quarters.**

Prerequisite: Chem. 333. Mr. Whitley

A classroom study of selected topics with emphasis on laws, principles and generalization: the periodic classifications, atomic structure, natural and artificial radioactivity, valence, complex compounds, and other topics.

Text: References.

Chem. 437, 438, 439. Special Problems 0-6-2. Senior Year, Any Quarter.

Prerequisites: Chem. 213, Chem. 312. Staff

The instruction will be individual and will include library, conference, and laboratory work. The time will vary with the problem studied.

Text: *None*.**Chem. 442. Industrial Chemistry 3-0-3. Senior Year, First Quarter.**

Prerequisite: Chem. 312. Mr. Horton

The Chemistry of the Process Industries is studied, as well as the orientation of the chemist in industry.

Text: To be selected.

Chem. 443, 444. Organic Reactions 3-0-3.

Prerequisite: Chem. 312.

Mr. Wroth and Staff

A study of the scope and usefulness of several important synthetic reactions in organic chemistry.

Text: References.

Chem. 450. Chemical Bibliography 2-0-2.

Prerequisites: Chem. 213, Chem. 312 or their equivalent.

Mr. Stanfield

A study of the chemical library with instruction in the use of chemical journals, reference books, and other sources of information.

Text: Soule, *Library Guide for the Chemist*.

SCHOOL OF CHEMICAL ENGINEERING

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 60. Chemical German must be selected.

SOPHOMORE YEAR

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

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
Chem.	211-2-3	Analytical Chemistry	4-0-4	1-9-4	1-9-4
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
Phys.	207-8-9	Engineering 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.....	3-1-2	3-1-2	3-1-2
Total			20-8-21	17-17-21	17-17-21

JUNIOR YEAR

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
Ch.E.	301	Fuels	3-3-4	.....	.....
Ch.E.	314-5	Unit Operations .....	.....	3-3-4	3-3-4
Ch.E.	339	Chemical Eng. Literature .....	.....	.....	1-0-1
Chem.	310-1-2	Organic Chemistry	3-6-5	3-6-5	3-6-5
Chem.	331-2-3	Physical Chemistry	3-0-3	3-0-3	3-0-3
Chem.	334-5-6	Physical Chemistry Laboratory	0-3-1	0-3-1	0-3-1
Mech.	301	Applied Mechanics	2-0-2	.....	.....
Mech.	331-2	Mechanics of Materials .....	.....	3-0-3	2-0-2
Electives	*	.....	3-0-3	3-0-3	3-0-3
Totals			14-12-18	15-12-19	15-12-19

*If Advanced Military or Advanced Navy is the elective, the class, lab. and credit hours are 3-2-3.

SENIOR YEAR

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
Ch.E.	419-20-1	Chemical Engineering Calculations.....	3-0-3	3-0-3	3-0-3
Ch.E.	425-6	Materials	3-0-3	3-3-4	.....
Ch.E.	407-8-9	Chemical Technology	3-0-3	3-0-3	3-0-3
Ch.E.	413	Unit Operations	3-3-4	.....	.....
Ch.E.	431	Chemical Engineering Economics .....	.....	3-0-3	.....
Ch.E.	432	Chemical Engineering Design .....	.....	.....	0-6-2
Ch.E.	443-4	Special Problems	0-3-1	0-3-1	.....
E.E.	316-7	A.C. and D.C.	3-0-3	2-3-3	.....
M.E.	332	Power Plant .....	.....	.....	3-0-3
M.E.	354	Heat Power Laboratory .....	.....	.....	0-3-1
Phys.	318	Introduction to Modern Physics.....	.....	.....	4-3-5
Electives	*	.....	3-0-3	3-0-3	3-0-3
Totals			18-6-20	17-9-20	16-12-20

*If Advanced Military or Advanced Navy is the elective, the class, lab. and credit hours are 3-2-3.

COURSES OF INSTRUCTION

Ch.E. 301. Gas and Fuels, Industrial Stoichiometry 3-3-4. Junior Year, First Quarter.

Prerequisite: Chem. 213.

Mr. Grubb and Mr. Weber

A study of the utilization of fuels, their evaluation, analysis, calorific value, as well as the examination of petroleum products. Heat and materials balances are introduced, which require the solution of numerous problems, and combustion process heat balances are interpreted.

Text: Haslam and Russell, *Fuels and Their Combustion; Problem Sheets and Laboratory Notes.*

Ch.E. 314. Unit Operations 3-3-4. Junior Year, Second Quarter.

Prerequisites: Mech. 301. Ch.E. 301.

Mr. Grubb

Heat and fluid flow. The types of equipment used for these unit operations are discussed, the fundamental theory developed, and numerous problems are solved. 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.

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

Ch.E. 315. Unit Operations 3-3-4. Junior Year, Third Quarter.

Prerequisite: Ch.E. 314.

Mr. Lewis

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; Staff Laboratory Notes.*

Ch.E. 325. General Metallurgy 3-0-3. Junior Year, First and Second Quarters.

Prerequisites: Chem. 103 and Physics 207.

Mr. Miller

An introductory survey of basic physical metallurgical concepts followed by a study of the characteristics and engineering applications of carbon steels, gray and malleable cast irons. Consideration is given to the engineering significance of static and dynamic properties of metals and alloys and to the seriousness of the corrosion problem and means for minimizing it.

Text: Sisco, *Modern Metallurgy for Engineers.*

Ch.E. 327. General Metallurgy 3-0-3. Junior Year, Second and Third Quarters.

Prerequisite: Ch.E. 325.

Mr. Raudebaugh

A study of the characteristics and engineering applications of alloy steels and the more widely used nonferrous alloys. Consideration is given to powder metallurgy as a tool in the fabrication of metallic materials and also to some of the newer alloys for ultra high temperature service.

Text: Sisco, *Modern Metallurgy for Engineers.*

Ch.E. 328. Chemistry of Engineering Materials 3-0-3. Junior Year, First Quarter.

Prerequisite: Chem. 103.

Mr. Miller

A survey of materials of construction with emphasis on nonmetallics. The fundamental properties of plastics, and all types of surface coatings are studied.

Text: Winding and Hasche, *Plastics, Theory and Practice*.

Ch.E. 339. Chemical Engineering Literature 1-0-1. Junior Year, Third Quarter.

Prerequisites: Ch.E. 301, Chem. 310, Chem. 331.

Mr. Weber

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.

Text: Mellon, *Chemical Publications*.

Ch.E. 407-8-9. Chemical Technology 3-0-3. Senior Year, First, Second, and Third Quarters.

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.

Text: Badger and Baker, *Inorganic Chemical Technology*; Groggins, *Unit Processes in Organic Synthesis*.

Ch.E. 410. Applied Electrochemistry 3-0-3. Senior Year, Third Quarter.

Prerequisite: Chem. 333.

Mr. Kissin

An outline of the fundamentals of electrolytic conductance, electromotive force and irreversible electrode phenomena; followed by a study of applications to process metallurgy, industrial chemistry, electroplating, corrosion, etc.

Text: Thompson, *Theoretical and Applied Electrochemistry*.

Ch.E. 419-20-21. Chemical Engineering Calculations 3-0-3.

Prerequisites: Chem. 333, Ch.E. 315.

Mr. Mason and Mr. Lewis

The application of chemical principles and thermodynamic methods to the problems of industry.

Text: Hougen and Watson, *Chemical Process Principles*.

Ch.E. 425. Engineering Materials 3-0-3. Senior Year, First Quarter.

Prerequisite: Chem. 333.

Mr. Grubb

A survey of the more commonly used nonferrous metals and alloys with emphasis on properties and applications. Some time is devoted to binary phase diagrams and to mechanical testing methods as applied to metallic materials.

Text: Leighou, *Chemistry of Engineering Materials*.

Ch.E. 426. Engineering Materials 3-3-4. Senior Year, Second Quarter.

Prerequisite: Ch.E. 425.

Mr. Raudebaugh

A study of the properties and applications of carbon and alloy steels and cast irons including introductory consideration of heat treating theory and practice. Some time is devoted to corrosion as an engineering problem and methods

utilized in minimizing its effects. Laboratory work consists of metallographic observation of common ferrous and nonferrous alloys in various conditions.

Text: Leighou, *Chemistry of Engineering Materials*, and *Staff Notes*.

Ch.E. 427. Theoretical Physical Metallurgy 3-0-3. Senior Year, First Quarter.

Prerequisite: Ch.E. 327, or equivalent. Mr. Raudebaugh

A study of the physical and mechanical properties of metals and alloys in the light of their structure.

Text: Doan and Mahla, *Principles of Physical Metallurgy*.

Ch.E. 428. Metallography 2-3-3. Senior Year, Second Quarter.

Prerequisite: Ch.E. 427 or 426, or equivalent. Mr. Raudebaugh

The use of the microscope to study the influence of processing variables on the structure and properties of metals and alloys. Pyrometric instrumentation as applied to heat treating operations and thermal analysis of metals and alloys is also covered.

Text: Kehl, *Metallographic Laboratory Practice*.

Ch.E. 431. Chemical Engineering Economics 3-0-3. Senior Year, Second Quarter.

Prerequisite: Ch.E. 315. Mr. Bellinger

The student becomes familiar with the sources of economic data, and obtains experience in analyzing and presenting such data in order to determine the optimum economic plant location or equipment design. Materials of construction, maintenance, instrumentation, safety, cost estimation, labor, and overhead costs are discussed.

Text: Tyler, *Chemical Engineering Economics*; Bliss, *The Costs of Process Equipment and Accessories*; Trade literature.

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*.

Ch.E. 446. Comprehensive Problems 3-0-3. Senior Year, First Quarter.

Prerequisites: Chem. 333, Ch.E. 315, Mech. 332. Mr. Dalla Valle

The integration of the professional work of the first three years by means of a series of comprehensive problems. The first quarter emphasizes stoichiometry and economic balance.

Text: Arkin and Colton, *An Outline of Statistical Methods*, and Worthing and Gaffener, *Treatment of Experimental Data*.

Ch.E. 447. Comprehensive Problems 3-0-3. Senior Year, Second Quarter.

Prerequisites: Ch.E. 446, 425, 413, 407, 419. Mr. Dalla Valle

Continuation of Ch.E. 446. Emphasis on Unit Operations.

Text: Perry, *Chemical Engineers Handbook*.

Ch.E. 448. Comprehensive Problems 3-0-3. Senior Year, Third Quarter.

Prerequisites: Ch.E. 447, 426, 408, 420. Mr. Newton

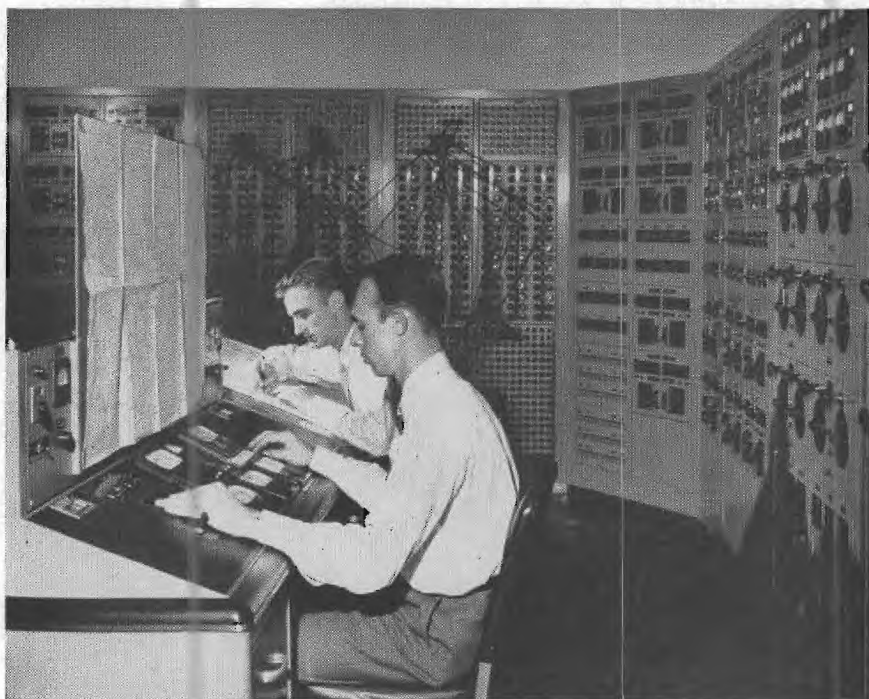
A continuation of Ch.E. 447 with emphasis on thermodynamics.

Text: Perry, *Chemical Engineers Handbook*.



(PHOTO BY EVANS & EVANS)

SCHOOL OF ELECTRICAL ENGINEERING—*Latest developments in power generation, electronics and communications are included in courses.*

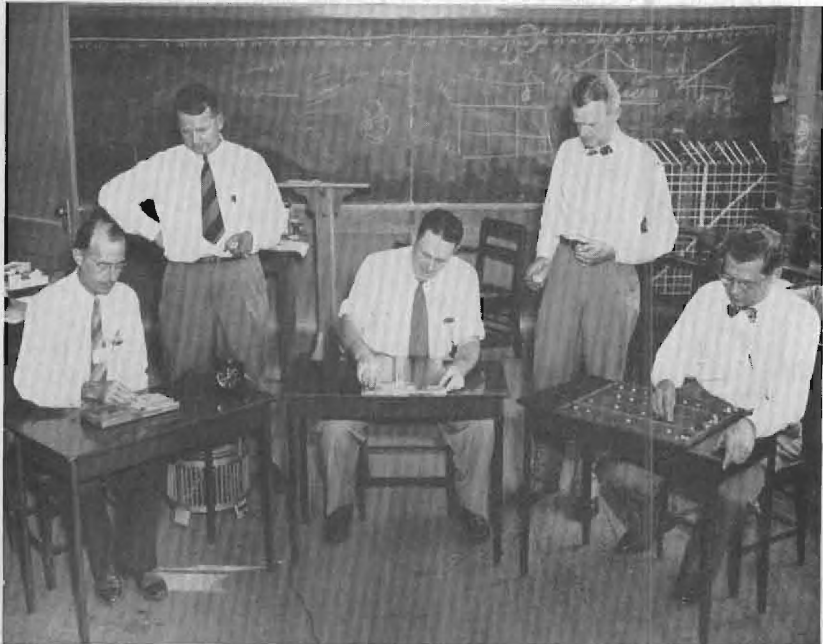


AC NETWORK CALCULATOR LABORATORY—*This \$300,000 installation is utilized by electric power companies and affords training to graduate electrical engineering students.*



(PHOTO BY EVANS & EVANS)

SCHOOL OF PHYSICS—*A sound and complete training in all fields of physics is offered to engineering students.*



DEPARTMENT OF PSYCHOLOGY—*The most recent types of instruments and other aids are used to teach industrial psychology.*

SCHOOL OF CIVIL ENGINEERING

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. Hoover 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.

The School now offers one option for men wishing to go into sanitary work or continue graduate work in Sanitary Engineering. This is called the Sanitary Option and the difference between it and the regular curriculum is shown below.

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.

EQUIPMENT

The Civil Engineering Building is a separate unit and was completed in 1938. It contains ample classrooms, drafting rooms, and laboratories for the work offered in civil engineering.

There are five principal laboratories in the building. One is for instruction in geology and map reading and is equipped with many cases of geological specimens.

Another large laboratory is completely equipped for standard tests on all highway materials as well as masonry building materials. Special equipment is also available here for many non-standard tests of a research nature.

A third laboratory, which has just been completed, is equipped for teaching undergraduate and graduate courses in fluid mechanics and hydraulics. It contains the most modern apparatus for these purposes and also provides means for conducting research studies on hydraulic and fluid flow problems, particularly in connection with models. This laboratory is located in a large wing of the building originally constructed to house such operations.

The fourth laboratory is for research and instruction in Sanitary Engineering. At present an important project is underway for the Surgeon General's Office on methods of water and sewage analysis.

A new soil mechanics laboratory is now ready for undergraduate teaching and graduate work in this important field.

The School also has considerable modern equipment for conducting the surveying courses.

FRESHMAN YEAR

See Page 60

SOPHOMORE YEAR

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

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
C.E.	201-2	Surveying	2-6-4	2-6-4	....
Eng.	201-2-3	English	3-0-3	3-0-3	3-0-3
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
Mech.	301	Statics .....	....	....	2-0-2
Phys.	207-8-9	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	3-1-2	3-1-2	3-1-2
Total.....			18-14-21	18-14-21	18-8-19

JUNIOR YEAR

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
C.E.	307	Engineering Materials	3-0-3	....	....
C.E.	321-22	Hydraulics .....	....	3-3-4	3-3-4
C.E.	303	Advanced Surveying .....	....	....	2-6-4
C.E.	305-306	Structural Analysis I, II.....	....	3-0-3	3-3-4
Eng.	315	Public Speaking .....	....	....	3-0-3
Geol.	301	Engineering Geology	3-3-4	....	....
Mech.	302-3	Kinetics	2-0-2	3-0-3	....
Mech.	304	Graphic Statics	0-3-1	....	....
Mech.	331-2	Strength of Materials	3-0-3	2-0-2	....
M.E.	320	Thermodynamics	4-0-4	....	....
M.E.	353	Strength of Materials Lab.....	....	0-3-1	....
M.E.	332	Heat Power .....	....	3-0-3	....
Electives	*	.....	3-0-3	3-0-3	3-0-3
Total.....			18-6-20	17-6-19	14-12-18

*If Advanced Military or Advanced Navy is the elective, the class, lab. and credit hours are 3-2-3.

SENIOR YEAR

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
C.E.	401-2	Reinforced Concrete	3-3-4	2-6-4	....
C.E.	404-5	Steel and Tim. Design	3-3-4	2-6-4	....
C.E.	417	Water Supply .....	....	3-0-3	....
C.E.	418	Sewerage .....	....	....	3-0-3
C.E.	421	Sanitary Design .....	....	....	1-3-2
C.E.	425	Highway Engineering .....	....	....	3-3-4
C.E.	427	Contracts and Specifications .....	....	....	3-0-3
C.E.	434-5-6	Seminar	1-0-1	1-0-1	1-0-1
I.E.	425	Engineering Economy	3-0-3	....	....
E.E.	316-317	Applied Electricity .....	....	3-0-3	2-3-3
C.E.	411	Soil Mechanics and Foundations	3-3-4	....	....
M.E.	354	Heat Power Laboratory	0-3-1	....	....
Electives	*	.....	3-0-3	3-0-3	3-0-3
Total			16-12-20	14-12-18	16-9-19

*If Advanced Military or Advanced Navy is the elective, the class, lab. and credit hours are 3-2-3.

SANITARY OPTION

Men electing the Sanitary Option will take Chemistry 370, Sanitary Chemistry, 2-6-4, and Public Health 201, Animal Biology, 3-4-4, in place of C.E. 303, Advanced Surveying, 2-6-4, and C.E. 307, Engineering Materials, 3-0-3, respectively, in the Junior Year.

In the Senior Year Chemistry 371, Sanitary Chemistry, 2-6-4, Public Health 307, General Bacteriology, 3-4-4, and Public Health 411, Sanitation, 3-0-3, will be taken in place of C.E. 425, Highway Engineering, 3-3-4, C.E. 405, Steel and Timber Design, 2-6-4, and C.E. 411, Soil Mechanics and Foundations, 3-3-4 respectively. C.E. 404, Steel and Timber Design, 3-3-4, is taken in the Second Quarter, and C.E. 417, Water Supply, is taken in First Quarter.

For men who do not take advanced ROTC, five of the electives should be taken as Public Health 202, Animal Biology, 3-4-4; Public Health 316, Industrial Hygiene, 3-0-3; I.M. 407, Personnel Administration, 3-0-3; C.E. 425, Highway Engineering, 3-3-4; and C.E. 411, Soil Mechanics and Foundations, 3-3-4.

CONSTRUCTION

For students who are interested in going into the construction industry upon graduation the following electives are especially recommended during the last two years. These have been worked out with representatives of the construction industry. Arch. 422; Drawing 201, 202; M.E. 205, 329, 330; Ec. 329, I.M. 336, 407, 408; E.E. 315.

ELECTIVES

GROUP A—Three courses from this group (9 hours).

Course	No.	Subject	Class	Lab.	Credit
A.E.	201	Applied Aeronautics	3	0	3
A.E.	215	Meteorology	3	0	3
A.E.	322-3-4	Aerodynamics	3	0	3
Arch.	422	Construction, Costs and Estimates	2	3	3
P.H.	307	General Bacteriology	3	4	4
P.H.	411	Sanitation	3	0	3
C.E.	422	Sanitary Design	1	3	2
C.E.	426	Highway Economics	3	0	3
C.E.	430	City Planning	2	3	3
Cer.E	307	Ceramic Technology	2	3	3
Ch.E.	325	Metallurgy	3	0	3
Ch.E.	326	Metallurgy	2	3	3
Chem.	370	Chemistry of Water	2	6	4
Chem.	371	Chemistry of Sewage	2	6	4
Draw.	201-2-3	Applied Descriptive Geometry	0	3	1
Geol.	305	General Geology	3	0	3
Geol.	414	Mineralogy	2	3	3
Math.	301	Differential Equations	4	0	4
Math.	311-12-13	Engineering Math.	3	0	3
Math.	411-12-13	Adv. Engrg. Math.	3	0	3
M.E.	205	Welding Laboratory	0	3	1
M.E.	329	Mech. Equipment of Bldgs.	2	0	2
M.E.	330	Air Conditioning and Refrigeration	2	0	2
Phys.	320	Mechanics	5	0	5
Mech.	423	Vibrations	4	0	4
E.E.	315	Mech. Plant of Bldgs.	3	0	3

ELECTIVES

GROUP B—Three courses from this group (9 hours).

Course	No.	Subject	Class	Lab.	Credit
I.M.	316	Finance for Engineers	3	0	3
Ec.	329	Business Law for Engineers	3	0	3
I.M.	336	Accounting Survey	3	0	3
I.M.	414	Public Finance and Taxation	3	0	3
I.M.	443-4	Investments	3	0	3
Eng.	301	Modern Drama	3	0	3
Eng.	302	Shakespeare	3	0	3
Eng.	303	American Literature	3	0	3
Geol.	311	Economic Geography	3	0	3
Geol.	312	Economic Geology	3	0	3
I.E.	427	Equipment, Selection and Investment	2	0	2
I.M.	406	World Industries and Resources	3	0	3
I.M.	407-8	Personnel Management	3	0	3
M.L.	101-2-3	Elementary German	3	0	3
M.L.	107-8-9	Elementary French	3	0	3
S.S.	307	American Economic History	3	0	3
S.S.	411-12	Technology and Society	3	0	3

COURSES OF INSTRUCTION

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

In addition to the prerequisites given, a student must have class standing in the year indicated by the course number.

C.E. 201. Plane Surveying 2-6-4. Sophomore Year, First Quarter.

Prerequisites: Math. 101, 102.

Staff

The construction, care and use of surveying instruments, traversing, land surveying, profile and differential leveling, computation of areas, parting of land. Theory of stadia, plane table applications to topographic surveying, city and mine surveying, U. S. Government system of public land surveys. Reduction and plotting of field notes. Filing and recording of deeds.

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 Kelly, *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 easement 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: Rubey, *Route Surveying*.**C.E. 204. Elementary Surveying 1-3-2. Sophomore Year, All Quarters.**

Prerequisites: Math. 101, 102.

Staff

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 Kelly, *Short Course in Surveying*.**C.E. 303. Advanced Surveying 2-6-4. Junior Year, Third Quarter.**

Prerequisites: C.E. 201, 202. Junior Standing.

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: Rayner, *Advanced Surveying*.**C.E. 305. Structural Analysis I 3-0-3. Junior Year, Second Quarter.**

Prerequisites: Mech. 301, 304, 331. Mech. 332 Parallel.

Mr. Evans

This course will cover the various systems of loads acting on static structures and determination of the forces and deflections resulting therefrom on statically determinate trusses and girders. Moving load systems and their analysis for maximum effect on structures will be studied.

Text: Shedd and Vawter, *Theory of Simple Structures*.

C.E. 306. Structural Analysis II 3-3-4. Junior Year, Third Quarter.

Prerequisites: C.E. 305, Mech. 332.

Mr. Evans

This second course will go more intensively into analyses of moving load systems. In addition, lateral forces acting on trusses and frames will be considered. Simple indeterminate structures analysed by methods of Work, Three Moments, Moment Area, Slope Deflection and Moment Distribution will comprise most of the remainder. Selection of beams and unsymmetrical bending will be studied. The laboratory will be used as a supervised problem period.

Text: Shedd and Vawter, *Theory of Simple Structures*.**C.E. 307. Engineering Materials 3-0-3. Junior Year, First Quarter.**

Prerequisite: Chem. 103.

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*.**C.E. 321. Hydraulics 3-3-4. Junior Year, Second Quarter.**

Prerequisites: Phys. 209; Math. 202; Mech. 302; ME. 320.

Mr. Kindsvater

Elementary mechanics of fluids, both incompressible and compressible. This course includes fluid statics, flow of ideal fluids, flow of real fluids, similarity and dimensional analysis, and fluid flow in pipes. Laboratory period included for computation or experimentation.

Text: Vennard, *Elementary Fluid Mechanics*.**C.E. 322. Hydraulics 3-3-4. Junior Year, Third Quarter, limited to C.E. students.**

Prerequisite: C.E. 321.

Mr. Kindsvater

A continuation of C.E. 321, including flow in open channels, fluid measurements, flow about immersed bodies, and theory of centrifugal pumps and hydraulic turbines. Laboratory period used for experiment and analysis, demonstration of fluid phenomena, measuring devices and techniques, and hydraulic machinery.

Text: Vennard, *Elementary Fluid Mechanics*.**C.E. 323. Hydraulics 3-0-3. Junior Year, Third Quarter, for non-C.E. students.**

Prerequisite: C.E. 321.

Mr. Kindsvater

Lectures of C.E. 322 without laboratory.

Text: Vennard, *Elementary Fluid Mechanics*.**C.E. 401. Reinforced Concrete 3-3-4. Senior Year, First Quarter.**

Prerequisite: C.E. 306.

Mr. Smith

The properties of concrete and reinforcing steel. The fundamentals of reinforced concrete design including stresses in beams, transformed sections, bond, shear and web reinforcement. Continuous beams and the design of beams,

floor slabs and columns. Direct stress and bending in columns. Applications to buildings and simple highway bridges. All drawings made to conform to the A. C. I. Detailing Manual.

Text: Urquhart and O'Rourke, *Design of Concrete Structures*.

C.E. 402. Reinforced Concrete 2-6-4. Senior Year, Second Quarter.

Prerequisite: C.E. 401.

Mr. Smith

A continuation of C.E. 401 taking up more difficult structures. Design of retaining walls, foundations, abutments, highway bridges, two way and flat slab floor. Two cycle moment distribution applied to building frames. Complete design of a building using a flat slab floor. Drawings conform to A. C. I. Detailing Manual.

Text: Urquhart and O'Rourke, *Design of Concrete Structures*.

C.E. 404. Steel and Timber Design I 3-3-4. Senior Year, First Quarter.

Prerequisite: C.E. 306.

Mr. Honour

Selection of tension and compression members of steel and timber. Beam design. Riveted and welded connections. Use of modern timber connectors. Application of principles to the design of simple trusses and other structures. Use of Steel Construction Manual.

Texts: Shedd, *Structural Design in Steel*; A. I. S. C. *Steel Construction Manual*.

C.E. 405. Steel and Timber Design II 2-6-4. Senior Year, Second Quarter.

Prerequisite: C.E. 404.

Mr. Honour

Continuation of C.E. 404 with special attention to the design of highway and railway bridges. Plate girders. Eccentrically loaded structural members and connections.

Texts: Same as C.E. 404.

C.E. 411. Soil Mechanics and Foundations 3-3-4. Senior Year, First Quarter.

Prerequisites: Senior Standing and C.E. 321, 401 (or parallel).

Mr. Sowers

Physical properties and classification of soils, soil sampling and testing. Application of mechanics of soil masses to the determination of allowable loads on soils, design of spread footing and pile foundations, retaining walls and excavations. The laboratory period will be used for computations and soil tests.

Text: *Soil Mechanics*, Krynine. Second Edition.

C.E. 417. Water Supply and Purification 3-0-3. Senior Year, Second Quarter.

Prerequisites: C.E. 322, Chem. 103.

Mr. Reid

This subject includes water demand, supply, impoundment, distribution, and treatment. The treatment is surveyed, but the hydrology and hydraulics of water supply are covered in detail, as are other contributing sciences such as demography.

Text: Steel, *Water Supply and Sewerage*.

C.E. 418. Sewerage and Sewage Treatment 3-0-3. Senior Year, Third Quarter.

Prerequisites: C.E. 417.

Mr. Reid

This subject includes lectures on source, collection, transportation, and disposal of sewage. Disposal is surveyed while the hydrology and hydraulics of collection systems and treatment are detailed. Financing of municipal sanitary projects, as well as several lectures on industrial wastes, are included.

Text: Steel, *Water Supply and Sewerage*.

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

Prerequisites: C.E. 417, 401; corequisite: C.E. 418.

Mr. Reid

This subject is offered in the last quarter of the senior year to provide a comprehensive course in which to integrate much previously acquired theory in hydraulics and sanitary engineering. A total of six representative problems are undertaken, involving impoundment and distribution of water, collection and disposal of sanitary and storm sewage. A field trip in the Atlanta area is undertaken.

Text: Same as C.E. 417 and 418.

C.E. 422. Sanitary Design II 1-3-2.

Prerequisite: C.E. 421.

Mr. Reid

Continuation of the study of pertinent design factors applicable in Water Supply and Sewerage. The development of monographs, study of roughness co-efficients, statistical population studies, design of typical sanitary sewer, as well as design of appurtenances. Several trips will be made to local installations.

Text: Same as C.E. 417 and 418.

C.E. 425. Highway Engineering 3-3-4. Senior Year, Third Quarter.

Prerequisite: C.E. 411.

Mr. Lucas

Includes the historic, economic and structural phases of highway engineering. Study of traffic census, traffic classifications 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*.

C.E. 426. Highway Economics 3-0-3.

Prerequisite: C.E. 425.

Mr. Lucas

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*.

C.E. 427. Contracts and Specifications 3-0-3. Senior Year, Third Quarter.

Prerequisite: C.E. 401, 404.

Mr. Evans

A course in contract 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: Abbett, *Engineering Contracts and Specifications*.

C.E. 430. City Planning 2-3-3.

Prerequisites: C.E. 303, 425 or parallel.

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 & Dunaly, *Airport Engineering*.

C.E. 434, 435, 436, 437. Civil Engineering Seminar 1-0-1. Senior Year, All Quarters.

Prerequisite: Senior Standing.

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 current and 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 worth-while nature. Following presentation there will be a general discussion by students and faculty.

Text: *None*.

SCHOOL OF ELECTRICAL ENGINEERING

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 60.

SOPHOMORE YEAR

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
E.E.	203	Elementary Electrical Engineering	.....	.....	2-3-3
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
C.E.	204	Plane Surveying	.....	1-3-2	.....
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
M.E.	201	Machine Shop	0-3-1	.....	.....
Phys.	207-8-9	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	3-1-2	3-1-2	3-1-2
Total			16-11-18	17-11-19	18-11-20

JUNIOR YEAR

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
S.S.	204	Economics	3-0-3	.....	.....
E.E.	301-2-3	A. C. Circuits	3-3-4	3-3-4	3-3-4
E.E.	310	D. C. Machinery	3-6-5	.....	.....
E.E.	323-4	Electronics	.....	3-0-3	3-3-4
E.E.	342	Electrical Measurements	.....	.....	3-3-4
Math.	301	Differential Equations	4-0-4	.....	.....
M.E.	320	Thermodynamics	.....	4-0-4	.....
Mech.	301-2	Applied Mechanics	.....	2-0-2	2-0-2
Mech.	331-2	Mechanics of Materials	.....	3-0-3	2-0-2
Elective	*	.....	3-0-3	3-0-3	3-0-3
Total			16-9-19	18-3-19	16-9-19

SENIOR YEAR
ELECTRICAL POWER ENGINEERING OPTION

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
C.E.	321-323	Hydraulics		3-3-4	3-0-3
E.E.	401-2-3	A. C. Machinery	3-6-5	3-6-5	3-6-5
E.E.	422	Industrial Electronics	3-3-4		....
E.E.	441	Illumination		3-3-4	....
E.E.	442	Electrical Design			3-3-4
E.E.	448	Electrical Power Trans.			3-3-4
Eng.	315	Public Speaking	3-0-3		....
Eng.	321	Technical English		3-0-3	....
M.E.	332	Elementary Heat Power Engr.	3-0-3		....
M.E.	354	Heat Power Laboratory		0-3-1	....
Elective	*	.....	3-0-3	3-0-3	3-0-3
Total			15-9-18	15-15-20	15-12-19

COMMUNICATIONS AND ELECTRONICS OPTION

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
E.E.	422	Industrial Electronics		3-3-4	....
E.E.	428-9-30	Communications Engineering	3-3-4	3-3-4	3-3-4
E.E.	401-2-3	A. C. Machinery	3-6-5	3-6-5	3-6-5
E.E.	432	Communications Circuits	3-3-4		....
E.E.	436	U.H.F. Techniques			3-3-4
E.E.	445	Electrical Transients			3-0-3
Eng.	315	Public Speaking	3-0-3		....
Eng.	321	Technical English		3-0-3	....
Elective	*	.....	3-0-3	3-0-3	3-0-3
Total			15-12-19	15-12-19	15-12-19

*If Advanced Military or Advanced Navy is the elective, the class, lab. and credit hours are 3-2-3.

COURSES OF INSTRUCTION

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

E.E. 203. Elements of Electrical Engineering 2-3-3. Sophomore Year, Third Quarter.

Prerequisite: Physics 208.

Mr. Duling and Staff

Fundamental theory of electric, magnetic and electrostatics circuits.

Text: Ward, *Elements of Electrical Engineering*.

E.E. 301. Alternating-Current Circuits 3-3-4. Junior Year, First Quarter.

Prerequisite: E.E. 203, Math. 301 or parallel.

Mr. Stalnaker and Staff

Single-phase circuits. Lectures, recitations, computing and laboratory periods.

Text: Kerchner and Corcoran, *A. C. Circuits*.

E.E. 302. Alternating-Current Circuits 3-3-4. Junior Year, Second Quarter.

Prerequisite: E.E. 301.

Mr. Fielder and Staff

Polyphase circuits, balanced and unbalanced. Lectures, recitations, computing and laboratory periods.

Text: Kerchner and Corcoran, *A. C. Circuits*.

E.E. 303. Alternating-Current Circuits 3-3-4. Junior Year, Third Quarter.

Prerequisite: E.E. 302.

Mr. Weston and Staff

Wave analysis, non harmonic waves and network theorems. Lectures, recitations, computing and laboratory periods.

Text: Kerchner and Corcoran, *A. C. Circuits*.

E.E. 310. Direct-Current Machinery 3-6-5. Junior Year, First Quarter.

Prerequisite: E.E. 203.

Mr. Duling and Staff

The construction, operation, characteristics and application of direct-current generators and motors. Lectures, recitations, computing, and laboratory periods.

Text: Dawes, *Electrical Engineering. Vol. I D.C.*

E.E. 315. The Mechanical Plant of Buildings 3-0-3. Arch. Seniors, Third Quarter.

Prerequisites: Non-electrical Engineering Students.

Mr. McKinley

This course deals with the wiring and the selection of lighting equipment for buildings.

Text: Gay and Fawcett, *Mechanical and Electrical Equipment for Buildings*.

E.E. 316. Applied Electricity 3-0-3.

Prerequisites: Physics 208; Non-electrical Engineering Students.

Mr. Hagedorn and Staff

A study of the elementary principles of direct-current machinery and alternating-current circuits.

Text: Gray and Wallace, *Principles and Practices of Electrical Engineering*.

E.E. 317. Applied Electricity 2-3-3.

Prerequisites: E.E. 316; Non-electrical Engineering Students.

Mr. Perkins and Staff

The study of the elementary principles of alternating-current machinery, including laboratory periods.

Text: Gray and Wallace, *Principles and Practices of Electrical Engineering. Laboratory Notes*.

E.E. 320. Applied Electricity 3-3-4.

Prerequisites: Physics 209; Non-electrical Engineering Students.

Mr. Duling and Staff

The study of the principles of electric and magnetic circuits and the principles of operation of direct-current machinery, including laboratory periods.

Text: Cook, *Elements of Electrical Engineering*.

E.E. 321. Applied Electricity 4-3-5.

Prerequisites: E.E. 320; Non-electrical Engineering Students.

Mr. Duling and Staff

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

Text: Cook, *Elements of Electrical Engineering*.

E.E. 323. Engineering Electronics 3-0-3. Junior Year, Second Quarter.

Prerequisite: E.E. 301.

Mr. Donaldson and Staff

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

Text: Ryder, *Electronic Engineering Principles*.

E.E. 324. Engineering Electronics 3-3-4. Junior Year, Third Quarter.

Prerequisite: E.E. 323.

Mr. Miller and Staff

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

Text: Ryder, *Electronic Engineering Principles*.

E.E. 342. Electrical Measurements 3-3-4. Junior Year, Third Quarter.

Prerequisite: E.E. 302.

Mr. Seidell and Staff

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, 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: Tarboux, *A.C. Machinery; Laboratory Notes*.

E.E. 402. Alternating-Current Machinery 3-6-5. Senior Year, Second Quarter.

Prerequisite: E.E. 401.

Mr. Stalnaker and Staff

The construction, operation and characteristics and application of induction motors and synchronous motors. Lectures, recitations, computing and laboratory periods.

Text: Tarboux, *A.C. Machinery; Laboratory Notes*.

E.E. 403. Alternating-Current Machinery 3-6-5. Senior Year, Third Quarter.

Prerequisite: E.E. 402.

Mr. Weston and Staff

The construction, operation, characteristics and application of synchronous converters and mercury-vapor rectifiers. Lectures, recitations, computing and laboratory periods.

Text: Tarboux, *A.C. Machinery; Laboratory Notes*.

E.E. 422. Industrial Electronics 3-3-4. Senior Year, First and Second Quarters.

Prerequisites: E.E. 303 and E.E. 324. Mr. Nottingham and Staff

The theory and operation of industrial electronics apparatus. Laboratory and problem work is included.

Text: Chute, *Electronics in Industry*.

E.E. 428. Communications Engineering 3-3-4. Senior Year, Option II, First Quarter.

Prerequisites: E.E. 324 and Math. 301. Mr. McKinley and Staff

An analytical study of radio circuit components and of audio and radio frequency amplifiers. Parallel laboratory and problem work is included.

Text: Terman, *Radio Engineering*.

E.E. 429. Communications Engineering 3-3-4. Senior Year, Option II, Second Quarter.

Prerequisite: E.E. 428. Mr. Clary and Staff

An analytical study of oscillators, power radio frequency amplifiers, modulators and detectors. Parallel laboratory and problem work is included.

Text: Terman, *Radio Engineering*.

E.E. 430. Communications Engineering 3-3-4. Senior Year, Option II, Third Quarter.

Prerequisite: E.E. 429. Mr. Durkee and Staff

A study of transmitting and receiving systems including antennas. Parallel laboratory and problem work is included.

Text: Terman, *Radio Engineering*.

E.E. 431. Telephony 3-0-3. Senior Year.

Prerequisite: E.E. 303. Mr. Clary

The principles of telephone apparatus and circuits, carrier currents, etc.

Text: Albert, *Electrical Communications*.

E.E. 432. Communication Circuits 3-3-4. Senior Year, Option II, First Quarter.

Prerequisites: E.E. 303. Mr. Honnell and Staff

A mathematical study of transmission lines and electric filters for use at low and high frequencies. Laboratory and problem work is included.

Text: Ware and Reed, *Communication Circuits*.

E.E. 434. High-Frequency Measurements 3-0-3. Senior Year.

Prerequisites: E.E. 428 or parallel. Mr. Honnell and Staff

A study of the techniques employed in the measurement of voltage, current, power, inductance, resistance and capacitance at audio and radio-frequencies

Text: Terman, *Measurements in Radio Engineering*.

E.E. 436. Ultra-High-Frequency Techniques 3-3-4. Senior Year, Option II, Third Quarter.

Prerequisites: E.E. 432 and E.E. 430 or parallel. Mr. Honnell and Staff

A study of the techniques employed in Ultra-High-Frequency radio systems. Laboratory and problem work is included.

Text: Bronwell & Beam, *Theory and Application of Microwaves*.

E.E. 441. Illumination 3-3-4. Senior Year, Option I, Second Quarter.

Prerequisites: E.E. 303 and E.E. 342. Mr. Duling and Mr. McKinley

A course dealing with the principles of illuminating engineering and photometers. Laboratory and problem work is included.

Text: Boast, *Illumination Engineering*.

E.E. 442. Electrical Design 3-3-4. Senior Year, Option I, Third Quarter.

Prerequisites: E.E. 403 or parallel. Mr. Perkins

Design problems of various types of apparatus involving the electric and magnetic circuits. Lectures and computing periods.

Text: Kuhlmann, *Electrical Design and Notes*.

E.E. 445. Electrical Transients 3-0-3. Senior Year, Option II, Third Quarter.

Prerequisites: E.E. 303 and Math. 301. Mr. Honnell and Mr. Durkee

An analytical study of the transient state in D. C. and A. C. Circuits.

Text: Kurtz and Corcoran, *Electric Transients*.

E.E. 448. Electrical Power Transmission 3-3-4. Senior Year, Option I, Third Quarter.

Prerequisite: E.E. 401. Mr. Savant and Mr. Gullatt

The electrical characteristics of transmission line circuits. Lectures, recitation, computing and laboratory periods.

Text: Loew, *Electrical Power Transmission*.

E.E. 451. Applications of Electrical Apparatus in Industry 3-0-3. Senior Year, Third Quarter.

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 Mr. Savant

Special engineering problems will be assigned to the student according to his needs and capabilities.

Text: *None*.

DIVISION OF ENGINEERING DRAWING AND MECHANICS

ENGINEERING DRAWING

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

Draw. 101. Engineering Drawing 0-6-2. Freshman Year, First Quarter.

Prerequisite: None.

Mr. Savage and Staff

Topics of study include lettering; the use of instruments; orthographic projection; auxiliary views; sections and conventions.

Text: French, *Engineering Drawing, Departmental Work Sheets.*

Draw. 102. Engineering Drawing 0-6-2. Freshman Year, Second Quarter.

Prerequisite: Draw. 101.

Mr. Ratterree and Staff

Topics of study include drawing conventions; dimensions; pictorial representation; threads and fastenings; shop processes; technical sketching; working drawings, pencil tracing on paper; reproduction processes.

Text: French, *Engineering Drawing, Departmental Work Sheets.*

Draw. 103. Engineering Drawing 0-6-2. Freshman Year, Third Quarter.

Prerequisite: Draw. 102.

Mr. Harris and Staff

Topics of study include technical sketching; working drawings; ink tracing on cloth; working drawings from assemblies; assemblies from working drawings.

Text: French, *Engineering Drawing, Departmental Work Sheets.*

Draw. 106. Industrial Management Drawing 0-6-2. Freshman Year, Third Quarter.

Prerequisite: Draw. 102.

Mr. Bragg and Staff

Topics of studies include working drawings and specifications; theory and construction of charts and graphs used to present technical data and trends in business.

Text: French, *Engineering Drawing, ASA, Time-series Charts, ASA, Engineering and Scientific Graphs for Publications.*

Draw. 201. Applied Descriptive Geometry 0-3-1. Sophomore Year, First Quarter.

Prerequisite: Draw. 103.

Mr. Durden and Staff

Topics of study include the solution of problems involving points, lines, and planes by auxiliary view methods. Practical applications are emphasized.

Text: Warner, *Applied Descriptive Geometry, Departmental Work Sheets.*

Draw. 202. Applied Descriptive Geometry 0-3-1. Sophomore Year, Second Quarter.

Prerequisite: Draw. 201.

Mr. Durden and Staff

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.

Text: Warner, *Applied Descriptive Geometry, Departmental Work Sheets.*

Draw. 203. Applied Descriptive Geometry 0-3-1. Sophomore Year, Third Quarter.

Prerequisite: Draw. 202.

Mr. Durden and Staff

Topics of study include the intersection of surfaces; warped surfaces. Practical applications are emphasized.

Text: Warner, *Applied Descriptive Geometry, Departmental Work Sheets.*

RENT PER QUARTER FOR DRAWING INSTRUMENTS

For a course meeting 6 hours per week.....	\$1.50
For a course meeting 3 hours per week.....	.75

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, Departmental Work Sheets.*

Mech. 302. Applied Mechanics 2-0-2. Junior Year, Second Quarter.

Prerequisites: Mech. 301; Mech. 331, or concurrently.

Mr. Johns and Staff

Topics of study include elements of rectilinear and curvilinear kinematics and kinetics of particles and kinetics of translation of 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.

Mr. Johns and Staff

Topics of study include kinematics and kinetics of rotating bodies; kinematics and kinetics 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.

Mr. Johns and Staff

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. Mr. Johns and Staff

Topics of study include simple stresses and strains; shear and bending moment diagrams; flexure stresses in beams; shafts; columns.

Text: Timoshenko and MacCullough, *Elements of Strength of Materials*.**Mech. 332. Mechanics of Materials 2-0-2.** Junior Year. Second Quarter.

Prerequisites: Mech. 301, 331. Mr. Johns and Staff

Topics of study include deflection of beams; longitudinal shear; combined stresses.

Text: Timoshenko and MacCullough, *Elements of Strength of Materials*.**Mech. 333. Mechanics of Materials 3-0-3.** Junior Year, Third Quarter.

Prerequisite: Mech. 332. Mr. Johns and Staff

Topics of study include statically indeterminate cases of beams, including continuous beams, by moment area methods, by theorem of three moments, and by moment distribution methods; unsymmetrical bending; introduction to analysis by energy methods.

Text: Timoshenko and MacCullough, *Elements of Strength of Materials*.**Mech. 423. Mechanical Vibrations 4-0-4.**

Prerequisites: Mech. 303, 333 and Math. 301. Mr. Hill and Staff

Topics of study include kinematics of vibration; the single degree of freedom system; two degrees of freedom and the damped vibration absorber; several degrees of freedom; vibration of beams and shafts; rotating machinery; multicylinder engines; self-excited vibrations.

Text: Den Hartog, *Mechanical Vibrations*.

DEPARTMENT OF ENGLISH

COURSES OF INSTRUCTION

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

COMMENT ON FRESHMAN AND OTHER ENGLISH COURSES

Since ability to use 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 period with his instructor.

In addition to the composition courses required of freshmen, 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.

COURSES OF INSTRUCTION

Eng. 9. English for Spanish Speaking Students 3-0-0.

Freshman Year, First Quarter.

Prerequisite: None.

Mr. Spillman

Speaking and writing idiomatic English, with special emphasis on difficulties peculiar to Spanish speaking students.

Text: De Besosa, *English Composition for Spanish Speaking Students.*

Eng. 10. Remedial English 3-0-0. Freshman Year, First Quarter.

Prerequisite: None. Mr. Walker and Staff; under direction of Mr. Comer.

Review of essentials of grammar, punctuation, and composition. Recitation, written exercises, quizzes, short themes.

Text: Emery and Kierzek, *English Fundamentals, Form B.*

A dictionary acceptable to the department.

Eng. 101. Composition and Rhetoric 3-0-3. Freshman Year, First Quarter.

Prerequisite: None. Mr. Walker and Staff; under direction of Mr. Comer.

Correctness and accuracy in writing short papers, with emphasis on gram-

mar, spelling, and punctuation. Recitation, themes, written exercises and quizzes.

Text: Hodges, *Harbrace College Handbook*.
Steadman, Miller, Grant, *Exercises in Writing and Thinking*.
A dictionary acceptable to the department.

Eng. 102. Composition and Rhetoric 3-0-3. Freshman Year, Second Quarter.

Prerequisite: Eng. 101. Mr. Walker and Staff; under direction of Mr. Comer.

Larger units of composition with emphasis on diction, effective sentences and paragraphs, reading for comprehension, and vocabulary. Recitation, themes, written exercises, quizzes.

Text: Hodges, *Harbrace College Handbook*.
Steadman, Miller, Grant, *Exercises in Writing and Thinking*.
A dictionary acceptable to the department.
Blair and Gerber, *Better Reading*.

Eng. 103. Composition and Rhetoric 3-0-3. Freshman Year, Third Quarter.

Prerequisite: English 102.

Mr. Walker and Staff; under direction of Mr. Comer.

Outlining, use of library, the research paper with footnotes and bibliography, reading for comprehension, and vocabulary. Recitation, exercises.

Text: *Same as English 102.*

Eng. 201. Survey of the Humanities 3-0-3. Sophomore Year, First Quarter.

Prerequisites: Eng. 101, 102, 103.

Mr. Walker and Staff; under direction of Mr. Folk.

A general survey of world literature from Homer to the Mediaeval World, with emphasis on the contribution to our civilization of the great figures and great ideas in European-culture. Lectures, quizzes, reports, collateral reading.

Text: Thompson and Gassner, *Our Heritage of World Literature* (Revised Edition).

Eng. 202. Survey of the Humanities 3-0-3. Sophomore Year, Second Quarter.

Prerequisite: Eng. 201.

Mr. Walker and Staff; under direction of Mr. Folk.

A general survey of world literature from the Mediaeval World through the Seventeenth Century.

Text: Thompson and Gassner, *Our Heritage of World Literature* (Revised Edition).

Eng. 203. Survey of the Humanities 3-0-3. Sophomore Year, Third Quarter.

Prerequisite: Eng. 202. Mr. Walker and Staff; under direction of Mr. Folk.

A general survey of world literature from the Seventeenth Century to the present.

Text: Thompson and Gassner, *Our Heritage of World Literature* (Revised Edition).

Eng. 204. Creative Writing 3-0-3.

Prerequisite: English 103.

Mr. Walker and Staff

Study and practice in several forms and methods of composition, with emphasis on effective writing. Recitation and, quizzes, compositions.

Text: Williams, *Creative Writing and 3 months classroom subscription to Atlantic Monthly.*

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. Adams

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: Neilson, *The Complete Plays and Poems of Shakespeare.*

Eng. 303. American Literature 3-0-3. Junior and Senior Year, Quarter as announced.

Prerequisite: Eng. 203.

Mr. Foster

A close reading of ten writers, stressing ideas.

Text: Ellis, Spohn, Pound, *American Literature: Briefer Course.*

Two novels to be announced.

Eng. 304. Contemporary Literature 3-0-3. Junior or Senior Year, Quarter as announced.

Prerequisite: Eng. 203.

Mr. Haman

A careful study of major figures and movements in contemporary literature, with emphasis on Britain and America.

Text: Brown and Perrin, *A Quarto of Modern Literature*, and E. M. Forster, *A Passage to India.*

Eng. 305. The English Language 2-0-2.

Prerequisite: English 103.

Mr. Walker

Study of the origin of ENGLISH, its relation to other languages, and its differentiation and development into modern English and American. Lectures, quizzes, term paper.

Text: Robertson, *Development of Modern English.*

Eng. 315. Public Speaking 3-0-3. Junior or Senior Year, Each Quarter.

Prerequisite: Eng. 203. Mr. Walker 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 selected.

Eng. 317. Radio Speaking and Writing 3-0-3. Junior or Senior Year. Quarter as announced.

Prerequisite: Eng. 315; admission by consent of instructor. Mr. Folk

Practice in preparing and delivering various types of radio speeches. Lectures by outside speakers. Frequent recordings.

Text: Abbott, *Handbook of Radio*.

Eng. 321. Technical English 3-0-3. Junior or Senior Year, Each Quarter.

Prerequisites: Eng. 103, 203.

Mr. Walker and Staff; under direction of Mr. Burch

Study and practice of effective English in business letters, technical papers, engineering reports. Letters, reports, quizzes.

A student will not receive credit for both Eng. 321 and Eng. 325.

Texts: Gaum, Graves, and Hoffman, *Report Writing*, Revised Edition; Shurter, *Effective Letters in Business*.

Eng. 325. Business English 3-0-3. Junior and Senior Year, Each Quarter.

Prerequisite: Eng. 203. Mr. Walker and Staff; under direction of Mr. Metcalfe.

Correctness and effectiveness in business English with emphasis on correspondence. Lectures, letters, business articles.

A student will not receive credit for both Eng. 321 and Eng. 325.

Text: Aurner, *Effective English in Business*.

DEPARTMENT OF GENERAL ENGINEERING

DR. R. L. SWEIGERT, *Department Head*

The General Engineering Curriculum will only be given to those students who enrolled in the sophomore year before 1948-1949. Following the graduation of these students in 1951, the Department will be discontinued.

Satisfactory completion of the curriculum leads to the degree of Bachelor of Science in General Engineering.

JUNIOR YEAR

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Chem.	213	Analytical Chemistry	1-9-4	....	....
Draw.	202-3	Descriptive Geometry	0-3-1	....	....
Math.	301	Differential Equations .....	....	4-0-4	....
M.E.	322-3-4	Thermodynamics	3-0-3	3-0-3	3-0-3
Mech.	301-2-3	Applied Mechanics	2-0-2	2-0-2	3-0-3
Mech.	331-2-3	Mechanics of Materials	3-0-3	2-0-2	3-0-3
Non-technical Electives*			3-0-3	3-0-3	3-0-3
Engineering Electives			3-0-3	3-0-3	6-0-6
Total			15-12-19	17-3-18	18-0-18

SENIOR YEAR

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Ch.E.	301	Gas & Fuels, Industrial Stoichiometry ...	3-3-4	....	....
E.E.	301-2-3	A. C. Circuits	3-3-4	3-3-4	3-3-4
E.E.	323-4	Electronics .....	....	3-0-3	3-3-4
Non-technical Electives*			3-0-3	3-0-3	3-0-3
Engineering Electives			7-0-7	7-0-7	8-0-8
Total			16-6-18	16-3-17	17-6-19

ELECTIVES JUNIOR YEAR FIRST QUARTER

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>Class</i>	<i>Lab.</i>	<i>Credit</i>
A.E.	322	Aerodynamics	3	0	3
M.E.	201-2	Machine Laboratory	0	6	2
Chem.	310	Organic Chemistry	3	6	5
Ch.E.	325	Metallurgy	3	0	3
C.E.	201	Surveying	2	6	4
E.E.	301	A. C. Circuits	3	3	4
ROTC		Military or Naval Training	3	2	3
Psy.	301	General Psychology	3	0	3

SECOND QUARTER

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>Class</i>	<i>Lab.</i>	<i>Credit</i>
A.E.	323	Aerodynamics	3	0	3
Ch.E.	325	Metallurgy	3	0	3
Chem.	311	Organic Chemistry	3	6	5
M.E.	306	Heat Treating	1	4	2
M.E.	351	M. E. Laboratory	0	3	1
M.E.	201-2	Machine Laboratory	0	6	2
C.E.	202	Surveying	2	6	4
E.E.	302	A. C. Circuits	3	3	4
ROTC		Military or Naval Training	3	2	3
Eng.	321	Technical Writing	3	0	3
S.S.	307	American Economic History	3	0	3

THIRD QUARTER

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>Class</i>	<i>Lab.</i>	<i>Credit</i>
A.E.	324	Aerodynamics	3	0	3
Ch.E.	326	Metallurgy	2	3	3
Chem.	312	Organic Chemistry	3	6	5
M.E.	210-2	Machine Laboratory	0	6	2
M.E.	333	Steam Power Plant Engineering	4	0	4
M.E.	352	M. E. Laboratory	0	3	1
M.E.	205	Welding	0	4	1
C.E.	303	Surveying	2	6	4
C.E.	317	Hydraulics	3	0	3
E.E.	303	A. C. Circuits	3	3	4
E.E.	323	Electronics	3	0	3
ROTC		Military or Naval Training	3	2	3
Eng.	315	Public Speaking	3	0	3

SENIOR YEAR

FIRST QUARTER

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>Class</i>	<i>Lab.</i>	<i>Credit</i>
A.E.	431	Theory of Aircraft Structures I	3	0	3
A.E.	440	Airplane Design I	0	9	3
A.E.	425	Wind Tunnel Laboratory	1	3	2
Ch.E.	314	Unit Operations	3	3	4
Chem.	331	Physical Chemistry	3	0	3
Chem.	334	Physical Chemistry	0	3	1
M.E.	434	Fluid Mechanics	5	0	5
M.E.	467	Machine Design	3	3	4
M.E.	436	Internal Comb. Engines	4	0	4
C.E.	306	Structural Analysis	3	3	4
C.E.	318	Hydraulics	2	3	3
M.E.	353	Material Laboratory	0	3	1
C.E.	417	Water Supply and Purification	3	0	3
E.E.	310	D. C. Machinery	3	6	5
M.E.	201-2	Machine Laboratory	0	6	2
E.E.	324	Electronics	3	3	4
ROTC		Military or Naval Training	3	2	3
Psy.	401	Industrial Psychology	3	0	3

SECOND QUARTER

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>Class</i>	<i>Lab.</i>	<i>Credit</i>
A.E.	432	Theory of Aircraft Structures II.....	3	0	3
A.E.	441	Airplane Design II	0	9	3
A.E.	472	Aircraft Propellers	3	3	4
Ch.E.	315	Unit Operations	3	3	4
Ch.E.	315	Chemical Technology	3	0	3
Ch.E.	419	Chemical Ensr. Calculations	3	0	3
M.E.	450-1	Heat Power Laboratory	0	6	2
M.E.	435	Heat Transfer	3	0	3
M.E.	468	Machine Design	4	3	5
M.E.	431	Refrigeration	3	0	3
C.E.	404	Steel and Timber Design	3	3	4
C.E.	425	Highway Engineering	3	3	4
C.E.	427	Contracts and Specifications	3	0	3
C.E.	418	Sewerage	3	0	3
C.E.	421	Hydraulic and Sanitary Design	1	3	2
C.E.	401	Reinforced Concrete	3	3	4
E.E.	401	A. C. Machinery	3	6	5
E.E.	432	Communication Circuits	3	3	4
E.E.	342	Electrical Measurements	3	3	4
E.E.	428	Communications	3	3	4
ROTC		Military or Naval Training	3	2	3
S.S.	411	Technology and Society	3	0	3

THIRD QUARTER

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>Class</i>	<i>Lab.</i>	<i>Credit</i>
A.E.	433	Theory of Aircraft Structures III.....	3	0	3
A.E.	442	Airplane Design III	0	9	3
A.E.	436	Aircraft Structural Laboratory	1	3	2
A.E.	461	Aero. Materials	3	0	3
Ch.E.	413	Unit Operations	3	3	4
Ch.E.	408	Chemical Technology	3	0	3
Ch.E.	420	Chemical Engr. Calculations	3	0	3
M.E.	452	Heat Power Laboratory	0	3	1
Mech.	423	Vibration	4	0	4
M.E.	469	Machine Design	4	3	5
M.E.	430	Heating, Ventilation and Air Cond.....	3	0	3
M.E.	201-2	Machine Laboratory	0	6	2
C.E.	418	Sewerage	3	0	3
C.E.	421	Hydraulic and Sanitary Design	1	3	2
C.E.	402	Reinforced Concrete	2	6	4
C.E.	405	Steel and Timber Design	2	6	4
E.E.	402	A. C. Machinery	3	6	5
E.E.	432	Communication Circuits	3	3	4
E.E.	422	Industrial Electronics	3	3	4
Ch.E.	325	Metallurgy	3	0	3
E.E.	429	Communications	3	3	4
ROTC		Military or Naval Training	3	2	3
S.S.	412	Technology and Society	3	0	3

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 Department Head.

SCHOOL OF INDUSTRIAL ENGINEERING

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 60

SOPHOMORE YEAR

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

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
C.E.	204	Surveying .....	....	....	1-3-2
Draw.	201-2	Descriptive Geometry	0-3-1	0-3-1	....
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
M.E.	203	Pattern Laboratory	0-3-1	....	....
M.E.	204	Foundry .....	....	0-3-1	....
M.E.	201	Machine Laboratory .....	....	....	0-3-1
Phys.	207-8-9	Physics	5-3-6	5-3-6	5-3-6
ROTC	201-2-3	Military or Naval Training	3-1-2	3-1-2	3-1-2
P.T.	201-2-3	Physical Training	0-4-1	0-4-1	0-4-1
Total.....			16-14-19	16-14-19	17-14-20

JUNIOR YEAR

NOTE: Under Quarters, 0-3-1 means 0 hours class, 3 hours lab., 1 hour credit.

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
Ec.	201-2	Principles of Economics	3-0-3	3-0-3	....
I.M.	235-6	Accounting	3-1-3	3-1-3	....
Ch.E.	325	Metallurgy	3-0-3	....	....
Eng.	321	Technical English	....	....	3-0-3
I.E.	304	Organization for Production	3-0-3	....	....
I.E.	306	Production Control	....	3-0-3	....
I.E.	417	Motion and Time Study	....	....	3-6-5
M.E.	320	Thermodynamics	....	4-0-4	....
M.E.	332	Heat Power Engineering	....	....	3-0-3
Mech.	301-2	Applied Mechanics	2-0-2	2-0-2	....
Mech.	331-2	Mechanics of Materials	3-0-3	2-0-2	....
C.E.	321	Fluid Mechanics	....	....	3-3-4
Electives	*	.....	3-0-3	3-0-3	3-0-3
Total			20-1-20	20-1-20	15-9-18

SENIOR YEAR

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
Eng.	315	Public Speaking	....	....	3-0-3
E.E.	316-7	Electrical Engineering	....	3-0-3	2-3-3
M.E.	354	Heat Power Laboratory	0-3-1	....	....
M.E.	367	Machine Design	4-3-5	....	....
S.E.	401	Industrial Accident Control	....	3-0-3	....
Psy.	401	Industrial Psychology	3-0-3	....	....
I.E.	407	Factory Planning	....	....	2-3-3
I.E.	410	Industrial Surveys & Reports	1-3-2	....	....
I.E.	411-2	Seminar	1-0-1	....	1-0-1
I.E.	420	Cost & Production Estimating	....	3-0-3	....
I.E.	422	Job Evaluation & Wage Incentives	....	3-0-3	....
I.E.	424	Materials Handling	....	2-3-3	....
I.E.	425	Engineering Economy	3-0-3	....	....
I.E.	490	Legal & Ethical Phases of Engineering	....	....	3-0-3
Electives	*	.....	3-0-3	3-0-3	3-0-3
Total			15-9-18	17-3-18	14-6-16

*If Advanced Military or Advanced Navy is the elective, the class, lab and credit hours are 3-2-3.

COURSES OF INSTRUCTION

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

Prerequisite: None.

Mr. Groseclose and Staff

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

Text: Bethel, Atwater, Stackman, and Smith, *Industrial Organization and Management*.

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

Prerequisites: I.E. 301 or I.E. 304. Mr. Foos and Staff

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

Text: Alford, *Production Handbook*.

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. 407. Factory Planning 2-3-3. Senior Year, Third Quarter.

Prerequisite: Senior standing. Mr. Shafer and Staff

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

Text: Alford, *Production Handbook* and *Lecture Notes*.

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

Prerequisite: Eng. 321. Mr. Scarr and Staff

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. 411-2. Seminar 1-0-1. Senior Year. First and Second Quarters.

Prerequisites: Senior standing. Staff

To provide an hour for the Industrial Engineering students and faculty to join in discussions on current problems, professional responsibilities and opportunities.

Text: *None*.

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

Prerequisites: Junior Standing; Non-Industrial Engineering Students.

Mr. Dwyer

Principal aims and applications of time and motion study, job analysis, standardization, 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.

Prerequisite: I.E. 306. Mr. Dwyer

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

Text: Barnes, *Motion and Time Study*.

I.E. 420. Cost and Production Estimating 3-0-3. Senior Year, Any Quarter.

Prerequisite: I.E. 416 or I.E. 417.

Mr. Shafer

A course in the development of estimating technique for tool and equipment costs, production rates, costs, cost ratios, establishment of basic time charts, etc.

Text: Henrici, *Standard Costs and Manufacturing*.

I.E. 422. Job Evaluation and Wage Incentives 3-0-3. Senior Year.

Prerequisite: I.E. 304 and I.E. 416 or I.E. 417.

Mr. Shafer and Staff

A course designed to give the student the principles used in establishing wage rates and salaries. The characteristics and objectives of different wage incentive plans and the design and analysis of incentive formulas and curves are considered.

Text: Otis Luekart, *Job Evaluation* and Louden, *Wage Incentives*.

I.E. 423. Material Handling Equipment and Methods 3-0-3. Senior Year, Any Quarter.

Prerequisite: I.E. 304.

A lecture course on modern material handling methods, systems, equipment, and control.

Text: *Lecturer's Notes*.

I.E. 424. Materials Handling Equipment and Methods 2-3-3. Senior Year.

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*.

I.E. 425. Engineering Economy 3-0-3. Senior Year, First Quarter.

Prerequisite: Senior Standing.

Mr. Groseclose and Mr. Wilcox

Mathematics of investment; methods of financing; output and life of equipment; depreciation methods; elements of manufacturing costs; machine rates; economic selection of equipment determination of the economic manufacturing lot.

Text: Grant, *Principles of Engineering Economy*.

I.E. 490. Legal and Ethical Phases of Engineering 3-0-3. Senior Year, Any Quarter.

Prerequisite: Senior Standing.

Mr. Wilcox

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: Canfield and Bowman, *Business, Legal and Ethical Phases of Engineering*.

SCHOOL OF INDUSTRIAL MANAGEMENT

GENERAL INFORMATION

Industrial Management involves a knowledge of the policies and problems of business and industry. In order to acquaint the student with this subject, the courses in the school are logically divided into three main categories: Accounting and Financial Management, Production Management, and Marketing Management.

Accounting and Financial Management requires a knowledge of keeping accounts, preparing statements and analyzing costs. It includes the problem of estimating capital requirements, means by which it can best be raised, and the supervision of such funds. The courses in accounting, financing and income tax furnish the basis for this study.

Production Management requires a knowledge of economic principles, costs of various kinds, labor policies, wage systems, personnel problems, manufacturing methods, plant layout, and flow of materials; in other words, the most efficient methods of converting raw materials into a finished product with the use of labor.

Marketing Management involves a knowledge of how and where to distribute the finished product or service. It requires training of sales personnel and the creation of sales literature, analysis of the market with a view to determining the greatest potential sources of demand and the proper channels for distribution.

The course leads to the degree, Bachelor of Science (Industrial Management), and provides training for students who aspire to managerial positions in sales, marketing, accounting, personnel, and production.

There are three options offered in this course:

1. Option 1 with Biology and Geology as the basic science.
2. Option 2 with physical and chemical science and technology as the basic science.
3. Option 3, the Hotel Management option.

FRESHMAN YEAR

See Page 60

SOPHOMORE YEAR

OPTION 1

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
*P.H.	201-2	General Zoology	3-4-4	3-4-4	.....
Math.	210	Business Math. ....	.....	.....	3-0-3
Ec.	201-2-3	Economic Principles and Problems	3-0-3	3-0-3	3-0-3
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
I.M.	235-6-7	Accounting, Intro. and Problems.....	3-1-3	3-1-3	3-1-3
Physics	211	Elem. Mechanics and Heat	4-0-4	.....	.....
Physics	212-213	Elementary Sound, Light and Electricity...	.....	4-0-4	4-0-4
P.T.	201-2-3	Physical Training	0-4-1	0-4-1	0-4-1
R.O.T.C.	201-2-3	Military or Naval Training	3-1-2	3-1-2	3-1-2
Total			18-13-20	18-13-20	18-9-19

JUNIOR YEAR

OPTION 1

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
I.M.	313-14-15	Corporation Finance	3-0-3	3-0-3	3-0-3
Ec.	325-26-27	Business Law	3-0-3	3-0-3	3-0-3
*P.H.	307	Bacteriology	3-4-4	....	....
Eng.	315	Public Speaking .....	....	....	3-0-3
*P.H.	316	Plant Hygiene .....	....	3-0-3	....
M.E.	203	Pattern Lab. ....	....	0-3-1	....
M.E.	204	Foundry Lab. ....	....	....	0-3-1
I.M.	310-11	Marketing Management	3-0-3	3-0-3	....
I.M.	312	Sales Management .....	....	....	3-0-3
I.M.	341-42	Industrial Cost Accounting	3-0-3	3-0-3	....
I.M.	343	Taxation .....	....	....	3-0-3
Electives	**	.....	3-0-3	3-0-3	3-0-3
Total			18-4-19	18-3-19	18-3-19

*Geology 311, Geology 302, Ceramic Eng. 308, Chemical Engineering 325, and Chemical Engineering 328 may be substituted for the Public Health requirements in Option 1.

**I.M. Graduates who take the following courses will be prepared for positions as Sanitarians with the health services: P.H. 201, 202, P.H. 307, 316, P.H. 411.

***I.M. graduates who take the following courses will be prepared for positions as hospital managers: P.H. 201, 202, 307, 316, 411, and I.M. 460, 461, 462.

SENIOR YEAR

OPTION 1

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
I.M.	455-56	Marketing Management	3-0-3	3-0-3	....
I.M.	443	Investments	3-0-3	....	....
I.M.	447-48	Statistics .....	....	3-0-3	3-0-3
I.M.	411-12-13	Industrial Management Problems.....	3-0-3	3-0-3	3-0-3
I.M.	407-8	Personnel Management	3-0-3	3-0-3	....
Eng.	325	Business English .....	....	....	3-0-3
Psy.	302	Applied Psychology	3-0-3	....	....
Psy.	401	Industrial Psychology .....	....	....	3-0-3
M.E.	329	Mechanical Equipment of Buildings.....	....	2-0-2	....
M.E.	330	Air Conditioning and Refrig. ....	....	....	2-0-2
I.M.	453	Labor Problems	3-0-3	....	....
I.M.	454	Labor Legislation .....	....	3-0-3	....
Electives	**	.....	3-0-3	3-0-3	4-0-4
Total			21-0-21	20-0-20	18-0-18

**If Advanced Military or Advanced Navy is the elective, the class, lab, and credit hours are 3-2-3.

SOPHOMORE YEAR

OPTION 2

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
Ec.	201-2-3	Economic Principles and Problems.....	3-0-3	3-0-3	3-0-3
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
Physics	207-8-9	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	3-1-2	3-1-2	3-1-2
Total			19-8-20	19-8-20	19-8-20

JUNIOR YEAR

OPTION 2

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
L.M.	235-6-7	Accounting	3-1-3	3-1-3	3-1-3
Ec.	325-6-7	Business Law	3-0-3	3-0-3	3-0-3
I.M.	313-14-15	Corporation Finance	3-0-3	3-0-3	3-0-3
Eng.	315	Public Speaking	3-0-3	.....	.....
I.M.	447	Statistics .....	.....	3-0-3	.....
Eng.	325	Business English .....	.....	.....	3-0-3
*Technical Electives		.....	5-0-5	5-0-5	5-0-5
**Electives		.....	3-0-3	3-0-3	3-0-3
Total			20-1-20	20-1-20	20-1-20

SENIOR YEAR

OPTION 2

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
I.M.	310-11	Marketing Management	3-0-3	3-0-3	.....
I.M.	312	Sales Management .....	.....	.....	3-0-3
I.M.	443	Investments	3-0-3	.....	.....
I.M.	341-2	Industrial Cost Accounting .....	.....	3-0-3	3-0-3
I.M.	343	Taxation .....	.....	.....	3-0-3
I.E.	416	Motion and Time Study .....	.....	2-3-3	.....
I.M.	411-12-13	Industrial Management Prob.	3-0-3	3-0-3	3-0-3
I.M.	407-8	Personnel Management	3-0-3	3-0-3	.....
*Technical Electives		.....	5-0-5	2-0-2	5-0-5
**Electives		.....	3-0-3	3-0-3	3-0-3
Total			20-0-20	19-3-20	20-0-20

*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 laboratory hours.

**If Advanced Military or Advanced Navy is the elective, the class, lab, and credit hours are 3-2-3.

SOPHOMORE YEAR

OPTION 3—HOTEL MANAGEMENT

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Ec.	201-2-3	Economic Principles	3-0-3	3-0-3	3-0-3
I.M.	235-6-7	Introductory Accounting	3-1-3	3-1-3	3-1-3
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
I.M.	231-2-3	Hotel Management: Food and Nutrition...	3-0-3	3-0-3	3-0-3
Phys.	211-12-13	Physics	4-0-4	4-0-4	4-0-4
P.T.	201-2-3	Physical Training	0-4-1	0-4-1	0-4-1
ROTC	201-2-3	Military or Naval Training	3-1-2	3-1-2	3-1-2
Total			18-9-19	18-9-19	18-9-19

JUNIOR YEAR

OPTION 3 — HOTEL MANAGEMENT

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
P.H.	307	Bacteriology		3-4-4	....
I.M.	313-14	Corporation Finance	3-0-3	3-0-3	....
I.M.	341	Cost Accounting		3-0-3	....
I.M.	343	Taxation			3-0-3
Eng.	315	Public Speaking			3-0-3
I.M.	310-11	Marketing	3-0-3	3-0-3	....
I.M.	312	Sales Management			3-0-3
I.M.	331	Hotel Management. Foods— Quantity Preparation	2-3-3		....
Ec.	325-6-7	Business Law	3-0-3	3-0-3	3-0-3
I.M.	333	Hotel Management. Meat and Meat Prod.			2-3-3
Math.	210	Business Mathematics	3-0-3		....
Psy.	302	Applied Psychology			3-0-3
Electives	*	.....	3-0-3	3-0-3	3-0-3
Total			17-3-18	18-4-19	20-3-21

*If Advanced Military or Advanced Navy is the elective, the class, lab. and credit hours are 3-2-3.

SENIOR YEAR

OPTION 3 — HOTEL MANAGEMENT

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
I.M.	411-12	Industrial Management Prob.	3-0-3	3-0-3	....
I.M.	443	Investments		3-0-3	....
I.M.	447	Statistics	3-0-3		....
Eng.	325	Business English			3-0-3
I.M.	439	Accounting Problems	3-3-4		....
I.M.	434	Hotel Accounting			3-0-3
I.M.	431	Grading and Handling Vegetable Crops ..	2-3-3		....
I.M.	435	Hotel Management: Special Problems ..		3-0-3	....
I.M.	407	Personnel Management			3-0-3
I.M.	436	Hotel Office Management and Practice ..	3-0-3		....
M.E.	204	Foundry Lab.	0-3-1		....
M.E.	203	Pattern Lab.		0-3-1	....
S.E.	401	Industrial Accident Control			3-0-3
M.E.	329	Mechanical Equipment of Bldgs.		2-0-2	....
M.E.	330	Air Conditioning and Refrigeration			2-0-2
I.M.	408-9	Marketing Management		3-0-3	3-0-3
Electives	*	.....	3-0-3	3-0-3	3-0-3
Total			17-9-20	17-3-18	20-0-20

*If Advanced Military or Advanced Navy is the elective, the class, lab. and credit hours are 3-2-3.

COURSES OF INSTRUCTION

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

Ec. 201, 202, 203. Economic Principles and Problems 3-0-3. First, Second and Third Quarters.

Prerequisite: Eng. 102.

Mr. Dennison, Mr. Arant, Mr. Hibbs,
Mr. Marshall, Mr. Gilman

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: Froman, *Principles of Economics*.

I.M. 231,2,3. Hotel Management: Foods and Nutrition 3-0-3. Sophomore Year. First, Second and Third Quarters.

Prerequisites: Chem. 103. I.M. 231 prerequisite to I.M. 232. Mr. Aldredge

The first part of this course consists of selected portions of general organic and physiological chemistry which are essential to the understanding of the chemical and physical nature of foods and nutrition. The second part of this course consists mainly of the study of the composition of individual foods, energy and growth requirements, food deficiency diseases, and the construction of menus.

Text: Francis & Morse, *Fundamentals of Chemistry and Applications*.

I.M. 235, 236, 237. Introductory Accounting 3-1-3. First, Second and Third Quarters.

Prerequisite: Sophomore Standing. Mr. Chisholm, Mr. Hardwick, Mr. Henderson, Mr. James, 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 proprietorship, a copartnership, and a corporation are covered in detail in class and laboratory. This course is the same as Ec. 231, 2, 3 — 1947 catalog.

Text: Finney, *Introductory Accounting*.

I.M. 307. Organization for Distribution 3-0-3.

Prerequisite: Junior Standing. Mr. Dennison, Mr. Hardwick, Mr. Carberry

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

Text: Russell and Beach, *Salesmanship*.

I.M. 310, 311. Marketing Management 3-0-3. First and Second Quarters.

Prerequisite: Ec. 202 or equivalent. Mr. Brewster, Mr. Arant

This course covers material that is descriptive of the marketing machinery used in distribution of manufactured products and deals specifically with the location and the assembling of raw materials for processing and the distribution of the finished product. This course is the same as Ec. 407 — 1947 catalog.

Text: Converse, *Elements of Marketing*.

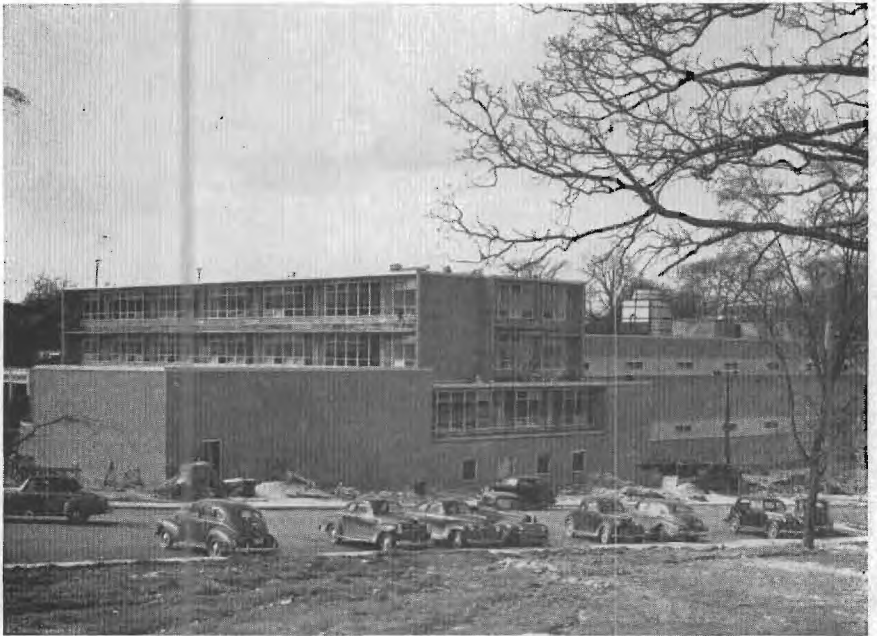
I.M. 312. Distribution Management 3-0-3.

Prerequisite: Junior Standing. Mr. Brewster, 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. This course is the same as I.M. 308 — 1947 catalog.



(PHOTO BY EVANS & EVANS)
SCHOOL OF INDUSTRIAL ENGINEERING—*Latest advances in industry are taught by the conference table method.*



A. FRENCH TEXTILE SCHOOL—*The new W. Harrison Hightower Textile Building is scheduled for opening in the Fall of 1949 to provide the most advanced classrooms and laboratories for textile engineering students.*



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(SPARKS)

I.M. 313, 314, 315. Corporation Finance 3-0-3. Junior Year. First, Second and Third Quarters.

Prerequisites: Ec. 203, I.M. 237.

Mr. Wenn, Mr. Sharp

A brief study of the suitability of the sole proprietorship, partnership, and corporation as business organization, followed by an intensive study of the corporation. This study involves promotional investigation and organization, raising capital through sale of stock and bonds, working capital, surplus and dividend policies, combinations, receiverships and reorganizations. This course is the same as Ec. 313, 314, 315—1947 catalog.

Text: Hoagland, Henry E. *Corporation Finance*.

I.M. 316. Finance Survey for Engineers 3-0-3.

Prerequisites: Junior Standing.

Mr. Wenn

Designed to acquaint the student with the more popular types of business organizations, with special emphasis on the corporation, its organization, management and types of securities issued. This course is the same as Ec. 316—1947 catalog.

Text: Bonneville & Dewey, *Organizing and Financing Business*.

I.M. 317. Industrial Marketing 3-0-3. First, Second and Third Quarters.

Prerequisite: Junior Standing.

Mr. Brewster, Mr. Arant

This course describes the methods used in distributing industrial goods. It is an elective for junior and senior engineering students. This course is the same as Ec. 308—1947 catalog.

Text: Elder, *Principles of Industrial Marketing*.

Ec. 325, 326, 327. Business Law 3-0-3. First, Second and Third Quarters.

Prerequisite: Junior Standing. Mr. Dennison, Mr. Aldredge, Mr. Proctor

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.

Text: Dillavou and Howard, *Principles of Business Law*.

Ec. 329. Survey in Business Law 3-0-3. Junior or Senior Year, First, Second, and Third Quarters.

Prerequisites: Junior or Senior Engineering Standing.

Mr. Dennison, Mr. Proctor

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: Dillavou and Simpson, *Law for Engineers and Architects*.

I.M. 331. Hotel Management: Foods—Quantity Preparation 2-3-3. Junior Year, Third Quarter.

Prerequisite: Junior Standing.

Mr. Sifford

This is a course in wholesale and retail buying, cutting, curing and preparation of meats.

Text: Fowler & West, *Food For Fifty*.

I.M. 333. Hotel Management; Meat and Meat Products 2-3-3. Junior Year, Third Quarter.

Prerequisite: Junior Standing.

Mr. Sifford

This is a course in wholesale and retail buying, cutting, curing and preparation of meats.

I.M. 335. Cost Accounting 4-3-5. Junior Year, Second Quarter.

Prerequisite: Junior Standing.

Mr. Warren

A brief course in cost calculations for machine tool engineers. This course is the same as Ec. 335—1947 catalog.

I.M. 336. Accounting Survey 3-0-3. Junior or Senior Year Elective; First, Second, and Third Quarters.

Prerequisite: Junior or Senior Engineering Standing.

Mr. Warren, Mr. James

This is a brief survey of the analysis and the recording of business transactions, the preparation of financial statements and their interpretations. This course is the same as Ec. 336, 1947 catalog.

Text: Porter and Fisk, *Accounting*.

I.M. 341, 342. Industrial Cost Accounting 3-0-3. Junior Year, First and Second Quarters.

Prerequisite: I.M. 237.

Mr. Chisholm, Mr. Warren

This course deals with the application of cost analysis to manufacturing and distributing problems. 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 exercising control. This course is the same as Ec. 341, 342, 1947 catalog.

Text: Neuner, *Cost Accounting*.

I.M. 343. Taxation 3-0-3. Junior Year, Third Quarter.

Prerequisite: I.M. 237.

Mr. Warren

This course covers federal and state tax accounting. This course is the same as Ec. 343, 1947 catalog.

Text: Prentice-Hall, *Federal Tax Course*.

I.M. 406. World Industries and Resources 3-0-3.

Prerequisite: Junior Standing.

Mr. Aldredge

This course represents the history, location, present standing and process technology of different types of American industry. It deals with economic trends in industry and the vocational opportunities which many of them offer to the student. Special emphasis will be placed upon new industries.

Text: Glover and Cornell, *The Development of American Industry*.

I.M. 407. Personnel Management Principles 3-0-3. First Quarter.

Prerequisites: Senior Standing.

Mr. Marshall, Mr. Sharp

This is an introductory course dealing with the scope and development of personnel management, the instruments of personnel control, and principles of sound employee relations.

Text: Jucius, *Personnel Management*.

I.M. 408. Personnel Management Problems 3-0-3. Second Quarter.

Prerequisites: I.M. 407.

Mr. Marshall, Mr. Sharp

This course will concentrate on typical problems encountered by the personnel department, such as selection, training, and placement of workers, merit-rating and promotion, and development of good personnel techniques. Plant inspections, interviews, and contacts in the plant will be made. The course will be supplemented by the use of industrial films.

Text: Pigors & Myers, *Personnel Administration*.**I.M. 411, 412, 413. Industrial Management Principles and Problems. 3-0-3. Senior Year, First, Second, and Third Quarters.**

Prerequisite: Senior Standing.

Mr. Breese, Mr. Brown

This is a three-quarter continuous course. The first part will deal with the introduction to industrial management. The second part will deal with problems in industrial management. It will cover such subjects as plant organization and managing an industrial enterprise. The student will be required to make plant inspections singly and in groups to observe first-hand industrial organizations at work. Industrial films will be used to supplement the work.

Text: Knowles and Thompson, *Industrial Management*, and Folts, *Introduction to Industrial Management*.**I.M. 414. Public Finance 3-0-3. Junior or Senior Year. Second and Third Quarters.**

Prerequisite: Junior Standing.

This course covers such subjects as public revenue, public expenditures, borrowing, the different forms of taxation, Federal and state. This course is the same as Ec. 414, 1947 catalog.

Text: Shultz, *Public Finance*.**I.M. 431. Hotel Management: Grading and Handling Vegetable Crops. 2-3-3. Senior Year, First Quarter.**

Prerequisite: Senior Standing.

Mr. Sifford

This course takes up such problems as geography of vegetable production and distribution, harvesting, grades and grading, packing, shipping point and terminal market inspection, transportation, refrigeration, and storage and preparation.

I.M. 434. Hotel Management: Hotel Accounting 3-0-3. Senior Year, First Quarter.

Prerequisites: I.M. 237.

Mr. James, Mr. Warren

This is a study of accounting as applied to hotel operations.

Text: American Hotel Ass'n., *Uniform Systems of Accounting for Hotels*.**I.M. 435. Hotel Management: Special Problems 3-0-3. Senior Year, Second Quarter.**

Prerequisite: Senior Standing.

Mr. Sifford

This course takes up such questions as hotel stewarding, catering, menu planning, and managing the personnel of a hotel.

Text: Dahl, *Restaurant Management*.

I.M. 436. Hotel Office Management and Practice 3-0-3. Senior Year.

Prerequisite: Senior Standing.

Mr. Sifford

A study of hotels is made by text and by actual visits. The purpose of the course is to give the student fundamental knowledge of office management as applied to hotels.

Text: Dahl, *Front Office Psychology*.**I.M. 437. Hotel Management: Service and Planning 3-0-3. Junior or Senior Year. First, Second, and Third Quarters.**

Prerequisite: Senior Standing.

Mr. Sifford

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: Boomer, *Hotel Management Principles and Practices*.**I.M. 438. Hotel Structures and Maintenance 3-0-3. Senior Elective. First, Second, and Third Quarters.**

Prerequisite: Senior Standing.

Mr. Sifford

A study is made of types of hotel structures, materials of construction, and accepted methods used to maintain the structures.

I.M. 439, 440. Principles and Problems of Accounting 3-3-4. Senior Year, First and Second Quarters.

Prerequisite: Elective senior advanced accounting students.

Mr. Chisholm, Mr. James, Mr. Warren

This course is a continuation of I.M. 237 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. This course is the same as Ec. 434, 435, 1947 catalog.

Text: Finney, *Principles of Accounting*.**I.M. 443. Principles of Investment 3-0-3. Senior Year.**

Prerequisites: I.M. 313, 314.

Mr. Wenn

A study of the sources of financial information and its interpretation, the operation of stock exchanges, over-the-counter markets, and methods of underwriting. A study is also made of the various types of securities available for investment and tests to determine their investment quality. This course is the same as Ec. 443, 1947 catalog.

Text: Jordan, *Investments*.**I.M. 444. Investment Analysis 3-0-3. Senior Year.**

Prerequisites: I.M. 443.

Mr. Wenn

This is a detailed study of various industries with a view to determining the probability of their future growth. Companies in each industry are studied; their management, financial condition and earning powers together with a current analysis of their stocks and bonds. This course is the same as Ec. 444, 1947 catalog.

Text: Jordan, *Investments*.

I.M. 447, 448. Statistics 3-0-3. Second and Third Quarters.

Prerequisite: Senior Standing. I.M. 447 (or equivalent) is a prerequisite to I.M. 448. Dr. Dennison, Mr. Gilman

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. This course is the same as Ec. 447, 448, 1947 catalog.

Text: Croxton and Crowden, *The Statistical Method*.

I.M. 449, 450. Insurance 3-0-3. Junior or Senior Year, First and Second Quarters.

Prerequisites: Junior or Senior Elective. 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. This course is the same as Ec. 449, 450, 1947 catalog.

Text: Riegel and Lowman, *Principles of Insurance*.

I.M. 453. Labor Problems 3-0-3. Junior or Senior Elective. First, Second, and Third Quarters.

Prerequisite: Junior or Senior Standing. Mr. Marshall

The purpose of the course is to acquaint the student with the history, background, and present status of labor organizations and the methods used by labor organizations to achieve their objective together with a study of possible solutions for the labor-management problems. This course is the same as Ec. 453, 1947 catalog.

Text: Dougherty, *Labor Problems in American Industry*.

I.M. 454. Labor Legislation and Its Application 3-0-3. Junior or Senior Year, First, Second, and Third Quarters.

Prerequisite: Junior or Senior Standing. Mr. Marshall

This course will cover the background of labor legislation and the constitutional background for such legislation: Organization of the United States Department of Labor with particular reference to conciliation service; Bureau of Labor Statistics; United States Employment Service; Fair Labor Standards Act; State Labor Laws; war-time measures; War Manpower Commission; War Labor Board; Wage Stabilization Board, and present trends in labor legislation. This course is the same as Ec. 454, 1947 catalog.

Text: Prentice-Hall, *Labor Course*.

I.M. 455, 456. Marketing Management Problems 3-0-3. Senior Year, First and Second Quarters.

Prerequisite: I.M. 311. I.M. 455 prerequisite to I.M. 456.

Mr. Brewster, Mr. Arant

This is a problem course in the field of marketing manufactured goods. It is the same course as Ec. 408, 409, 1947 catalog.

Text: McNair, *Problems in Merchandise Distribution*.

I.M. 460, 461, 462. Hospital Management 3-0-3.

Prerequisite: Senior standing, I.M.; P.H. 201, 202, 307. Mr. Speer

This is an applied course in hospital management. During the first quarter such subjects as present need for hospitals; promoting and building a new hospital;

organizing and equipping and staffing a hospital are stressed, and in addition a survey is made of the admitting clinical, and medical departments.

During the second quarter other departments such as diagnostic, therapeutic, nursing, dietary, out patient, social service, and records department will be covered.

During the third quarter a study will be made of such problems as hospital library, business department, service department, management of personnel, ethics, education of the public, hospitalization of special cases, and the overall control of the hospital as a unit.

Text: Malcolm T. MacEachern, *Hospital Organization and Management*.

DEPARTMENT OF MATHEMATICS

COURSES OF INSTRUCTION

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

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: Brink, *Intermediate 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: Fulmer and Reynolds, *Brief 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.

Text: Granville, Smith, Longley, *Elements of the Differential and Integral Calculus*.

Math. 202. 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.

Text: Granville, Smith, Longley, *Elements of the Differential and Integral Calculus*.

Math. 203. 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.

Text: Granville, Smith, Longley, *Elements of the Differential and Integral Calculus*.

Math. 210. Mathematics of Finance 3-0-3. Junior Year.

Prerequisite: Freshman Mathematics.

Staff

Short methods of computation; interest and discount; annuities; amortization; depreciation; valuation and yield of bonds.

Text: Simpson, Pirenian and Crenshaw, *Mathematics of Finance, Part II*.

Math. 301. 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: *Differential Equations*.

Math. 311. Engineering Mathematics 3-0-3.

Prerequisite: Math. 203.

Mr. Bailey

Curve fitting; interpolation formulas; operations with complex numbers; elementary properties of functions of a complex variable; theory of equations, with emphasis on approximate solutions by Newton's and Graeffe's methods.

Text: Sohon, *Engineering Mathematics*.

***Math. 312. Engineering Mathematics 3-0-3.**

Prerequisite: Math. 203.

Mr. Bailey

Determinants; nomograms; ordinary differential equations of first order; special equations of higher order; applications.

Texts: Sohon, *Engineering Mathematics* Morris and Brown, *Differential Equations*.

***Math. 313. Engineering Mathematics 3-0-3.**

Prerequisite: Math. 312, or consent of instructor.

Mr. Bailey

Ordinary linear differential equations; solutions of differential equations by approximate methods; solutions in series; the differential equations of Legendre, Bessel and the hypergeometric series; applications.

Text: Morris and Brown, *Differential Equations*.

Math. 411. Advanced Engineering Mathematics 3-0-3.

Mr. Smith

Prerequisite: Math. 313; or Math. 301 and consent of the instructor.

Hyperbolic functions, elliptic integrals, infinite series.

Text: Reddick and Miller, *Advanced Mathematics for Engineers*.

Math. 412. Advanced Engineering Mathematics 3-0-3.

Mr. Smith

Prerequisite: Math. 313; or Math. 301 and consent of the instructor.

Fourier series, Bessel functions, and partial differential equations.

Text: Reddick and Miller, *Advanced Mathematics for Engineers*.

*Because of overlapping material a student who receives credit in Math. 301 will not receive credit in Math. 312, Math. 313.

Math. 413. Advanced Engineering Mathematics 3-0-3. Mr. Smith

Prerequisite: Math. 313; or Math. 301 and consent of the instructor.

Functions of a complex variable, vector analysis.

Text: Reddick and Miller, *Advanced Mathematics for Engineers*.

Math. 601, 602, 603. Advanced Calculus 3-0-3. First, Second and Third Quarters.

Prerequisite: Consent of the instructor and either 301 or Math. 313.

Mr. Perlin

A three quarter presentation of selected topics in the advanced calculus including partial derivations, implicit functions, improper integrals, line, surface, and space integrals, Gamma and Beta functions, integration of differential equations by series, Bessel functions, Fourier series, vector analysis, complex variables, elliptic integrals, and partial differential equations of Mathematical physics.

Text: Franklin, *Methods of Advanced Calculus*.

Math. 701, 702, 703. Applied Mathematics 3-0-3. First, Second and Third Quarters.

Prerequisite: Math. 603 or consent of instructor.

Mr. Perlin

A three quarter presentation of selected topics in applied mathematics including Lagrange's equations of motion, dynamical and electrical systems with n degrees of freedom, systems with infinitely many degrees of freedom, introduction to the Calculus of variations, the Laplace Transform, difference equations, and conformal mapping.

Text: L. A. Pipes: *Applied Mathematics for Engineers and Physicists*.

SCHOOL OF MECHANICAL ENGINEERING

Mechanical Engineering embraces the science and art of the generation, transmission, and utilization of heat and mechanical energy and the production of tools and machines and their products. Research, design, production, operation, administration, and economics are functional aspects of this branch of professional engineering.

The course of study is not designed to cover the entire field of technical thought and achievement in Mechanical Engineering but to impress basic principles upon the student and to assist him to assimilate new ideas and to draw correct conclusions from given facts.

Emphasis, in the freshman and sophomore years, is placed on mathematics, chemistry, and physics and, in the junior and senior years, on the strength and the metallurgy of materials, applied mechanics, thermodynamics, and fluid mechanics and the application of those fundamental subjects to the diverse problems of mechanical engineering.

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

FRESHMAN YEAR

See Page 60

SOPHOMORE YEAR

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

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
C.E.	204	Surveying .....	.....	1-3-2	.....
Draw.	201-2-3	Applied Descriptive Geometry	0-3-1	0-3-1	0-3-1
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
*M.E.	201	Machine Laboratory .....	.....	.....	0-3-1
*M.E.	203	Pattern Laboratory	0-3-1	.....	.....
*M.E.	204	Foundry .....	.....	0-3-1	.....
*M.E.	205	Welding .....	.....	.....	0-3-1
Phys.	207-8-9	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	3-1-2	3-1-2	3-1-2
Total			16-14-19	17-17-21	16-17-20

*In any sequence, any quarter.

JUNIOR YEAR

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Ch.E.	325	Metallurgy	3-0-3	....	....
Eng.	315	Public Speaking .....	....	....	3-0-3
Eng.	321	Technical English or			
S.S.	307	American Economic History.....	....	3-0-3	....
Math.	301	Differential Equations	4-0-4	....	....
M.E.	202	Machine Laboratory	0-3-1	....	....
M.E.	301	Advanced Machine Lab. ....	....	0-3-1	....
M.E.	307	Heat Treating .....	....	2-3-3	....
M.E.	322-3-4	Thermodynamics	3-0-3	3-0-3	3-0-3
M.E.	350	Instruments Laboratory	0-3-1	....	....
M.E.	351	Fuels Laboratory .....	....	0-3-1	....
M.E.	352	Power Plant Auxiliaries Laboratory.....	....	....	0-3-1
M.E.	333	Steam Power Plant Engineering.....	....	....	4-0-4
Mech.	301-2-3	Applied Mechanics	2-0-2	2-0-2	3-0-3
Mech.	331-2-3	Mechanics of Materials	3-0-3	2-0-2	3-0-3
Psy.	301	Introductory Psychology.....	....	3-0-3	....
Electives,	Group B	.....	3-0-3	3-0-3	3-0-3
Total			18-6-20	18-9-21	19-3-20

SENIOR YEAR

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
E.E.	320-1	Applied Electricity .....	....	3-3-4	4-3-5
M.E.	434	Fluid Mechanics	5-0-5	....	....
*M.E.	435	Heat Transfer	3-0-3	....	....
M.E.	491-2-3	Seminar	1-0-1	1-0-1	1-0-1
M.E.	467-8-9	Machine Design	3-3-4	4-3-5	4-3-5
M.E.	450-1-2	Heat Power Laboratory	0-3-1	0-3-1	0-3-1
*Mech.	423	Vibrations .....	....	4-0-4	....
Psy.	401	Ind. Psychology or			
		Military or Naval Training.....	3-0-3**	....	....
S.S.	411-12	Technology & Society or			
		Military or Naval Training.....	....	3-0-3**	3-0-3**
Electives,	Group A	.....	3-0-3	3-0-3	3-0-3
Total			18-6-20	18-9-21	19-9-18

*M.E. 435 and Mech. 423 interchangeable in 1st and 2nd quarters.

**If Advanced Military is elected 4-1-3. If Advanced Navy is elected 3-2-3.

GROUP A TECHNICAL ELECTIVES

<i>Course</i>	<i>No.</i>	<i>Subject</i>	
M.E.	430	Heating, Ventilating and Air Conditioning.....	3-0-3
M.E.	431	Refrigeration	3-0-3
M.E.	432	Steam Turbines	3-0-3
M.E.	433	Power Plant Design	3-0-3
M.E.	436	Internal Combustion Engines	4-0-4
M.E.	437	Diesel Engines	2-3-3
M.E.	494-5-6	Special Problems in M.E.	0-9-3
C.E.	427	Contracts and Specifications.....	3-0-3
Phys.	312	Atomic Physics	5-0-5
Phys.	314	Instruments for Measurement and Control.....	1-3-2
S.E.	401	Industrial Accident Control	3-0-3
Cer.E.	417	Fuels, Furnaces and Refractories.....	3-3-4
I.E.	490	Legal and Ethical Phases of Engineering.....	3-0-3
I.E.	416	Motion & Time Study	2-3-3
I.E.	420	Cost & Production Estimating	3-0-3
M.E.	401	Inspection and Gaging	2-3-3
M.E.	402	Jigs and Fixtures	2-3-3

Other technical electives by departmental approval.

GROUP B SUGGESTED ELECTIVES

<i>Course</i>	<i>No.</i>	<i>Subject</i>	
C.E.	307	Engineering Materials	3-0-3
Cer.E.	307	Ceramic Technology	2-3-3
Cer.E.	308	Ceramic Survey	2-0-2
Ch.E.	327	General Metallurgy	3-0-3
Ch.E.	328	Chemistry of Engineering Materials	3-0-3
Eng.	301	Modern Drama	3-0-3
Eng.	302	Shakespeare	3-0-3
Eng.	305	The English Language	2-0-2
Geol.	301	Engineering Geology	3-3-4
Geol.	305	Historical Geology	3-0-3
Geol.	311	Economic Geography	3-0-3
I.E.	304	Organization for Production	3-0-3
I.M.	316	Finance for Engineers	3-0-3
I.M.	317	Industrial Marketing	3-0-3
I.M.	329	Survey in Business Law	3-0-3
I.M.	453	Labor Problems	3-0-3
Military		Advanced Military	4-1-3
Navy		Advanced Navy	3-2-3

COURSES OF INSTRUCTION

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

M.E. 201. Machine Laboratory 0-3-1. Sophomore Year, All Quarters.

Prerequisite: Math. 103.

Mr. Weeden and Staff

A combined lecture, demonstration, and laboratory course covering the fundamentals of machine tool work. The practical work consists of projects selected for their training value.

Text: Boston, *Metal Processing*.

M.E. 202. Machine Laboratory 0-3-1. Sophomore or Junior Years.

Prerequisite: M.E. 201.

Mr. Weeden and Staff

A continuation of M.E. 201.

Text: Boston, *Metal Processing*.**M.E. 203. Pattern Laboratory 0-3-1.** Sophomore Year, All Quarters.

Prerequisite: Math. 103.

Mr. Foster and Staff

Principles and practical instruction in pattern making. Practical instruction in wood-work and the use of woodworking hand and machine tools.

Text: Hall and Kiley, *Pattern Design*.**M.E. 204. Foundry Laboratory 0-3-1.** Sophomore Year, All Quarters.

Prerequisite: Math. 103.

Mr. Coe and Staff

Principles and practical instruction in foundry practices and production methods. Study of the physical structure, chemical composition, properties, and uses of ferrous and non-ferrous castings.

Text: Campbell, *Metal Castings*.**M.E. 205. Welding Laboratory 0-3-1.** Sophomore Year, All Quarters.

Prerequisite: Math. 103.

Mr. Harrelson and Mr. Morris

A brief survey of the metallurgical theory, classification of metals and practical application to the pressure and non-pressure welding of ferrous and non-ferrous metals.

Text: Lincoln Electric Co., *Procedure Handbook of Arc Welding Design and Practice*.**M.E. 267. Kinematics of Mechanisms 3-0-3.**

Prerequisites: Draw. 103, Phys. 203.

Staff

This course covers a study of mechanisms. Cams, gears, belts, velocities, accelerations, and relative motion are included.

Text: Keown and Faires, *Mechanism*.**M.E. 301. Advanced Machine Laboratory 0-3-1.** Junior Year, First Quarter.

Prerequisite: M.E. 202.

Mr. Weeden and Staff

A study of the theory and practice in automatic tool methods, the use of abrasives, and calculations necessary for the production of gears and cams.

Text: Boston, *Metal Processing*.**M.E. 307. Heat Treating 2-3-3.** Junior Year, Second Quarter.

Prerequisite: Ch.E. 325.

Mr. Harrelson and Mr. Morris

A condensed course covering metallurgical theory, metallography, and heat treating, with practical applications to ferrous and non-ferrous metals.

Text: Campbell, *The Working, Heat Treating and Welding of Steel*.**M.E. 320. Thermodynamics 4-0-4.**

Prerequisites: Phys. 209 or parallel, Math. 203 or parallel.

Staff

The course covers the fundamentals of engineering thermodynamics. The properties of fluids, energy equations, and practical applications are included.

Text: Ebaugh, *Engineering Thermodynamics*, Keenan-Keyes, *Thermodynamic Properties of Steam*.

M.E. 322. Thermodynamics 3-0-3. Junior Year, First Quarter.

Prerequisites: Phys. 209 or parallel; Math. 203 or parallel. Staff

The course embraces a study of the fundamental laws of engineering thermodynamics and the properties of systems.

Text: Faires, *Applied Thermodynamics*; Keenan-Keyes, *Thermodynamic Properties of Steam*.**M.E. 323. Thermodynamics 3-0-3. Junior Year, Second Quarter.**

Prerequisite: M.E. 322. Staff

The development of fundamentals is continued and attention is given to mixtures of gases and vapors, availability of energy, and cycles.

Text: Faires, *Applied Thermodynamics*; Keenan-Keyes, *Thermodynamic Properties of Steam*.**M.E. 324. Thermodynamics 3-0-3. Junior Year, Third Quarter.**

Prerequisite: M.E. 323. Staff

This course includes combustion, internal combustion engine and gas turbine processes, and the flow of fluids.

Text: Faires, *Applied Thermodynamics*; Keenan-Keyes, *Thermodynamic Properties of Steam*.**M.E. 329. Mechanical Equipment of Buildings 2-0-2.**

Prerequisite: Phys. 209 or 203. Staff

A study of the principles of water supply, and plumbing and heating, with application of these principles to problems encountered in buildings.

Text: Gay and Fawcett, *Mechanical and Electrical Equipment of Buildings*.**M.E. 330. Air Conditioning and Refrigeration 2-0-2.**

Prerequisites: M.E. 329. Staff

A study of principles and equipment used in the heating, ventilating, and air conditioning of buildings.

Text: Gay and Fawcett, *Mechanical and Electrical Equipment of Buildings*.**M.E. 331. Design of Mechanical Equipment for Buildings 1-3-2.**

Prerequisite: M.E. 329, 330. Mr. Hinton

The principles studied in M.E. 329, 330 are applied to design of plumbing, heating and air conditioning systems for buildings.

Text: Gay and Fawcett, *Mechanical and Electrical Equipment of Buildings*.**M.E. 332. Elementary Heat Power Engineering 3-0-3.**

Prerequisite: M.E. 320 or Ch.E. 420. Staff

This course covers the study of fuels and combustion, steam boilers, furnaces, stokers, superheaters, coal and ash handling machinery, mechanical draft, steam engines, internal combustion engines, and steam turbines.

Text: Butterfield, Jennings and Luce, *Steam and Gas Engineering*.
Keenan-Keyes, *Thermodynamic Properties of Steam*.

M.E. 333. Steam Power Plant Engineering 4-0-4. Junior Year, Third Quarter.

Prerequisite: M.E. 323.

Staff

This course covers the study of fuels, combustion, steam boilers, smoke prevention, furnaces, stokers, superheaters, coal and ash handling machinery, chimneys, mechanical draft, steam engines and steam turbines, finance and economics of power plants, and the cost of power.

Text: Butterfield, Jennings and Luce, *Steam and Gas Engineering*.

M.E. 350. Instruments Laboratory 0-3-1. Junior Year, First Quarter.

Prerequisites: M.E. 320 or 322, or parallel.

Staff

Calibration of pressure and vacuum gages, thermometers, planimeters, venturi meters, orifices, and rotameters. Determination of the physical properties of lubricating oils.

Text: A. S. M. E., *Code on General Instructions—Power Test Codes*.
Keenan-Keyes, *Thermodynamic Properties of Steam*.

M.E. 351. Fuels Laboratory 0-3-1. Junior Year, Second Quarter.

Prerequisites: M.E. 320 or 322.

Staff

Analysis of solid fuels; heating value of solid, liquid, and gaseous fuels; distillation tests and vapor pressure determination for volatile fuels; calibration of weirs and steam calorimeters.

Text: None.

M.E. 352. Power Plant Auxiliaries Laboratory 0-3-1. Junior Year, Third Quarter.

Prerequisites: M.E. 323, 350.

Staff

Tests of auxiliary equipment and prime movers consisting of centrifugal pumps, direct acting steam pumps, vacuum heating pumps, and reciprocating steam engines. Exhaust gas analysis.

Text: *None*.

M.E. 353. Materials Laboratory 0-3-1.

Prerequisites: Mech. 332 or parallel.

Staff

The testing of materials in compression, bending, shear, tension, and torsion.

Text: *None*.

M.E. 354. Heat Power Laboratory 0-3-1.

Prerequisites: M.E. 332 and M.E. 320 or Ch.E. 420.

Staff

Tests selected from: Air compressor, internal combustion engines, refrigeration, coal fired boiler, gas fired boiler with turbine, steam calorimeter, fluid flow, air conditioning, steam engine, centrifugal pump, and venturi meter.

Text: *None*.

M.E. 367. Machine Design 4-3-5. Junior Year, Third Quarter.

Prerequisites: Mech. 302 and 332.

Mr. Trotter, Mr. Vidosic and Mr. Zimmerman

Kinematics, methods of analysis for stresses and elastic deformation in machine members, and fundamental machine design principles are studied.

Text: Hyland and Kommers, *Machine Design*.

M.E. 401. Inspection and Gaging 2-3-3. Senior Year.

Prerequisites: M.E. 301 and 468 or parallel. Staff

A study of inspection systems, interchangeability, and precision measuring instruments as used in the manufacture of gaging tools for industrial inspection.

M.E. 402. Jigs and Fixtures 2-3-3. Senior Year.

Prerequisites: M.E. 301 and 469 or parallel. Staff

Class, design, and practical work in making jigs and fixtures for solving tooling problems.

M.E. 430. Heating, Ventilation and Air Conditioning 3-0-3. Senior Year.

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: Allen, Walker and James, *Heating and Air Conditioning*.

M.E. 431. Refrigeration 3-0-3. Senior Year.

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: Jordan & Priester, *Refrigeration*.

M.E. 432. Steam Turbines 3-0-3. Senior Year.

Prerequisites: M.E. 333 and 324. Mr. Holland

This course includes a detailed study of the design and operation of steam turbines.

Text: Kearton, *Steam Turbine Theory and Practice*.

M.E. 433. Power Plant Design 3-0-3. Senior Year.

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, Mr. Goglia, and Mr. Hinton

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.

Text: Vennard, *Elementary Fluid Mechanics*.

M.E. 435. Heat Transfer 3-0-3. Senior Year, First Quarter.

Prerequisites: M.E. 324.

Mr. Allen, Mr. Goglia, and Mr. Hinton

This course covers the fundamentals of conduction, convection, and radiation of heat, with special emphasis on their practical application.

Text: Jakob and Hawkins, *Elements of Heat Transfer*.**M.E. 436. Internal Combustion Engines 4-0-4. Senior Year, Any Quarter.**

Prerequisites: M.E. 324; Mech. 303.

Mr. Allen and Staff

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: Jennings and Obert, *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 systems, fuels and combustion, combustion chambers, and testing of the engine in the laboratory.

Text: Dicksee, *High-speed Compression-Ignition Engine*.**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: Jennings and Obert, *Internal Combustion Engines*.**M.E. 450. Heat Power Laboratory 0-3-1. Senior Year, First Quarter.**

Prerequisites: M.E. 333, M.E. 324 and M.E. 352.

Staff

Tests of stationary steam-generating units, multi-stage steam turbines, air compressors, feedwater control tests, and flow measuring devices such as: nozzles, orifice plates, and pitot tubes.

Text: *None*.**M.E. 451. Heat Power Laboratory 0-3-1. Senior Year, Second Quarter.**

Prerequisites: M.E. 333, M.E. 324 and M.E. 352.

Staff

Economy, power, and heat balance tests of Diesel, gas, and gasoline engines. Motor analysis. Fluid flow tests.

Text: *None*.**M.E. 452. Heat Power Laboratory 0-3-1. Senior Year, Third Quarter.**

Prerequisites: M.E. 333, M.E. 324 and M.E. 352.

Staff

Tests on refrigeration machinery, air conditioning equipment, centrifugal fans, and unit heaters. Heat transfer studies. Determination of the efficiency of pipe insulating materials.

Text: *None*.

M.E. 454. Aeronautical Engine Laboratory 0-3-1. Senior Year.

Prerequisites: M.E. 438 or M.E. 436.

Mr. Allen

Economy and power tests of in-line and radial type engines together with testing of fuels and lubricants.

Text: *None.***M.E. 467. Machine Design 3-3-4. Senior Year, First Quarter.**

Prerequisites: Mech. 303, 332. Mr. Trotter, Mr. Weber and Mr. Vidosic

The course covers a study of the mechanics of machinery. Motion, velocity, acceleration, and inertia forces are included.

Text: Ham and Crane, *Mechanics of Machinery*,Marks (or equivalent), *Mechanical Engineers' Handbook.***M.E. 468. Machine Design 4-3-5. Senior Year, Second Quarter.**

Prerequisites: M.E. 467 and Mech. 333.

Mr. Trotter, Mr. Weber and Mr. Vidosic

The course covers an analysis of stresses and elastic deformations in machine members and the application of fundamental principles to the design of machine members.

Text: Spotts, *Design of Machine Elements.***M.E. 469. Machine Design 4-3-5. Senior Year. Third Quarter.**

Prerequisite: M.E. 468.

Mr. Trotter, Mr. Weber and Mr. Vidosic

The course continues to cover the application of fundamental principles to the design of machine members.

Text: Spotts, *Design of Machine Elements.***M.E. 491-2-3. Seminar 1-0-1. Senior Year, First, Second and Third Quarters.**

Prerequisite: Senior Standing in Mechanical Engineering.

Staff

These courses give the student an opportunity to hear talks by prominent engineers and, also, to present and discuss papers on technical subjects.

Text: *None.***M.E. 494-5-6. Special Problems in Mechanical Engineering 0-9-3. Senior Year, First, Second and Third Quarters.**

Prerequisite: Senior Standing in Mechanical Engineering.

Staff

These courses provide 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 the course. They may elect any subject dealing with the field of Mechanical Engineering theory or practice.

Text: *None.*

DEPARTMENT OF MILITARY SCIENCE AND TACTICS

RESERVE OFFICERS' TRAINING CORPS

The Federal Government maintains, at the Georgia Institute of Technology, a Senior Division of the Army Reserve Officers' Training Corps consisting of six units: Antiaircraft Artillery, Infantry, Chemical Corps, Corps of Engineers, Ordnance Department, and Signal Corps. General objectives of the course of instruction are to produce junior officers possessing qualities and attributes essential to their progressive and continued development in the Officers' Reserve Corps of the Army of the United States and in the Regular Army. Training in military leadership is emphasized, with instruction being given in subjects common to all branches of the Army and in tactics and technique of the several branches.

The complete course of instruction of the Senior Division ROTC program comprises four years, with approximately 120 hours of instruction in each of the two years of the basic course, and a minimum of 150 hours of instruction in each year of the advanced course with the addition of a summer camp.

ACADEMIC CREDIT

Academic credit toward the acquisition of a degree is granted for the completion of military courses on the basis indicated below:

	1st Q.	2nd Q.	3rd Q.	Total Credit Hrs.
Basic 1st Year	2	2	2	6
Basic 2nd Year	2	2	2	6
Advanced 1st Year	3	3	3	9
Advanced 2nd Year	3	3	3	9
Total				<hr/> 30

UNIFORMS

Students enrolling in the basic or advanced course will be furnished the ROTC uniform through Georgia Tech at an approximate cost to the student as follows:

Basic course.....\$50.00 plus \$2.50 account fee
Advanced course.....\$55.50 plus \$2.75 account fee

Previously enrolled basic course students registering for the summer quarter will be furnished additional articles of the required ROTC summer uniform at a cost of approximately \$12.50, while the cost to newly enrolled students will be about \$18.50.

Prior to formal enrollment in the ROTC basic or advanced course, each student will purchase from the Treasurer's Office a credit slip for the uniform. This credit slip must be presented at ROTC headquarters for checking, after which the slip may be exchanged at the ROTC supply office for the prescribed articles of uniform and insignia.

Students are required to provide themselves with one pair of tan or russet, low quarter, leather shoes (either plain toe or plain box toe).

Students formally enrolled in the basic course will receive from the Government a monetary allowance for maintenance of the uniform (pressing, cleaning, alterations, and repair) for a period not to exceed two academic years. For the fiscal year 1948-49, the maintenance allowance was \$9.00 per year. During the summer of each year the uniform account will be balanced and final settlement made by the Treasurer's Office.

Students formally enrolled in the advanced course are authorized a commutation in lieu of uniform which is earned in accordance with the length of time actually enrolled. The maximum uniform allowance for the two-year period at present is \$83.91; the amount paid each student will not exceed the value of the articles of uniform purchased through Georgia Tech. The account will be balanced and final settlement made by the Treasurer's Office during the summer following completion of the course or upon notice of withdrawal or discharge therefrom. Any portion of the commutation in lieu of uniform not expended by the student will be returned by the institution to the Federal Government.

ADVANCED COURSE SUBSISTENCE ALLOWANCE

Students formally enrolled in the ROTC and pursuing the advanced course will be paid a monetary allowance at a rate equal to the value of the commuted ration. For the fiscal year 1948-49, this allowance was \$0.90 per day. Commutation will not be allowed for any period in excess of two calendar years, nor for any period in excess of two school years plus one intervening summer vacation between such years, less the period of prescribed camp training during such vacation, nor for any longer total period than 570 days. Students will not be paid during the period of prescribed camp training, whether or not they attend camp at the normal time. The summer vacation for which commutation will be allowed will in every case be that next following the school year during which the student entered upon the work of the first year of the advanced course. For each unexcused absence from an hour of instruction, an amount equivalent to two days' commutation will be deducted from the student's next payment of commutation.

THE BASIC COURSE

The basic course consists of formal instruction for four hours per week for two academic years of at least 30 weeks each. Honorably discharged veterans of World War II who have had six to twelve months' service may be given credit for one year of the basic course, and those who have had twelve months' service may be given credit for the entire basic course. Subjects included in the first year basic course are common to all arms and services, as shown below. Subjects included in the second year basic course include specialized instruction in the various arms and services and are shown with the respective advanced courses.

Subject	First Year Hours
Military Organization	4
National Defense Act and ROTC	6
Evolution of Warfare	6
Maps and Aerial Photographs	15
Military Psychology and Personnel Management.....	8
First Aid and Hygiene	6
Geographical Foundations of National Power.....	6
Military Problems of the United States.....	5
Military Mobilization and Demobilization	4
Leadership, Drill, and Exercise of Command.....	60
Total Hours.....	120

THE ADVANCED COURSE

The advanced course is a recognized elective in all departments at Georgia Tech. Completion of the advanced course, including summer camp, is a prerequisite to graduation for students electing to take advanced military science unless the student is relieved of his contractual obligations by the Army commander.

To enroll in the advanced course, a student is required (1) to have successfully completed or to have credit for the basic course and (2) to execute a contract to continue the course, including summer camp, for the two years as prescribed, provided he remains at Georgia Tech or transfers to another college having a Senior Division of the Army ROTC. Students who are members of the Naval Reserve, Marine Reserve, Coast Guard Reserve, or Air Reserve are required to terminate membership therein in order to become eligible for the advanced course.

Upon the successful completion of the advanced course and of four years' education at a college level, graduates will be tendered commissions as second lieutenants in the Officers' Reserve Corps of the Army of the United States. Students from the upper third of the advanced course who meet other requirements promulgated by the Army will be designated Distinguished Military Students, and on graduation will be offered commissions in the Regular Army.

Members of the advanced course are required to attend camp one summer, normally between the junior and senior years. All students going to camp receive mileage for the round trip at the rate of five (5) cents per mile and are messed, housed, uniformed, and given medical and dental attention at government expense while at camp. Students will receive the pay prescribed for soldiers of the 7th pay grade (presently \$75.00 per month) of the Regular Army. The duration of the camp is six weeks beginning about 20 June each year.

The advanced course consists of military instruction for five hours per week, principally of a specialized type applicable to the arm or service concerned. Enrollment in a particular arm or service entails the prerequisite of having completed the second year basic training of that branch.

The program of instruction consists of a series of subjects which relate to the particular arm or service, and, in addition, a series of subjects common to all branches. Leadership, Drill, and Exercise of Command is included in the instruction for all three years of branch material courses. Other common subjects are included in the fourth year of ROTC training, and consist of the following:

Subject	Fourth Year Hours
Military Administration	12
Military Law and Courts-Martial	14
Psychological Warfare	4
Military Teaching Methods	10
Total Hours.....	40

ANTI-AIRCRAFT UNIT

Any qualified student enrolled in any academic course may make application.

Subjects	Second Year Hours	Third Year Hours	Fourth Year Hours
Introduction to Antiaircraft Artillery Automatic Weapons.....	6	...	...
Characteristics, Capabilities and Limitations of Antiaircraft Artillery Automatic Weapons	14	...	...
Service of the Piece—Automatic Weapons Fire Unit.....	10	...	...
Introduction to Antiaircraft Artillery Guns.....	8	...	...
Characteristics, Capabilities and Limitation of 90mm Antiaircraft Artillery Guns	10	...	...
Service of the Piece—90mm Antiaircraft Artillery Guns.....	12	...	...
Antiaircraft Artillery Tactics	14	...	...
Basic Gunnery (Antiaircraft Guns).....	40	...	...
Basic Gunnery (Automatic Weapons).....	18	...	...
Communications	12	...	...
Individual Weapons and Marksmanship	16	...	...
Motors and Transportation	8	...	...
Organization	6	...	...
Troop Movements	6	...	...
Antiaircraft Artillery Materiel .....	...	...	14
Antiaircraft Artillery Tactics, Advanced .....	...	...	15
Command and Staff .....	...	...	12
Combat Intelligence .....	...	...	2
Gunnery .....	...	...	15
Military Team .....	...	...	10
New Developments .....	...	...	4
Supply and Evacuation .....	...	...	6
Field Artillery Capabilities and Employment (familiarization).....	...	...	2
Common Subjects .....	...	...	40
Leadership, Drill and Exercise of Command	60	30	30
Total Hours	120	150	150

INFANTRY UNIT

Any qualified student enrolled in any academic course may make application.

Subjects	Second Year Hours	Third Year Hours	Fourth Year Hours
Organization	8	6	5
Weapons	20	26	...
Marksmanship	8	...	...
Technique of Fire of the Rifle Squad.....	6	...	...
Combat Formations	4	...	...
Scouting and Patrolling	8	...	...
Tactics of the Rifle Squad	6	...	...
Gunnery .....	...	30	...
Communications .....	...	12	7
Combat Intelligence .....	...	6	...
Estimate of the Situation and Combat Orders.....	...	6	...
Field Fortifications .....	...	4	...
Tactics of the Rifle and Heavy Weapons Platoons and Companies .....	...	30	...
Command and Staff .....	...	...	12
Motors and Transportation .....	...	...	9
Supply and Evacuation .....	...	...	8
Troop Movement .....	...	...	12
New Developments .....	...	...	3
The Military Team .....	...	...	14
Tactics—The Infantry Battalion in Attack and Defense.....	...	...	10
Common Subjects .....	...	...	40
Leadership, Drill and Exercise of Command.....	60	30	30
Total Hours	120	150	150

CHEMICAL CORPS UNIT

Applicants for admission to the advanced course of the Chemical Corps Unit are limited to those enrolled in one of the academic fields prescribed below: chemistry, chemical engineering, civil engineering, electrical engineering, industrial engineering, mechanical engineering, biology, geology, physics, or industrial management.

Subjects	Second Year Hours	Third Year Hours	Fourth Year Hours
Organization and Function of the Chemical Corps and Chemical Corps Units	14	...	...
Chemical Agents	10	...	...
Protection	10	6	8
Chemical Corps Materiel	14	...	16
Field Behavior of Chemical Agents	8	...	...
Chemical Corps in World War II	4	...	...
Individual Weapons and Marksmanship .....	...	20	...
Motor Vehicles .....	...	10	...
Tactical Employment of Chemicals .....	...	12	...
Decontamination .....	...	8	...
Employment of Chemical Corps Units .....	...	24	...
4.2-Inch Mortar Gunnery .....	...	20	...
Signal Communications .....	...	10	...
Chemical Combat Intelligence .....	...	6	...
M-2 Smoke Generator Operation .....	...	4	...
Logistics and Field Service .....	...	...	24
Organization and Function of Chemical Staff Sections .....	...	...	10
Duties of Chemical Staff Officers .....	...	...	10
Operation and Training .....	...	...	12
Common Subjects .....	...	...	40
Leadership, Drill and Exercise of Command	60	30	30
Total Hours	120	150	150

CORPS OF ENGINEERS UNIT

Admission to the Corps of Engineers Unit is limited to those students who are enrolled in an academic course leading to an engineering, technical, or scientific degree. Instruction in technical subjects supplements that of the engineering schools, with particular attention to the military application of such subjects.

Subjects	Second Year Hours	Third Year Hours	Fourth Year Hours
History and Traditions of the Corps of Engineers	3	...	...
Characteristics of Weapons	8	...	...
Camouflage	6	...	...
Defense Against Chemicals	3	...	...
Explosives and Demolitions	8	...	...
Hand Tools and Rigging	8	...	...
Mines and Booby Traps	8	...	...
Organization and Tactics of Small Units	8	...	...
Organization of the Ground and Field Fortifications	8	...	...
Bridge Design and Classification .....	...	20	...
Engineer Signal Communications .....	...	8	...
Engineer Combat Intelligence .....	...	10	...
Engineer Supply .....	...	6	...

Military Roads and Runways	12	...	
Organization of Engineer Units	10	...	
Organization of Combat Divisions	6	...	
Tactics of Engineer Units	20	...	
Vehicle Operation and Maintenance	6	...	
Water Supply	4	...	
Individual Weapons and Marksmanship	18	...	
Engineer Support for the Air Force	6	6	
Engineer Support for the Communication Zone	6	6	
Engineer Support for the Type Field Army.....	10	10	
Command and Staff	12	12	
Construction, Utilities and Job Management.....	26	26	
Motor Movements	8	8	
River Crossing Operations	12	12	
Common Subjects	40	40	
Leadership, Drill and Exercise of Command.....	60	30	30
Total Hours	120	150	150

SIGNAL CORPS UNIT

Applicants for admission to the Advanced Course of the Signal Corps Unit are limited to those enrolled in one of the academic fields leading to a degree in engineering, electronics or physics.

Subjects	Second Year Hours	Third Year Hours	Fourth Year Hours
Introduction to Signal Communication.....	30	...	...
Organization and Mission of the Signal Corps.....	10	...	...
Organization of the Infantry, Armored and Airborne Divisions and their Signal Communication Practices.....	20	...	...
Communication Security	8	8	...
Signal Orders	8	8	...
Field Wire Communication Fundamentals	25	25	...
Field Radio Communication Fundamentals	25	25	...
Applied Signal Communication (Division).....	12	12	...
Message and Signal Center Operation and Procedure.....	18	18	...
Signal Supply and Repair	18	18	...
Weapons and Marksmanship	4	4	...
Career Guidance Program for Signal Corps Officers.....	2	2	2
Wire Communications Materiel	24	24	24
Radio Communications Materiel	24	24	24
Higher Echelon Signal Communication and Equipment.....	16	16	16
Post Signal Operations and Administrative Procedures.....	2	2	2
Darkroom Technique and Photographic Practices.....	3	3	3
Command and Staff	5	5	5
Combat Intelligence	4	4	4
Common Subjects	40	40	40
Leadership, Drill and Exercise of Command.....	60	30	30
Total Hours	120	150	150

ORDNANCE DEPARTMENT UNIT

Admission to the Ordnance Unit will be limited to those students who are enrolled in any academic course of instruction leading to an engineering, technical, or scientific degree, or demonstrate marked ability, aptitude, and interest in technical fields of endeavor.

Part of this course affords opportunity for independent individual study and research in the academic field in which the student is registered. This course is designed to permit the maximum application of engineering principles along military lines.

Subjects	Second Year Hours	Third Year Hours	Fourth Year Hours
The Role of The Ordnance	7	...	...
Automotive Materiel	14	26	...
Small Arms Materiel	9	15	...
Ammunition Materiel	10	17	...
Ammunition Supply Materiel .....	...	15	...
Artillery Materiel	10	11	...
Fire Control Materiel	10	11	...
Functional Organization of the Ordnance Department.....	...	13	...
Individual Weapons and Marksmanship .....	...	12	...
Maintenance and Supply .....	...	...	24
Command and Staff .....	...	...	10
Combat Intelligence .....	...	...	2
Materiel Specialty Instruction .....	...	...	44
Common Subjects .....	...	...	40
Leadership, Drill and Exercise of Command.....	60	30	30
Total Hours	120	150	150

DEPARTMENT OF MODERN LANGUAGES

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.

Students having as much as two years high school credit in a language should schedule the first quarter of the 200 course in that language.

COURSES OF INSTRUCTION

M.L. 101. Elementary German 3-0-3. Freshman Year, First Quarter.

Prerequisite: None.

Mr. Ervin and Staff

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

Text: Evans and Roseler, *Shorter College German*.

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.

Text: Evans and Roseler, *Shorter College German*; Hagboldt, *Graded German Readers, Elementary and Intermediate*.

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: Evans and Roseler, *Shorter College German*; Roseler and Ber, *Altes und Neues: Flechmer, 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: Cattell and Fotos, *Practical Modern French Grammar*.

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: Cattell and Fotos, *Practical Modern 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.

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.

Text: Dale and Bergin, *Spanish Grammar*; Grismer and Olmsted, *A Mexico por Automovil*.

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: Dale and Bergin, *Spanish Grammar*; Robles, *Cartilla Espanola*.

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: A. v. Gronicka, *Essentials of Russian*; A. v. Gronicka, *Key to Essentials of 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: A. v. Gronicka, *Essentials of Russian*; A. v. Gronicka, *Key to Essentials of Russian*; Bond and Bobrinskoy, *Heath Chicago Russian Series I, II, III*.

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: A. v. Gronicka, *Essentials of Russian*; A. v. Gronicka, *Key to Essentials of Russian*; Bond and Bobrinskoy, *Heath Chicago Russian Series I, II, III*.

M.L. 122. Elementary Portuguese 3-0-3. Freshman Year, First Quarter.

Prerequisite: None.

Mr. Brown

General emphasis upon the Portuguese language as spoken in Brazil, Pronunciation and essential principles of Portuguese grammar.

Texts: E. Williams, *First Brazilian Grammar*; Topes, *Bom Dia*.

M.L. 123. Elementary Portuguese 3-0-3. Freshman Year, Second Quarter.

Prerequisite: M.L. 122 or equivalent.

Mr. Brown

A continuation and extension of M.L. 122; reading and conversation.

Texts: E. Williams, *First Brazilian Grammar*; Jordan, *Panorama do Brasil*.

M.L. 124. Elementary Portuguese 3-0-3. Freshman Year, Third Quarter.

Prerequisite: M.L. 122 and 123 or equivalent.

Mr. Brown

Completion of the survey of Portuguese grammar with more extensive reading and conversation.

Texts: Jordan, *Panorama do Brasil*; Hamilton and Fahs, *Contos do Brasil*.

M.L. 201. Intermediate German 3-0-3. First Quarter.

Prerequisites: Three Quarters of elementary German or equivalent.

Mr. Ervin, Mr. Wright

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: To be selected.

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: Roseler, *Deutsche Novellen des 19 Jahrhunderts*; Palmer, *Wilhelm Tell, Schauspiel von Friedrich Schiller*.

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.

Text: Roseler, *Deutsche Novellen des 19 Jahrhunderts*; Lessing, *Emilia Gallotti*.

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.

Text: Dandon, *French in Review*; Bazin, *Les Oberles*.

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; language recordings.

Text: Dandon, *French in Review*; Miller, *First Readings in French Literature*; Rostand, *Cyrano de Bergerac*.

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. Brown, Mr. Campoamor, Mr. Walker

Grammar and composition review; conversation; commercial terms; reading of more difficult material language recordings.

Text: Turk, *Spanish Grammar Review*; Olmstead and Grismer, *Spanish Short Stories*.

M.L. 214. Intermediate Spanish 3-0-3. Second Quarter.

Prerequisite: M.L. 213.

Mr. Brown, Mr. Campoamor, Mr. Walker

Reading of advanced material; continuation of grammar and composition review; conversation; applied engineering terms; language recordings.

Text: Turk, *Spanish Grammar Review*; Alarcon, *El Sombrero de Tres Picos*.

M.L. 215. Advanced Spanish 3-0-3. Third Quarter.

Prerequisites: M.L. 213 and M.L. 214 or equivalent.

Mr. Brown, Mr. Campoamor, Mr. Walker

Reading of selected texts.

Text: Turk, *Spanish Grammar Review*; Gutierrez, *El Trovador*.

DEPARTMENT OF MUSIC

Musical activities at Georgia Tech are taking an increasingly important place in the life of the school. The courses offered for credit are band and instrumental work, choral music, history of music and music appreciation. It is hoped that many students will take advantage of these opportunities to secure a well-rounded and more complete course of study.

The Glee Club is yearly increasing its scope of activity. Last year, in addition to making visits to nearby towns and colleges, the singers traveled to Washington, D. C., with stops en route at Durham and Greensboro, N. C. and at Richmond and Lynchburg, Va. The climax of the tour was the appearance at Loew's Capitol Theatre in Washington where the group sang to more than 10,000 people in a day.

Each year the Glee Club and Orchestra combine in the production of a light opera or musical comedy. The most recently presented show was "The Mikado" by Gilbert and Sullivan.

The Band makes several trips with the football team each season. During the winter season band concerts are presented on the campus and at local schools. The courses listed below add measurably to the proficiency of band members, and lead those qualified into the field of band conducting which is often followed as a pleasant and frequently profitable avocation.

COURSES OF INSTRUCTION

Music 201. Choral Music—History 1-2-1. Sophomore, Junior or Senior Year—Fall Quarter.

Prerequisites: 1. Satisfactory completion of three quarters in Glee Club.

2. Approval of the Director of Music. Mr. Herbert

Course will consist of two hours practical or laboratory work, rehearsing and performing choral music. Third hour will be given to study of the history and development of choral music, from Gregorian chant through Palestrina and Bach to the present.

Text: Listening to Music Creatively—Stringham.

Music 202. Choral Music—Conducting 1-2-1. Sophomore, Junior or Senior Year, Winter Quarter.

Prerequisites: 1. Satisfactory completion of three quarters in Glee Club.

2. Approval of the Director of Music. Mr. Herbert

Laboratory work will consist of rehearsal and performance of choral music. Third hour will include practice conducting by the students.

Text: Elementary Musicianship—Bauman.

Music 203. Choral Music—Appreciation 1-2-1. Sophomore, Junior or Senior Year. Spring Quarter.

Prerequisites: 1. Satisfactory completion of three quarters in Glee Club.

2. Approval of the Director of Music. Mr. Herbert

Two hour periods will be spent in choral practice. The theoretical work will consist of an introduction to the history of music in general, and an elementary treatment of music appreciation, with the use of records, sound films and other modern aids to the student.

Music 301. Marching Band 0-3-1. Junior or Senior Year, Fall Quarter.

Prerequisites: 1. Satisfactory completion of three (3) quarters participation in band as a Freshman or Sophomore.

2. Approval of the band director. Mr. Sisk

Precision drilling. Special Maneuvers. Military Parade Procedures. (Students completing this course are expected to be able to direct as well as participate in these routines.)

Text: Dvorak, "*The Marching Band.*"

Music 302. Concert Band 0-3-1. Junior or Senior Year, Winter Quarter.

Prerequisites: 1. Satisfactory completion of three (3) quarters participation in band as a Freshman or Sophomore.

2. Approval of the band director. Mr. Sisk

Performance and appreciation of concert music. Baton technique and student conducting. Radio broadcasting technique.

Text: "*National School Band Manual.*"

Music 303. Concert and Marching Band 0-3-1. Junior or Senior Year, Spring Quarter.

Prerequisites: 1. Satisfactory completion of three (3) quarters participation in band as a Freshman or Sophomore.

2. Approval of the band director. Mr. Sisk

Continuation of all procedures listed under Music 302 plus a resumption of the marching drill and performance which is begun in Music 301.

Text: "*National School Band Manual.*" Dvorak, "*The Marching Band.*"

DEPARTMENT OF NAVAL SCIENCE
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 entered the Navy as Ensigns and ended the war as Commanders, commanding destroyers and submarines.

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 prewar program.

The NROTC is composed of three types of students: Regular, Contract, and Naval Science. A Navy Bulletin is quoted:

"REGULAR STUDENTS. These students will be appointed Midshipmen, USNR, after nation-wide competitive examinations. 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 \$600.00 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, upon 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. If they do not desire to remain in the Regular Navy they are ordered to inactive duty in the Naval Reserve for four years. At the end of this period their obligation to the Navy is fulfilled. Students in this classification will not be entitled to receive simultaneous education benefits under the G. I. Bill. These students are deferred from the draft.

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 about \$27.00 per month) while under instruction. They will obligate themselves to complete the prescribed Naval Science curriculum, to make one summer cruise of approximately three weeks during the summer between their junior and senior years, and to accept a commission on graduation as Ensign, USNR, or Second Lieutenant, USMCR. As a result of the Selective Service Act these students are deferred from the draft but must sign an agreement to serve on active duty for two years after commissioning *if called by the Secretary of the Navy*. Upon graduation they may apply for commissions in the regular Navy. Students receiving these benefits may receive them in addition to G. I. benefits to which they are entitled.

NAVAL SCIENCE STUDENTS. These students are those who merely select Naval Science courses as electives, have no contract with the Navy, have no assurance of ultimate commissioning, and derive none of the benefits available to Regular and Contract Students. They have no draft deferments."

It will be noted that Regular Students are selected in nation-wide competitive examinations held in December and that the NROTC at Georgia Tech has no part in this selection.



*Practical training for Co-operative students at Fairbanks, Morse & Co.,
Beloit, Wis.*



*Co-operative students receive training in the Spruance Plant of the E. I. du
Pont de Nemours & Co. near Richmond, Va.*



Co-operative student examining metallographic samples, Research Laboratory, International Nickel Company, Huntington, West Virginia.



Section Beamer and Creels in yarn plant of Tennessee Eastman Corp., Kingsport, Tenn., where Co-operative students get training.

Contract students are selected upon receipt of our annual quota from the Navy Department in September. Usually, only freshman are selected. Naval Science courses are offered during Fall, Winter and Spring quarters only. Therefore, it is usually impractical to accept Co-op students in the NROTC.

Naval Science students are selected in limited numbers only, usually to fill potential vacancies among Contract Students.

To enroll as a Contract or Naval Science Student a student must:

1. Be enrolled in Georgia Tech.
2. Be between the ages of 17 and 21.
3. Be unmarried.
4. Meet Naval physical requirements.
5. Be interviewed by a board of Naval Officers.
6. Make a satisfactory mark on certain tests given to all men entering Georgia Tech.

Application should be made at the Naval Armory during the Fall registration week.

Three candidates may be nominated each year by the President of the Georgia Institute 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.

CURRICULUM

During freshman and sophomore years NROTC students attend Naval Science classes three hours a week and have one hour of drill or laboratory.

During junior and senior years NROTC students attend Naval Science classes three hours a week and have two hours of drill or laboratory.

FRESHMAN YEAR

N S 111—Naval History	Credit Hours	2
N S 112—Organization & Naval Law	Credit Hours	2
N S 113—Seamanship & Communications	Credit Hours	2

SOPHOMORE YEAR

N S 211—Gunnery	Credit Hours	2
N S 212—Fire Control	Credit Hours	2
N S 213—Naval Electronics	Credit Hours	2

JUNIOR YEAR

N S 311—Piloting, Dead Reckoning Navigation	Credit Hours	3
N S 312—Celestial Navigation	Credit Hours	3
N S 313—Celestial Navigation	Credit Hours	3

SENIOR YEAR

N S 411—Nautical Steam Engineering	Credit Hours	3
N S 412—Nautical Internal Combustion Engines	Credit Hours	3
N S 413—Ship Construction and Damage Control	Credit Hours	3

During their Junior year students desiring commissions in the Marine Corps or Marine Corps Reserve substitute Marine subjects for the above listed curriculum. No more than one sixth of the Junior NROTC class is eligible for the Marine Training.

DEPARTMENT OF PHYSICAL TRAINING

Beginning with the fall term of 1947, all students entering as freshmen or 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 54) 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.

All freshman and sophomore students will be required to take Physical Training except the following who will be exempt: Students not physically able; students twenty-one years of age, or over, on first admission to the Georgia Institute of Technology; veterans who have completed ninety or more days of service prior to November 27, 1947, and students transferring from accredited colleges with at least eighty quarter credit hours. Students transferring to the Georgia Institute of Technology with sophomore standing will be required to take three quarters of Physical Training only.

NOTE: Men excused from Physical Training are not required to make up the credit hours in additional subjects.

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 normally should not exceed \$12. Locker facilities for those living neither on the campus nor in nearby fraternity houses may be secured by 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.

FRESHMEN 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 development.

At the end of the year, students who make sufficient progress will be sent on to sophomore physical training.

P.T. 101. Swimming.

Mr. Lanoue and Mr. McAuley

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.
3. Under water swim, 40 feet.
4. A front dive off the one-meter board and a simple jump off the three-meter board.

P.T. 102. Gymnastics.

Mr. Welser and Mr. Neiger

The purpose of this course is to give coordinated exercise 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 and Mr. Plaxico

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, the class will be divided into teams for games of basketball, softball, 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 picka-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. 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. Hyder

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. Woodruff

Softball 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.

P.T. 203. Combat.

Mr. Griffith

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.

SCHOOL OF PHYSICS

The School of Physics 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 School of Physics 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 60. 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

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
M.E.	201-2	Machine Laboratory	0-3-1	0-3-1	....
M.E.	203	Pattern Making .....	....	....	0-3-1
Phys.	207-8-9	Physics	5-3-6	5-3-6	5-3-6
P.T.	203	Physical Training	0-4-1	0-4-1	0-4-1
ROTC	207-8-9	Military or Naval Training	3-1-2	3-1-2	3-1-2
Total.....			16-11-18	16-11-18	16-11-18

JUNIOR YEAR

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
S.S.	204	Engineering Economics .....	....	....	3-0-3
Eng.	315	Public Speaking	3-0-3	....	....
Math.	301	Differential Equations	4-0-4	....	....
Phys.	310	Electricity and Magnetism	5-6-7	....	....
Phys.	320	Mechanics .....	....	5-0-5	....
Phys.	311	Electronic Physics .....	....	3-6-5	....
Phys.	312	Atomic Physics .....	....	....	5-0-5
Phys.	315	Experimental Physics .....	....	....	0-6-2
Approved Electives*		.....	5-0-5	9-0-9	8-0-8
Total.....			17-6-19	17-6-19	16-6-18

SENIOR YEAR

Course	No.	Subject	1st Q.	2nd Q.	3rd Q.
E.E.	320	D.C. Machinery	3-3-4	....	....
E.E.	321	A.C. Machinery .....	....	4-3-5	....
Eng.	321	Technical English .....	....	....	3-0-3
Mech.	331-2	Mechanics of Materials	3-0-3	2-0-2	....
Phys.	422	Light	5-6-7	..	....
Phys.	426	Heat and Thermodynamics .....	....	5-3-6	....
Phys.	412	Electric and Magnetic Fields .....	....	....	5-0-5
Phys.	415	Experimental Physics II .....	....	....	0-6-2
Approved	Electives*	.....	5-0-5	6-0-6	9-0-9
Total			16-9-19	17-6-19	17-6-19

*If Advanced Military or Advanced Navy is the elective, the class, lab and credit hours are 3-2-3.

COURSES OF INSTRUCTION

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

Phys. 201. Elementary Mechanics 3-3-4. Sophomore Year, First Quarter.

Prerequisite: Math. 102.

Mr. Herreman and Staff

Physics 201-2-3 together constitute an elementary course in Physics which meets the requirements of a few of the less technical engineering curricula. The class work includes one or two demonstration lectures per week. Considerable emphasis is placed on the solution of problems, but no calculus is required.

Text. White, *Modern College Physics*.

Phys. 202. Elementary Electricity 3-3-4. Sophomore Year, Second Quarter.

Prerequisite: Phys. 201.

Mr. Herreman and Staff

Electricity and magnetism taught as a part of the elementary physics course described under Physics 201 above.

Text. White, *Modern College Physics*.

Phys. 203. Elementary Heat, Light and Sound 3-3-4. Sophomore Year, Third Quarter.

Prerequisite: Phys. 201.

Mr. Herreman and Staff

Heat, light and sound taught as a part of the elementary physics course described under Physics 201 above.

Text: White, *Modern College Physics*.

Phys. 204. Mechanics 3-0-3.

Prerequisites: Entrance Physics, Math. 103, and an acceptable amount of previous credit in physics.

Staff

An intensive course in mechanics. Credit for this course is equivalent to credit for mechanics as required in Physics 207.

Text: Hausmann and Slack, *Physics*.

Phys. 205. Electricity 3-0-3.

Prerequisites: Phys. 204, Math. 201, and an acceptable amount of other previous credit in physics. Staff

An intensive course in electricity. Credit in this course is equivalent to credit for electricity as required in Physics 208.

Text: Hausmann and Slack, *Physics*.

Phys. 206. Heat, Sound and Light 3-0-3.

Prerequisites: Phys. 204, Math. 201, and an acceptable amount of other previous credit in physics. Staff

An intensive course in heat, sound and light. Credit in this course is equivalent to credit for heat, sound and light as required in Physics 209.

Text: Hausmann and Slack, *Physics*.

Phys. 207. Mechanics 5-3-6. Sophomore Year, First Quarter.

Prerequisites: Entrance Physics and Math. 103. Mr. Ewalt 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.

Prerequisites: Phys. 207, Math. 201. Mr. Bortell and Staff

Electricity and related phenomena taught as a part of the basic physics course described under Physics 207.

Text: *None*.

Phys. 209. Heat, Sound and Light 5-3-6. Sophomore Year, Third Quarter.

Prerequisites: Phys. 207, Math. 201. Mr. Prosser and Staff

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. 211. Elementary Mechanics 4-0-4. Sophomore Year, First Quarter.

Prerequisite: Math. 102. Mr. Herreman and Staff

Physics 211-2-3 together constitute an elementary course in Physics which meets the requirements of some of the less technical engineering curricula. Considerable emphasis is placed on the solution of problems, but no calculus is required. Intimate demonstrations of scientific equipment and methods are included under conditions which permit and require the individual students to observe the details.

Text: White, *Modern College Physics*.

Phys. 212. Elementary Electricity 4-0-4. Sophomore Year, Second Quarter.

Prerequisite: Phys. 211.

Mr. Herreman and Staff

Electricity and magnetism taught as a part of the elementary physics course described under Physics 211 above.

Text: White, *Modern College Physics*.

Phys. 213. Elementary Heat, Light and Sound 4-0-4. Sophomore Year, Third Quarter.

Prerequisite: Phys. 211.

Mr. Herreman and Staff

Heat, light and sound taught as a part of the elementary physics course described under Physics 211 above.

Text: White, *Modern College Physics*.

Phys. 310. Electricity and Magnetism 5-6-7. Junior Year, First Quarter.

Prerequisites: Phys. 209, Math. 301 or concurrently.

Mr. Howey

Fundamental concepts of electricity and magnetism, electric and magnetic measurements, A.C. circuit theory, motion to charges in electric and magnetic fields, electrical oscillations.

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. 208 and 209.

Mr. Boyd

Atomic particles and methods of determining their charge and mass. Rutherford and Bohr atom. Radiation and quantum theory. Photoelectric effect. X-rays. Nuclear physics and radioactivity. Artificial transmutation and fission.

Text: Lapp and Andrews, *Nuclear, Radiation, Physics; Lecture Notes*.

Phys. 314. Instruments for Measurements and Control 1-3-2. Senior Year, Third Quarter.

Prerequisite: Phys. 209.

Staff

The principles and methods for the measurement and control of temperature. Use of electronic tubes and photoelectric applications. Humidity measurement. Inspection of products by X-rays.

Text: Weber, *Temperature Measurement and Control*.

Phys. 315. Experimental Physics I 0-6-2. Junior Year, Third Quarter.

Prerequisite: Concurrent with Phys. 312.

Mr. Boyd

A selected group of experiments to parallel Phys. 312. Among those performed are the Oil Drop Experiment, ratio e/m , conduction through gases, X-ray

absorption and diffraction, absorption of alpha, beta, and gamma rays, measurement techniques with electroscopes and Geiger counters, half-lives of radioactive materials and artificial radioactivity.

Text: *None*.

Phys. 318. Introduction to Modern Physics 4-3-5. Senior Year, Third Quarter.

Prerequisite: Phys. 208 and 209.

Mr. Rhodes

The structure of bulk matter and of atoms. Nuclear physics and the nature of elementary particles. Radiation, light, X-rays. Applications of modern physics and electronics.

Text: *Lecture Notes*.

Phys. 320. Mechanics 5-0-5. Junior Year, Second Quarter.

Prerequisites: Phys. 209, Math. 301.

Mr. Lowance

Statics and dynamics of particles and rigid bodies. Vector analysis. Motion with central forces. Hamilton's Principle, D'Alembert's Theorem, Lagrange's Equations, and generalized coordinates.

Text: Edward, *Analytic and Vector Mechanics*.

Phys. 412. Electric and Magnetic Fields 5-0-5. Senior Year, Third Quarter.

Prerequisites: Phys. 310 and 311.

Mr. Howey

Electric and magnetic fields, conductors, dielectrics, magnetic media, Maxwell's equations, electromagnetic waves, transmission lines, and wave guides. Special emphasis is placed on the theory and technique of ultra high frequency oscillations and microwaves.

Text: Harnwell, *Principles of Electricity and Electromagnetism*; *Lecture Notes*.

Phys. 415. Experimental Physics II 0-6-2. Senior Year, Third Quarter.

Prerequisites: Phys. 310 and 311, Phys. 412 or concurrently.

Special experiments from various fields of physics. Emphasis is placed on good laboratory technique.

Text: *None*.

Phys. 422. Light 5-6-7. Senior Year, First Quarter.

Prerequisite: Phys. 209.

Mr. Lowance

Reflection and refraction of light by lenses, mirrors, and other optical instruments. Dispersion, diffraction, and interference. Polarized light. Spectrum analysis, methods and instruments. Spectrophotometry.

Text: Jenkins and White, *Physical Optics*; *Lecture Notes*.

Phys. 426. Heat and Thermodynamics 5-3-6. Senior Year, Second Quarter.

Prerequisites: Phys. 209, Math. 301.

Mr. Rhodes

Heat transfer. Temperature measuring methods and instruments. First and second laws of thermodynamics. Equations of state, entropy, reversible and irreversible systems. Kinetic theory with applications to heat conduction and

viscosity. Distribution of velocities. Boltzmann-Maxwell energy distribution. Equipartition of energy and specific heats.

Text: Zemansky, *Heat and Thermodynamics; Lecture Notes.*

Phys. 429. Special Problem 1-3-2. Senior Year, Second Quarter.

Prerequisite: The scheduling of this course must be approved by the School of Physics. Staff

Each student is required to give extended study to some problem in physics to develop research technique, and to become familiar with the use of the library in physics.

Text: *None.*

DEPARTMENT OF PSYCHOLOGY
COURSES OF INSTRUCTION

Psy. 301. Introductory Psychology 3-0-3. Junior Year, Each Quarter.

Prerequisite: None.

Staff

Special stress is placed on the characteristics of human behavior, heredity, individual differences, emotions, sensory functions, learning, perceiving, social behavior, thinking, and personality.

Text: *Ruch, Psychology and Life.*

Psy. 302. Applied Psychology 3-0-3. Junior Year, Each Quarter.

Prerequisite: None.

Staff

Emphasis will be given to applying psychological principles to the problems of everyday life. The use of psychology in advertising, business, education, law and criminology, medicine, politics, social adjustments and selling will be discussed.

Text: *Burt, Applied Psychology.*

Psy. 401. Industrial Psychology 3-0-3. Senior Year, Each Quarter.

Prerequisite: None.

Staff

The course stresses the importance of the human factor in industrial production. The whole man, his attitudes, his feelings, his fears, and his desire for recognition and security are emphasized. Methods of interviewing, selecting and training employees are reviewed. Various industrial and psychological tests are taken, scored and interpreted by students. Individual problems are assigned.

Text: *Blum, Industrial Psychology.*

Psy. 402. Psychology of Adjustment 3-0-3. Second and Third Quarters.

Prerequisite: Introductory Psychology.

Dr. Moore

This course will deal with the typical individual and the social adjustment problems of normal people. Its chief aim will be to assist the student better to understand himself and his fellow man. The primary approach will be from the viewpoint of objective psychology.

Psy. 403. Introduction to Psychological Testing 3-0-3. Senior Year, First and Third Quarters.

Prerequisite: Psychology 401.

Staff

This course will deal with the application of psychological tests and measurements in business and industry. Uses and abuses, advantages and limitations of the more commonly used types of tests will be discussed. Students will have opportunities to administer, take, score, interpret, and construct certain tests. Individual problems will be assigned.

Text: *Lawshe, Principles of Personnel Testing.*

Psy. 601. Advanced Industrial Psychology 3-0-3. First and Second Quarters.

Prerequisite: Psychology 401.

Dr. Moore and Dr. Janus

This course will survey the recent experiments in the field of industrial

psychology. Each student will be expected to evaluate objective studies in one or more areas of investigation. The student will give special attention to: The statement of the problem, techniques, methods of control, selection and/or equating subjects, statistical analysis, conclusions and implications. The studies will be drawn largely from primary sources. The formulation of new research problems and the generalizing of research data will be stressed.

Text: *None. Primary sources will be used.*

DEPARTMENT OF PUBLIC HEALTH AND BIOLOGY

COURSES OF INSTRUCTION

P.H. 201. Introduction to Animal Biology 3-4-4. Sophomore First, Second, and Third Quarters.

Prerequisite: None.

Mr. Cannon and Mr. Brillhart

Fundamental principles and theories of biology. Study of the various invertebrate forms.

Text: Hegner, *College Zoology*.

P.H. 202. Instruction to Animal Biology 3-3-4. Sophomore First, Second, and Third Quarters.

Prerequisite: P.H. 201.

Mr. Cannon and Mr. Brillhart

Continuation of P.H. 201.

Text: Hegner, *College Zoology*.

P.H. 203. Comparative Anatomy 2-6-4. Sophomore. Offered when called for.

Prerequisite: P.H. 202.

Mr. Cannon and Staff

Study of the comparative anatomy of the vertebrates with laboratory dissection of the several vertebrate forms.

P.H. 307. General Bacteriology 3-4-4. Junior, Every Quarter.

Prerequisite: P.H. 202.

Mr. Miller 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.

Text: Greaves, *Elementary Bacteriology, References*.

P.H. 316. Industrial Hygiene 3-0-3. Junior, Every Quarter.

Mr. Wyckoff and Staff

Problems of health in industry; industrial poisons, occupational hazards and diseases, industrial fatigue, ventilation, and accident prevention.

Text: *References*.

P.H. 406. Human Physiology 4-0-4. Senior, First Quarter.

Prerequisites: P.H. 202, 307.

Staff

A study consisting of lectures and demonstrations, of the structure and functioning of the human body, together with those conditions which interfere with normal functioning.

P.H. 411. Sanitation 3-0-3. Senior, Second Quarter.

Prerequisites: P.H. 201, 307.

Mr. Wyckoff and Staff

The principles of sanitation, water supplies, sewage and refuse disposal, food sanitation, and inspection methods.

Text: Ehlers and Steel, *Municipal and Rural Sanitation*.

DEPARTMENT OF SAFETY ENGINEERING

The development of new industrial processes and materials is rapidly increasing the requirements of industry, business and government for engineers with an understanding of accident-prevention and fire-control fundamentals; as well as highly-trained specialists in safety engineering.

To accomplish an awareness of the accident problems in the chosen field of each engineering student, the following courses are offered to supplement the information gained through the inclusion of appropriate safety materials in the content of other courses. The engineer is thus equipped to weigh safety considerations with those of strength, efficiency and economy in problems of design, construction and operation.

The development of the safety engineering specialist must necessarily be assigned to the graduate level, available only upon completion of a comprehensive undergraduate study program.

S.E. 401. Industrial Accident Control 3-0-3. Senior Year, First, Second and Third Quarter.

Prerequisite: None.

Mr. Cox and Mr. Trowbridge

The evaluation of accident-control problems in industry; the elements of the industrial safety program and typical control measures.

Text: Blake, *Industrial Safety*.

S.E. 402. Industrial Fire Prevention 3-0-3. Senior Year, First, Second, and Third Quarter.

Prerequisite: S.E. 401.

Mr. Trowbridge

The consideration of industrial fire prevention and protection through design, construction, and layout of facilities, and the control of industrial operations and processes.

Text: Crosby, Fiske & Forster, *Handbook of Fire Protection*.

DEPARTMENT OF SOCIAL SCIENCES

GENERAL INFORMATION

The Social Sciences Department serves the college as an integral part of its program of general education. To be a fully educated citizen the engineer must have a broad background of general training in fields not specifically technical. Freshmen are required to take either Social Sciences 105, 106 and 107, or Modern Language. Upper classmen may elect many valuable and interesting courses in the broad field of the Social Sciences.

COURSES OF INSTRUCTION

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

S.S. 105. Western Civilization 3-0-3. First Quarter.

Prerequisite: None.

Staff

This course is designed to acquaint the student with the fundamental principles and institutions on which Western civilization is based, and to show how they evolved. Attention is focused upon contemporary problems, and upon those factors which contribute to enlightened citizenship.

Text: Ferguson & Bruun, *A Survey of European Civilization*.

S.S. 106. Western Civilization 3-0-3. Second Quarter.

Prerequisite: None.

Staff

A continuation of S.S. 105.

Text: Ferguson & Bruun, *A Survey of European Civilization*.

S.S. 107. National Government of the United States 3-0-3. Third Quarter.

Prerequisite: None.

Staff

A study of the structure of the American national government and its functions. This course is the same as S.S. 102, 1947-48 catalog.

Text: Munro, *The National Government of the United States*.

S.S. 108. Basic Sociology 3-0-3. First, Second, and Third Quarters. Freshman Elective.

Prerequisite: None.

Mr. Bowden

Basic principles of sociology and social problems of contemporary society are treated. Enough illustrative material is used to make the course practical. Reference is made to Southern Regional problems. This course may be taken in place of S.S. 106.

Text: Ogburn and Nimkoff, *Sociology*.

S.S. 204. Economics 3-0-3. First, Second and Third Quarters.

Prerequisite: Sophomore standing.

Mr. Eaton, Mr. Speer, Mr. Wilson

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: Woods & DeGarmo, *Engineering Economy*.

S.S. 305. Nineteenth Century Europe 3-0-3. Junior or Senior Elective.

Prerequisite: None.

Mr. LeBaron

A survey of modern European history from the French Revolution to 1914.

Text: Achorn, *European Civilization and Politics Since 1815*.

S.S. 306. World Problems Since 1914 3-0-3. Junior or Senior Elective. Senior Elective.

Prerequisite: None.

Mr. Scharf

World history since 1914 with emphasis upon international relations.

Text: Bruun, *The World in the Twentieth Century*.

S.S. 307. American Economic History 3-0-3. First, Second and Third Quarters.

Prerequisite: Junior standing.

Mr. LeBaron

Special attention is given to the rise of our industrial system, the westward movement, the development of our banking system, and government regulation of industry.

Text: Faulkner, *American Economic History*.

S.S. 311. Contemporary Social Problems 3-0-3. Junior or Senior Elective.

Prerequisite: None.

Mr. Bowden

An attempt is made to analyze by means of basic sociological principles such problems of contemporary society as poverty, unemployment, health, race relations, divorce, defectiveness, and delinquency. Various proposed remedies are studied. Regional problems of the South are treated.

Text: Gillin, et al., *Social Problems*.

S.S. 313. The Problems of Public Opinion 3-0-3. Junior or Senior Elective.

Prerequisite: Junior standing.

Mr. Gaston

This course is devoted to the study of the techniques and uses of propaganda and to methods and criteria for its analysis. Attention is given to its applications in industry and to its uses by social and political pressure groups. The vehicles of propaganda—the newspaper, radio, screen, and stage—are given attention and their relative importance studied.

Text: Albig, *Public Opinion*.

S.S. 314. Society and the Individual 3-0-3. Junior or Senior Elective.

Prerequisite: Junior standing.

Mr. Gaston

This course considers the influence of the group situation and cultural environment upon individual and group behavior. Social factors in human nature, group interaction, and social and individual pathology receive special attention.

Text: LaPiere, *Collective Behavior*.

S.S. 317. American Political and Social History to 1865 3-0-3. Junior or Senior Elective.

Prerequisite: None.

Mr. LeBaron

A survey of colonial America, the American Revolution, the framing of the Constitution, Jeffersonian democracy, sectionalism, the slavery question, and secession. Attention is given to the place of the United States in the family of American nations.

Text: Hicks, *Federal Union*.

S.S. 318. American Political and Social History Since 1865 3-0-3. Junior or Senior Elective.

Prerequisite: None.

Mr. LeBaron

A continuation of S.S. 317. The effects of Reconstruction, the restoration of home rule in the South, the Granger movement, business and politics, tariff and trust problems, imperialism and party politics, foreign relations, and international affairs. Latin American relations are stressed.

Text: Hicks, *American Nation*.

S.S. 319. History of the South 3-0-3. Junior or Senior Elective.

Prerequisite: Junior standing.

Mr. Sisk

The growth of the South's economic, social, and political life since 1820. Especial emphasis is given to those factors which have played an important part in the progress of Georgia. Current regional problems are considered.

Text: Simkins, *The South, Old and New*.

S.S. 320. Land Economics 3-0-3. Second and Third Quarters.

Prerequisite: Junior standing.

Mr. Eaton

This course deals with city growth, appraising problems, and urban land utilization. Housing problems are given special attention.

Text: Benson and North, *Real Estate*.

S.S. 323. United States Government and Law 3-0-3. First, Second and Third Quarters.

Prerequisite: Junior standing.

Mr. Hendricks

This is an advanced course in the national government of the United States taught partly through the medium of constitutional law. Significant cases are studied.

Text: Fairman, *American Constitutional Decisions*.

S.S. 324. State and Local Government and Problems 3-0-3. Junior or Senior Elective.

Prerequisite: None.

Mr. Rogers

This is a course in the operation of state and local governments, and in the problems which confront the governments of Georgia. The social, economic, and political life of Georgia is studied.

Text: Meadows, *Modern Georgia*.

S.S. 347, 348. Foundations of National Power 3-0-3. Junior or Senior Year, Two Quarters.

Prerequisite: Junior standing.

Mr. Scharf

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 maintain it. It is also designed to meet the needs of students desiring a general course in international relations.

Text: Sprout, *Foundations of National Power*.

S.S. 411, 412. Technology and Society (Industrial Sociology) 3-0-3. Senior Year, Two Quarters.

Prerequisite: Senior standing.

Mr. Bowden, Mr. Gaston

This is an advanced course dealing with the effect of technological development upon the social order. The significance of engineering in modern society is emphasized.

Text: For S.S. 411: Mees, *The Paths of Science*.

For S.S. 412: Moore, *Industrial Relations and the Social Order*.

S.S. 415. Urban Sociology 3-0-3. Open to Seniors and Graduate Students.

Prerequisite: Senior standing.

Mr. Bowden

This course will examine urban life, past and present, with special emphasis on problems resulting from our rapid shift from an agricultural to an urban society.

Text: Gist and Halbert, *Urban Society*.

THE A. FRENCH TEXTILE SCHOOL

This School offers courses leading to the degrees of Bachelor of Textile Engineering and Bachelor of Science in Textiles. The work leading to these degrees may be taken in one of three options, viz., Textile Engineering, Textile Chemistry and Dyeing, and Textile Manufacturing. Each of these may be taken as a regular four-year course, 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 School 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 60

SOPHOMORE YEAR

TEXTILE ENGINEERING OPTION

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

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
Phys.	207-8-9	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	3-1-2	3-1-2	3-1-2
T.E.	204-5-6	Principles of Fiber Processing	3-3-4	3-3-4	3-3-4
Total			19-11-21	19-11-21	19-11-21

JUNIOR YEAR

TEXTILE ENGINEERING OPTION

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
S.S.	204	Economics for Engineers	3-0-3	.....	.....
E.E.	316-7	Applied Electricity	3-0-3	2-5-3	.....
Eng.	321	Technical English	3-0-3	.....	.....
Mech.	301-2-3	Applied Mechanics	2-0-2	2-0-2	3-0-3
Mech.	331-2	Mechanics of Materials .....	.....	3-0-3	2-0-2
M.E.	332	Thermodynamics .....	.....	.....	4-0-4
T.E.	315-7	Fabric Design	1-3-2	2-3-3	.....
T.E.	210-1-2	Weaving	3-3-4	3-3-4	3-3-4
T.E.	318	Fabric Analysis .....	.....	.....	1-3-2
Electives		.....	4-0-4	3-0-3	3-0-3
Total			19-6-21	15-9-18	16-6-18

SENIOR YEAR
TEXTILE ENGINEERING OPTION

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
I.M.	317	Marketing .....	.....	.....	3-0-3
I.M.	407	Personnel Management	3-0-3	.....	.....
M.E.	332	Elementary Heat Power Engineering	3-0-3	.....	.....
M.E.	467-8	Machine Design	3-3-4	4-3-5	.....
M.E.	351	Fuels Laboratory .....	.....	.....	0-3-1
Phys.	314	Instruments for Measurement and Control .....	.....	.....	1-3-2
Psy.	302	Applied Psychology .....	.....	.....	3-0-3
T.E.	401	Cotton Classing .....	.....	0-3-1	.....
T.E.	420	Standard Fabrics .....	.....	.....	3-0-3
T.E.	443	Bleaching and Dyeing	3-3-4	.....	.....
T.E.	332	Mechanisms of Knitting	1-3-2	.....	.....
T.E.	444	Dyeing and Finishing .....	.....	3-3-4	.....
T.E.	450	Textile Calculations .....	.....	3-0-3	.....
T.E.	447	Textile Costing .....	.....	3-0-3	.....
T.E.	451	Mill Engineering .....	.....	.....	3-0-3
T.E.	431	Physical Textile Testing .....	.....	.....	1-3-2
T.E.	454	Seminar .....	.....	1-0-1	.....
Electives		.....	3-0-3	3-0-3	3-0-3
Total			16-9-19	17-9-20	17-9-20

SOPHOMORE YEAR
TEXTILE CHEMISTRY AND DYEING OPTION

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Chem.	211	Qualitative Analysis	4-0-4	.....	.....
Chem.	212	Qualitative and Quantitative Analysis .....	.....	1-9-4	.....
Chem.	213	Quantitative Analysis .....	.....	.....	1-9-4
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
Math.	201-2-3	Calculus	5-0-5	5-0-5	5-0-5
Phys.	207-8-9	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	3-1-2	3-1-2	3-1-2
Total			20-8-21	17-17-21	17-17-21

JUNIOR YEAR
TEXTILE CHEMISTRY AND DYEING OPTION

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Chem.	307-8-9	Organic Chemistry	3-3-4	3-3-4	3-3-4
Chem.	331-2-3	Physical Chemistry	3-0-3	3-0-3	3-0-3
Chem.	334-5-6	Physical Chemical Lab.	0-3-1	0-3-1	0-3-1
Eng.	321	Technical English	3-0-3	.....	.....
T.E.	204-5-6	Principles of Fiber Processing	3-3-4	3-3-4	3-3-4
T.E.	315	Fabric Design	1-3-2	.....	.....
T.E.	317	Fabric Design .....	.....	2-3-3	.....
T.E.	318	Fabric Analysis .....	.....	.....	1-3-2
T.E.	327	Textile Chemistry & Dyeing .....	.....	.....	3-0-3
Electives		.....	3-0-3	3-0-3	3-0-3
Total			16-12-20	14-12-18	16-12-20

SENIOR YEAR
TEXTILE CHEMISTRY AND DYEING OPTION

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Chem.	442	Industrial Chemistry	3-0-3	....	....
I.M.	407	Personnel Management .....	....	....	3-0-3
Phy.	302	Applied Psychology .....	....	....	3-0-3
T.E.	401	Cotton Classing .....	....	....	0-3-1
T.E.	210-1-2	Weaving	3-3-4	3-3-4	3-3-4
T.E.	425-6-7	Textile Chemistry and Dyeing	3-3-4	3-3-4	3-3-4
T.E.	428-9	Synthetic Fibers	2-0-2	2-0-2	....
T.E.	431-2	Physical Textile Testing	1-3-2	1-3-2	....
T.E.	443	Chemical Textile Testing .....	....	....	1-3-2
T.E.	447	Textile Costing .....	....	3-0-3	....
T.E.	441	Finishing and Printing .....	....	3-0-3	....
T.E.	454	Seminar	1-0-1	....	....
Electives		.....	3-0-3	3-0-3	3-0-3
Total			16-9-19	18-9-21	16-12-20

SOPHOMORE YEAR
MANUFACTURING OPTION

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
S.S.	204	Economics for Engineers	3-0-3	....	....
Eng.	201-2-3	Humanities	3-0-3	3-0-3	3-0-3
Math.	210	Mathematics of Finance .....	....	3-0-3	....
Phys.	211-2-3	Physics	4-0-4	4-0-4	4-0-4
P.T.	201-2-3	Physical Training	0-4-1	0-4-1	0-4-1
ROTC	201-2-3	Military or Naval Training	3-1-2	3-1-2	3-1-2
T.E.	207-8	Yarn Manufacturing .....	....	3-3-4	3-3-4
T.E.	201	Raw Materials	3-0-3	....	....
T.E.	210-1-2	Weaving	3-3-4	3-3-4	3-3-4
Total			19-8-20	19-11-21	16-11-18

JUNIOR YEAR
MANUFACTURING OPTION

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
Chem.	307-8-9	Organic Chemistry	3-3-4	3-3-4	3-3-4
I.M.	317	Marketing .....	....	....	3-0-3
Eng.	321	Technical English	3-0-3	....	....
M.E.	267	Kinematics of Mechanism	3-0-3	....	....
Psy.	302	Applied Psychology .....	....	3-0-3	....
T.E.	306-7-8	Yarn Manufacturing	3-3-4	3-3-4	3-3-4
T.E.	310	Fabric Structure and Design	1-3-2	....	....
T.E.	332	Mechanisms of Knitting .....	....	1-3-2	....
T.E.	311	Intermediate Design and Analysis .....	....	3-0-3	....
T.E.	312	Fancy Design .....	....	....	3-0-3
T.E.	333	Advanced Knitting .....	....	....	1-3-2
Electives		.....	3-0-3	3-0-3	3-0-3
Total			16-9-19	16-9-19	16-9-19

SENIOR YEAR
MANUFACTURING OPTION

<i>Course</i>	<i>No.</i>	<i>Subject</i>	<i>1st Q.</i>	<i>2nd Q.</i>	<i>3rd Q.</i>
I.E.	416	Motion and Time Study	2-3-3	....	....
I.M.	411	Introduction to Industrial Management....	3-0-3	....	....
I.M.	407	Personnel Administration	3-0-3	....	....
I.M.	447	Mathematics of Statistics .....	....	3-0-3	....
T.E.	443	Bleaching and Dyeing	3-3-4	....	....
T.E.	444	Dyeing and Finishing .....	....	3-3-4	....
T.E.	401	Cotton Clâssing	0-3-1	....	....
T.E.	318	Fabric Analysis	1-3-2	....	....
T.E.	446	Dyeing and Finishing of Synthetics.....	....	....	3-3-4
T.E.	447-8	Textile Costing .....	....	3-0-3	2-0-2
T.E.	419	Color in Design .....	....	2-0-2	....
T.E.	422	Jacquard Design and Weaving .....	....	....	2-3-3
T.E.	431	Physical Textile Testing .....	....	1-3-2	....
T.E.	433	Chemical Textile Testing .....	....	....	1-3-2
T.E.	420	Standard Fabrics .....	....	....	3-0-3
T.E.	451	Mill Engineering .....	....	....	3-0-3
T.E.	454	Seminar .....	....	1-0-1	....
Electives		.....	3-0-3	3-0-3	3-0-3
Total			15-12-19	16-6-18	17-9-20

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.

Mr. Dickert, Mr. Taylor

Gives students at beginning of Textile course a thorough survey of natural and synthetic fibers used in the Textile Industry. Covers cotton, wool, synthetics, silk, jute, hemp, flax, kapok, asbestos and miscellaneous fibers.

Text: *Lectures, Notes.*

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.

Mr. Hill and Mr. Hearn

Gives students a thorough survey course in yarn manufacture, covering theory, calculations and laboratory practice from the opening room through spinning. Course covers processing of natural and synthetic fibers on cotton system.

Text: *Lecture Notes, Textbooks and Laboratory.*

T.E. 207, 208. Yarn Manufacturing 3-3-4. Sophomore Year; Manufacturing Option; Second, and Third Quarters.

Prerequisite: None.

Mr. Hill and Mr. Hearn

Gives students a thorough fundamental course in yarn manufacturing covering the process from opening room through drawing on natural and synthetic fibers.

Text: *Lecture Notes, Textbooks and Laboratory.*

T.E. 210. Weaving 3-3-4. Sophomore Year, Manufacturing Option; Junior Year, Engineering Option; Senior Year, Chemistry and Dyeing Option; First Quarter.

Prerequisite: None.

Mr. Fletcher, Mr. MacDonald

Covers hand and power weaving; includes preparation of warps for hand looms as well as theory and practice in weaving for plain power looms. Course covers all yarn and warp calculations necessary for this type of weaving using natural and synthetic yarns.

Text: *Lecture Notes, Textbooks and Laboratory.*

T.E. 211. Weaving 3-3-4. Sophomore Year, Manufacturing Option; Junior Year, Engineering Option; Senior Year, Chemistry and Dyeing Option; Second Quarter.

Prerequisite: T.E. 210.

Mr. Fletcher, Mr. McCarty

A continuation of T.E. 210 covering theory and practice of weaving on plain, automatic and dobby looms. It involves a detailed study of loom mechanism and calculations as applied to looms.

Text: *Lecture Notes, Textbooks and Laboratory.*

T.E. 212. Weaving 3-3-4. Sophomore Year, Manufacturing; Junior Year, Engineering Option; Senior Year, Chemistry and Dyeing Option; Third Quarter.

Prerequisite: T.E. 211.

Mr. Fletcher, Mr. McCarty

This course goes further into weaving and covers the theory and practice of warp preparation, sizing and slashing. It includes the study of sizing materials and methods for yarns made from natural, synthetic and blended fibers. It covers the study of Lenos, Dobbys and Box looms.

Text: *Lecture Notes, Textbooks and Laboratory.*

T.E. 306, 307, 308. Yarn Manufacturing 3-3-4. Junior Year, Manufacturing Option, First, Second and Third Quarters.

Prerequisite: T.E. 208.

Mr. Hill, Mr. Hearn

A continuation of T.E. 207, 208 covering roving, spinning, twisting and winding, and going into further detail of machine construction, theory of processing and methods of process control. Covers practical machine operation and textile calculation on both conventional and long draft equipment.

Text: *Lecture Notes, Textbooks and Laboratory.*

T.E. 310. Elementary Design and Fabric Structure 1-3-2. Junior Year, Manufacturing Option, First Quarter.

Prerequisite: None.

Mr. Fletcher, Mr. McCarty

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, Notes, Laboratory and Plates.*

T.E. 311. Intermediate Design 3-0-3. Junior Year, Manufacturing Option, Second Quarter.

Prerequisite: T.E. 310.

Mr. Fletcher, Mr. McCarty

Covers the design of more complex dobby woven fabrics, including honeycombs, brighton, diamond, huck, shaded weaves and the several standard methods used for deriving new weaves.

Text: *Lectures, Notes, and Plates.*

T.E. 312. Fancy Design 3-0-3. Junior Year, Manufacturing Option, Third Quarter.

Prerequisite: T.E. 311.

Mr. Fletcher, Mr. McCarty

A course covering the design of fancy and complex dobby woven fabrics including backed weaves, figured weaves, double and multiple cloths, pique, pile fabrics and lenos.

Text: *Lectures, Notes, and Plates.*

T.E. 315. Fabric Design 1-3-2. Junior Year, Engineering, and Chemistry and Dyeing Options, First Quarter.

Prerequisite: None.

Mr. Fletcher, Mr. McCarty

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

Text: *Lecture Notes, Laboratory and Plates.*

T.E. 317. Fabric Design 2-3-3. Junior Year, Engineering, and Chemistry and Dyeing Option; Second Quarter.

Prerequisite: T.E. 315.

Mr. Fletcher, Mr. McCarty

A continuation of T.E. 315 to give students of the Engineering Option and Chemistry and Dyeing Option additional basic training in design.

Text: *Lecture Notes, Laboratory and Plates.*

T.E. 318. Fabric Analysis 1-3-2. Junior Year; Engineering, and Chemistry and Dyeing Options, Third Quarter, Senior Year; Manufacturing Option; First Quarter.

Prerequisite: T.E. 312 or 317.

Mr. Fletcher, Mr. McCarty

A course in cloth calculations and fabric analysis. Fabric samples are dissected for weaves and drafts to acquaint the student with the technique of pick-outs.

Text: *Lectures, Notes, Laboratory and Plates.*

T.E. 327. Textile Chemistry Dyeing 3-0-3. Junior Year, Chemistry and Dyeing Option, Third Quarter.

Prerequisite: Chem. 309 or concurrently.

Mr. Jones, Mr. Taylor

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 studied.

Text: *Lectures, Notes, Textbooks.*

T.E. 332. Mechanics of Knitting 1-3-2. Junior Year, Manufacturing Option, Second Quarter; Senior Year, Engineering Option, First Quarter.

Prerequisites: None.

Mr. MacDonald

Covers fundamentals of knitting cotton, wool and synthetics. Covers theory and practice of knitting circular knit fabric, hosiery, underwear, and braids (basic). Involves a study of the mechanism of the knitting machine and the production of fabric.

Text: *Lecture, Notes and Laboratory.*

T.E. 333. Advanced Knitting 1-3-2. Junior Year, Manufacturing Option, Third Quarter.

Prerequisite: T.E. 332.

Mr. MacDonald

Course covers theory and practice of manufacturing fancy knit fabrics on lath and spring needle machines. The designing of fancy patterns is included in this course.

Text: *Lectures, Notes and Laboratory.*

T.E. 401. Cotton Classing 0-3-1. Senior Year. Manufacturing Option. Engineer Option, Second Quarter; Chemistry and Dyeing Option, Third Quarter.

Prerequisite: None.

Mr. McCarty, Mr. Hill

A course designed to teach the student the fundamental principles of Cotton Classing according to accepted Governmental standards and commercial practice. Government standards for both Grade and Staple are used as reference.

Text: *Notes and Laboratory.*

T.E. 419. Color in Design 2-0-2. Senior Year, Manufacturing Option, Second Quarter.

Prerequisite: T.E. 312.

Mr. Fletcher, Mr. McCarty

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, Notes, and Plates.*

T.E. 420. Standard Fabrics 3-0-3. Senior Year, Manufacturing Option, and Engineering Option, Third Quarter.

Prerequisite: T.E. 318.

Mr. Fletcher, Mr. McCarty

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, Notes, Samples and Plates.*

T.E. 422. Jacquard Design and Weaving 2-3-3. Senior Year, Manufacturing Option, Third Quarter.

Prerequisites: T.E. 212 and T.E. 312.

Mr. Fletcher, Mr. McCarty

Course offered to students in the Textile Manufacturing Option and covers the theory and practice of jacquard design and weaving.

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.

Mr. Jones and Mr. Taylor

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.*

T.E. 428. Synthetic Fibers 2-0-2. Senior Year, Chemistry and Dyeing Option, First Quarter.

Prerequisite: Senior standing.

Mr. Dickert

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, Notes.*

T.E. 429. Synthetic Fibers 2-0-2. Senior Year, Chemistry and Dyeing Option, Second Quarter.

Prerequisite: T.E. 428.

Mr. Dickert

A continuation of T.E. 428 and covers a complete survey of textile processes for handling synthetic fibers. This involves all major processes including the cotton, wool, worsted and silk systems.

Text: *Lectures, Notes.*

T.E. 431. Physical Textile Testing 1-3-2. Senior Year, All Options; First, Second, and Third Quarters.

Prerequisite: Senior standing.

Mr. Jones

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. 432. Physical Textile Testing 1-3-2. Senior Year, Chemistry and Dyeing Option, Second Quarter.

Prerequisite: T.E. 431.

Mr. Jones

A continuation of T.E. 431 designed to give students in the Chemistry and Dyeing option a greater scope in Testing. Emphasis in this course is placed on the testing of synthetic fibers, yarns, and fabrics. The course includes microscopic methods of identification and analysis and studies of moisture regain and its effect on the properties of both natural and synthetic fibers.

Text: *Lectures, Notes, Textbooks and Laboratory.*

T.E. 433. Chemical Textile Testing 1-3-2. Senior Year, Chemistry and Dyeing and Manufacturing Options, Third Quarter.

Prerequisite: T.E. 431.

Mr. Jones and Mr. Taylor

Course designed to familiarize students with chemical methods of identifying and investigating natural and synthetic fibers. Also covers size and finish analysis in addition to specialized chemical analysis.

Text: *Laboratory supplemented by Notes and Textbooks.*

T.E. 441. Finishing and Printing 3-0-3. Senior Year, Chemistry and Dyeing Option, Second Quarter.

Prerequisite: T.E. 425 or T.E. 443.

Mr. Jones and Mr. Taylor

A survey course in printing and finishing fabrics from natural and synthetic fibers. Covers methods of printing, equipment used and the fundamentals of preparing printing pastes, etc. Involves theory and laboratory practice.

Text: *Lectures, Notes, Textbooks and Laboratory.*

T.E. 443. Bleaching and Dyeing 3-3-4. Senior Year, Engineering and Manufacturing Options, First Quarter.

Prerequisite: Senior Standing.

Mr. Jones and Mr. Taylor

A general course covering basic methods of bleaching and dyeing. Covers theory and practice.

Text: *Lectures, Notes, Textbooks and Laboratory.*

T.E. 444. Dyeing and Finishing 3-3-4. Senior Year, Engineering and Manufacturing Options, Second Quarter.

Prerequisite: T.E. 443.

Mr. Jones and Mr. Taylor

A continuation of T.E. 443 going more into the technique of handling fabrics from natural fibers. Cover dye selection, finishing procedures, etc.

Text: *Lectures, Notes, Textbooks and Laboratory.*

T.E. 446. Dyeing and Finishing Synthetics 3-3-4. Senior Year, Manufacturing Option, Third Quarter.

Prerequisites: T.E. 444.

Mr. Jones and Mr. Taylor

Course covers technique of handling fabrics made from synthetic fibers. It covers the handling of fabrics, dye selection, finishing procedures, etc.

Text: *Lectures, Notes, Textbooks and Laboratory.*

T.E. 447. Textile Costing 3-0-3. Senior Year, All Options, Second Quarter.

Prerequisite: Senior standing.

Mr. McCarty

Covers basic principles, material, labor, overhead, departmentalizing, accumulating costs by departments, allocation of costs, predetermined costs, fabric cost sheet, marketing costs and financial statements.

Text: *Lectures, Textbooks, Discussion, Problems.*

T.E. 448. Textile Costing 2-0-2. Senior Year, Manufacturing Option, Third Quarter.

Prerequisite: T.E. 447.

Mr. McCarty

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.*

T.E. 450. Textile Machine Calculations 3-0-3. Senior Year, Engineering Option, Second Quarter.

Prerequisites: T.E. 206.

Mr. Hill

Supplies the Textile Engineering student with a concentrated course of calculations dealing with machine operations, process control and mill organization.

Text: *Lectures, Notes, Textbooks.*

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. 450 for Engineering Option. Mr. Hill and Mr. Dickert

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, Problems.*

T.E. 454. Seminar 1-0-1. Senior Year, All Options, All Quarters.

Prerequisite: Senior standing.

Mr. Taylor

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.

Text: *None.*

THE CO-OPERATIVE PLAN

CO-OPERATIVE COURSES IN AERONAUTICAL, CHEMICAL, CIVIL, ELECTRICAL, INDUSTRIAL, MECHANICAL, AND TEXTILE ENGINEERING

(A Special Bulletin is available and will be mailed on request.)

Since 1912 the Georgia Institute of Technology has offered two courses in engineering, the standard four-year course 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 Mechanical and Electrical Engineering. However, during the period between 1920 and 1928, Civil, Textile and Chemical Engineering were added, and in 1946 Aeronautical and Industrial Engineering, making a total of seven courses available to students under this plan.

Under the Co-operative Plan the students are divided into two sections, the first beginning classes in June, and the second in September. While section one is at college three months, section two is at work in industry for the same length of time. The two sections alternate or exchange places with each other every three months until the fifth year, when they merge and remain at college continuously until graduation. A co-operative student gets three weeks of vacation during each calendar year, one week at Christmas and two in the summer.

A student is placed at work after he has attended classes under the Co-operative Plan for three months. The co-operating firms offer a wide variety of practical training and many lines of specialization. By the end of the first year a student usually will have found the career in which he is most interested; the department then will use every effort to place him in the work for which he is best fitted. 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. A student always remains on the job assigned him until the company and college officials advance him to a higher grade of work. By the time he graduates, he will have received training in practically all departments of an industry. A high percentage of students located and trained in this way follow and succeed in their chosen profession.

The Director of the Co-operative Division makes frequent visits to employing companies. Through interviews with company officials and shop foremen, he brings about co-ordination of industrial work with engineering curricula, and takes care of any necessary adjustments in types of work, wages, etc. Before freshmen are sent to work, they attend orientation classes where they receive pointers on how to make good on the job, how to make friends with regular shop employees, etc. Harmony and good will between the co-operative apprentices and regular shop forces are necessary for efficiency and production.

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

The co-operative students receive wages for their work at the prevailing rates in the shops in which they are employed. The average beginning wage for a freshman at the present time is \$150.00 per month. 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.

The average Georgia freshman should have about \$625.00 subject to checking account, and an out-of-state student should have about \$725.00. By saving \$100.00 during his first work term to add to this amount, a freshman should be able to take care of all expenses. Students who live at home during their work terms, thus reducing the cost of board and lodging, are able to save more to apply on their college expenses. Upperclassmen should need less money each year as they advance on practice work.

The entrance requirements for the Co-operative Engineering Courses include all specified units on page 51. Seven optional units on page 51 must be selected to make a total of fifteen units. However, an applicant must be a graduate of an accredited secondary school, and must be specifically recommended by its 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 to J. G. Wohlford, Acting Director of the Co-operative Plan, for the division bulletin which gives full particulars about fees, living expenses, wages paid the students while at work, discipline, school activities, etc.

DIVISION OF GRADUATE STUDIES

(A Bulletin regarding Graduate Studies will be sent upon request)

ADMINISTRATIVE OFFICERS

RAY L. SWEIGERT, B.E. in M.E., M.A., Ph.D. *Dean*
GLEN GILMAN, M.S. *Assistant to the Dean*

GRADUATE COUNCIL

RAY L. SWEIGERT, PH.D. *Chairman*
WILLIAM L. CARMICHAEL, M.S. *Secretary*
Ex-Officio
CHERRY L. EMERSON, B.S. in E.E., and M.E. *Vice President*
JESSE W. MASON, Ph.D. *Dean of Engineering College*
RALPH A. HEFNER, Ph.D. *Dean of General College*
GERALD A. ROSSELOT, Ph.D. *Director, Engineering Experiment Station*
MRS. J. H. CROSLAND *Librarian*
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 Director of the School*
Appointment Expiring June 30, 1951:
LANE MITCHELL, Ph.D., *Professor of Ceramic Engineering and Biology and Director of the School*
WILLIAM MONROE SPICER, Ph.D., *Professor of Chemistry*
JAMES E. BOYD, Ph.D., *Professor of Physics*
Appointment Expiring June 30, 1952:
JOSEPH E. MOORE, Ph.D., *Professor of Psychology and Head of the Department*
GEORGE K. WILLIAMS, M.E.E., *Associate Professor of Aeronautical Engineering*
JAMES L. TAYLOR, Ph.D., *Professor of Textile Engineering*
Appointment Expiring June 30, 1953:
WILLIAM A. EDSON, Ph.D., *Professor of Electrical Engineering*
HOMER S. WEBER, Ph.D., *Professor of Mechanical Engineering and Director of the School*
PAUL WEBER, Ph.D., *Professor of Chemical Engineering and Director of the School*

PURPOSE

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, Public Health Engineering, Safety Engineering, 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 Chemical Engineering and Chemistry.

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, Industrial Psychology, Mathematics, Mechanics, Modern Languages and Sociology.

FELLOWSHIPS ARE BEING SUPPORTED AT THE
GEORGIA INSTITUTE OF TECHNOLOGY

BY

THE WESTINGHOUSE EDUCATIONAL FOUNDATION
Research in the Distribution of Electrical Power

THE SHELL OIL COMPANY
Research in Chemical Engineering

THE TENNESSEE EASTMAN CORPORATION
Research in Synthetic Fibers and Dyestuffs

THE TEXAS COMPANY
Research in Textile Lubrication

THE T. E. STRIBLING FOUNDATION
Research in Textile Engineering

THE TENNESSEE CORPORATION
Research in Ceramic Engineering

THE RESEARCH CORPORATION
Research in Chemistry

THE EDWARD ORTON, JR., FOUNDATION
Research in Ceramic Engineering

THE SOCONY-VACUUM OIL COMPANY
Research in Chemical Engineering

For further information concerning any of the above fellowships, write the Dean of the Graduate Division.

DIVISIONAL FELLOWSHIPS

Graduate Fellowships may be made available from the funds of the Division of Graduate Studies to enable worthy students to continue with advanced study and research in an engineering or scientific field.

Research Fellowships may be granted by the Division of Graduate Studies to men possessing high scholarly attainment, experience in research, and proven ability in their field. The complete facilities of the school will be made available for projects in either pure or applied research.

INSTRUCTORS AND ASSISTANTS

Instructorships on a part-time basis may be granted to graduate students qualified to teach at college level. These positions do not carry faculty rank. Stipends will be based on the proportionate teaching load and the qualifications of the individuals. They will in general range between \$900.00 and \$1500.00.

Assistantships—Graduate and research assistantships are available for graduate students possessing experience and ability applicable to current or planned research, or qualified to serve as assistants to instructors or in laboratories. Stipend for 14 hours of service per week will start at \$800.00 per academic year.

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 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 fifty 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. At least one full academic year in residence past the bachelor's degree must be completed on campus before the master's degree can be awarded.

At least 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 Institute of Technology, and unless special permission is obtained, these must be the three immediately preceding the award of the degree.

GRADUATE BULLETINS

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.

ENGINEERING EXTENSION DIVISION

The Engineering Extension Division is designed both as a campus and an off-campus educational program to serve the people and industry of Georgia where a need exists for industrial training. The scope of its work includes college credit courses as well as specialized programs in adult education such as vocational courses, terminal courses designed to train those who wish to qualify as engineering aides and technicians, short courses and conferences, and in cooperation with the State Department of Education, a training program in trade and industrial education within the industries and public services of the state, including supervisory and foremanship conferences.

ENGINEERING EVENING SCHOOL

The Engineering Evening School was organized at Georgia Tech in 1908 to meet the demand for more technical knowledge by those who were compelled to work during the day. It was designed to meet the needs of those who found that the education that they possessed was not enough to insure advancement in their chosen work; for those who desired instruction along new lines in order that they might change occupations; and for those who wished to specialize along some practical line.

FEEES

The admission fee for the various courses in the evening school is dependent upon the number of hours scheduled per week. Five 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 1949-1950

Fall Quarter

Begins September 28, 1949.....Ends December 17, 1949

Winter Quarter

Begins January 4, 1950.....Ends March 18, 1950

Spring Quarter

Begins March 29, 1950.....Ends June 10, 1950

Summer Quarter

Begins June 28, 1950.....Ends September 9, 1950

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 of Graduate Studies 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 "D" 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 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 other 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 are 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, Auto Ignition Analysis, Blue Print Reading, Combustion of Fuels, Drawing, Gemology, Heating and Ventilating, Machine Shop Practice, Mathematics, Mechanics, Physics, Radio Service, Refrigeration, Textiles, Water Purification and Control.

DIVISION OF EMERGENCY TRAINING

The Division of Emergency Training was established in the Engineering Extension Division primarily for returning service men enrolled for veterans' training. The purpose of the Division of Emergency Training is to make available remedial and refresher courses, college credit courses, and a limited number of entrance courses for making up minor deficiencies in high school training.

Students enrolled in the Division of Emergency Training are required to carry a full time schedule, the equivalent of twelve or more quarter hours.

TUITION AND FEES

Residents of Georgia	\$46.50	.....	\$5.00	\$ 51.50	\$154.50
Non-residents of Georgia . .	46.50	100.00	5.00	151.50	454.50

The rates for fees are subject to change at the end of any quarter.

TRADE AND INDUSTRIAL EDUCATION

In conformity with the provisions of the Smith-Hughes Act, this department, in cooperation with the State Department of Education, 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.
3. Public and plant part-time 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 Institute 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.

INSTITUTE OF PUBLIC SAFETY

The Institute of Public Safety offers instruction through short courses and conferences in commercial vehicle safety, driver training, industrial safety and fire prevention, and traffic engineering and enforcement. Traffic surveys and studies involving driver selection, driver testing, vehicular and pedestrian traffic controls, parkings, etc., are also conducted in cooperation with state, municipal and private agencies.

The annual Southeastern Motor Vehicle Fleet Supervisors Training Course is offered under the sponsorship of national and local agencies, to acquaint fleet owners, operators, supervisors and safety personnel with the latest methods in fleet accident prevention. Selected high-school teachers and other qualified persons are trained in approved driver-training methods for use in high-school curricula.

The Institute staff functions actively with the National Commission for Safety Education, National Committee for Traffic Safety, National Committee for Traffic Training, American Society of Safety Engineers and President Truman's Conferences on Highway, Fire Prevention and Industrial Safety. The staff also participates in the National Safety Congress, Southern Safety Congress, National Institute for Traffic Training and other similar activities.

SPECIAL SHORT SCHOOL AND CONFERENCES

Through its Engineering Extension Division, Georgia Tech offers various short courses and conferences which are designed to serve any of the following purposes:

1. To present sound methods for utilization and placement of personnel in industry.
2. Provide orientation for trainees or new employees in a particular industry.
3. Present new techniques and developments to professional engineers or key industrial personnel.
4. Present adequate safety programs to all levels—from community to industry.

The Engineering Extension Division works in close cooperation with industry, trade associations, technical and scientific societies in presenting these short courses through the cooperation of the various departments of the regular Undergraduate Division of the Georgia Institute of Technology, the Extension Division has access to many of the regular departmental facilities for the class and laboratory work of these short courses. Furthermore, skilled and experienced departmental teaching personnel frequently assist in providing the very best instruction for students enrolled in the courses or conferences.

Industries and individuals whose training problems may be benefited through such short courses or conferences are invited to contact the Engineering Extension Division, Georgia Institute of Technology, Atlanta, Georgia.

THE TECHNICAL INSTITUTE

CHAMBLEE, GEORGIA

GENERAL OBJECTIVES

The Technical Institute is a unit of the Engineering Extension Division of the Georgia Institute of Technology designed for the student who is not particularly interested in the theoretical side of engineering as needed for original research and design but is interested in a condensed technical course of applied engineering which qualifies for high-paying technical positions in industry. Any complete course at this two-year college may be finished in eighteen months.

The Technical Institute prepares the student to enter into and advance in the engineering field of his choice. Although as a graduate of a two-year college course he is not a full engineer, there is no reason why, by hard work and further study, he cannot advance to top positions.

The Technical Institute curriculum is designed to provide the basic scientific training, the specialized technical "know-how," and the supervisory and management training needed by the technician. The courses are briefer, more intensive, and more specific in purpose than those of the professional engineering curricula, although they lie in the same fields of industry and engineering. Their aim is to prepare the individual for specific technical positions or lines of activity rather than for broad sectors of engineering practice. The Technical Institute program is a terminal program; that is, at the termination of the course, the student has received basic scientific training plus the application of this training to the special problems of his field of study which will enable him to go directly into industry.

Courses are offered in Building Construction; Electrical; Electronics and Radio; Mechanical; Heating, Ventilating, and Air Conditioning; Industrial Management; and Surveying and Construction Technologies. Textile Technology is expected to be offered by September, 1949.

The job opportunities for technicians appear to be very bright. Studies made by the American Association of Engineering Education reveal that ten technicians are needed for every engineer. The Associated Industries of Georgia estimates that there are, in Georgia alone, 20,000 well-paying positions for trained technicians, at salaries ranging upward from \$2,400 per year.

The work offered qualifies for five major occupations:

1. Draftsman

Technicians are trained for drafting room work in industries, engineering offices and offices of contractors, builders, architects, etc.

2. Maintenance and Operation

Technicians are trained for employment in the operation and repair of equipment or as aides in the engineering offices of manufacturers of such equipment.

3. Production

Technicians are trained for supervisory positions in manufacturing plants or as aides in production engineering offices.

4. General Construction

Technicians are trained for office and field work in the building and contracting industries, railroad and highway construction and maintenance, Public Works departments and engineering aides in the offices of consulting engineers.

5. Sales and Contracting

Technicians are trained to enter sales engineering, the contracting business in the various industrial fields, or to operate repair service and sales agencies.

SCHOOL CALENDAR

Summer Quarter

Begins June 27, 1949 Ends September 10, 1949

Fall Quarter

Begins September 26, 1949 Ends December 17, 1949

Winter Quarter

Begins January 2, 1950 Ends March 18, 1950

Spring Quarter

Begins March 29, 1950 Ends June 10, 1950

ENTRANCE REQUIREMENTS

An applicant may be admitted by a certificate under the following conditions:

(a) He must have graduated from an accredited high school with a record high enough to indicate that he is prepared for institute work, or have an equivalent training in practical experience.

(b) He must be at least 16 years of age.

ADMISSION FOR ADVANCED STANDING

Applicants who have made satisfactory records in scholarship and in conduct 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 The Technical Institute. No definite statement of advanced standing can be given until an official transcript of record is received from the proper authority or official.

VETERAN PROGRAM

Veterans are eligible to enter the Institute under the G.I. Bill of Rights.

TUITION AND FEES

The following fee schedule has been established for the Technical Institute:

	Matriculation fee per quarter	Tuition fee per quarter	Medical fee per quarter	Student Activity fee per quarter	Total fee per quarter	Total fees per academic year
Residents of Georgia	\$71.50	75.00	\$3.50	\$5.00	\$ 80.00	\$240.00
Non-residents of Georgia	71.50	75.00	3.50	5.50	155.00	465.00

Dormitory rent is payable in advance; \$35.00 per quarter or \$12.00 per month.

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

SUMMARY OF EXPENSES

(Estimated for Academic Year)

(9 months)

	Resident of Georgia	Non-resident of Georgia
Matriculation, tuition, and other fees	\$240.00	\$ 465.00
Board, room, and laundry	550.00	550.00
Books and equipment	80.00	80.00
	<u>\$870.00</u>	<u>\$1095.00</u>

Matriculation, tuition, and medical fees of veterans enrolled under PL 16 and PL 346 are paid by the Veterans Administration in accordance with the terms of those laws and amendments.

An extra fee may be charged in special courses.

DORMITORIES

The Institute dormitories consist of two buildings, formerly used as Officers' Quarters. Two students are assigned to each room. The dormitory rent is \$35.00 per quarter per student, and a deposit of \$10.00 should accompany each request for a dormitory reservation, and is subject to refund if the applicant does not enter.

For additional information, write The Technical Institute, Chamblee, Georgia, or phone Cherokee 4418 for a school catalogue.

STATE ENGINEERING EXPERIMENT STATION

Faculty Advisory Council: H. E. DENNISON, *Director*, School of Industrial Management; D. W. DUTTON, *Director*, Daniel Guggenheim School of Aeronautics; H. A. DICKERT, *Director*, A. French Textile School; C. L. EMERSON, *Vice President*; F. F. GROSECLOSE, *Director*, School of Industrial Engineering; J. W. MASON, *Dean*, Engineering College; G. A. ROSSELOT, *Director*, Engineering Experiment Station; R. L. SWEIGERT, *Dean*, Graduate Studies; BLAKE R. VAN LEER, *President*; PAUL WEBER, *Director*, School of Chemical Engineering.

The State Engineering Experiment Station of the Georgia Institute 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 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 Institute, Graduate Research Assistants and Fellows, and full time Research Fellows, Engineers, 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 schools of the Institute. 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 \$800 per year 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 catalog 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, reprints, and special reports of the Station, also the Stations bi-monthly journal, *The Research Engineer*.

During the year 1948-49 the Station utilized the full time services of 72 persons and part-time services of 86 persons in the prosecution of 31 major and 41 minor research problems. Fundamental and applied engineering investigations were carried on in Textile Engineering, Aeronautics, Chemical Engineering, Chemistry, Physics, Sanitary Engineering, Mechanical Engineering, Hydraulics, Electronics, Technical Information, and Industrial Economics. Many of the projects were supported by external agencies.

HEALTH SERVICE

The Joseph Brown Whitehead Memorial Hospital has been in operation for thirty-seven 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 C. 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 in school. 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 physician, 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 fifty cents for each meal served while in the hospital.

A complete physical examination is compulsory for each new student. This requirement will be waived in case of veterans who have been separated from military service within the preceding year, provided they do not elect to take advanced R.O.T.C. Subsequent physical examinations will be required at the discretion of the authorities. The school arranges to have these examinations conducted at a scheduled time shortly after matriculation, by a group of well trained specialists at no additional expense to the student. An additional fee of \$5.00 will be charged each student who for any reason fails to take his examination when scheduled. Medical certificates from elsewhere will not be accepted. At the time of his physical examination each student will be responsible for declaring any handicap such as asthma, hay fever, sinus trouble, and flat feet for which he wishes consideration in his physical training program.

Examinations includes a tuberculin skin test. Students who show a positive reaction are required to cooperate by having an X-ray examination of his lungs at the school hospital.

Any student who does not present a certificate or other evidence of successful vaccination within the past four years will be vaccinated at the time of his physical examination.

Prophylactic, typhoid and tetanus inoculations will be given free when such inoculations are requested.

It is expected that, before matriculation, students will have corrected any errors of refraction, and dental or other conditions which, if neglected, may interfere with their curricula activities. Warts should be cared for before matriculation or during vacation. Their removal and subsequent dressings during school is not only time consuming but is also a prolific source of time lost from classes and physical training.

LIBRARY

The library building, a gift of Mr. Andrew Carnegie, was formally opened in October, 1906. 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 100,000 volumes and some 25,000 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 30,000 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 and Concert Committee, and the Phi Kappa Phi Honorary Society. The set includes a phonograph designed for use in a small room or auditorium and 900 records selected as an anthology of recorded music. The room is open to all students and faculty members.

UNIVERSITY CENTER IN GEORGIA

The following institutions are cooperating in a University Center in Georgia:

Agnes Scott College for Women, Decatur, Georgia.
Columbia Theological Seminary, Decatur, Georgia.
Emory University, Emory University, Georgia.
Georgia Institute 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 has been made. One catalogue is at Emory University and one at the University of Georgia. These are author catalogues. 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 materials 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

DR. BLAKE R. VAN LLER	<i>Chairman</i>
PROF. H. A. WYCKOFF	<i>Secretary and Treasurer</i>
PROF. T. H. EVANS	<i>Faculty Chairman</i>
W. A. ALEXANDER	<i>Athletic Director</i>
DEAN P. B. NARMORE	<i>Faculty Member</i>
DEAN L. W. CHAPIN	<i>Faculty Member</i>
PROF. W. C. WHITLEY	<i>Faculty Member</i>
C. M. GRIFFIN	<i>Business Manager</i>
R. B. WILBY	<i>Alumni Member</i>
L. W. ROBERT	<i>Alumni Member</i>
JOEL C. HARRIS	<i>Alumni Member</i>
CAPTAIN OF THE FOOTBALL TEAM	<i>Student Member</i>
EDITOR OF THE TECHNIQUE	<i>Student Member</i>
PRESIDENT OF THE STUDENT COUNCIL	<i>Student Member</i>

INTERCOLLEGIATE STAFF

W. A. ALEXANDER	<i>Athletic Director</i>
R. M. MUNDORFF	<i>Assistant Athletic Director and Intramurals</i>
PROF. H. A. WYCKOFF	<i>Treasurer</i>
C. M. GRIFFIN	<i>Business Manager</i>
MRS. CORNELIA MOSELEY	<i>Secretary</i>
E. J. HOSCH	<i>Sports Publicity</i>
R. L. DODD	<i>Football Coach</i>
J. R. McARTHUR	<i>Basketball Coach</i>
N. C. DEAN	<i>Track Coach</i>
F. R. LANOUE	<i>Swimming Coach</i>
R. N. MILLER	<i>Wrestling Coach</i>
J. H. PITTARD	<i>Baseball Coach</i>
PROF. E. E. BORTELL	<i>Tennis Coach</i>
PROF. H. E. DENNISON	<i>Golf Coach</i>
DEAN GEORGE C. GRIFFIN	<i>Cross Country Coach</i>
L. B. WELSER	<i>Gymnastic Coach</i>
RAY ELLIS	<i>Assistant in Football</i>
RAY GRAVES	<i>Assistant in Football</i>
DWIGHT KEITH	<i>Assistant in Football</i>
R. E. JONES	<i>Assistant in Football</i>
L. C. WOODRUFF	<i>Assistant in Football</i>
G. T. MANNING	<i>Assistant in Football</i>
TOMMY PLAXICO	<i>Assistant in Track</i>
J. H. McAULEY	<i>Assistant in Swimming</i>
J. C. HYDER	<i>Assistant in Baseball</i>
W. E. NEIGER	<i>Assistant in Gymnastics</i>
J. A. GRIFFITH	<i>Assistant in Wrestling</i>

COLLEGE ATHLETICS

College athletics at the Georgia Institute 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, baseball and gymnastics.

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 40,000 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 wrestling room and corrective exercise room.

The liberality of Mr. John W. Grant, whose donations have reached the sum of \$50,000.00, and other money 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 two million dollars. Acknowledgement is also made of the money loaned by Mr. Furd 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.

The land bounded by 8th Street, 10th Street, Fowler and Cherry Streets has been allocated to athletic purposes by Georgia Tech.

OFFICE OF DEAN OF STUDENTS

The Dean of Students and his associates are interested in the student as an individual. For that reason they attempt to be of service to him in more than just the academic phase of his career at Georgia Tech. Supervision of all campus activities outside of the curriculum is centered in this office. Counseling and assistance on personal, vocational, financial, and other problems are provided.

The student has contact with the staff members not only while on the campus but also afterwards when he has taken up his professional career. This office registers the new freshman, schedules him to his first classes, and supervises his orientation. It assists in finding part-time work, aids the veteran in his relations with the Veterans' Administration, and helps both seniors and alumni in finding positions. The office also supervises the Student Council, the publications, the social fraternities, and other extra-curricular activities. All of these contacts enable the staff members to have frequent association with the students.

An employment service is maintained by this office for students who need assistance in paying their college expenses. In providing opportunities for part-time work, however, the staff holds firmly to the belief that a student's first concern is his academic work. It has been found that one who must work in order to meet his college expenses should ask for a lighter schedule and allow more than twelve quarters to secure his degree, the average student being unable to carry a full schedule and work more than two hours per day without failure in one or more subjects.

An amplified program of student counseling and guidance has been inaugurated by the Office of the Dean of Students. Faculty advisers for students have been appointed to serve as "a positive source of friendship on the campus." In addition, a guidance office has been established. Its functions are the giving of the battery of psychological tests at the time of the student's matriculation, and individual testing and guidance of men with specific problems.

For the benefit of the seniors and graduate students, continuous contact is maintained with industrial concerns throughout the nation. An accurate knowledge of the personnel needs of these industries enables this office to be of great assistance in placing students upon their graduation. Many industries send representatives to the Georgia Tech campus for individual interviews. A similar service is provided for alumni who desire to change positions.

The office of the Dean of Students is always open to any student who is seeking counsel and advice to enable him to derive the most from his life at Tech. The Dean of Students and his staff are eager to cooperate with parents in an effort to solve any problems affecting the welfare of Georgia Tech men.

THE STUDENT COUNCIL

The Student Council, which was first established in 1922, is the student government organization. It exercises supervisory authority over all extra-curricular student activities except the Y.M.C.A. and athletics. It serves as the principal liaison agent between the general student body and the school authorities and is the authoritative voice of the students. It promotes understanding and harmony between the students and the faculty. The Student Council controls the use of student activity fees and handles all financial matters involving the general student body. The council is also in charge of all elections of class officers and Student Council members. (In January, 1946, the students used six regular voting machines when electing class officers. It is believed that this was the first time a school had ever used such machines. They will be used for all future elections if possible.)

The Student Council is composed of thirty-four elected representatives of the undergraduate student body. The nineteen senior members are elected by schools or departments while the 15 junior, sophomore, and freshmen members are elected by their respective classes. The Dean of Students is faculty advisor for the council.

STUDENT COUNCIL MEMBERS 1948-1949

<p>LEROY BARNES, <i>Pres.</i> ALPHONSE BOISSY, <i>V. Pres.</i>, HAROLD KRAFT, <i>Sec.</i> ESTES MANN, <i>Treas.</i> WAYNE BLANCETT TRAVIS BRANNON BRIAN BROWN WILLIAM CARASIK THEODORE CARROLL TOM CROSSLEY EUGENE DAMON MARTIN GOODMAN DON GRAY HARRY HARDY WAYNE HEASLEY NELSON HOCKING JOHN HUSKISSON</p>	<p>DONALD KENNEDY GEORGE KIRK CAMERON LACY OTTO MORRIS GEORGE NALESNIK EWELL POPE JOHN ROGERS BRUCE SAMS EVERETT SHIELDS WALTER TAYLOR JAMES WILLIFORD GARDNER WRIGHT JOHN ZIEGLER EMIL DOCEKAL BILL KENNEDY JAMES MCKENZIE GENE SCOTT</p>
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PUBLICATIONS BOARD

This Board was organized in July, 1945 at the request of the Student Council. The purpose of this Board is to be responsible for the student publications on the Tech campus. Officers of the Board for 1948-49 are:

Chairman: DEAN JOHN J. PERSHING

Secretary: PROF. JAMES HAMAN

TECHNIQUE

TOM CROSSLEY	<i>Editor</i>
JOHN KNOELLER	<i>Business Manager</i>
PROF. EDWARD FOSTER	<i>Faculty Adviser</i>

BLUE PRINT

JAMES WILLIFORD.....*Editor*
 CLARENCE JONES, LEONARD GOLDSTEIN.....*Co-Business Managers*
 PROF. JAMES HAMAN.....*Faculty Adviser*

YELLOW JACKET

HARRY HOLLOMAN.....*Editor*
 GORDON DAVISON.....*Business Manager*
 PROF. L. F. ZSUFFA.....*Faculty Adviser*

ENGINEER

EDGAR G. BAUGH.....*Editor*
 WALTER PATTON.....*Business Manager*
 PROF. J. P. VIDOSIC.....*Faculty Adviser*
 JOHN HUSKISSON.....*Student Council Representative*
 FRED WOLF.....*Pi Delta Epsilon Representative*

THE YOUNG MEN'S CHRISTIAN ASSOCIATION

Every student is a YMCA member. Every YMCA facility is for his use and is at his disposal. The YMCA CABINET, in co-operation with others, sponsors a religious, service, and recreational program.

Among the service features are: the Gameroom (billiards), the barber shop, the reading room, the lounge, the club rooms, the dark room, the athletics court (volleyball, handball, horseshoes, etc.), the picnic grill, and the ping pong tables. Information, a Notary Public, a small library, a telephone, radios, pianos, parlor games, and a phonograph are available. The YMCA publishes and distributes the "T" Book, the Student-Faculty Directory and the Desk Blotter. The building houses the TECHNIQUE, the BLUE PRINT, The YELLOW JACKET, The ENGINEER, The Director of Music, and the Director of the Wesley Foundation.

Regular Program features for groups include:

FREE MOVIES—7:30 P.M. Mondays.

CHAPEL—11:00 A.M. Tuesday and Thursdays.

MARRIAGE SEMINAR—5:00 P.M. Tuesdays.

FRESHMAN COUNCIL—6:00 P.M. Wednesdays.

CABINET—6:00 P.M. Wednesdays.

BIBLE STUDY—5:00 P.M. Thursday.

OPEN HOUSE—8:00 P.M. Fridays.

Occasional features include conferences, deputations, forums, lectures, picnics, ping pong tournaments, etc.

The YMCA cordially invites each student to participate in the activities in which he has an interest.

FRATERNITIES

Interfraternity Council—Composed of two representatives from each national fraternity at Tech, and the Dean of Students as advisor, the Interfraternity Council is the governing body for all social fraternities on the campus. The Council sets such regulations as rush-week rules, house rules, and pledge and membership regulations.

OFFICERS 1948-1949

J. R. HOLLIDAY	.....	<i>President</i>
FRED WOLF	.....	<i>Vice-President</i>
W. H. GREENE	.....	<i>Secretary</i>
R. H. WATSON	.....	<i>Treasurer</i>

The following national social fraternities have established chapters at Georgia Tech in the year indicated below:

- Alpha Epsilon Pi—*Zeta Chapter*, 1945
- Alpha Tau Omega—*Beta Iota Chapter*, 1888
- Beta Theta Pi—*Gamma Eta Chapter*, 1917
- Chi Phi—*Omega Chapter*, 1904
- Chi Psi—*Alpha Iota Delta Chapter*, 1923
- Delta Sigma Phi—*Alpha Gamma Chapter*, 1920
- Delta Tau Delta—*Gamma Psi Chapter*, 1920
- Kappa Alpha—*Alpha Sigma Chapter*, 1899
- Kappa Sigma—*Alpha Tau Chapter*, 1895
- Lambda Chi Alpha—*Beta Kappa Chapter*, 1942
- Phi Delta Theta—*Georgia Delta Chapter*, 1902
- Phi Epsilon Pi—*Xi Chapter*, 1916
- Phi Gamma Delta—*Gamma Tau Chapter*, 1926
- Phi Kappa Sigma—*Alpha Nu Chapter*, 1904
- Phi Kappa Tau—*Alpha Rho Chapter*, 1929
- Phi Sigma Kappa—*Kappa Deuteron Chapter*, 1923
- Phi Kappa Alpha—*Alpha Delta Chapter*, 1904
- Pi Kappa Phi—*Iota Chapter*, 1913
- Sigma Alpha Epsilon—*Georgia Phi Chapter*, 1890
- Sigma Chi—*Beta Psi Chapter*, 1922
- Sigma Nu—*Gamma Alpha Chapter*, 1896
- Sigma Phi Epsilon—*Georgia Alpha Chapter*, 1907
- Tau Epsilon Phi—*Phi Chapter*, 1913
- Tau Kappa Epsilon—1948
- Theta Chi—*Alpha Nu Chapter*, 1923

Colonies:

Theta Xi, 1948

PROFESSIONAL AND TECHNICAL SOCIETIES

DEPARTMENTAL SOCIETIES

American Association of Textile Colorists and Chemists
American Ceramic Society
American Chemical Society
American Institute of Chemical Engineers
American Institute of Electrical Engineers
American Society of Civil Engineers
American Society of Mechanical Engineers
Architectural Society
Arnold Society for Air Cadets
Industrial Management Society
Institute of Aeronautical Science
Institute of Radio Engineers
Junior Hotel Men of America
Society for Advancement of Management
Society of General Engineers

PROFESSIONAL HONORARY SOCIETIES

Alpha Chi Sigma (Chemical Engineering & Chemistry)
Alpha Pi Mu (Industrial Engineering)
Chi Epsilon (Civil Engineering)
Eta Kappa Nu (Electrial Engineering)
Pershing Rifles (Military)
Pi Tau Sigma (Mechanical Engineering)
Phi Psi (Textile Engineering)
Scabbard and Blade (Military)
Sigma Delta Psi (Athletic)

HONORARY SOCIETIES—*General*

Anak—Senior Group, local
Briaerean Society—Local Honor Society for Co-Operative Students
Omicron Delta Kappa—National Activities Honor Society
Phi Kappa Phi—Senior National Honor Society
Phi Eta Sigma—Freshman Honor Society
Tau Beta Pi—National Engineering Honor Society

RELIGIOUS GROUPS

Baptist Student Union
Hillel Foundation—Jewish Group
Newman Club—Catholic Group
Wesley Foundation—Methodist Group
Young Men's Christian Association

MISCELLANEOUS GROUPS AND CLUBS

Alpha Phi Omega—National Service Fraternity
American Legion Post No. 177
American Veterans Committee
Bulldog Club
Camera Club
Co-Op Club
Debating Society
Foil and Mask Club
Drama Tech
Flying Club
Georgia Tech Squadron, Air Force Association
Geechee Club
Glee Club
International Relations Club
Georgia Tech Band
Latin-American Club
Kappa Kappa Psi—Music Fraternity
Pi Delta Epsilon—Journalistic
Publications Board
Ramblin' Recks Club
Student Council
"T" Club

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 Institute of Technology. It is administered by a special Board of Trustees. For information write to the office of the Lewis H. Beck Foundation, 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 Institute 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 scholarships known as the George W. Adair and the William S. Oldknow Scholarships, in memory of these loyal Tech men. These Scholarships have now been put on the N.C.A.A. basis.

THE T. EARLE STRIBLING MEMORIAL TEXTILE FELLOWSHIP FUND

This fund was created by Habersham Mills Foundation, Inc., in the amount of \$50,000 which is in trust with the Trust Company of Georgia, Atlanta, Georgia. The entire net income from said trust will be paid to the school semi-annually and used for the purpose of defraying the expense of one or more fellowships for Graduate research in the Textile Department.

SOUTHERN AIRWAYS RESEARCH FELLOWSHIPS

This fund in the amount of \$6,000 was created by Mr. Frank W. Hulse of Southern Airways to be used for Research fellowships in Aeronautical Engineering through the Engineering Experiment Station.

EUGENE O. BATSON SCHOLARSHIP FUND

This fund of \$10,000 was credited by Mr. E. O. Batson in memory of his son and the income to be given to deserving students.

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
M. R. Berry Loan Fund	2,400.00
S. F. Boykin Fund	100.60
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. Student. . . .	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
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 Nimmoicks 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
Clyde L. King, Jr. and John King Memorial Fund.	12,635.00
Thomas E. Mitchell Loan Fund.	1,500.00
K. A. Foundation.	8,800.00
J. A. McFarland.	100.00
M. Rich.	50.00
Irving Subway Grating Co., Inc.	345.00

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.

ALEXANDER-THARPE SCHOLARSHIP FUND

This scholarship fund has been established by alumni and friends of the school for tuition and fees. This fund is in honor of Coach William A. Alexander, our present Athletic Director and former coach, and in memory of "Mack" McCall Tharpe, who coached at Georgia Tech from 1927 to 1942.

MEDALS AND PRIZES

THE HONOR SOCIETY OF PHI KAPPA PHI

Among the prizes offered for scholarship by the Georgia Institute 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. 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 that member of the senior class who, on the basis of all work taken in this institution, ranks scholastically as one of the first two students in the class.

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 senior 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.

BRIAEREAN SCHOLARSHIP CUP

The Briaerean Society of the Georgia Institute 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.

FRATERNITY SCHOLARSHIP CUP

The Interfraternity Council awards quarterly 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 School 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.

TOOMBS AND CREIGHTON AWARD

An annual award of \$100 is given to an upperclassman in the School of Architecture through the generosity of Toombs and Creighton, Architects, of Atlanta, Ga. Selection will be made by students in the School.

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.

An annual award of an engineering handbook is made to the highest ranking sophomore student in mechanical engineering (based upon at least four quarters of work).

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.

INDUSTRIAL MANAGEMENT CERTIFICATE

The Industrial Management Society senior honorary organization for I.M. students awards annually a certificate of scholarship to the senior in the School of Industrial Management who ranks first in his class on the basis of all scholastic work taken at Georgia Tech.

ARMY R.O.T.C. 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 memorial to those "Tech" men who made the supreme sacrifice during World War I, 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 member of the Senior Class who attains the highest rating in Military Science and Tactics.

The Georgia Society of Daughters of Colonial Wars presents annually a medal to the cadet officer who attains the highest rating for outstanding leadership.

The Reserve Officers' Association of Atlanta gives annually an officer's Saber to the most outstanding student in Military Science and Tactics.

The U. S. Artillery Association presents annually a medal to the member of the Junior class, Artillery Unit, who attains the highest rating for proficiency in scholarship and in Military Science and Tactics.

The Society of American Military Engineers presents annually a gold medal to the outstanding senior engineering student of the Engineer R.O.T.C. Unit. The award is based on academic achievement, attitude, military proficiency in the field, and leadership qualifications.

A gold medal is given annually by the Army Ordnance Association to the member of the Junior Class of the Ordnance Unit who attains the highest rating in Leadership and Ordnance scholarship.

The Armed Forces Communications Association presents annually a medal to the outstanding student in the Signal Corps Unit who attains the highest rating for proficiency in scholarship and in Military Science and Tactics.

The Anak Society, Georgia Tech, presents annually seven medals, one each to the Freshman in the Air, Artillery, Chemical Corps, Engineer, Infantry, Ordnance, and Signal Corps Units, who attains the highest rating for proficiency in Military Science and Tactics.

The Scabbard and Blade Military Fraternity gives annually a trophy to the captain of the company which wins the Steele trophy.

An appropriate award is presented annually to each ROTC member of the Georgia Tech Rifle Team for proficiency in rifle marksmanship.

Gold, silver, and bronze medals are awarded by the Military Department to students who achieve the highest individual rating for excellence in military drill.

AIR ROTC PRIZES AND TROPHIES

Air Force Association gives annually a medal to the member of the Junior Class of the Air Force Unit who attains the highest rating for proficiency in scholarship and in Air Science and Tactics.

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.

THE WILLIAM GILMER PERRY AWARD

The Department of English awards annually a fifty dollar bond to the student in his first year who has done the best work in freshman English. This award is made through the courtesy of the Georgia Tech Alumni Foundation in honor of Dr. William Gilmer Perry, Professor Emeritus of English.

GEORGIA TECH NATIONAL ALUMNI ASSOCIATION

In 1920, under the leadership of William H. Glenn, B.S. in 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 Georgia Tech National 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 to:

1. Maintain an up-to-date record of each alumnus of Georgia Tech.
2. Publish *The Georgia Tech Alumnus*, an engineering and industrial review, combined with alumni news.
3. Organize and expand local Georgia Tech Alumni Clubs.
4. Operate an employment bureau for Georgia Tech alumni and students—without cost to either employer or applicant for employment.
5. Organize special events for alumni, such as class reunions, home-coming days, and alumni participation in commencements.
6. 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.
7. Serve as a liaison agency between the alumni and the Georgia Tech Athletic Association in regard to tickets for athletic events and related activities.
8. Through the offices of the executive secretary of the Association in Atlanta, Ga., assist visiting alumni with information, introduction to local alumni and other such personal services.
9. 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 Institute of Technology and its alumni, in the fields of engineering, education, research, and public service.

The Alumni Secretary, in his capacity as alumni representative, acts as a clearing house for Georgia Tech men after graduation and all Georgia Tech men are urged to keep their files in his 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.

Officers and members of the executive board of the Alumni Association for 1948-'49 are: J. J. Westbrook, '29, Atlanta, Ga., *President*; Oscar G. Davis, '22, Atlanta, Ga., *Vice President*; Hugh Hill, '23, Savannah, Ga., *Vice President*; Chas. R. Yates, '35, Atlanta, Ga., *Treasurer*; R. J. Thiesen, '10, Atlanta, Ga., *Executive Secretary*; W. Roane Beard, '40, Atlanta, Ga., *Manager, Alumni Activities*; Frank W. Allcorn, III, '41; Ivan Allen, Jr., '33; Chas. M. Brown, '25; Roddey Garrison, '23; Price Gilbert, Jr., '21; Henry W. Grady, '18; Robert H. Tarpe, '34.

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 Institute 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 Institute 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 Institute 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: George W. McCarty, '08, *President*; Fuller E. Callaway, Jr., '26, *Vice-President*; Thomas Fuller, '06, *Vice-President*; William A. Parker, '19, *Treasurer*; W. Howard Ector, '40, *Executive Secretary*; Cherry L. Emerson, '08; Clem A. Evans, '22; J. E. Davenport, '08; Y. F. Freeman, '10; Julian T. Hightower, '19; Frank A. Hooper, Jr., '16; George S. Jones, '12; Alfred D. Kennedy, '03; George T. Marchmont, '07; Frank H. Neely, '04; C. Pratt Rather, '23; William T. Rich, '10; John A. Simmons, '15; Frank K. Spratlin, '06; James F. Towers, '01; Robert B. Wilby, '08; George W. Woodruff, '17.

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, et cetera.*

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 Institute of Technology.

GEORGIA TECH ANNUAL ALUMNI ROLL CALL

The rising cost of higher education makes it imperative that colleges and universities get all aid possible from outside sources. In the calendar year 1946, gifts totaling \$8,171,988 were given by alumni of American colleges and universities, through their respective alumni funds. Why would it not be possible for Georgia Tech to do the same thing, in view of rising costs and lowered income?

Thus was formed the Georgia Tech Annual Alumni Roll Call, jointly financed and administered by the Georgia Tech National Alumni Association and the Georgia Tech Alumni Foundation. This Roll Call will begin its third year of operation in September 1949.

The results of the first two years have been very gratifying to all concerned. There has been a renewed spirit of giving to Georgia Tech, a giving program geared to the individual desires of each alumnus.

The Roll Call supports the work of the National Alumni Association, with residual funds being put into trust with the Alumni Foundation, said funds being used to further the aims of a GREATER GEORGIA TECH. The work of the Georgia Tech Alumni Foundation has been a vital factor in the growth and development of our Institution in the past few years.

SCHOOL STATISTICS
GRADUATES BY DEPARTMENTS AND BY YEARS

DEGREES	1890	1920	1930	1940	1945	1946	1947	1948	Total
	1919	1929	1939	1944					
B.S. in Arc.	*1911	43	117	144	1	.....	.....	.....	305
B.S. in Arc.E.	1943	.....	.....	.....	8	2	.....	.....	10
B. Arc.	1936	.....	.....	9	24	2	15	20	72
B.S. in A.E.	1932	.....	.....	124	64	27	15	.....	230
B.A.E.	1940	.....	.....	.....	13	66	56	31	166
B.S. in B.E.**	1944	.....	.....	.....	1	22	13	.....	36
B.S. in Cer.E.	1927	.....	13	33	24	.....	1	.....	75
B.S. in Ch.E.	1903	49	91	301	255	18	.....	.....	714
B.S. in Chem.†	1909	14	1	24	26	.....	.....	5	10
B. Ch.E.***	1945	.....	.....	.....	.....	7	21	62	76
B.S. in C.E.	1902	106	341	344	144	13	.....	.....	948
B.C.E.***	1945	.....	.....	.....	.....	19	57	73	149
B.S. in Com.	1919	2	337	330	.....	.....	.....	.....	669
B.S. in E.E.	1898	355	492	597	297	26	.....	.....	1767
B.E.E.***	1945	.....	.....	.....	.....	13	66	127	92
B.S. in G.E.	1923	.....	157	13	54	4	2	11	4
B.S.	1917	4	92	284	80	6	3	13	33
B.S. in I.Ed.	1922	.....	3	3	.....	.....	.....	.....	6
B.I.E.***	1946	.....	.....	.....	.....	5	47	165	217
B.S. in I.M.	1937	.....	.....	134	364	8	25	112	162
B.S. in M.E.	1890	411	344	540	460	30	.....	.....	1785
B.M.E.***	1946	.....	.....	.....	.....	44	128	116	288
B.S. in N.S.**	1945	.....	.....	.....	.....	16	39	.....	55
B.S. in P.H.E.	1940	.....	.....	.....	26	.....	.....	1	27
B.S. in Phys.	1943	.....	.....	.....	3	.....	.....	3	11
B.S. in T.E.	1901	109	147	182	81	1	2	8	21
<i>Total Bachelors</i>		1093	2135	3062	1925	195	308	660	818
B.C.S.	1916	26	124	171	.....	.....	.....	.....	321
Master of Science	1925	.....	18	91	52	2	3	34	99
Prof. Degrees	1914	5	17	13	7	1	2	.....	45
<i>Total Degrees</i>		.....	.....	.....	.....	.....	.....	.....	10861
Certificates	.....	78	154	55	.....	.....	.....	.....	287

*Dates in this column show the year when the degree was first conferred.

†This degree was not given from 1929 to 1935.

**War emergency degree.

***Title of degree changed from "B.S." to "B. of" by faculty action 1945.

NOTES: The M.S. Degrees, Professional Degrees and Certificates shown above are distributed among the departments as follows:

- (1) M.S. in A.E., 32; in C.E., 43; in Chem., 40; in Ch.E., 30; in Com., 1; in E.E., 45; in I.E., 11; in I.Ed., 2; in I.M., 20; in M.E., 31; in Phys., 7; in T.E. 6; Not designated, 31.
- (2) *Professional Degrees*: C.E., 17; Ch.E., 1; E.E., 11; M.E., 15; T.E., 1.
- (3) *Certificates*: Arc. 43; C.S., 38; I.Ed., 1; M.T.C., 14; M.T., 1; T.E., 190.

ABBREVIATION: A.E.—Aeronautical; Cer.E.—Ceramic; Ch.E.—Chemical; C.E.—Civil; E.E.—Electrical; G.E.—General; M.E.—Mechanical; P.H.E.—Public Health; T.E.—Textile; Arc.—Architectural; Chem.—Chemistry; Com.—Commerce; B.C.S.—Commercial Science; G.S.—General Science; I.Ed.—Industrial Education; I.E.—Industrial Engineering; I.M.—Industrial Management; M.T.C.—Motor Transport; M.T.—Manual Training.

SUMMARY OF ENROLLMENT 1947-48

BY CLASSES

Graduate students	256
Fifth year	25
Seniors	1367
Juniors	1213
Sophomores	1923
Freshmen	1619
Unclassified	21

Total College Day Courses. 6424

BY MAJOR DEPARTMENTS

Aeronautical Engineering	339
Architecture	479
Ceramic Engineering	51
Chemistry	60
Chemical Engineering	537
Civil Engineering	564
Electrical Engineering	1197
General Engineering	83
Industrial Engineering	625
Industrial Management	991
Mechanical Engineering	1031
Physics	90
Public Health Engineering	9
Textile Engineering	338
Unclassified	35

Total 6424

ENGINEERING EXTENSION DIVISION

Division of Emergency	
Training (entrance)	496
Evening School Collegiate	3660
Certificate	153
Vocational	393
Institutes and Conferences	1406
The Technical Institute	116

6224

Duplicates 1518

Total, Engineering Extension

 Division 4706

Total College Day Courses. 6424

11130

Duplicates 856

Grand Total 10274

GENERAL INDEX

	PAGE		PAGE
Administrative Council	6	English	119
Administrative Personnel	11	Enrollment 1947-1948	230
Admission Requirements	51	Entrance Requirements	51
Aeronautical Engineering	61	Evening School	200
Aeronautics School,		Examinations, Entrance	52
Daniel Guggenheim	61	Expenses	55
Air Force R.O.T.C.	68	Extension Division	200
Alumni Organizations	226	Extension School	201
Architecture	70	Faculty	11
Athletics	211	Fees	54
Bequests	227	Fraternities	217
Biology	179	French	160
Board of Regents	5	Freshman Course—Engineering	60
Buildings	47	Freshman Course—Architecture	71
Cabinet	6	General Engineering	123
Calendar, School	2	General Information	47
Campus Map	Inside Back Cover	General College	
Ceramic Engineering	84	Chemistry	91
Chemical Engineering	96	English	119
Chemistry	91	Industrial Management	130
Civil Engineering	101	Mathematics	141
Committees of Faculty	8	Modern Languages	160
Co-operative Plan	195	Music	164
Courses and Degrees	50	Physical Training	168
Credits for Entrance	51	Physics	171
Dean of Students	213	Psychology	177
Department Personnel	11	Public Health	179
Dining Hall	59	Social Science	181
Doctorate	198	General Regulations	51
Dormitories	58	Geology	84
Drawing, Engineering	116	German	160
Electrical Engineering	110	Gifts	48, 227
Engineering, College of		Grading	59
Aeronautical Engineering	61	Graduates, Number	229
Architecture	70	Graduate Studies, Division of	197
Ceramic Engineering	84	Grant Field	212
Chemical Engineering	96	Health Service	207
Civil Engineering	101	Hotel Management	134
Electrical Engineering	110	Industrial Education	202
Engineering Drawing and		Industrial Engineering	126
Mechanics	116	Industrial Management	130
General Engineering	123	Information	4
Industrial Engineering	126	Languages, Modern	160
Mechanical Engineering	144	Library	209
Safety Engineering	180	Loan Funds and Scholarships	220
Textile Engineering	185	Marking and Grading	59
Engineering Drawing and		Master of Science	198
Mechanics	116	Mathematics	141
Engineering Experiment Station	206	Mechanical Engineering	144
Engineering Extension Division	200	Mechanics	116
Engineering Societies	218	Medals and Prizes	222

GENERAL INDEX—Continued

	PAGE		PAGE
Medical Attendance	207	R.O.T.C.	56, 153, 166
Military Prizes	224	Russian	160
Military Science and Tactics ..	153	Safety Engineering	180
Modern Languages	160	Scholarships	220
Naval Prizes	225	Short Schools and Conferences ..	203
Naval Science	166	Social Science	181
Night School	200	Spanish	160
Officers of Administration	11	Statistics, School	229
Physical Training	168	Student Council	214
Physical Examination	56	Technical Institute	203
Physics	171	Textile Engineering	185
Presidents and Trustees	49	Textile School, A. French	185
Prizes	222	Tuition and Fees	54
Psychology	177	Units Required for Entrance	51
Publications Board	214	University Center	210
Public Health	179	Veterans Affairs, Coordinator of ..	54
Public Relations Department ..	45	Veterans Guidance Center	46
Public Safety Institute	202	Veterans Program	54
Regents, Board of	5	Vice President	37
Regulations, General	51	Whitehead Memorial Hospital ..	207
Refund of Fees	55	Withdrawal	55
Reports	59	Y.M.C.A.	216
Research	206		

GEORGIA INSTITUTE OF TECHNOLOGY

LEGEND

- 1 ADMINISTRATION BUILDING
- 2 AERONAUTICAL ENG.
- 71 AERONAUTICAL ENG. ANNEX
- 3 ARCHITECTURAL BLDG. (Proposed)
- 4 ARCHITECTURAL PLANNING
- 5 ATHLETIC OFFICE
- 6 AUDITORIUM-GYMNASIUM
- 7 BURGE APARTMENTS
- 8 BROWN DORMITORY
- 9 CALCULATOR BLDG.
- 10 CALLAWAY APARTMENTS
- 11 CERAMIC ENG.
- 12 CIVIL ENG.
- 13 CHEMICAL ENG.
- 14 CHEMISTRY BLDG.
- 15 CHEMISTRY BLDG. ANNEX
- 16 CHEMISTRY ANNEX
- 17 CLODDMAN DORM.
- 18 CRENSHAW FIELD
- 19 DINING HALL
- 20 ELECTRICAL ENG.
- 21 ENG. DRAWING & MECHANICS
- 22 FACULTY HOUSING

- 23 FIELD HOUSE (TEMP)
- 24 PARKING AREA
- 25 GARAGE & WAREHOUSE
- 26 GLENN DORMITORY
- 28 GREEN HOUSE
- 29 HARRIS DORMITORY
- 30 HARRISON DORMITORY
- 31 HEISMAN FIELD
- 32 HOWELL DORMITORY
- 33 INFIRMARY
- 34 KNOWLES BUILDING
- 35 LIBRARY
- 36 MECHANICAL ENG.
- 37 MECHANICAL ENG. (TEMP)

- 38 MILITARY DEPT.
- 39 MODERN LANGUAGE
- 40 NAVAL ARMORY
- 41 OLD SHOP ANNEX
- 42 OLD SHOP BUILDING
- 44 PHOTOGRAPHIC LAB.
- 45 PHYSICS BUILDING
- 46 POST OFFICE
- 47 POWER PLANT
- 69 PRESIDENT'S RESIDENCE
- 48 PSYCHOLOGY DEPT.
- 49 RESEARCH ANNEX NO.1
- 50 RESEARCH ANNEX NO.2
- 51 RESEARCH ANNEX NO.3

- 52 RESEARCH BLDG.
- 53 RIFLE RANGE
- 54 ROSE BOWL FIELD
- 55 SAFETY ENG.
- 59 STOCK ROOM
- 60 SWANN BLDG.
- 61 SWIMMING POOL
- 62 TECHWOOD DORMITORY
- 43 TENNIS COURTS

- 63 TEXTILE BLDG.
- 64 TEXTILE BLDG. (HIGHTOWER)
- 65 TOWERS DORMITORY
- 56 SMITH DORMITORY
- 66 VETERANS GUIDANCE
- 67 WGST (PROPOSED)
- 68 YMCA

